



The
Health and
Well-being
of **Women**
in British
Columbia



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Ministry of Health
Victoria, BC

December 2, 2011

The Honourable Michael de Jong
Minister of Health

Sir:

I have the honour of submitting the Provincial Health Officer's Annual Report for 2008.

A handwritten signature in black ink, appearing to read "P.R.W. Kendall", written over a horizontal line.

P.R.W. Kendall
OBC, MBBS, MHSc, FRCPC
Provincial Health Officer

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Highlights

The *Provincial Health Officer's 2008 Annual Report on the Health and Well-being of Women in British Columbia* provides an update to the 1995 *Feature Report: Women's Health*. The production of this report was supported by an Advisory Council, which included staff from the British Columbia Centre of Excellence for Women's Health, the Ministry of Health and BC Women's Hospital & Health Centre, as well as by a review panel of experts in women's health from every region of the province.

The 2008 report looks at women's health and why it is distinct from men's health, using a gender and equity lens to frame the presentation and discussion of a range of health topics. This report contains nine chapters based on a modified BC Health Goals framework and includes discussions of demographics, general health status—including sexual health, mental illness and substance use—living and working conditions including violence against women, maternal and infant health, individual skills and choices, the physical environment, chronic disease and injury, and health services.

The evidence shows that improvements in women's health are clustered in life and health expectancy, teen pregnancy rates, access to preventive clinical services, income and representation in positions of influence. Decrements are clustered in core housing need, prevalence of depression and anxiety, increasing rates of sexually transmitted infections, falls, diabetes and other chronic diseases, and increasing Caesarean section rates.

Summary of Key Findings

Health Status

While overall life expectancy and life expectancy in good health has increased for women in BC, it has increased at a slower rate than in the past. The gains have been less than those of men, and BC women compare unfavourably when life expectancy rates of increase are compared with the experiences of other countries in the Organisation for Economic Co-operation and Development. BC women are also less likely to report being in good or excellent health than the Canadian average. Gaps in women's life expectancy persist between regional health authorities, as does the gradient in life expectancy between the lowest and highest income quintiles. Underlying this gap is the increased prevalence of chronic health conditions such as cancer, respiratory diseases, cardiovascular diseases and diabetes for those with lower socio-economic status.

Living and Working Conditions

The most important influences on women's health are the conditions they experience in their day-to-day lives. Research has shown that the social determinants, including income, education and social status, are the most important factors in determining health. While BC women on average earn more today than in 1995, and their earnings as a proportion of male earnings have improved, there are many ways in which women's status in society remains below that of men. It is of concern that gaps persist,

especially for lone-parent women, immigrant and Aboriginal women, the elderly and women with disabilities, who often work for low wages or are on welfare and pensions, and who live below Statistics Canada's Low-Income Cut-offs. This poverty contributes to their experience of unstable and unacceptable housing, of higher exposures to airborne contaminants, lack of proper nutrition, barriers to education and lack of social connectedness, all of which leads to a decreased sense of well-being and poorer health. Lack of resources for child care and the demands of all types of caregiving and housework, which are still predominantly done by women, can increase stress and also have a significant impact on personal health and well-being and income. While more women are entering professions that have been traditionally male-dominated, there has been only a modest increase in their inclusion in decision-making positions in government and in corporate boardrooms.

The Impacts of Violence

Violence affects women and men, but women are more vulnerable because they generally have less access to social, economic and political resources. Although data are limited and often incomplete, due in part to the stigma attached to being a victim of violence, the evidence suggests that women are still the vast majority of victims of intimate partner violence and sexual assault in all age categories. Those most vulnerable to sexual assault include female children and adolescents, women who are Aboriginal, immigrant or disabled, and sex workers. Women also account for the overwhelming majority of maltreatment cases, including neglect, abandonment and abuse. A greater percentage of women are making use of social support agencies and reporting violent incidents to police than in the past. However, more can be done to augment and coordinate social supports to women and girls experiencing physical and sexual assault and maltreatment.

Violence is a significant factor in women's lives that needs to be recognized in the design and delivery of health care. Physical and sexual abuse are predisposing factors

for alcohol and illicit drug use, including injection drug use, among women. Drug use also increases a woman's vulnerability to further victimization, creating a vicious cycle.

Mental Health and Problematic Substance Use

From early childhood on, positive mental health is the springboard for thinking, learning, emotional growth, resilience and self-esteem—ingredients that combine to support healthy choices across the lifespan. Evidence shows that compared to men, women more often suffer from depression and dementia, and prevalence rates for both conditions continue to increase as the population ages. Women with a mental illness such as bipolar disorder, depression or schizophrenia, are significantly more likely than women without these mental health conditions to suffer from, be hospitalized for, or die from, self-harm or a range of diseases, including alcohol- or drug-related disorders (e.g., HIV and hepatitis B and C), as well as other conditions related to poor access to care (e.g., cardiovascular disease and cancers). The highest morbidity and mortality is experienced by women with schizophrenia.

Trends in problematic use of alcohol and/or drugs and related harms are increasing for women in BC. While rates of problematic substance use are lower for women, they have a greater risk of developing alcohol, tobacco and other drug-related health problems with shorter histories of use. Alcohol is the most commonly used substance, with 72 per cent of women in British Columbia aged 15 years or older reportedly having a drink in 2007/2008. Particularly troublesome are data indicating the increase in heavy drinking and binge drinking by adolescent girls. The consequences of problematic drinking, even if short term, include liver disease, hypertension, brain shrinkage and impairment, and certain cancers. Drinking while pregnant may result in having a child affected by fetal alcohol spectrum disorder.

In addition, women have significantly higher rates of pharmaceutical drug use than men, including non-medical use. The over-prescription of drugs to women has been

identified as a health care issue in Canada since the 1970s, yet prescription rates for anxiolytics and antidepressants, particularly to women over age 65, continue to increase.

Reproductive Health

Unequal power dynamics in personal relationships, gendered distribution of financial resources and educational opportunities, lack of access to health services, and the threat of physical violence can impair a woman's ability to enjoy good reproductive health. In BC, rates for chlamydia and gonorrhoea are increasing for both sexes. Use of contraception varies by age, with McCreary Centre Society data showing that 23 per cent of sexually active youth reportedly used withdrawal to prevent pregnancy the last time they had sex, an increase from 16 per cent in 2003. The abortion rate in Canada has been declining, but in BC it has remained relatively stable and is the second highest among all the provinces. In addition, access to therapeutic abortion services appears to be decreasing in many areas of BC. The data show regional disparities in teen pregnancies and births, as well as an increasing trend in premature births for all women of reproductive age. Births are becoming more medicalized, with an increasing number of women giving birth by Caesarean section (C-section).

It is clear from these trends that more needs to be done to provide information to the public on healthy and safe sexual practices; to improve access to related services to reduce the incidence of sexually transmitted infections and unintended pregnancy; to ensure access to a range of pregnancy and delivery options; and to provide better information to physicians and pregnant women on the risks of C-section births as compared to vaginal births for uncomplicated deliveries.

Chronic Disease and Injury

Physiology and genetics, lifestyle, socio-economic factors, and gender all interact to impact women's vulnerability to developing chronic conditions. While personal choice does play a role in the development of

chronic disease, these choices are strongly influenced by social context. As expected with an aging population, rates for all chronic conditions are increasing for women. Of the top 11 chronic conditions, the four with the highest prevalence rates (hypertension, asthma, osteoporosis and osteoarthritis) are more common in women than in men.

The most commonly experienced chronic condition among women is hypertension, which is often associated with other conditions such as heart disease, kidney disease, diabetes and stroke. Diabetes is more prevalent among women of certain population groups, including Aboriginal Canadians, South or West Asians, African Canadians and Hispanic populations. Women with diabetes have reported experiencing higher levels of depression and lower quality of life than men with diabetes. The risk of morbidity and mortality from cardiovascular disease, the most common complication of diabetes, is significantly higher in women than in men.

Cancer continues to be the leading cause of death for women in British Columbia, ahead of heart disease and stroke. Although the incidence of breast cancer is higher, lung cancer has the highest mortality rate of all the cancers in BC women. Screening programs for breast and cervical cancer have helped to reduce the risk of death from these cancers in women by improving detection in the early stages, when the prognosis for survival is much better. The human papillomavirus immunization program for grade 6 girls has the potential to further reduce the incidence of cervical cancer.

Falls and their related injuries are a significant health problem among older women and represent the largest external cause of hospitalization for women; in fact, the rate for women is over 25 per cent higher than the rate for men. Consequences of a fall include loss of independence, permanent disability and, in some cases, premature death. Falls among older persons are no longer considered to be an inevitable consequence of aging, or simply unforeseen "accidents". Rather, they are regarded as

predictable and preventable events that have identifiable risk factors and effective solutions for prevention.

Physical Environment

Many components of the physical environment directly influence the health and well-being of women across their lifespan, including food safety, industrial contaminants and environmental hazards, drinking water, indoor and outdoor air quality, and ultraviolet radiation. Difficulties arise in understanding the relationship between environmental exposures and health outcomes because across the lifespan, multiple exposures can occur through multiple media that change over time and by location.

The built environment is a key focus because of the ability of urban design to affect the quality of the air we breathe and the amount of physical activity we engage in. The impact of the built environment can be seen in the fact that over the past 30 years, the unintentional outcome of urban planning and design has been to contribute to epidemics of obesity and diabetes and increasing rates of asthma in the general population. The age-standardized rate for asthma is higher for women than men and prevalence rates for chronic obstructive pulmonary disease are rising. A well-designed urban environment can help make walking and cycling the easiest transportation choices. Feelings of personal safety and easy physical accessibility are important for women to achieve optimal health and to encourage their pursuit of educational, work and recreational opportunities after dark.

Prolonged exposure to ultraviolet (UV) A and B radiation can cause sunburns, premature skin aging, skin cancers, cataracts and other eye and skin diseases. Because UV radiation damage accumulates over a lifetime, and childhood UV radiation exposure is known to contribute significantly to the risk of developing skin cancers, the World Health Organization recommended a ban on the use of artificial tanning beds by youth under 18 in 2003. Women and girls are more often targeted by advertising for

tanning salons, increasing their potential for skin cancer later in life. The Capital Regional District is the first jurisdiction in Canada to adopt a ban on the use of tanning beds by youth under the age of 18.

Health Services

Accessibility is one of the fundamental principles of Canada's health care system. It is of concern that close to 20 per cent of BC women in prime childbearing years do not have a regular medical doctor. In addition, in a national benchmarking study, BC had the lowest female patient satisfaction scores for overall health care services, hospital care and physician care in Canada. The rate for Pap smears is well above the national target level, but the rate for screening mammography is well below it. Hysterectomy rates have declined but show considerable regional variation.

Research also demonstrates that health care services are not equally available across British Columbia and that some women face disproportionate barriers to care. Even when care is available, it may not be easily accessible to women with disabilities, for women whose first language is not English, or for women who are not familiar with the health care system and how it works. Ensuring that care is safe, responsive to women's needs, and recognizes the context of women's lives is critical in making health services accessible and acceptable to women.

The translation of evidence into practice can be enhanced with greater use of sex- and gender-based analysis in the review of evidence, better practice guidelines and program evaluation. Specific attention to populations at risk of acute and chronic disease will help to ensure the optimal use of scarce resources and increase the effectiveness of existing services.

Solutions

Women's biology, roles and gender-specific life experiences interact and impact women's health. A wide range of factors influence women's physical and mental well-being, including their roles and how they are valued

in our society, the social and economic conditions in which they live and work, the information and support they have to make healthy lifestyle choices, and their ability to access both preventive and treatment services.

When making recommendations to improve women's health, it is important to remember that women are not a homogeneous group. The health needs of specific populations may differ due to their unique and often stigmatizing experiences of society and of the health care system. Attention must be given to the inequities among women caused by racism, colonialism, ethnocentrism and heterosexism, with the understanding that even within a specific group all are not affected equally.

Because of the diversity of the female population in BC and the complex interaction of factors that affect women's health, their concerns are best addressed through a broad-based, comprehensive approach and strategy that identifies priority actions. Evidence suggests a cross-ministry approach that addresses the broader determinants of health could be effective in improving health outcomes for women. Chapter 9 provides recommendations on priority actions that make up the essential elements of the proposed strategy.

Chapter 1

Why women's health?

In 1996, the Provincial Health Officer released a feature report on women's health status as part of his 1995 annual report. Fifteen years later, this report examines the current status of women's health in British Columbia to see what progress has been made and where further efforts are needed. This report uses a modified health goals framework and a gender and equity lens in its presentation of chapters on population health status, living and working conditions, individual skills and choices, physical environment, chronic disease and injury and health services. Based on the evidence, the final chapter makes recommendations for improving the health and well-being of women in BC.

Women's biology, roles and gender-specific life experiences interact with and impact their health. A wide range of factors influence women's physical and mental health, including their roles and how they are valued in our society, the social and economic conditions in which they live and work, the information and support they have to make healthy lifestyle choices, and their ability to access both preventive and treatment services. This report uses a variety of indicators to provide a comprehensive picture of women's health, in order to enhance awareness and understanding and provide suggestions for improvement.

The questions raised in 1996 are still relevant today and a new concern has arisen. While life expectancy overall and life expectancy in good health has increased for women in BC, it has been at a slower rate than in the past and the gains have been less than those of men. BC women compare unfavourably when life expectancy gains

are compared with the experiences of other countries in the Organisation of Economic Co-operation and Development (OECD). In regard to the social determinants of health, women in British Columbia still do not enjoy the same social status as men, receive less pay for the same work, more often live in poverty and are more likely to be victims of relationship violence. Women may be achieving greater success in education but it is not necessarily translating into better economic opportunities or more women in positions of influence. The progress towards social and political equality has been slow. The stress of juggling work, motherhood and other caregiving roles may also be impacting women's healthy enjoyment of their later years, particularly for lower income groups.

What is women's health?

The traditional approach to understanding women's health focused more narrowly on the biological differences between men and women and health issues related to pregnancy, childbirth and the reproductive system. Today a more comprehensive view takes into account the many factors that can impact a woman's health and well-being. This report uses a definition first developed by Dr. Susan Phillips, a Canadian physician whose research spearheaded gender-based changes in medical education in Canada. The focus is on flourishing health, not just an absence of disease.¹

Phillips' work was used to inform the definition created by the World Health Organization at its Beijing conference on women's health in 1995.

Women have the right to the enjoyment of the highest attainable standard of physical and mental health. The enjoyment of this right is vital to their life and well-being and their ability to participate in all areas of public and private life. Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. Women's health involves their emotional, social and physical well-being and is determined by the social, political and economic context of their lives, as well as by biology.²

Sex and Gender-based Analysis

This report will examine women's health based on the differences between the sexes from a biological perspective over the life course, as well as the gender-related concerns arising from culturally determined attitudes, perceptions or beliefs.

Sex differences are the biological characteristics based on body size and shape, and hormonal activity arising from the reproductive system of females and males. Historically, the white male has been presented as the "norm" by medical science.¹ This approach has meant that women were excluded from drug trials and other medical research on the assumption that what works for men will work for women. As recent research has shown, male and female bodies respond differently to alcohol, drugs and therapeutics due to differences in physiology, including metabolism and hormones. Research on chronic diseases has identified significant differences between women and men in the distribution and risks for developing these conditions, and in responses to their treatment.⁴

Gender differences are the socially derived, culturally based roles and responsibilities, personality traits and behaviours attributed to males and females. Gender influences our mannerisms, how we feel, how we dress or talk, our goals in life, and what society considers acceptable as male or female. Gender roles often constrain individuals to behave in an expected way within certain institutions such as the family, workforce or the school system.⁴ Differences in gender

roles are associated with social status: in almost every society higher power and prestige is given to individuals in masculine roles. In our society, women are also less likely than men to have an adequate income, which directly affects their opportunity to achieve good health.

Taking a gender-based perspective when analyzing and developing policies, programs and legislation, and when conducting research and data collection, is important to ensure women receive appropriate treatment and achieve good health.⁵ Gender affects the health status of women in many ways:

- Exposure, risk or vulnerability.
- Nature, severity or frequency of health problems.
- Ways in which symptoms are perceived.
- Health-seeking behaviour.
- Access to health services.
- Ability to follow prescribed treatments.
- Long-term social and health consequences.⁶

In this report, gender is considered a social determinant of health, but is also used as the lens through which to view each topic.

The Provincial Women's Health Strategy

The Provincial Women's Health Strategy was developed by the BC Women's Hospital & Health Centre and the British Columbia Centre of Excellence for Women's Health in consultation with many partners, both government and community based. Launched in 2004, the strategy supports women-centred, diversity-sensitive and equity-based approaches to improve the evidence base for girls' and women's health and to improve the health of all girls and women.

“The work done by women in the home isn't valued at all, and women's work outside the home is undervalued because it is done by women. Women's work therefore, is undervalued in both spheres.”

—Doris Anderson: *The Unfinished Revolution*, 1991.³

Approaches

While it is not within the scope of this report to describe all of the health issues affecting women in great detail, the report should assist in identifying areas for further research, discussion and action. A number of approaches have been used to highlight different issues in women's health, including a life stages approach, social determinants, equity and intersectionality. This report blends these approaches. The chapter headings correspond to the BC health goals, developed in the 1990s by the Provincial Health Officer in consultation with a wide range of provincial organizations, in response to the BC Royal Commission on Health Care and Costs. Within the chapters, the topics are issues of importance from a population health perspective, over the life course.

Life Stages Approach

Human biology and social factors mean that younger women will have different health and disease concerns than women in their later years. A life stages approach is used to help identify health issues of importance to girls, adolescents, young and middle-aged adult women, and older women. Transition periods—such as the onset of menstruation (menarche), pregnancy and childbirth, and menopause—bring specific needs for information, services and support. While each life stage may have its own particular health issues, many women's health issues, such as mental health and violence, span all life stages. The life stages approach has commonly been used for health planning and research purposes.

Social Determinants

The social determinants of health are environmental, social, economic, political and cultural risk conditions that influence and shape lifestyle choices, sometimes positively and sometimes negatively. They include income and social status; social support; living and working conditions; education; the physical environment; biological influences; individual behaviours and choices; gender; and health services.⁷

Research has shown that social and economic disadvantages can interact to create a negative feedback loop that leads to poorer health outcomes.⁸ Health status improves at each step up the income and social ladder: a higher income provides access to safe housing, education, sufficient nutritious food and a stronger level of personal control. Studies suggest that the distribution of income in a given society may be a more important determinant of health than the amount of income earned by society members.⁹ Early childhood is a key life stage in which a variety of social factors interact to affect future health outcomes, and, for families, every step up the socio-economic ladder results in improved outcomes for child development and adulthood.¹⁰

Equity

In its 2009 report, *The UN Commission on the Social Determinants of Health*¹¹ stated that inequity in daily living is a product of social norms, policies and practices that tolerate and sometimes promote unfair distribution of and access to power, wealth and other essential resources. However, since these inequities are socially generated they can also be changed. A lack of equity in the health care system can mean

- women's health concerns are interpreted using a narrow medical model, assuming all women are in the traditional role of mother and child bearer, and that all women are heterosexual;
- women are excluded from key health policy decisions and research, which may lead to reduced access to resources and inadequate funding for research in women's health issues;
- treating women the same as men when it is inappropriate to do so, which may lead to misdiagnoses, and the failure of treatment programs to address women's distinct health needs;
- treating women differently from men, when it is not appropriate, which, in some cases, could lead to premature death.¹²

Intersectionality

When discussing women's health issues it is important to remember that women are not a homogeneous group. The intersectionality approach focuses on the interaction of various social factors in combination with the imbalance in power relationships that affect women's lives, and how the resulting discrimination and subordination impact health outcomes.¹³ Attention is given to the inequities among women caused by racism, colonialism, ethnocentrism and heterosexism, with the understanding that even within a specific group all are not affected equally. Taking an intersectionality approach means including previously ignored or excluded populations because their health needs may differ due to their unique and often stigmatizing experiences of society and of the health care system. When examining current research and policy agendas, it is important to consider which women benefit and which are excluded. Research processes are often controlled by individuals who represent the dominant social norms and who are not consciously aware that by their choices they define what is "normal".⁴

Each of these approaches informs the presentation of data in this report. By

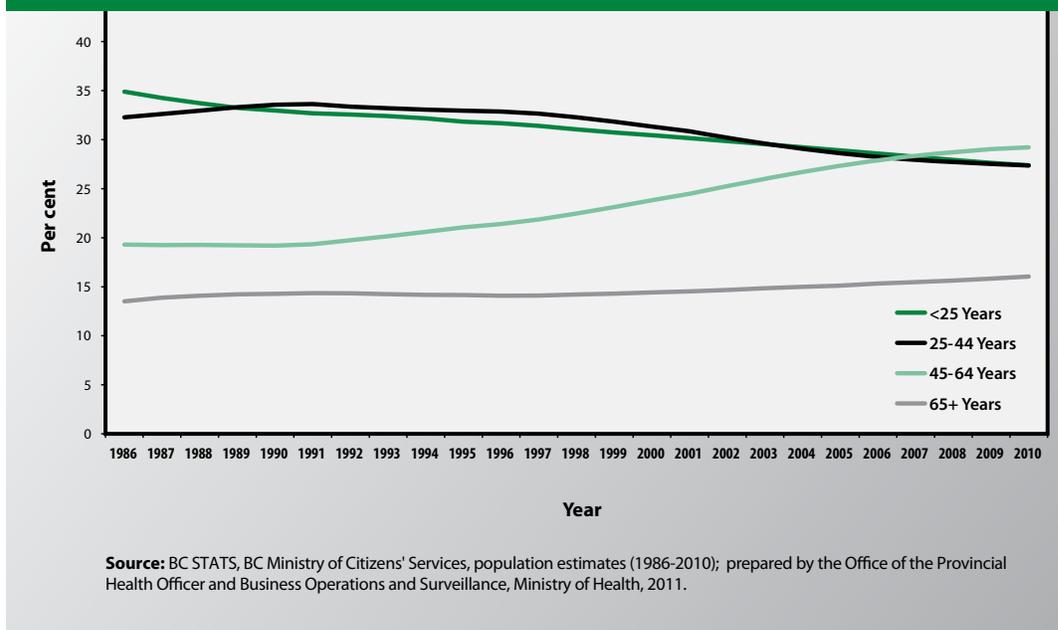
considering these different approaches to women's health, we avoid the tendency to reduce women's health to reproductive issues, to see all women as sharing the same life path, and to generalize about the health of all women based on the experiences of some women only.

Characteristics of the Female Population in BC

According to the 2006 Census, approximately 2,099,495 women live in British Columbia, or 51 per cent of the total population. On a typical day in 2006, 55 females were born and 41 females died, 114 women were giving birth and close to 1 million were at work.¹⁴ In 2006, there were 64,712 women attending BC universities—close to 60 per cent of the student population. About 48 per cent of public administrators, 31 per cent of doctors, 35 per cent of lawyers, approximately 20 per cent of mayors, and 28 per cent of MLAs were women. Women's presence in these professions is gradually increasing as the percentage of women completing post-secondary education increases.

Figure 1.1

Select Age Groups as a Proportion of the Total Population, Females, BC, 1986 to 2010



About 60% of university students in BC are women.



Age Distribution

There has been a generational shift over the past two decades (Figure 1.1), with women 45–64 becoming the largest proportion of the population for the first time in 2006. This group of women, currently in their prime career age, is often raising the next generation as well as tending to the needs of an aging parent and potentially being caregiver to a spouse suffering from chronic disease. The toll taken by these multiple demands has the potential to impact the health of women past 65 years of age. The proportion of females over 65 has remained relatively steady over time, but this will shift as the post-war baby boomers reach retirement.

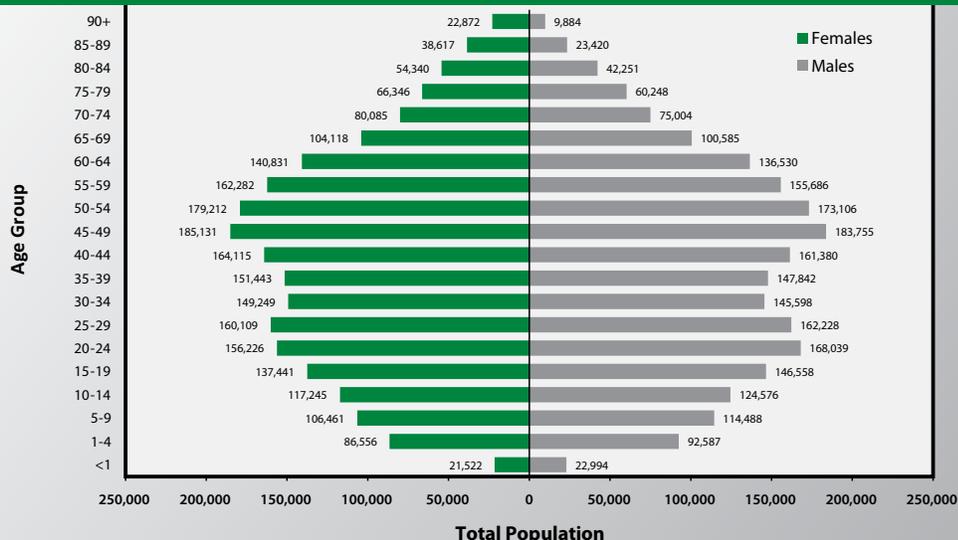
In the first year of life, males make up the higher proportion of the population; at birth, the standard male-female ratio is 105:100 (51 per cent male/49 per cent female). Research has shown that girls have stronger immune systems than boys and more boys die of infections in their early years.^{15,16,17} The female population reaches parity with males in the mid-twenties. In the 80–85 age range, women outnumber men by over 2 to 1 (Figure 1.2).

Aboriginal Female Population

The female population of BC is diverse. Nearly 5 per cent of the female population in BC is Aboriginal. The majority of Aboriginal women live in the Northern

Figure 1.2

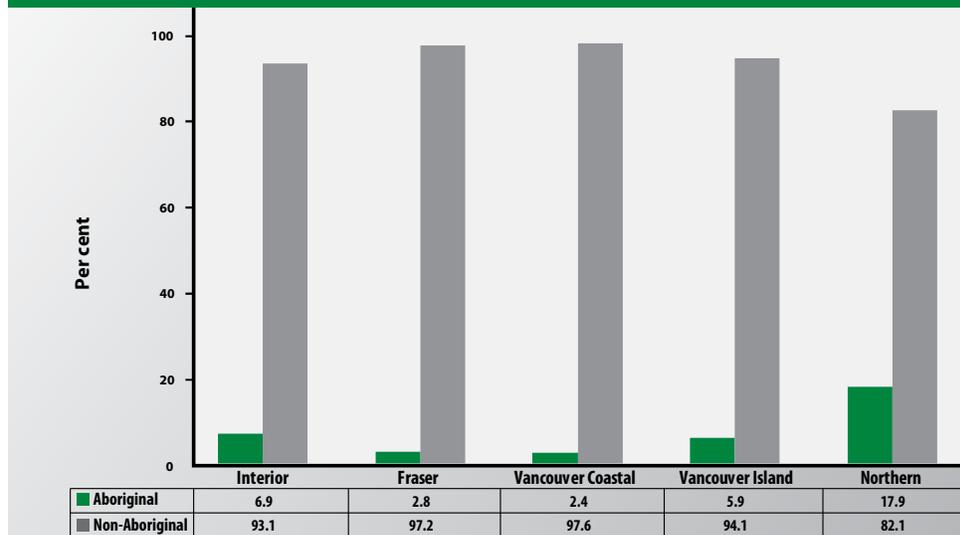
Male and Female Population, by Five-Year Age Group, BC, 2010



Source: BC STATS, BC Ministry of Citizens' Services, population estimates (1986-2010); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Figure 1.3

Female Population, by Aboriginal Status and Health Authority, BC, 2006



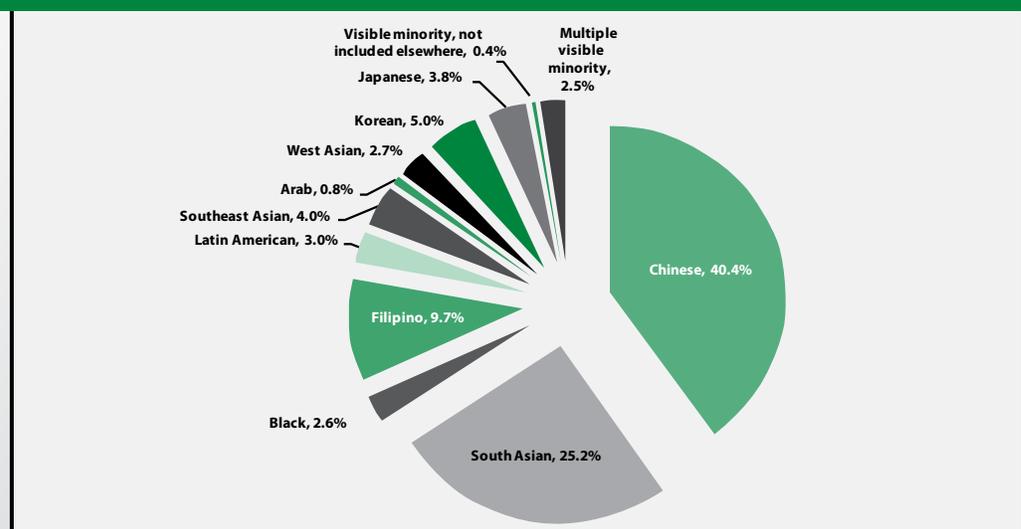
Source: Statistics Canada, 2006 Census Data; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Health Authority (18 per cent of the region's population) and the Interior Health Authority (7 per cent of the region's population). They more often live in rural, remote locations where access to maternity care and other services is more difficult. Vancouver Coastal and Fraser Health

Authorities—mostly urban areas with easier service access—have the lowest percentage of Aboriginal females (Figure 1.3). More detailed information on the health of the female Aboriginal population will be provided in an upcoming joint report on Aboriginal women's health and well-being.

Figure 1.4

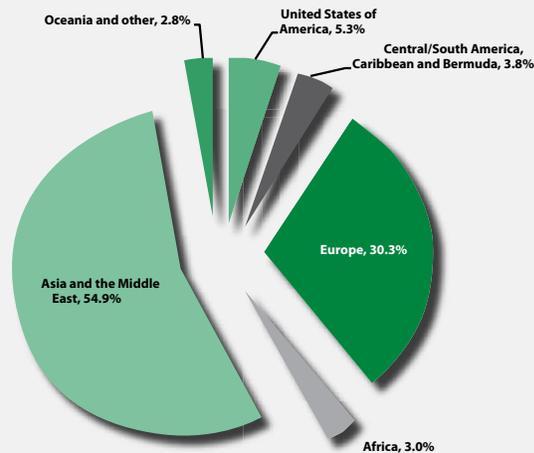
Female Population, by Visible Minority, BC, 2006



Source: Statistics Canada, 2006 Census - 20% Sample Data; data visible provided by BC Stats; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

Figure
1.5

Female Immigrant Population, by Place of Birth, BC, 2006



Note: Oceania is a region that includes the islands of the tropical Pacific Ocean.

Source: Statistics Canada, 2006 Census - 20% Sample Data; data provided by BC Stats; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

Visible Minorities

Visible minorities^a make up one-quarter of the total female population in BC, the highest among all provinces and territories. As shown in Figure 1.4, the two largest groups by far were Chinese at approximately 40 per cent and South Asian at 25 per cent. Filipinos constituted almost 10 per cent and Koreans 5 per cent of the female visible minority population. The majority of the visible minority population was heavily concentrated in the Metro Vancouver area.¹⁸

Female Immigrant Population

Based on the 2006 Census, the majority of female immigrants to BC came from Asia and the Middle East (54.9 per cent) (Figure 1.5). Over 30 per cent of immigrants originate from Europe, and between 3 and 5 per cent come from the United States, Africa, or Central and South America. The foreign-born population in BC has continued to increase, representing more than a quarter of the overall population.

Seven of the top ten countries of origin for female immigrants are in Asia. Among the

Asian countries, China has provided the largest number of female immigrants to BC during the last decade. In 2007, 22 per cent of all female immigrants to BC were from China. India was second at 13.2 per cent and approximately 11 per cent came from the Philippines. Females who emigrated from the United States were 5.3 per cent of the female immigrant population in BC.

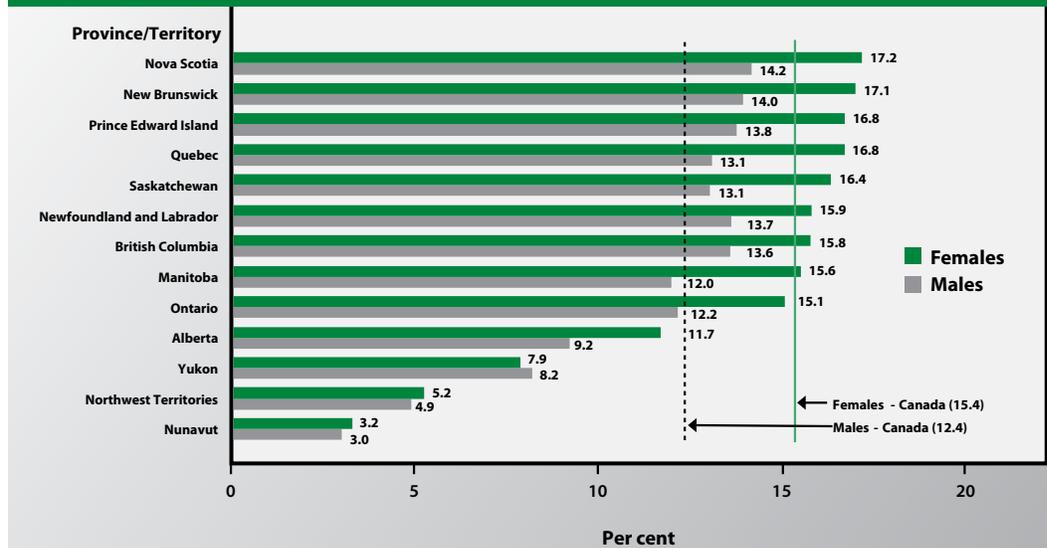
The median age for female immigrants to BC has increased from 26 years in 1980 to nearly 30 years in 2007. However, even with this increase, the female immigrant population is still younger compared to the overall female population, which had a median age of 41 in 2007. Analysis by BC Stats suggests one of the reasons for the increase in median age in this population is the increase in the education level, with additional time being taken to complete post-secondary education.

China has provided the largest number of female immigrants to BC during the last decade. In 2007, 22 per cent of all female immigrants to BC were from China.

^a The Federal *Employment Equity Act* refers to visible minorities as persons (other than Aboriginal persons) who identify themselves as non-Caucasian in race or non-white in colour (Statistics Canada, 2006 Census).

Figure 1.6

Population Age 65+, as a Proportion of the Total Population, by Sex and Province/Territory, Canada, 2009



Source: Statistics Canada, CANSIM, table 051-0001; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.



Compared to 1998, 152 per cent more female immigrants had a Master's degree in 2007, and over 220 per cent more had a doctoral degree.¹⁹

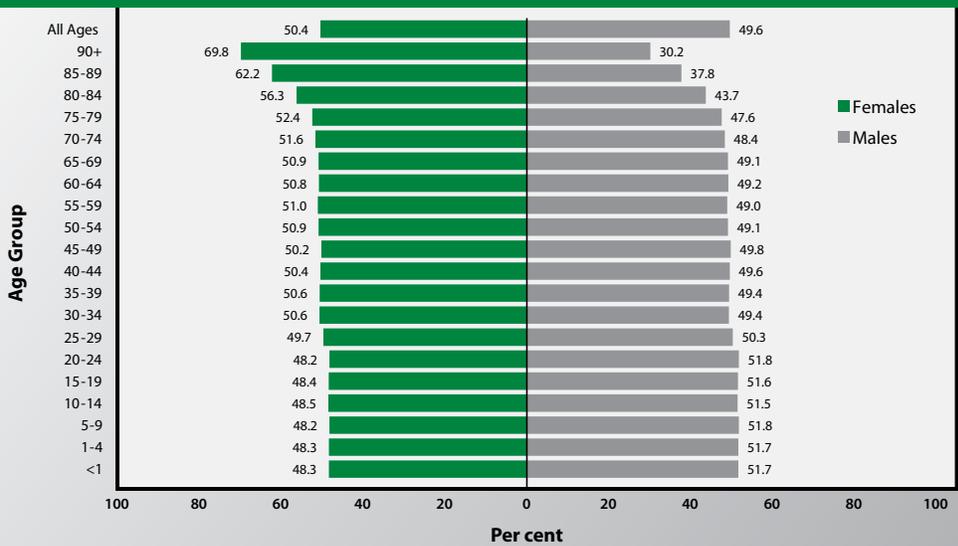
Senior Women

Around 16 per cent of the female population in BC is 65 years of age and older, slightly higher than the Canadian average of 15.4 per cent. Of the ten provinces, Nova Scotia ranks highest at 17.2 per cent, while Alberta is the lowest at 11.7 per cent (Figure 1.6). It is projected that by 2031, more than 1.3 million British Columbians will be over 65, roughly a quarter of the population. This is a dramatic shift that will affect every aspect of our society.²⁰

By 2031, one in four British Columbians will be over 65.

Figure 1.7

Male and Female Populations as Proportions of the Total Population within each Age Group, BC, 2010



Source: BC STATS, BC Ministry of Citizens' Services, population estimates (1986-2010); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

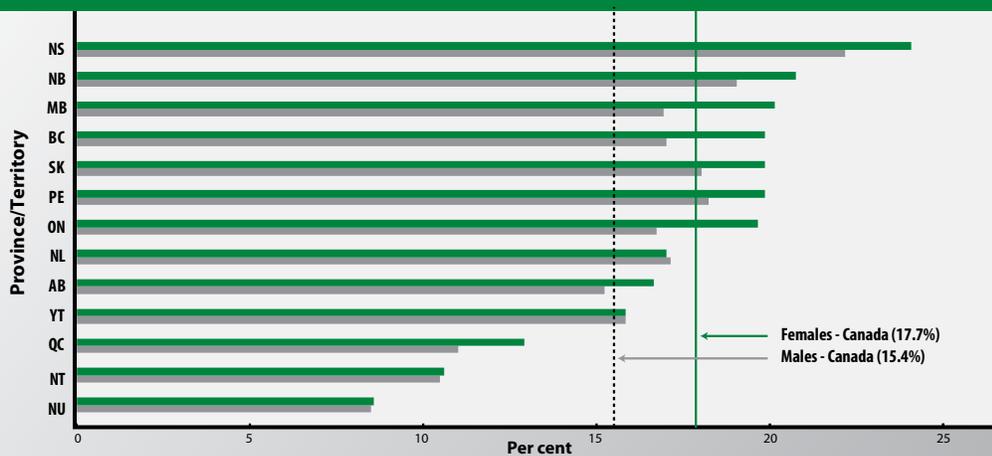
British Columbians have one of the longest life expectancies in the world. Figure 1.7 presents a striking picture of the proportion of males and females as the BC population ages. A dramatic shift in favour of the female population takes place from age 70 onward, with females making up about 70 per cent of the population in the 90+ age group.

Women with Disabilities

Based on the 2006 Participation and Activity Limitation Survey, there were 338,480 females over the age of 15 living with disabilities in BC. This is approximately 20 per cent of the BC population, and 2 per cent higher than the national average of nearly 18 per cent (Figure 1.8).

Figure 1.8

Persons with Disabilities, Age 15+, by Sex and Province/Territory, Canada, 2006

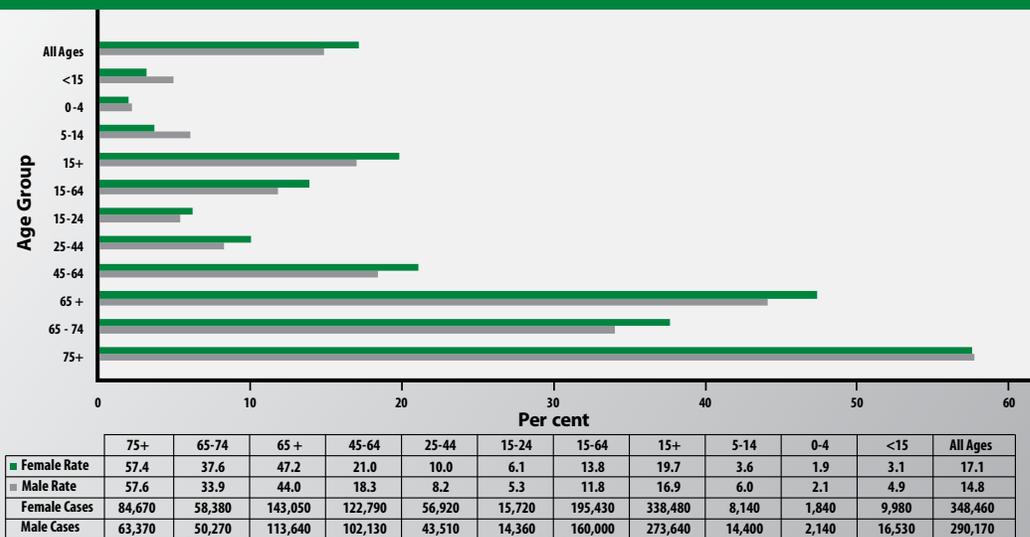


	NU	NT	QC	YT	AB	NL	ON	PE	SK	BC	MB	NB	NS
Female Rate	8.5	10.5	12.8	15.7	16.5	16.9	19.5	19.7	19.7	19.7	20.0	20.6	23.9
Male Rate	8.4	10.4	10.9	15.7	15.1	17.0	16.6	18.1	17.9	16.9	16.8	18.9	22.0
Female Cases	800	1,580	406,080	1,890	215,540	36,920	985,710	11,270	74,610	338,480	90,030	63,450	93,680
Male Cases	830	1,640	325,080	1,900	195,070	34,580	785,050	9,500	64,060	273,640	70,840	54,410	78,890

Source: Statistics Canada, Participation and Activity Limitation Survey, 2006; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

Figure
1.9

Adults and Children with Disabilities, by Age Group and Sex, BC, 2006



Source: Statistics Canada, Participation and Activity Limitation Survey, 2006; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

Figure 1.9 shows that the majority of disabilities in the female population occur after age 65. By age 75 years and over, 57 per cent of women were living with disabilities, demonstrating that although women may be living longer, their quality of life may not be good.

Sources of Data

Data and research are essential not only for measuring the health status of the female population in BC, but also to aid in the design and delivery of successful programs and policies that will help improve the health and well-being of this population. Data for this report are provided from a variety of sources. The birth and death data are provided using the British Columbia Vital Statistics Agency's statistical database, which is the major source of this data in British Columbia. Medical Services Plan and Discharge Abstract Database (DAD) data are also used to provide information on Medical Services Plan utilization and major causes of hospitalization. A special request was also made to the Pharmanet Committee to provide data on prescription drug use.

Data for the social determinants of health (education, income, employment and other similar indicators) were obtained from BC Stats, the Ministry of Education, and Statistics Canada (2006 Census) and the Canadian Community Health Survey. Where possible, additional survey data, such as the McCreary Centre Society's Adolescent Health Survey, were used to enhance our understanding of the health status of women in BC and the steps necessary to improve the health of this population.

Chapter 2

The Health Status of Women in BC

How healthy are women in British Columbia? This chapter looks at some of the indicators available to measure the overall health status of women, to show where things are going well and where there is room for improvement. These indicators cover different aspects of health, including the level of general self-perceived physical and mental well-being; life expectancy; existence of disease and other health problems; deaths by various causes; reproductive health and related issues; and mental and emotional well-being. Overall, progress is good on many indicators but there are certain areas for concern, including the increase in rates of sexually transmitted infections and in rates of depression and dementia.

For many years, women's health was defined solely by their biological differences from men and their role in bearing children.

Today, a more holistic definition of women's health encompasses not just these physical/biological differences, but also the impact of gender roles, socio-economic status and education. Unequal power dynamics in relationships (both institutional and personal), gendered distribution of financial resources, barriers to accessing health services and educational opportunities, and the threat of physical violence interact to impact women's overall health status.

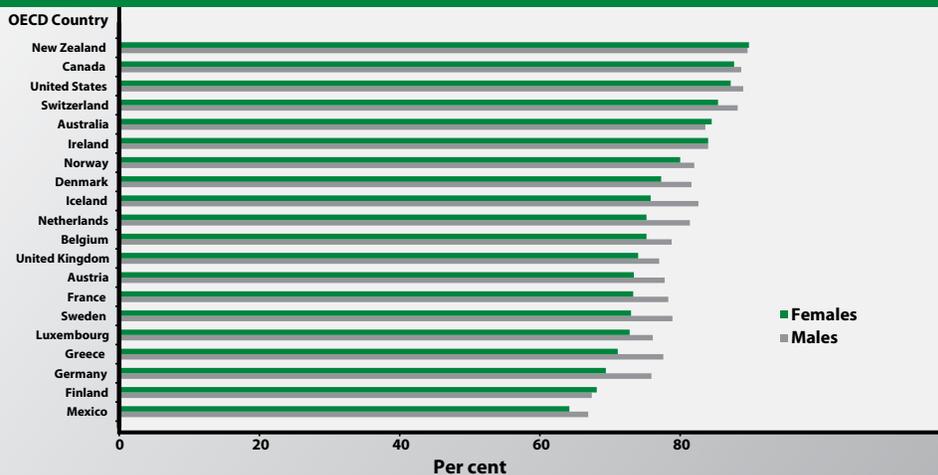
Current Status

Self-rated Health

On the whole, women in Canada report a higher self-rated health status than women in other high-income countries. In a 2007

Figure 2.1

Self-rated Health Status (Good or Better), Top 20 OECD Countries, by Sex, 2007

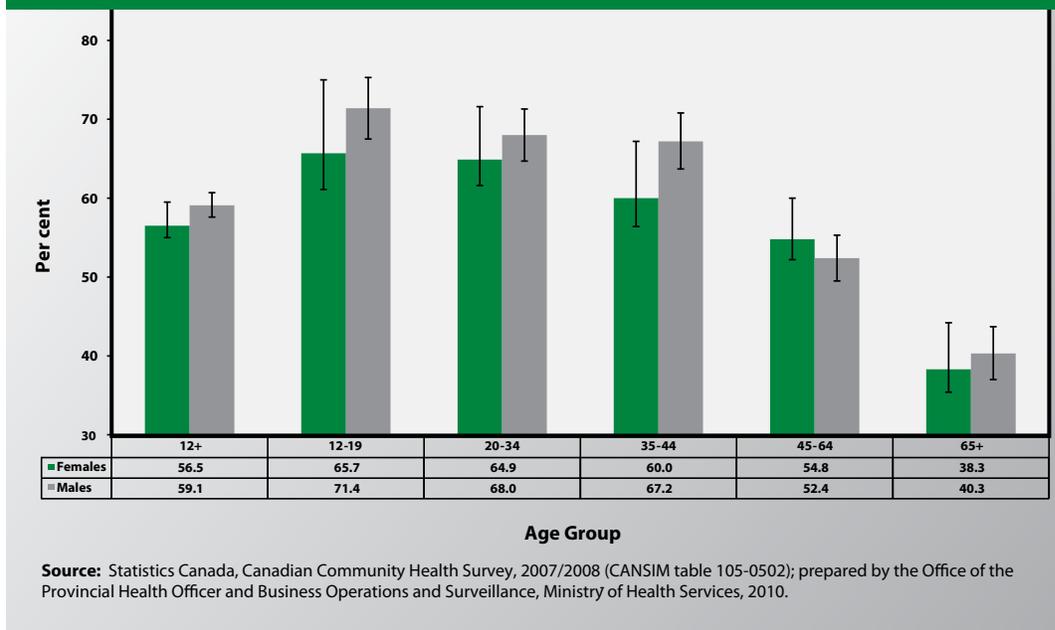


Note: 2007 data were not available for some countries, in which case the last available year was applied. For Germany, 2003 data were used; for Australia and Belgium, 2004 data were used; for Denmark, 2005 data were used; for Austria, France, Greece and Mexico, 2006 data were used. Survey data used were generally for those 15+ years old for most countries, but there is variation as data from some countries were not available down to 15 years of age.

Source: Organisation for Economic Co-operation and Development (OECD) Health Data, June 2009; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Figure 2.2

Very Good to Excellent Self-rated General Health, by Sex and Age, BC, 2007/2008



comparison to other developed countries in the Organisation of Economic Co-operation and Development (OECD), Canada ranked second, behind New Zealand and ahead of Switzerland and the United States (Figure 2.1). According to OECD data, 87.7 per cent of females rated their health as good or better, which was slightly less than the figure for men (88.7 per cent).

Figure 2.2 shows that within British Columbia, fewer females than males appear

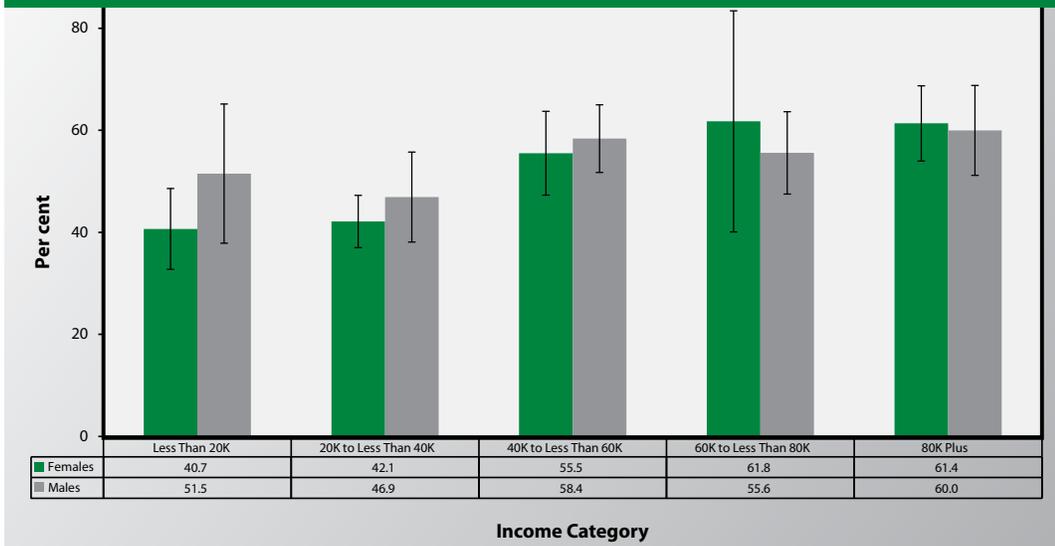
to enjoy a very good to excellent state of self-rated physical health over most age groups, although the gender differences are not statistically significant. A significant difference does exist between the younger and older age groups, as one would expect. Both genders appear to experience their peak physical health between the ages of 12 and 34 years of age, with the health of women declining steadily from their late 30s right through to their senior years.

Figure 2.3 shows that in general, the higher one's income the more likelihood that one will report very good or excellent health, although differences between the income categories were not statistically significant. With the exception of the higher income categories, women living on low incomes are less likely than men to report very good to excellent health, although in no cases are differences statistically significant. A provincial comparison of self-reported very good to excellent general health shows that only 56.5 per cent of females in BC report experiencing very good to excellent general health, which is slightly below the Canadian average of 58.8 per cent. BC ranks seventh out of the ten provinces, excluding all of the territories.



Figure 2.3

Very Good to Excellent Self-rated General Health, by Sex and Income Category, BC, 2009



Source: Statistics Canada, Canadian Community Health Survey Share File, 2009 Annual; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

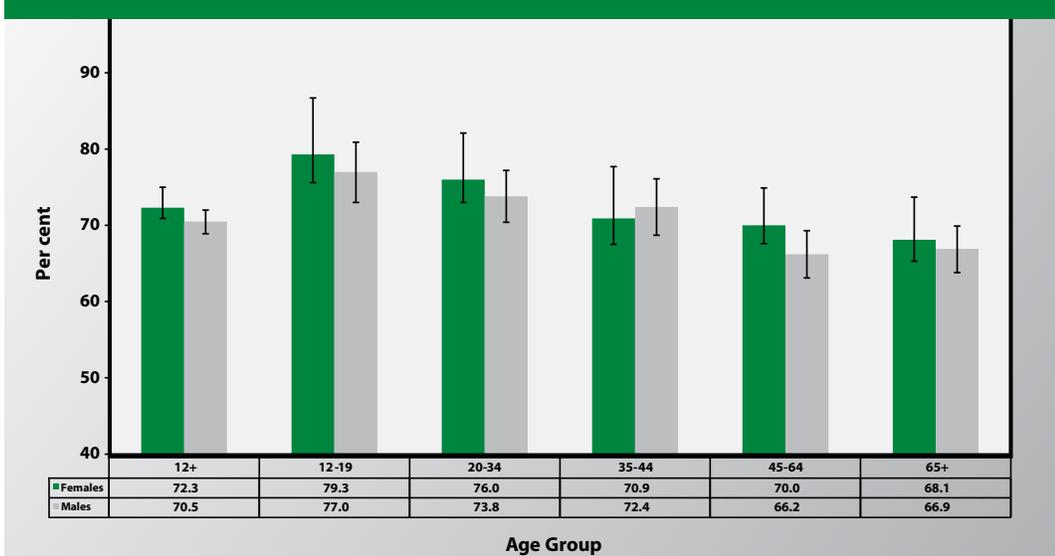
Self-rated Mental Health

Figure 2.4 reveals that the majority of males and females report very good to excellent mental health in most age groups, and differences were not statistically significant. For the population aged 12 years and older, the rates were 72.3 per cent for females and

70.5 per cent for males. Women generally report a slightly better state of mental health in most age groups, with the exception of the 35–44 age group, although the differences are not statistically significant. For both females and males, positive mental health tends to decline slowly but steadily from early adulthood on.

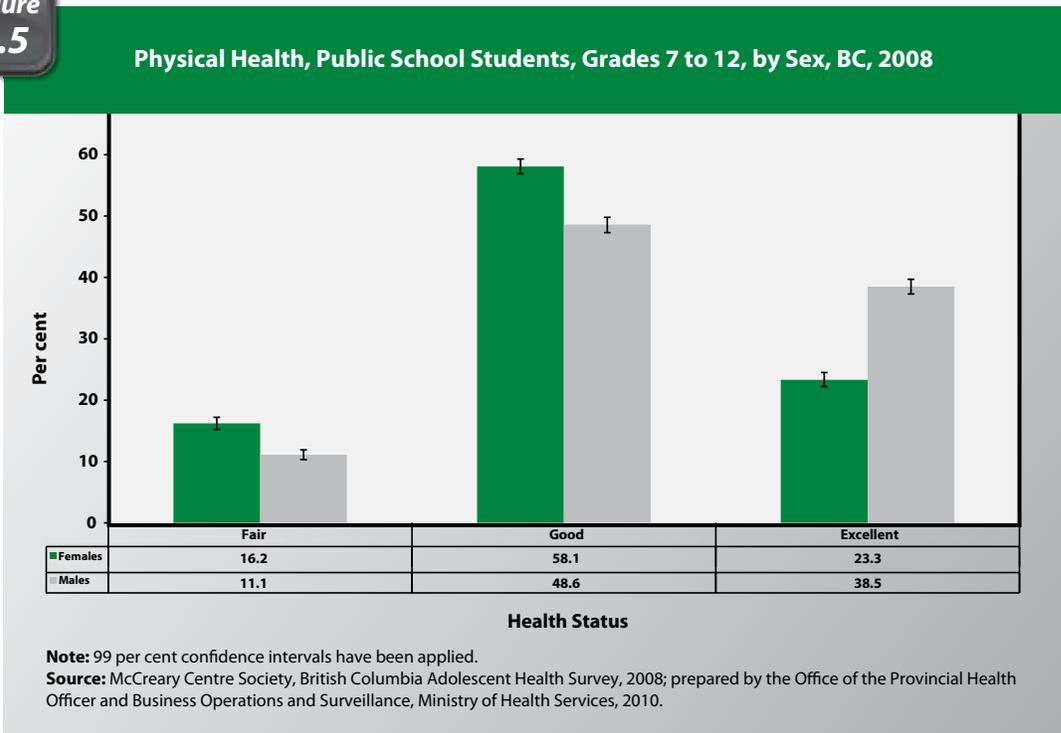
Figure 2.4

Very Good to Excellent Self-rated Mental Health, by Sex and Age, BC, 2007/2008



Source: Statistics Canada, Canadian Community Health Survey, 2007/2008 (CANSIM table 105-0502); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Figure 2.5



Youth Self-rated Health

The McCreary Centre Society’s Adolescent Health Survey (AHS) looks at the self-rated health of school-aged children in grades 7 through 12. In Figure 2.5, we observe that most students (81.4 per cent

of females and 87.1 per cent of males) enjoy good to excellent physical health. The gender gap is largest for those students reporting excellent health, with 15.2 per cent fewer female students than males reporting this level of health.

Figure 2.6

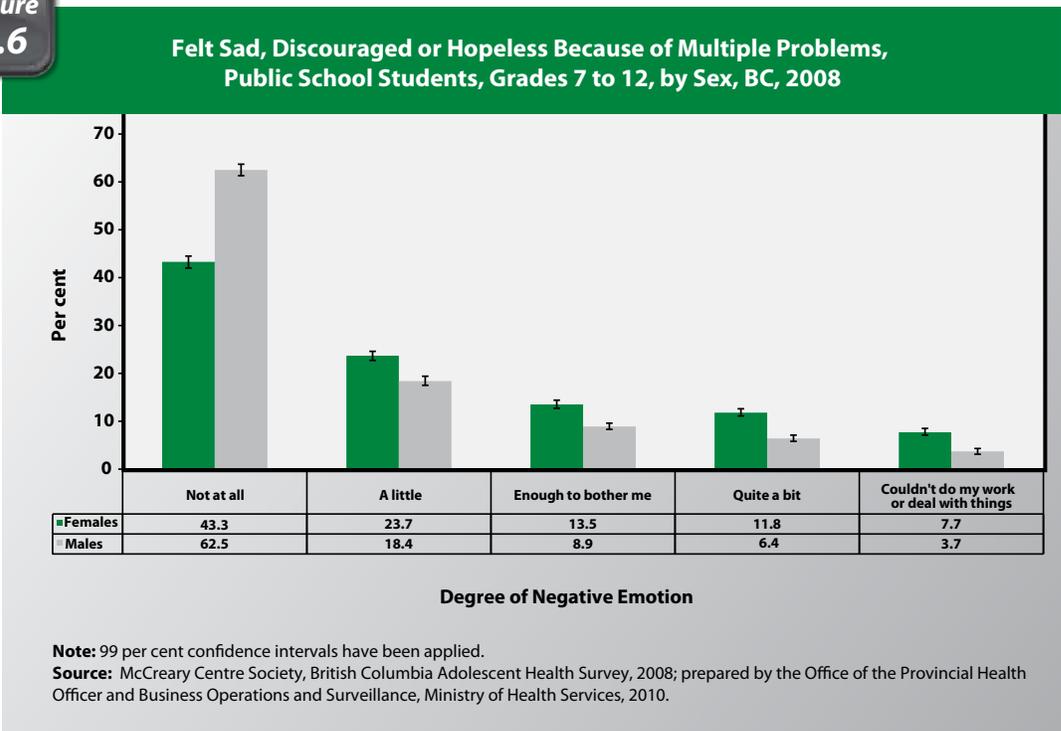
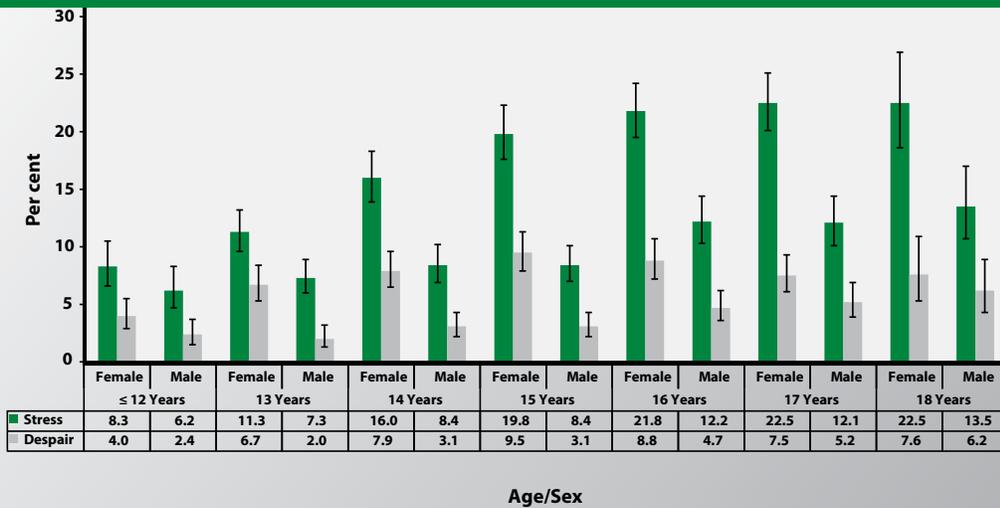


Figure 2.7

Experienced Extreme Stress/Extreme Despair, Public School Students, Grades 7 to 12, by Sex and Age, BC, 2008



Note: 99 per cent confidence intervals have been applied.

Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Figure 2.6 examines self-rated mental health among youth. According to the AHS results, females in grades 7 to 12 in BC public schools are more prone to feeling sad, discouraged or hopeless due to multiple problems. Twice as many females as males (7.7 per cent versus 3.7 per cent) could not do their work or deal with things (tasks) because of strong feelings of hopelessness.

The survey responses on more extreme feelings are also a concern, as the results suggest that a fairly high percentage of the female adolescent population age 12 or younger in BC (8.3 per cent) are experiencing extreme stress and/or despair in most age groups, compared to 4.0 per cent of males (Figure 2.7). These feelings of stress and despair rise steadily with age, reflecting the social pressures and emotional challenges female adolescents face as they move through puberty. The challenges of adolescence will be discussed in more detail in Chapter 5.



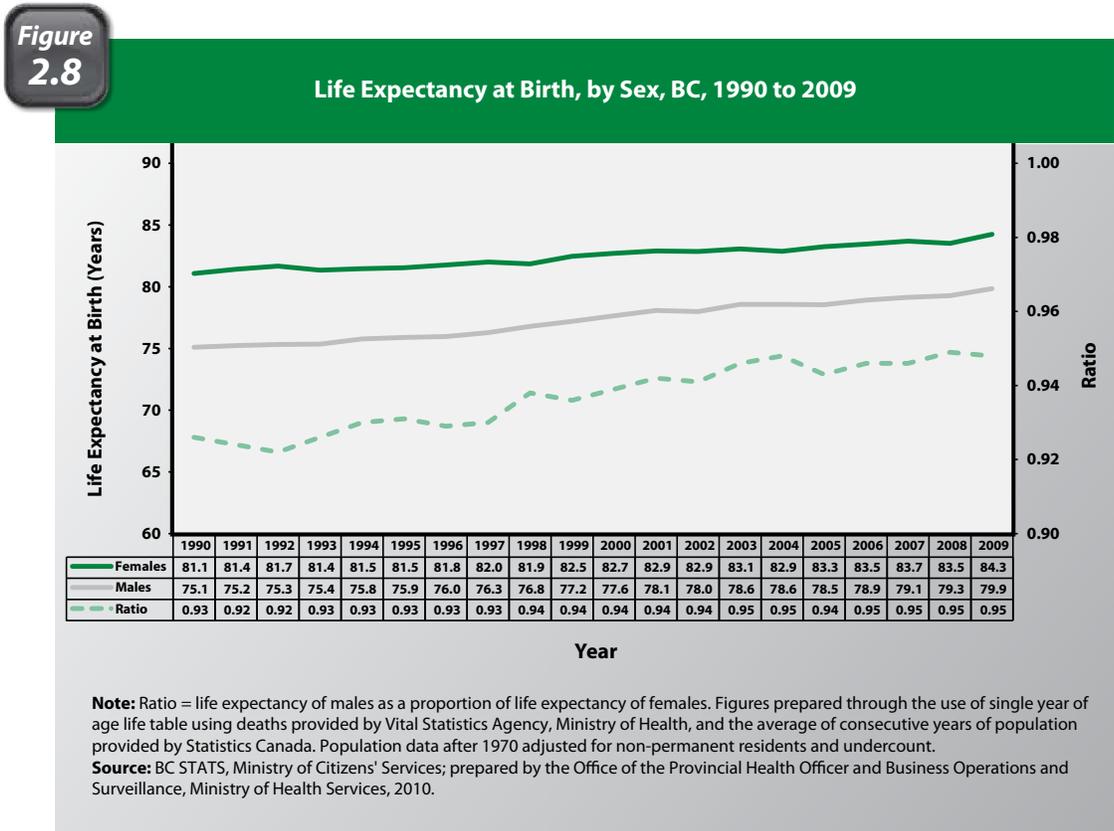
Feelings of stress and despair rise steadily with age, reflecting the social pressures and emotional challenges female adolescents face as they move through puberty.

Life Expectancy

Life expectancy at birth represents the average number of years of life an individual can expect at birth.^{a,1} Overall, the average life expectancy for both females and males in BC has continued to increase since 1990 (Figure 2.8). Women have gained an additional 3.2 years of life expectancy from 1990 to 2009, compared to 4.8 additional years of life expectancy for men. The life expectancy gap between men and women has decreased over this time period. This may be attributed to a decline in smoking and improved medical treatment for various conditions that BC men are experiencing. Women are not experiencing the same improvement, due to smoking rates and stress levels, both of which may be associated with women's dual labour in the paid workforce and at home, and rising rates of overweight/obesity that are associated with an increase in the incidence of diabetes.²

In a study prepared through a collaboration

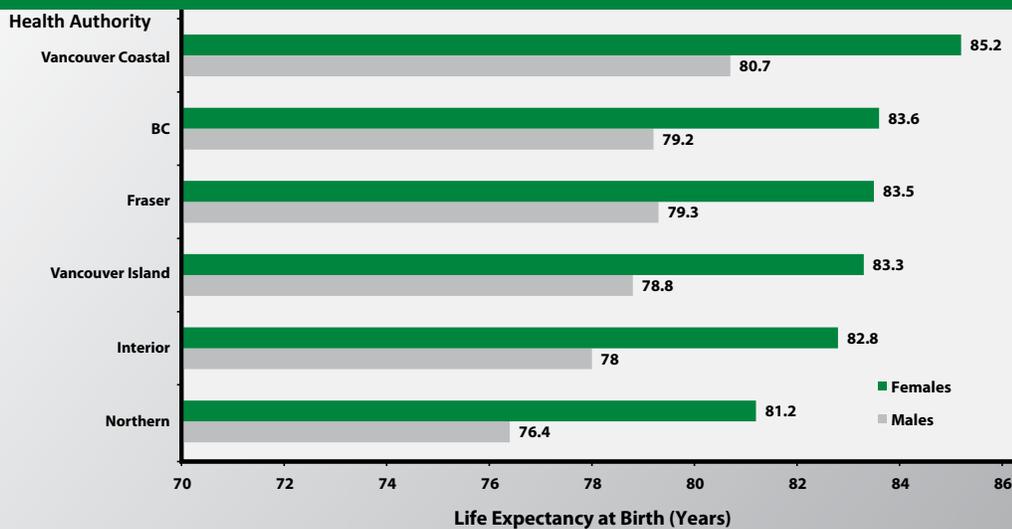
between the Provincial Health Services Authority, BC Ministry of Healthy Living and Sport, BC Centre for Excellence for Women's Health and BC Women's Hospital and Health Centre,³ the life expectancy in 13 high-income nations was compared and analyzed to determine trends that would help guide policy interventions in women's health in BC. Life expectancy is a proxy measure for socio-economic conditions and opportunities that have a significant impact on health. Global improvements in public health in the past century have led to major improvements in life expectancy. The study noted that women's life expectancy rose from 64.2 years in 1921 to 82.9 years in 2004. However, while life expectancy increased 18.7 years between 1921 and 2004, there was a gain of only 3.4 years between 1980 and 2004. BC ranks twelfth in the annual rate of life expectancy improvement, with a rate of 52 days, compared to the leading country, Japan, at 98 days. One of the reasons that BC is not improving as quickly involves an increase in chronic conditions such as cancer, respiratory and cardiovascular



^a The calculation of life expectancy at birth is based on the present mortality structure across all ages for the present population. Data are based on five-year averages.

Figure 2.9

Life Expectancy at Birth, by Sex and Health Authority, BC, 2005-2009



Source: Demographic Analysis Section, BC STATS; death data obtained from Vital Statistics Agency, Ministry of Health - period deaths by place of residence (average of five year census-year, July 1 to June 30); population data provided by BC STATS, Ministry of Citizens' Services; prepared by the Office of the Provincial Health Officer, Ministry of Health Services, 2011.

diseases, and diabetes, which are related to health behaviours such as smoking and overweight and obesity.³ The results of this study prompted evidence-based reviews of Type 2 diabetes and respiratory and heart health for women.

Regional Life Expectancy

Life expectancy for BC females, based on five-year aggregates, is 83.6 years, compared to 79.2 for males. Regional life expectancy for females ranges from a high of 85.2 years in Vancouver Coastal Health Authority to a low of 81.2 in Northern Health Authority, reflecting a variance in socio-economic status and education between these regions (Figure 2.9).

Health-adjusted Life Expectancy

Health-adjusted life expectancy (HALE) is a more comprehensive indicator than life expectancy because it measures not only the length of life, but also its quality. Health-adjusted life expectancy is the number of years in full health that an individual can expect to live given current morbidity and



mortality conditions. It uses the Health Utility Index^b to weight years lived in good health higher than years lived in poor health. The difference between conventional life expectancy and HALE estimates represents the burden of ill-health. The difference between these two measures becomes greater with age. Research indicates that sensory problems and pain comprise the largest components of the burden of ill-health, and that higher socio-economic status confers a dual advantage: longer life expectancy and a lower burden of ill-health. Also, as women live longer than men, and the prevalence of chronic conditions increases with age, women spend a greater proportion of their lives living with chronic conditions.⁴

^b The Health Utility Index describes an individual's overall functional health, based on eight attributes: vision, hearing, speech, mobility (ability to get around), dexterity (use of hands and fingers), cognition (memory and thinking), emotion (feelings), and pain and discomfort.

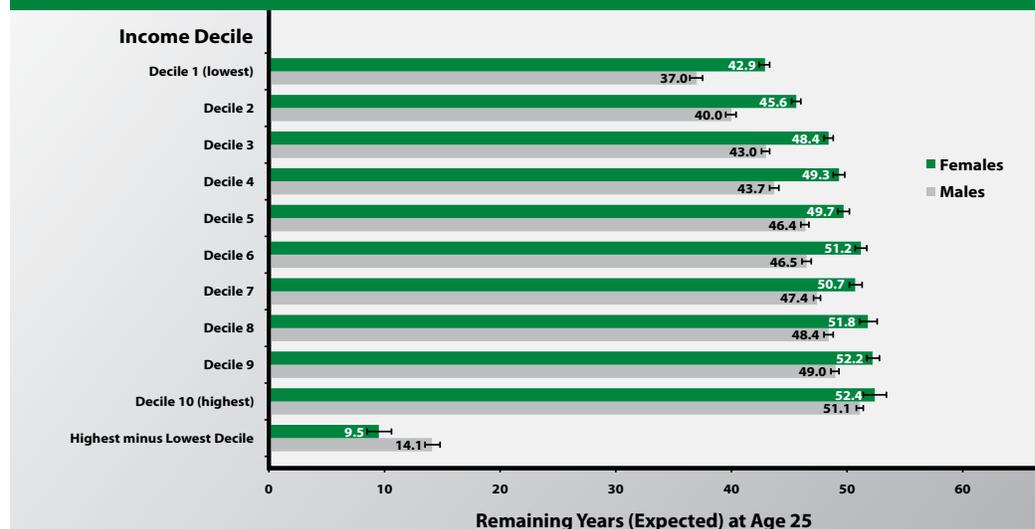


A 2009 Statistics Canada report looked at the relationship between income and quality of life. Figure 2.10 shows that the level of health-adjusted life expectancy at age 25 increased as income increased, although individual decile differences in deciles 3 through 10 were not statistically significant.⁵ Women in the highest income group have a health-adjusted life expectancy 9.5 years longer than the lowest income group (the corresponding disparity in conventional life

expectancy was only 7.4 years for women). Thus, higher levels of income are associated with improved health status and quality of life. For example, the 2009 Statistics Canada report showed that, in looking at HALE at age 25, the estimated difference between the highest income group and the overall average was 4.2 years for women. This figure is close to double the impact of all cancers on HALE, illustrating how strongly income is associated with health status.⁵

Figure 2.10

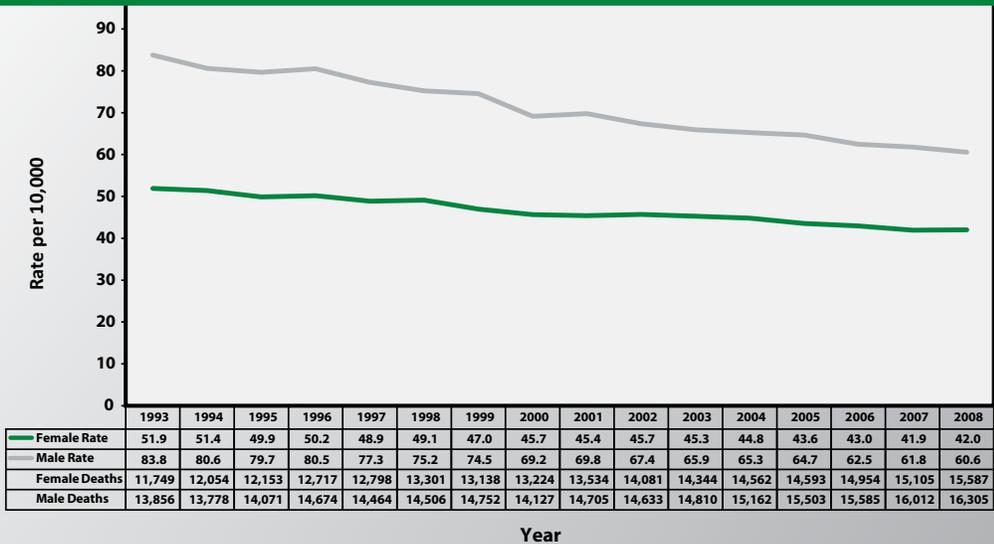
Remaining Health-adjusted Life Expectancy (Years) at Age 25, by Income Decile and Sex, Canada, 1991-2001



Source: 1991-2001 Canadian census mortality follow-up study; 2000/2001 Canadian Community Health Survey (Cycle 1.1). Data taken from the Statistics Canada report, *Income Disparities in Health-adjusted Life Expectancy for Canadian Adults, 1991 to 2001* (CN McIntosh, P Finès, R Wilkins, MC Wolfson, 2009); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Figure 2.11

All Causes, Age-Standardized Mortality Rate, by Sex, BC, 1993 to 2008



Source: BC Vital Statistics Agency; Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2010; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2010.

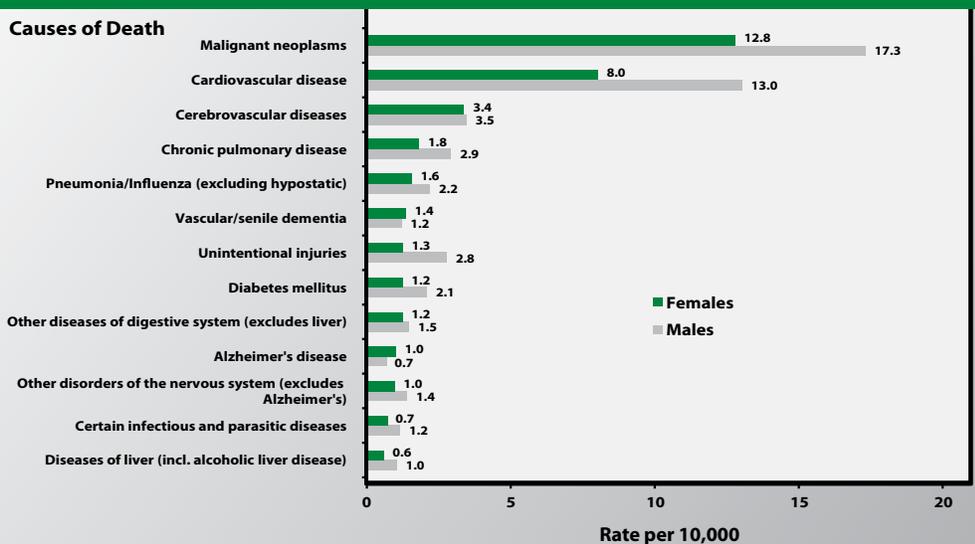
Mortality Due to All Causes

The mortality rate for females has been gradually decreasing over time: the 2008 rate is 42 per 10,000 (or 15,587 female

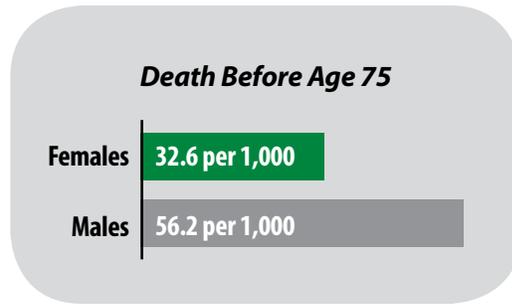
deaths), a decline from 51.9 per 10,000 in 1993 (Figure 2.11). The mortality rate for males remains higher than for females, but it has dropped more rapidly as male longevity improves and the gap between males and females begins to close.

Figure 2.12

Leading Causes of Death, Age-Standardized Mortality Rate, by Sex, BC, 2008



Source: BC Vital Statistics Agency; Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.



in each age category. As expected, perinatal conditions and congenital anomalies account for the most deaths in the first year of life, while external causes and cancer account for the most deaths beginning in the teenage years through to midlife. For those who live into their 80s, the most common causes of death are cancer, heart disease and stroke, followed by influenza and pneumonia.

Leading Causes of Death

As shown in Figure 2.12, the leading causes of death for females in 2008 were malignant neoplasms (12.8 per 10,000), cardiovascular disease (8.0 per 10,000) and cerebrovascular diseases (3.4 per 10,000). For males, rates for malignant neoplasms and cardiovascular disease were significantly higher than for females, while the rate for cerebrovascular diseases was comparable. Please see Chapter 7 for additional analysis of the impact of these chronic diseases on the female population in British Columbia.

Potential Years of Life Lost

Potential years of life lost (PYLL) provides another way to examine mortality patterns, by estimating the number of years of life lost when a person dies before a specified age (75 years). Figure 2.14 compares the PYLL standardized rates (PYLLSR) of the five health regions in British Columbia. It shows that the rate for females dying before reaching age 75 is much lower than the rate for males: 32.6 per 1,000 for females compared to 56.2 per 1,000 for males. The highest PYLLSRs for females are in the Northern (43.2) and Interior Health Authorities (37.4), while the lowest is in Vancouver Coastal Health Authority (27.1), where it can be assumed that it is easier to access a range of health services, and where levels of education and socio-economic status are higher.

Causes of Mortality by Age

Figure 2.13 looks at the distribution of causes of death for females over the lifespan and shows which causes are predominant

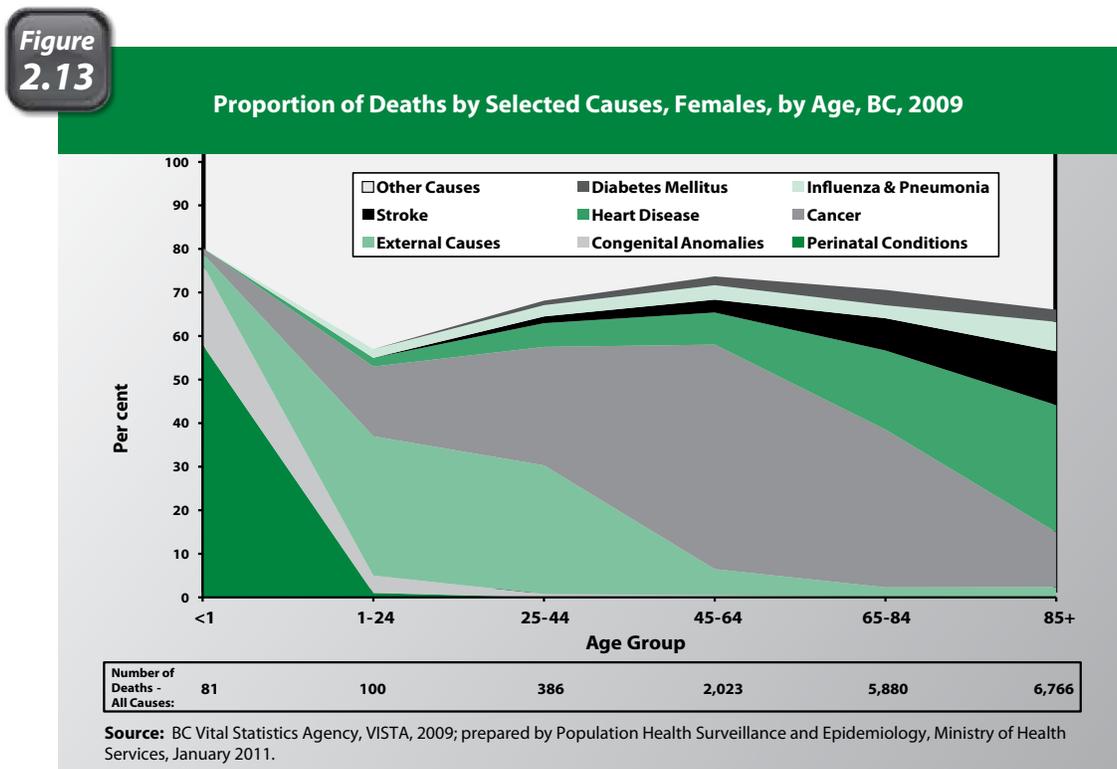
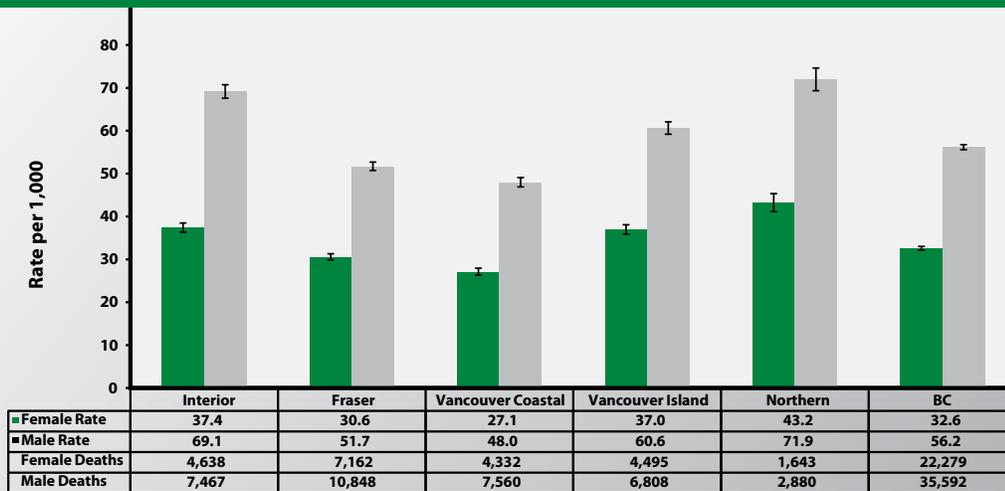


Figure
2.14All Causes, Potential Years of Life Lost Standardized Rate, by Sex
and Health Authority, BC, 2004-2008

Health Authority

Source: BC Vital Statistics Agency; Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2010; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2010.

Body Mass Index

Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify underweight, overweight and obesity in adults 18 years and older (see Table 2.1). It is defined as the weight in kilograms divided by the square of the height in metres (kg/m^2).⁶

Maintaining a healthy weight is essential for good health and longevity and reduces the risks for diabetes and cardiovascular disease and other chronic conditions. Figure 2.15 shows that a higher percentage of females than males are in the normal weight category: 58.9 per cent of females compared to 45.6 per cent of males. Males lead females in both the overweight and obese categories.

Table
2.1

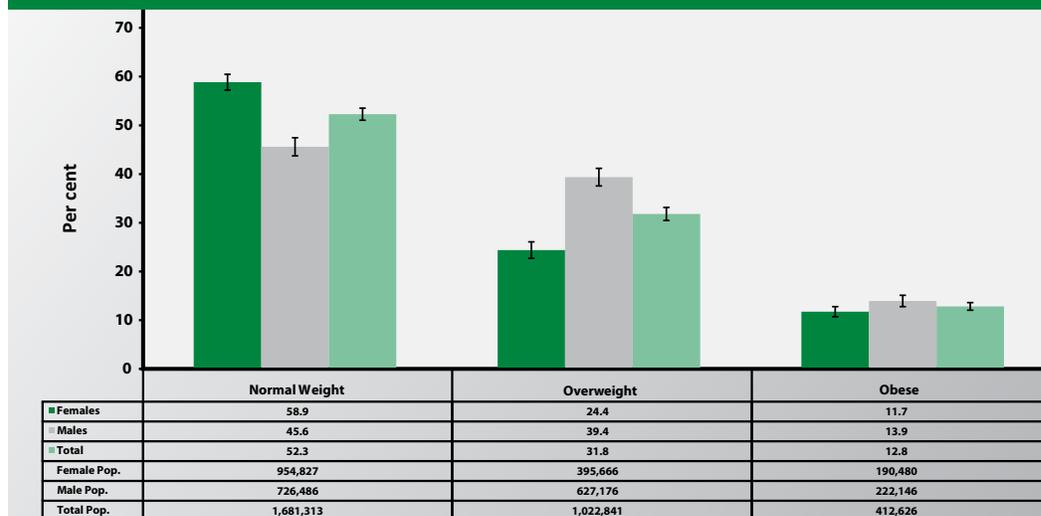
Health Risk Classification According to Body Mass Index

Classification	BMI Category (kg/m^2)	Risk of Developing Health Problems
Underweight	< 18.5	Increased
Normal Weight	18.5–24.9	Least
Overweight	25.0–29.9	Increased
Obese	≥ 30.0	High to Extremely High

Source: Health Canada, 2003.⁷

Figure 2.15

Normal Weight/Overweight/Obese, Age 18+, by Sex, BC, 2007/2008



BMI Scale

Note: The Body Mass Index (BMI) scale (kg/m²) is based on the following: Normal weight (18.5-24.9), Overweight (25.0-29.9), and Obese (>=30.0). Those individuals who were underweight were not shown but were included in the denominator. Share file data will vary slightly from master file data due to the smaller sample size for the share file. Excludes non-responses.

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Regionally, females have a significantly higher rate of healthy BMI than males across all health service delivery areas (HSDAs). The highest rates of healthy weights for females (between 59.0 and 70.5 per cent) are seen in urban and southern areas such as Vancouver, Richmond, North Shore/Coast Garibaldi, Fraser South and Southern Vancouver Island HSDAs (Figure 2.16). The lowest percentages can be seen in the Northwest, Northeast and Northern Interior HSDAs, possibly due to lower overall socio-economic status and poorer access to healthy food in the more remote areas.



Obesity

Obesity is one of the most prominent factors affecting health status. It is a risk factor in heart disease (the number one cause of death for women in Canada⁸), strokes, cancer, kidney failure, asthma, arthritis, blindness, mental health problems, falls, hypertension, Type II diabetes, gallbladder disease, coronary heart disease, osteoarthritis, colon cancer, breast cancer and endometrial cancer.⁹ In addition, the effects of obesity on morbidity and quality of life are equivalent

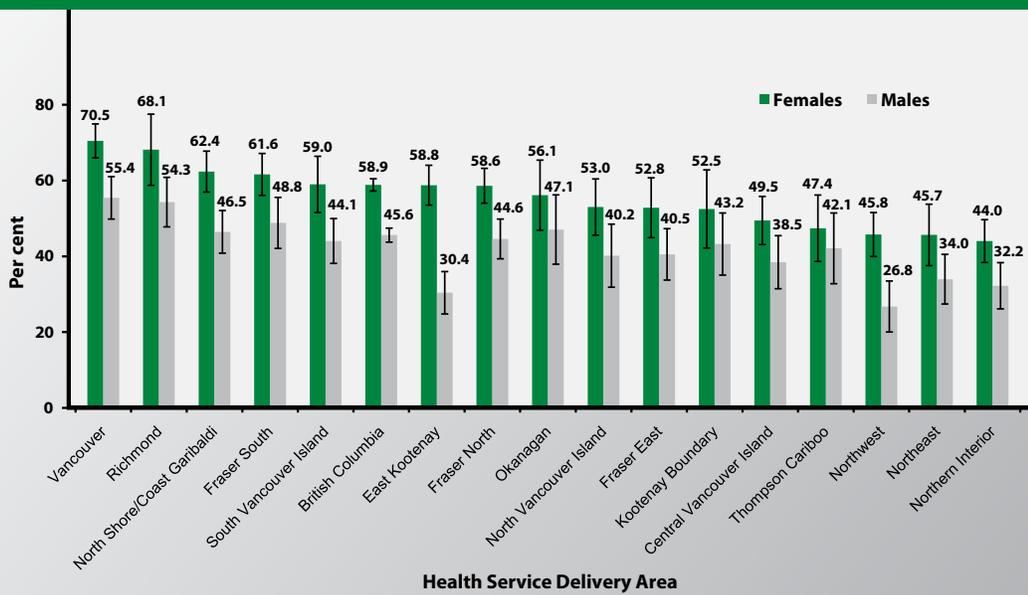
to those caused by smoking, poverty and problem drinking.¹⁰

Based on a 2004 Statistics Canada report,¹¹ less than 10 per cent of men and women whose BMI was in the normal range reported having high blood pressure. The figure rose to just over 15 per cent among those who were overweight, and to more than 20 per cent among those who were obese.

According to the Public Health Agency of Canada, the overall age-standardized prevalence of obesity in women (age 20+) in Canada increased from 13 per cent in 1970

Figure 2.16

Healthy Weight, Age 18+, by Sex and Health Service Delivery Area, BC, 2007/2008



Note: Excludes non-responses. Healthy (normal) weight translates into a body mass index (BMI) range of 18.5 to 24.9, based on self-reported height and weight. The BMI indicator for the Canadian Community Health Survey (CCHS) excludes pregnant females, persons less than three feet tall and persons greater than 6 feet 11 inches tall. The entire CCHS (the sampling frame) excludes individuals living on Reserves and on Crown Lands, institutional residents, full-time members of the Canadian Forces, and residents of certain remote regions.

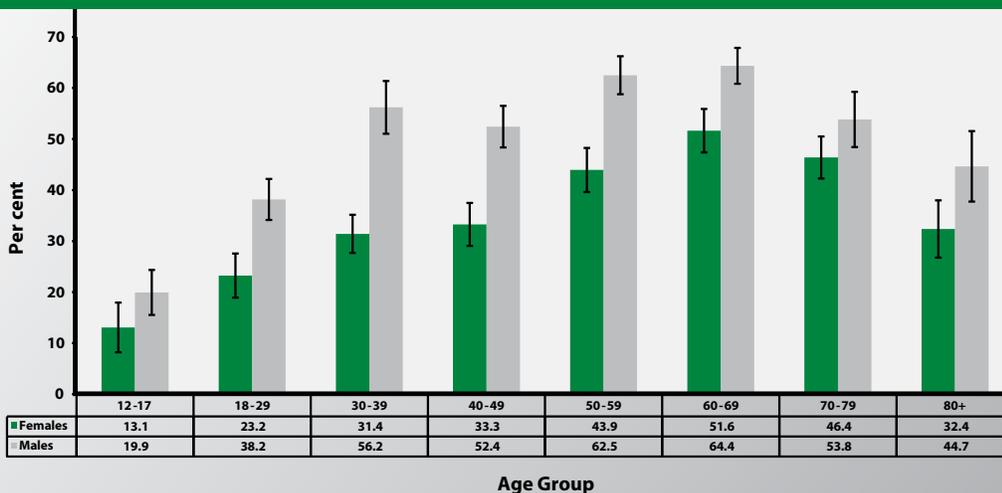
Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

to 22 per cent in 2004 (8 to 23 per cent in men).⁹ As can be observed from Figure 2.17, the percentage of females in BC who are either overweight or obese increases with

age. Female obesity peaks in the 60–69 age group at 51.6 per cent. There is a significant drop by age 80, as research suggests that the increased mortality associated with obesity is

Figure 2.17

Overweight or Obese, by Sex and Age, BC, 2007/2008



Note: Excludes non-responses and pregnant women. Body Mass Index (BMI) for adults (18+ years of age) was calculated using the BMI international standard, while BMI for children (12 to 17 years of age) was calculated separately using the Cole System (including the CCHS HWTDCOL and HWTDISW variables respectively).

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008 (full sample); prepared by Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

selectively weaning the obese from the elderly population.¹² Although there are more men who are overweight/obese than women in all age groups, obesity remains a significant issue for women.

Reproductive Health

For many years, women's health was defined solely by their biological differences from men and their role in bearing children. Today, a more holistic definition of women's health encompasses not just these physical/biological differences, but also the impact of gender roles and socio-economic status. Unequal power dynamics in personal relationships, gendered distribution of financial resources, lack of access to health services and educational opportunities, and the threat of physical violence can impair a woman's ability to make effective use of contraception.

Definition of Reproductive Health

The World Health Organization has defined reproductive health as follows:

Reproductive health implies that people are able to have a responsible, satisfying, and safe sex life, and that they have the capability to reproduce and the freedom to decide if, when, and how often to do so.

Implicit in this last condition are the rights of men and women to be informed of and to have access to safe, effective, affordable, and acceptable methods of fertility regulation of their choice, and the right of access to appropriate health services that will enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant.¹³

Inherent in this definition is a positive and respectful approach to sexuality and sexual relationships that is free of coercion, discrimination and violence.¹⁴

Women's health issues are often medicalized.^{15,16} Conditions and processes that are natural parts of a woman's life such as menstruation, pregnancy and childbirth, the

"baby blues" and menopause, are treated as a medical problem that needs to be controlled, "fixed" or medicated in some fashion. A recent example of this is "female sexual dysfunction."

After success with treating male sexual dysfunction, pharmaceutical companies turned their focus to female sexuality.¹⁷ To bring a drug to market, pharmaceutical companies need a medical definition with measurable characteristics in order to run the appropriate clinical trials. In this case, researchers with close links to pharmaceutical companies were involved in the definition and classification of a new medical disorder called "female sexual dysfunction".¹⁸

Studies by researchers independent of pharmaceutical companies have questioned the existence of a widespread female sexual disorder. A survey in Britain of over 11,000 men and women aged 16 to 44 found that although sexual problems were fairly common—6.2 per cent among men and 15.6 per cent among women—problems lasting longer than six months were much less common and few people sought help with them.¹⁹ A second study found that a lack of interest in sex was not something women considered to be a serious problem. Researchers concluded that reduced desire may be a normal adaptation to stress or relationship difficulties and therefore, did not require a medical solution.²⁰

The medical model has significant limitations when dealing with problems of female sexuality, because the model focuses on the body and disease, rather than on how women live their lives. What is needed is a more women-centred definition of sexual problems that includes "discontent or dissatisfaction with any emotional, physical, or relational aspect of sexual experience, with four categories of causes: sociocultural, political, or economic; relationship related; psychological; and medical."¹⁶

Sexually Transmitted Infections

The ideal state of being sexually active involves having a responsible and satisfying sex life, with safety from unintended consequences such as sexually transmitted

infections (STIs), pregnancy and coercion. Being sexually active brings with it the responsibility to practice safe sex in ways that both prevent STIs and unintended pregnancy. Some STIs present greater risk and complications for women than for men. For example, delays in receiving treatment for chlamydia may lead to infertility or tubal pregnancy.²¹

In addition, some of the highest rates and increases in STIs are in young people from their mid-teens to mid-twenties.²² The 2008 McCreary Centre Society's Adolescent Health Survey²³ found that close to 4 per cent of female students and almost 5 per cent of male students in grades 7 through 12 who were sexually active had experienced some type of STI (Figure 2.18). The risk of STIs increases with the number of sex partners. Among sexually active female students, just over half, 55 per cent, reported having sexual intercourse with one person in the past year. Only 5 per cent of females indicated that they had sex with six or more people in the past 12 months.

Human Papillomavirus Infection

Human papillomavirus (HPV) infection is one of the most common STIs: three out of four sexually active women will get HPV at some point in their lives. HPV is spread by skin-to-skin contact during oral, vaginal or anal sexual activity. While more than 100 types of HPV exist, there are two types^c that cause 70 per cent of cervical cancer in women, and another two types^d that cause 90 per cent of genital warts in both women and men.^{e,24} Most women who have an HPV infection in the cervix clear the infection within two years, but when it does not clear, cells in the cervix that are infected with HPV can become cancerous within 1 to 20 years.²⁵

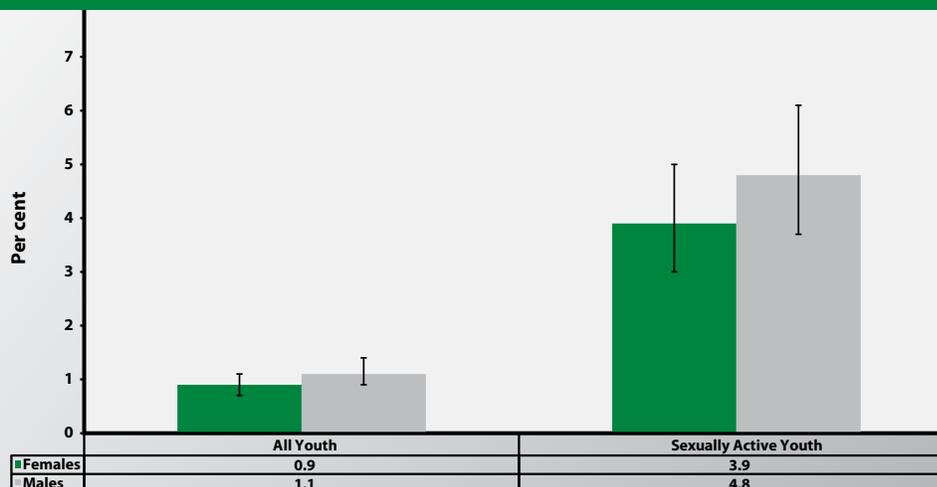
Every year in BC:

- 150 women will get cervical cancer.
- 40 women will die from the disease.
- 6,000 women will develop high-risk changes to the cervix that are precancerous.
- 10,000 invasive procedures will be done to stop cancer of the cervix from developing.

— HealthLink BC, 2008.²⁵

Figure 2.18

Sexually Transmitted Infections Among Youth, Public School Students, Grades 7 to 12, by Sex, BC, 2008



Note: 99 per cent confidence intervals have been applied.

Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

^c HPV-16 and HPV-18.

^d HPV-6 and HPV-11.

^e HPV is also implicated in vulvar, anal and penile cancers.

HPV Vaccination

Health Canada has licensed the use of Gardasil vaccine to protect females 9–26 years old against the types of HPV that cause the majority of cervical cancer and genital warts in women. Another drug, Cervarix, has also been approved for girls and women aged 10–25 to protect against cervical cancers and abnormal and precancerous lesions but not genital warts.²⁶ These vaccines are recommended for females before they come in contact with HPV, as the vaccine prevents HPV infection but does not get rid of it once infection occurs.²⁵

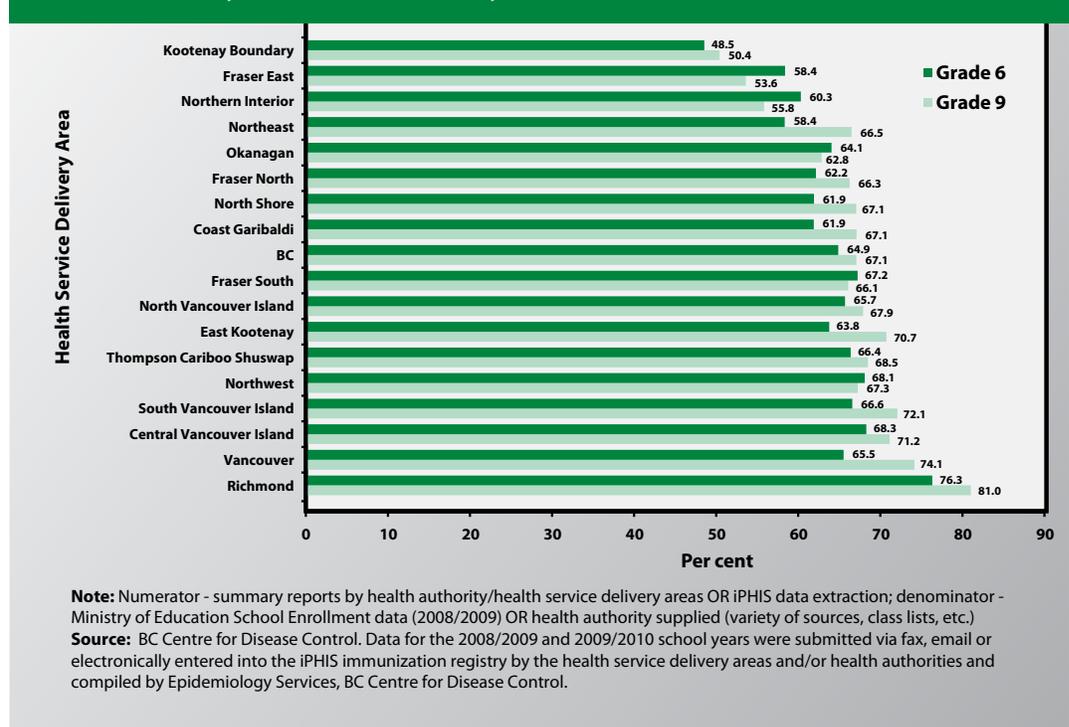
Prior to implementation of the immunization program, a survey was done to gauge parental attitudes towards the vaccine, due to a perception that some parents may feel it encourages early onset of sexual activity. The Canada-wide survey showed that BC parents had the lowest intention to vaccinate of all provinces. The strongest predictor of parental

compliance was personal attitude towards vaccination and to HPV vaccination in particular. Recommendations from health care professionals were also an important predictor of parental intention to vaccinate. Cultural and religious associations were not associated with this decision.²⁷ A subsequent survey of grade 6 parents conducted in the first year of the program in BC indicated that concerns about the vaccine’s safety, a stated preference to wait until their daughter was older and not having enough information to make an informed decision were key reasons parents had for not having their daughter immunized.²⁸

BC currently offers the Gardasil vaccine free to girls in grades 6 and 9.^{f,g} Immunization rates for grade 9 girls vary across health service delivery areas in the province, with Richmond having the highest rate at 81 per cent and Kootenay Boundary the lowest at 50.4 per cent (Figure 2.19). It should be noted that girls vaccinated with Gardasil still need to have Pap smears.

Figure 2.19

Dose 1 HPV Immunization Coverage, Females, Grades 6 and 9, by Health Service Delivery Area, BC, 2009/2010 School Year



^f Starting in the 2011/2012 school year, the vaccine will be scheduled for grade 6 girls only.

^g Efforts are made to seek parental or guardian consent prior to immunization; however, children under the age of 19 who are able to understand the risks and benefits may consent to or refuse immunizations, per the mature minor guidelines in the *Infants Act*.

HPV Screening

HPV screening is a new approach to cervical cancer screening.^h A recent study by the BC Centre for Disease Control, BC Cancer Agency, the University of British Columbia and McGill University (the FOCAL study) is the first randomized trial in North America to examine high-risk HPV DNA testing as the primary screen for cervical cancer within a population-based cervical cancer screening program.²⁹ The preliminary results suggest a high-risk HPV-positive rate for BC women of approximately 8 per cent. The highest positive rates were found in the lower age groups, with women in the 25–29 age group having an HPV-positive rate of almost 25 per cent.²⁹ This research is still in its trial phase and is not yet ready for widespread use.

Chlamydia

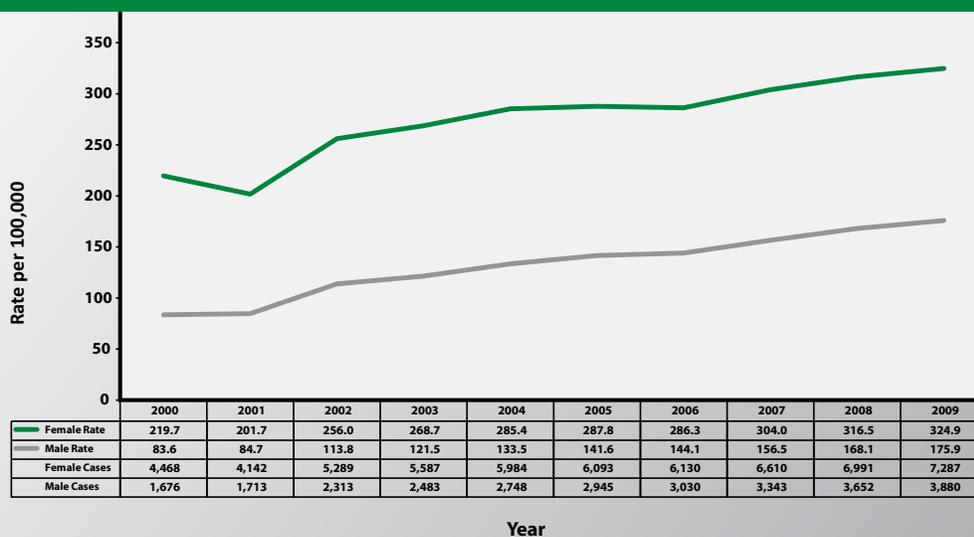
Chlamydia is a relatively common STI that can be of greater risk to women than men. If left untreated, it can lead to pelvic inflammatory disease, ectopic pregnancy, tubal infertility, chronic pelvic pain and increased susceptibility to HIV infection.³⁰

As shown in Figure 2.20, the chlamydia infection rate for females has remained consistently higher than the rate for males over the past decade in BC. Women are more likely to seek testing, as symptoms are more apparent in women than in men. The rate has increased significantly for both females and males between 2000 and 2009, with a relative increase in females of 47.9 per cent (an increase from 219.7 per 100,000 to 324.9 per 100,000). Re-infections represent up to 15 per cent of the annual incidents of chlamydia infection in BC.³³



Figure 2.20

Genital Chlamydia Case Reports and Rates, by Sex, BC, 2000 to 2009

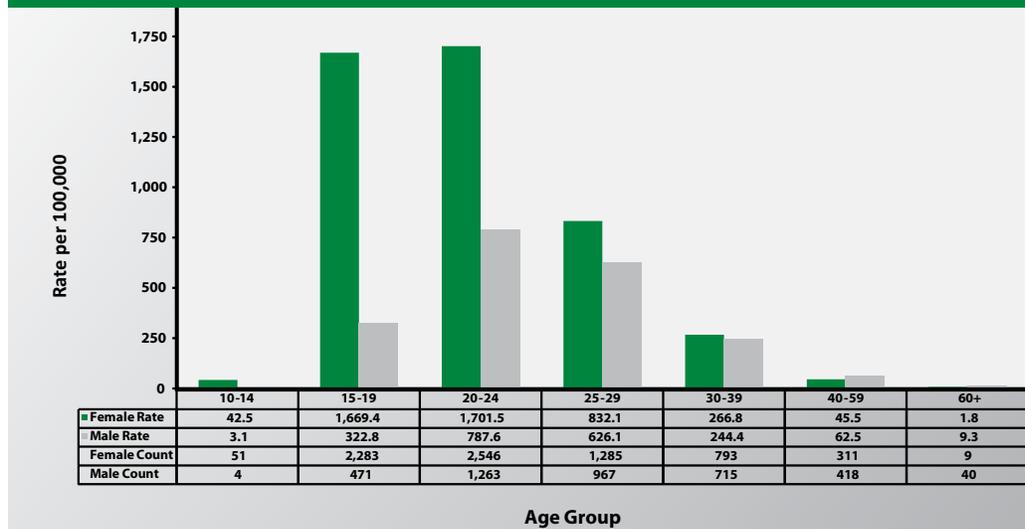


Source: BC Centre for Disease Control, Annual Surveillance Report: HIV and Sexually Transmitted Infections, 2009; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

^h For information on Pap smears, please see Chapter 8.

Figure 2.21

Genital Chlamydia Case Reports and Rates, by Sex and Age, BC, 2009



Source: BC Centre for Disease Control, Annual Surveillance Report: HIV and Sexually Transmitted Infections, 2009; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

Women are at the greatest risk of contracting this disease in their mid-teens and twenties (Figure 2.21), primarily due to risk-taking behaviour and the lack of knowledge by both partners. During this period, they may be having a series of monogamous-style relationships where protection is not used because it is assumed the relationship is exclusive, withdrawal is a more common form of birth control, and condoms may be inconsistently used.³¹ There is a sharp decline in rates as women move into their thirties.

been increasing steadily in most age groups, particularly for women under the age of 30 years.³³

Although the rates for chlamydia are 10 times higher than the rates for gonorrhoea, both have seen similar increases over the last decade. There are several possible reasons for this increase. One consideration is the improved sensitivity of nucleic acid

Gonorrhoea

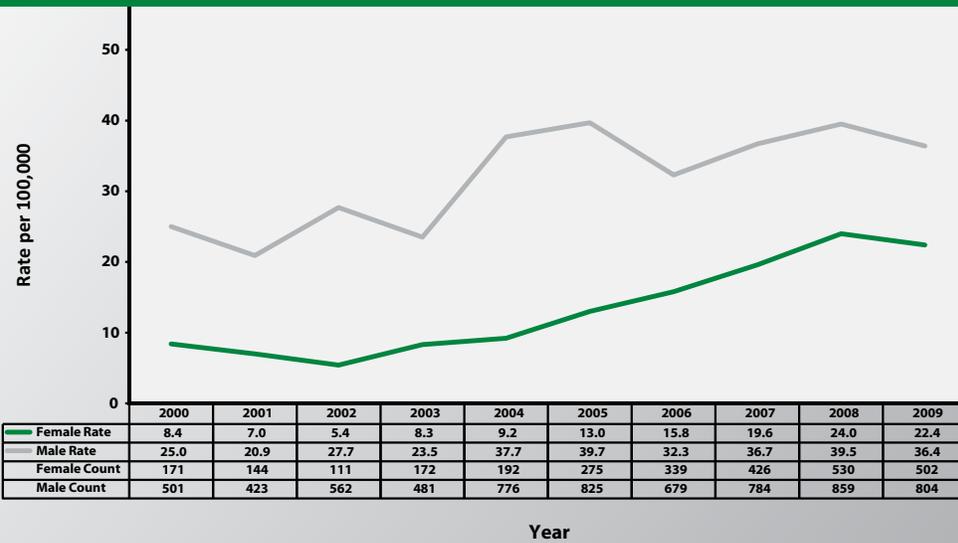
The infection rates for gonorrhoea have increased steadily for both females and males in BC since 2002 (Figure 2.22). While the rate for females was one-third the rate for males in 2000, the gap has narrowed over the past nine years. Women may not show any signs of infection and if they do, symptoms may be mistaken for a bladder or urinary tract infection.³² Therefore, active screening of sexually active females and contact tracing of male partners is a necessary strategy.

Younger age groups show a higher incidence of gonorrhoea, with females in the 15–19 and 20–24 age groups having the highest rates (Figure 2.23). The rates for females have



Figure 2.22

Genital Gonorrhea Case Reports and Rates, by Sex, BC, 2000 to 2009



Source: BC Centre for Disease Control, Annual Surveillance Report: HIV and Sexually Transmitted Infections, 2009; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

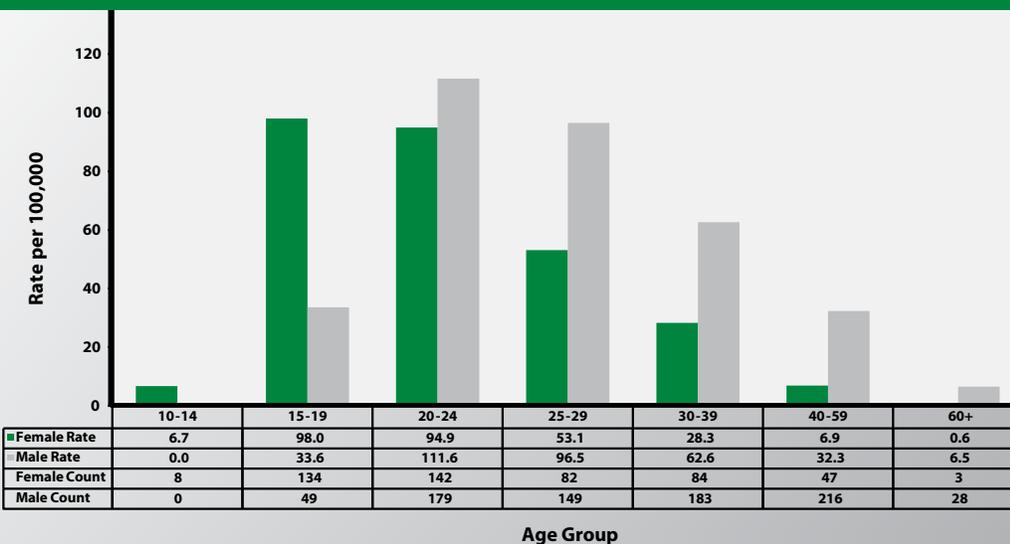
amplification testing, which identifies more true infections for both chlamydia and gonorrhea. Increased awareness and knowledge of these STIs among clinicians and patients may result in increased testing frequency, which can also increase the number of positive test reports. Higher

levels of risky sexual behaviour by girls or their partners may also play a role in the increased incidence.³³

Having multiple sex partners increases the risk of contracting STIs. Based on results from the McCreary Centre Society’s AHS,

Figure 2.23

Genital Gonorrhea Case Reports and Rates, by Sex and Age, BC, 2009



Source: BC Centre for Disease Control, Annual Surveillance Report: HIV and Sexually Transmitted Infections, 2009; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

among sexually active female students in grades 7 through 12, 55 per cent reported having sexual intercourse with one person in the past year; however, 5 per cent of females said they had sex with six or more people in the past 12 months. Students in this group were more likely to have been diagnosed with an STI than students with fewer sex partners.²³ According to the 2006 Canadian Contraception Survey, a significantly greater percentage of the 15–19 age group used both condoms and oral contraceptives (45.3 per cent) than women aged 20–29 (25.9 per cent), aged 30–40 (10.7 per cent), or 40 years and over (3.3 per cent).³⁴ It may be necessary to improve the dissemination of prevention and promotion information to older age groups.

HIV

According to the Public Health Agency of Canada (PHAC), an increasing proportion of the HIV cases reported since 1985 have been female. The proportion of HIV cases among females in Canada peaked at 28 per cent in 2006, with only slight increases or decreases since 2000. In 2009, 26 per cent of all HIV reports were among females. Also in 2009, females in Canada had a higher proportion of case reports than males in four age groups: 0–14 (2.2 per cent for females versus 0.5 per cent for males); 15–19 (4.5 per cent for females versus 1.2 per cent for males); 20–29 (25.2 per cent for females versus 21.1 per cent for males); and 30–39 (36.1 per cent for females versus 27.7 per cent for males). In addition, females have a higher proportion of HIV attributed to intravenous drug use than males.³⁵

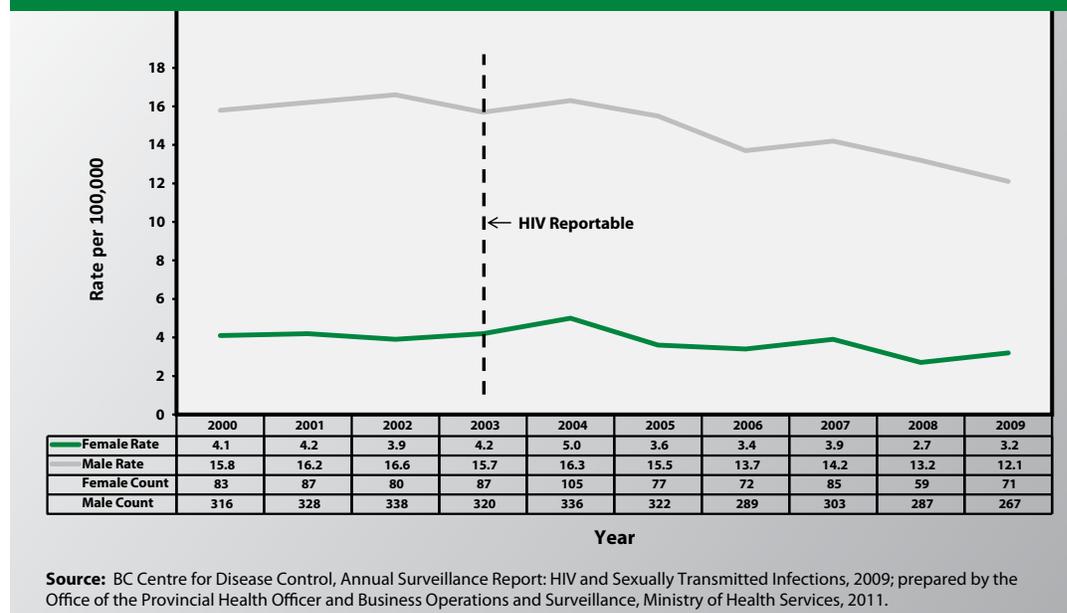
“ HIV-positive women in British Columbia are more likely than those in other provinces to also have hepatitis C or be injection drug users, according to a report by the Canadian Observational Cohort.³⁷ ”



HIV became a reportable disease in BC in 2003. This change, accompanied by enhanced follow-up of newly-positive HIV tests, has had a positive impact on the quality of HIV surveillance data, and needs to be kept in mind when comparing trends before and after 2003.³⁶ The rate for females dropped between 2000 to 2009, from 4.1 per 100,000 to 3.2 per 100,000 (Figure 2.24). The rate for males was close to

Figure 2.24

Persons Testing Newly Positive for HIV, by Sex, BC, 2000 to 2009



four times as high as the rate for women in 2009. However, as seen in Figure 2.25, the number of newly tested cases arising from heterosexual contact has increased in females, which is a concern.

HIV risk factors for women vary significantly among the provinces. HIV-positive women in British Columbia are more likely than those in other provinces to also have hepatitis C or be injection drug users, according to a report by the Canadian Observational Cohort.³⁷ More than 44 per cent of HIV-positive BC women were likely to report hepatitis C co-infection, compared to 14 per cent in Ontario and 20 per cent in Quebec. They were also more likely to have a history of injection drug use (41 per cent), compared to 10.8 per cent in Ontario and 14 per cent in Quebec. BC women were also more than twice as likely as those in Ontario or Quebec to experience viral load rebound,ⁱ which may lead to a number of negative outcomes including resistance to therapy and therapy failure, and the potential for full-blown AIDS and death (33.6 per cent in BC compared to 13.3 per cent in Ontario and 13.5 per cent in Quebec).

Issues in Reproductive Health

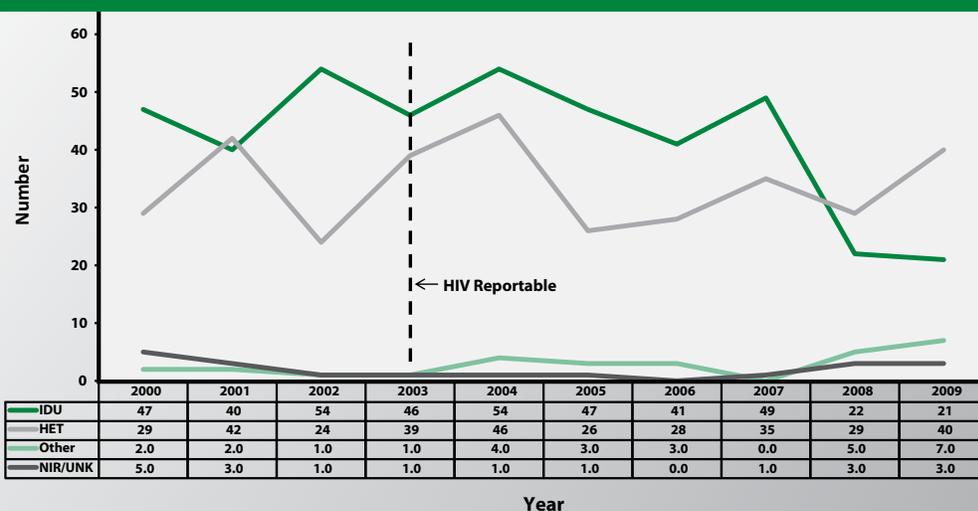
Contraception

Ideally, contraception is a shared responsibility for both partners, but much of the research on contraceptive use has tended to focus on the contraceptive preferences and practices of women. Societal expectations have generally been that women are responsible for this aspect of reproductive health, and aside from the condom and male sterilization, all other methods are used or taken by women.³⁸ However, often women do not have any say in what type of birth control is used, if any. Preventing unintended pregnancies and STIs are important from a public health perspective; however, research shows that contraceptive methods are often not used as directed and so, offer a reduced level of protection.³⁹

Contraceptive practices have varied over time. In the Canadian Contraceptive Survey, a national cross-sectional survey conducted in November 2006, 14.9 per cent of those surveyed did not use any form of

Figure 2.25

Females Testing Newly Positive for HIV, by Exposure Category, BC, 2000 to 2009



Note: Exposure (Risk) Categories are as follows: Injection Drug Use (IDU); Heterosexual Contact (HET); No Identified Risk (NIR); Unknown Risk (UNK).

Source: BC Centre for Disease Control, Annual Surveillance Report: HIV and Sexually Transmitted Infections, 2009; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

ⁱ Viral load rebound occurs when the HIV viral load reverses after starting treatment and rises above a pre-determined threshold.

contraception. Among those who did, the most frequently used methods were condoms (54.3 per cent), oral contraceptives (43.7 per cent) and withdrawal (11.6 per cent).⁴⁰

The study found that although many contraceptive options are theoretically available, in practice women in Canada continue to face a narrow range of options and use them inconsistently. This may, in part, be due to clinician choice and awareness. Only 65.3 per cent of respondents who were sexually active and not trying to conceive, said they “always used” contraception. Urban women and women with some post-secondary education were more likely to “always” use contraception than women in rural communities or women with high school education or less. Unemployed women were less likely to use contraception (43.6 per cent) than employed women (52 per cent).⁴⁰

Contraception use also varied by age. The 15–19 age group had the highest rate of condom use (74.3 per cent) and of using both condoms and oral contraceptives (45.3 per cent). Women over age 40 had the lowest rate of condom use (42.5 per cent).

Of considerable concern is the fact that

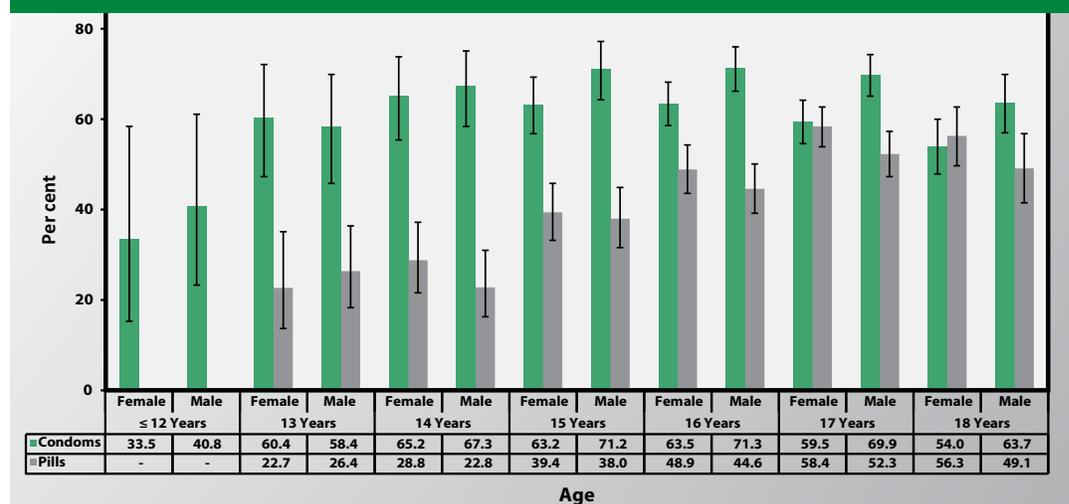
withdrawal was the third most common method of contraception in Canada, and use of this method had increased from past studies, rising from 6 to 11.6 per cent.⁴⁰ This is in contrast to the United States, where rates of withdrawal use are between 0.3 per cent and 2.7 per cent.⁴¹ Withdrawal is not only considered unreliable in preventing pregnancy but it leaves individuals vulnerable to acquiring STIs.

In addition, according to the study, rates of female and male sterilization continue to decline. In 1984, female sterilization was used by 24 per cent of all women,⁴² but its use decreased to 6 per cent in 2006, with the highest rates in women aged 40 and older.⁴⁰

The 2008 McCreary Centre Society AHS looked at contraceptive use in students in grades 7 through 12. The AHS noted that 23 per cent of sexually active youth reportedly used withdrawal to prevent pregnancy the last time they had sex, an increase from 16 per cent in 2003.²³ Five per cent of sexually active youth also indicated they had used emergency contraception (“morning after pill”).²³ Teenage girls and young women may have trouble negotiating safer sex, especially if there is a power imbalance with an older male partner, or they fear violence.⁴³

Figure 2.26

Use of Condoms or Pills to Prevent Pregnancy the Last Time Students had Sex, Public School Students, Grades 7 to 12, by Sex and Age, BC, 2008



Note: Based only on youth who indicated that they had sex. The percentage of 12-year-olds using a condom should be interpreted with caution due to small sample size. The percentage of 12-year-olds using the pill is not reportable due to small sample size. 99 per cent confidence intervals have been applied.

Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

According to the AHS, condom use by teenage females varies from 60.4 per cent at age 13 to a high of 65.2 per cent at age 14, with use declining slightly with age (Figure 2.26). Condom use is higher than use of contraceptive pills throughout the teenage years, but the gap narrows and is not statistically significant in females aged 17 and 18.

Effective Use

The most effective methods of contraception are “forgettable”,⁴⁴ requiring user action no more frequently than every three years. Further, contraception that can be independent of daily or episodic application, current cash flow, access to pharmacies and partner input or intervention is a high priority.^{45,46} This includes permanent methods such as sterilization (vasectomy or female sterilization), as well as intrauterine contraception.^j Intrauterine contraception remains underutilized in Canada, with rates of 1–3 per cent compared to Europe, where rates range from 10–26 per cent.⁴⁷

Studies have shown that long-acting reversible contraception (LARC)⁴⁸ methods not requiring daily or coital use were the most cost-effective, saving an average of \$7.00 for every dollar expended, largely due to the government costs related to pregnancies that were averted.⁴⁹ Similar studies have not been carried out in Canada, but would be valuable to assess effective methods to improve this important area of public health.

Other highly effective methods of contraception include, in order of typical use effectiveness:⁵⁰ combined hormonal contraceptives available in Canada as a vaginal ring (placement once a month); dermal patch (placement once a week);⁵¹ or oral contraceptives (daily use). In addition, condoms are effective in preventing pregnancy if used correctly and consistently (a pregnancy rate of 3 per 100 women over a year); however, as commonly used, the risk of pregnancy rises to 15 pregnancies per 100 women per year, and only 53 per cent of women will continue using this method by one year of use.⁵²

There are many barriers to effective contraception use, including socio-economic status, alcohol use and domestic violence. In a situation where a woman is being victimized and living under threat of violence, she often is not able to assert her contraceptive choice. Pregnancy can be both a consequence of domestic violence and can trigger further abuse. Aboriginal women are particularly vulnerable to unintended pregnancy, as their reported rate of spousal violence is approximately three times the rate for non-Aboriginal women.³⁹

Access to Contraception

In the past, contraceptive choice in Canada has often been limited in comparison with other developed nations. One reason may be that the approval of new drugs in Canada takes significantly longer than in countries such as the United States and Sweden.³⁹ However, the most recent Canadian Contraceptive Survey findings reveal that even with new methods becoming available, women favour a small number of contraceptive options—oral contraceptives, condoms and withdrawal—and are often unaware of new advances in birth control. Less than 4 per cent of women surveyed had used more recently approved contraceptive options, such as LARC methods.³⁴ It should be noted that clinicians seldom know every option, and are generally comfortable recommending three to five types of oral contraceptive pill (OCP) in their practice. Their knowledge influences the choices of their patients.⁵³

It is possible that these newer options may be more rarely used due to a lack of awareness or lack of easy accessibility and affordability. In addition, certain types must be inserted by trained health care professionals, who may not be available to women in more rural or remote parts of British Columbia. Finally, cost may be prohibitive, as most Canadian women must pay the total cost of these methods unless they have private insurance coverage. The high cost reduces demand for the device, and low demand for the device reduces its availability.³⁹ In some health authorities, birth control is free to youth,



^j For further information please see the following website: <http://www.sexualityandu.ca/health-care-professionals/contraceptive-methods/intrauterine-contraceptive-device>

although options are limited, with no intra-uterine devices (IUDs) and a choice of only six OCPs, along with the ring, the patch, Plan B and condoms.⁵⁴

Emergency Contraception

Unintended pregnancy remains a major public health issue in BC, despite evidence that emergency contraception is safe, easy to use, and effective in preventing unwanted pregnancies. Hormonal emergency contraceptives (ECs) consist of either the Yuzpe regimen (two doses of ethinyl estradiol 0.1 mg and levonorgestrel 0.5 mg or norgestrel 1 mg) or the levonorgestrel-only regimen (two doses of levonorgestrel 0.75 mg taken 12 hours apart, or 1.5 mg taken as a single dose).⁵⁵ These ECs have the potential to substantially reduce the risk of pregnancy and subsequent abortion when taken as early as possible after unprotected intercourse, up to a period of five days.⁵⁶

To reduce barriers to timely access to ECs, particularly in rural and remote regions, in December 2000 British Columbia became the first province to grant independent prescriptive authority to specially-trained pharmacists.⁵⁷ Within the first two years, provision of prescription ECs in the province more than doubled. The extended hours of operation of pharmacies and the higher number of locations from which to obtain ECs resulted in a substantial increase in EC provision in both rural and remote communities and in urban settings.⁵⁸ In addition to the physician and pharmacist EC prescriptions documented in PharmaNet, alternate low-cost sources of ECs include emergency departments, youth and public health clinics, Options for Sexual Health clinics and physician offices.⁵⁹

However, despite the enhanced availability of ECs, research evaluating women's knowledge, attitudes and experiences related to EC among ethnically diverse women living in Greater Vancouver found that barriers to access and use continue to exist.⁶⁰

Convincing evidence suggests that making EC more widely available does not reduce the use of regular contraception or increase

risk-taking and the incidence of sexually transmitted infections.⁶³ Nevertheless, the anticipated population impact of EC on reducing unintended pregnancies and subsequent abortions has not materialized, likely because women do not use EC treatments consistently after each occasion of unprotected intercourse or due to issues with access.⁶⁴

Abortion

Abortion is a common reproductive procedure experienced by 34 per cent of Canadian women⁶⁵ and an indicator of the incidence of unintended pregnancy.⁶⁶ Half of all pregnancies globally are estimated to be unintended⁶⁶ and about half of these end in abortion.^{67,68} Half of the women seeking abortion in BC and in North America were using contraception at the time conception occurred.^{69,70,71}

Abortion in Canada is a very safe procedure and is safest when performed earlier in the pregnancy.^{72,73} From 1995 to 2005 in Canada, between 86 to 90 per cent of abortions were performed within the first 12 weeks gestational age,⁷⁴ a time when the procedure is safe and carries the lowest rate of complication.⁷² A recent Ontario analysis of government administrative databases found 94 per cent of all abortions occurred at less than 16 weeks gestation. Although BC data on abortion complications has not been examined, this Ontario study found only 0.4 per cent of all abortions resulted in a complication requiring hospital admission.⁷⁵

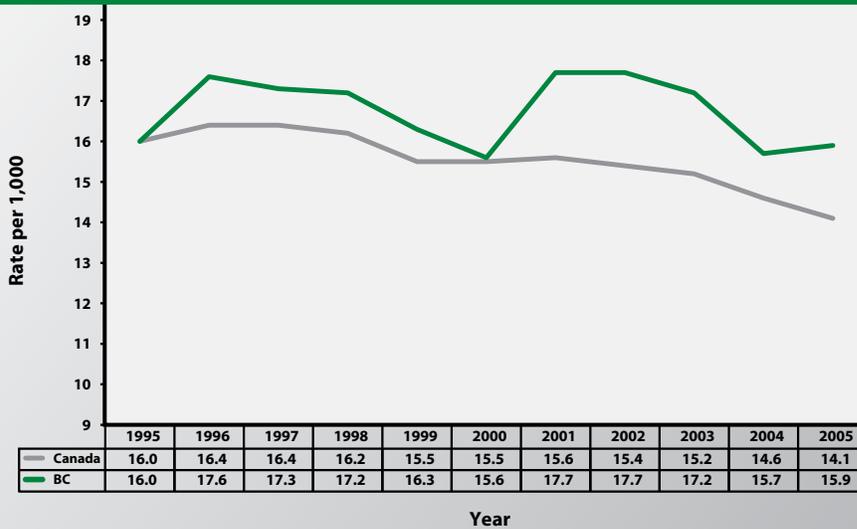
Abortion Rates

Abortion rates have been declining in Canada as a whole, but there has been relatively little decline in BC.⁷⁶ The reduction in abortion rates in other jurisdictions is attributed to increased prevention of unintended pregnancies through increasing contraceptive use. In particular, the trend among contraceptive users is toward using more highly effective, long-acting methods such as intrauterine contraception.^{47,66,75} As shown in Figure 2.27, abortion rates in BC have remained

The regulatory status of the levonorgestrel-only EC regimen changed in BC community pharmacies from prescription to behind-the-counter status in May 2007⁶¹ and to over-the-counter status in March 2009.⁶²

Figure 2.27

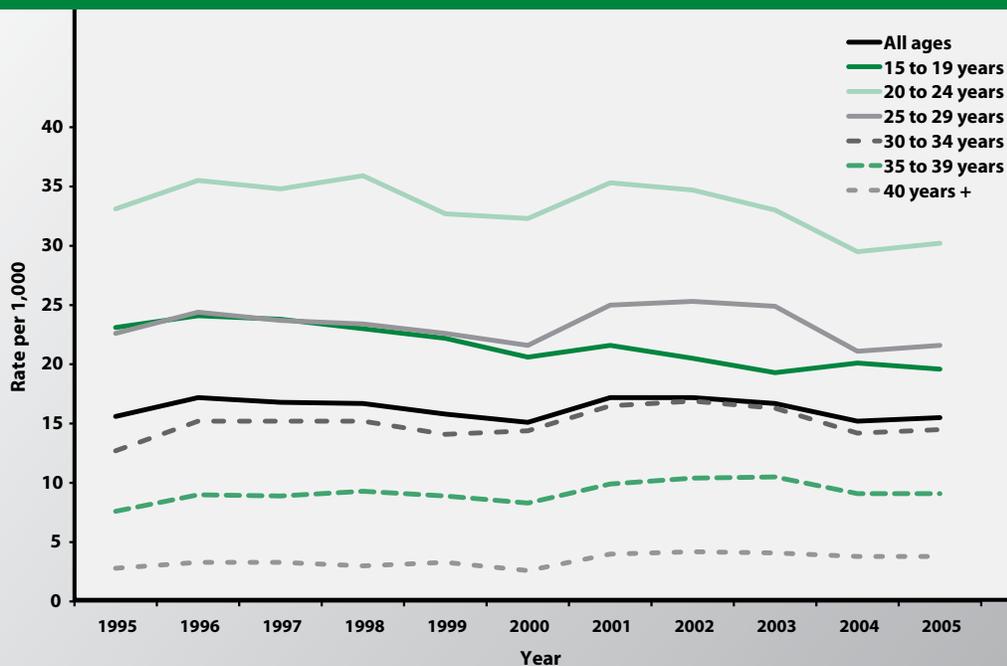
Induced Abortion Rate, Age 15-44, Canada and BC, 1995 to 2005



Note: The Statistics Canada Therapeutic Abortion data set is collected and managed by the Canadian Institute for Health Information (CIHI). Hospital abortions in BC are taken directly from the Discharge Abstract Database and clinic abortions are reported as aggregates directly to CIHI. Some double counting may occur in relation to medical abortions, which are induced by prescription in the woman's home and may lead to incomplete abortion.
Source: Statistics Canada, CANSIM, table 106-9034 (induced abortions in hospitals and clinics, by age group and area of residence of patient, Canada, provinces and territories, annual). Available from: http://cansim2.statcan.gc.ca/cgi-win/cnsmcgi.exe?Lang=E&CNSM-Fi=CII/CII_1-eng.htm; prepared by Dr. Wendy Norman, based on Statistics Canada Therapeutic Abortion Survey, 2009.

Figure 2.28

Induced Abortion, Age-Specific Rate, BC, 1995 to 2005



Note: The Statistics Canada Therapeutic Abortion data set is collected and managed by the Canadian Institute for Health Information (CIHI). Hospital abortions in BC are taken directly from the Discharge Abstract Database and clinic abortions are reported as aggregates directly to CIHI. Some double counting may occur in relation to medical abortions, which are induced by prescription in the woman's home and may lead to incomplete abortion.
Source: Statistics Canada, CANSIM, table 106-9034 (induced abortions in hospitals and clinics, by age group and area of residence of patient, Canada, provinces and territories, annual). Available from: http://cansim2.statcan.gc.ca/cgi-win/cnsmcgi.exe?Lang=E&CNSM-Fi=CII/CII_1-eng.htm; prepared by Dr. Wendy Norman, based on Statistics Canada Therapeutic Abortion Survey, 2009.

higher than the Canadian rate. Currently, BC's rate is the second highest among all the provinces.

Figure 2.28 shows that abortions in BC are most commonly provided to women under age 30. Women age 20–24 had the highest rate at 30.2 per 1,000 in 2005, with women age 25–29 second highest at 21.6 per 1,000. It should be noted that women over thirty make up an increasing percentage of abortions.

Overall, there has been a gradual decline in the numbers of teens and youths seeking abortions in Canada, and Ontario and Alberta mirror this trend.⁷⁶ In BC there has been some improvement in the rates among teens and women under age 30, but the provincial rates lag behind other Canadian jurisdictions. In addition, the number of abortions provided per 1,000 women over the age of 30 in BC has been increasing, despite declining rates of abortion in other age groups, and among this age cohort in other provinces and Canada as a whole.⁷⁶ This finding requires more study to determine

underlying causes, and may indicate an emerging need for public health education and unintended pregnancy prevention strategies for women in this age group.

Hospital versus Clinic Abortions

Surgical abortions are available in hospitals throughout BC and in purpose-specific clinics. Since clinics are located in large urban centres, most women in BC who seek an abortion will live closer to a hospital than to a clinic. Health authority-level data indicate a fairly uniform range of abortion rates by the woman's residence, across the province.

Studies in other jurisdictions have shown that socio-economic status is a factor in use of abortion services and access to contraception. In Ontario, women living in the lowest-income neighbourhoods were more than twice as likely to have an abortion as women living in the highest-income neighbourhoods.⁷⁵ Similarly in Britain, an examination of the rates of teen pregnancies

Figure 2.29

Total versus Hospital Abortions, BC, 1996 to 2005



Note: The Statistics Canada Therapeutic Abortion data set is collected and managed by the Canadian Institute for Health Information (CIHI). Hospital abortions in BC are taken directly from the Discharge Abstract Database and clinic abortions are reported as aggregates directly to CIHI. Some double counting may occur in relation to medical abortions, which are induced by prescription in the woman's home and may lead to incomplete abortion.

Source: Statistics Canada, CANSIM, table 106-9034 (induced abortions in hospitals and clinics, by age group and area of residence of patient, Canada, provinces and territories, annual). Available from: http://cansim2.statcan.gc.ca/cgi-win/cnsmcqi.exe?Lang=E&CNSM-Fi=CII/CII_1-eng.htm; prepared by Dr. Wendy Norman, based on Statistics Canada Therapeutic Abortion Survey, 2009.

and abortions has shown an increased incidence in neighbourhoods with the poorest socio-economic status.⁷⁷

Based on Statistics Canada data, abortions performed in BC hospitals decreased by over 42 per cent between 1996 and 2005 (Figure 2.29). Decreases in abortions performed in rural and remote hospitals may be higher, largely due to the retirement of physicians providing services in these settings, combined with a lack of appropriately trained physicians willing to locate to these areas to fill this service gap.⁷⁸ BC appears to be mirroring a Canadian trend where abortions are increasingly concentrated at purpose-specific urban clinics,^{75,79} representing a restriction in abortion access among women in rural and remote communities and among women with a lower socio-economic status.

Midlife Women's Health

Menopause

There are over 4 million women in Canada who are now or have in past reached menopause.⁸⁰ Menopause is defined as the time in a woman's reproductive life when menstruation has stopped for 12 consecutive months. Although it has often been medicalized and treated as something that must be "fixed", menopause is a natural progression in a women's life and the experience of it varies with each individual. During the time leading up to menopause—known as perimenopause—the body gradually produces smaller amounts of estrogen and progesterone, which can affect ovulation and spacing and length of periods. Symptoms of perimenopause begin on average at age 45³⁹ and can last between two and eight years. Hot flashes are common in the perimenopausal transition, when ovarian activity is intermittent, and are experienced by 60 to 80 per cent of women. Most postmenopausal women experience hot flashes for less than seven years; however, up to 15 per cent report hot flashes that persist for 15 years or more.⁸¹ Once menopause is reached, additional age-related health concerns arise, such as osteoporosis and

cardiovascular disease. These health concerns are related to the drop in the production of estrogen, a protective factor.⁸⁰

Hormone Therapy

Treatment of menopausal symptoms is a controversial area of women's health. For many years women have been prescribed hormone therapy—estrogen with or without progesterin—to treat vasomotor symptoms such as hot flashes, night sweats, vaginal dryness and other symptoms of menopause. In 1991, the US National Institutes of Health (NIH) launched the Women's Health Initiative (WHI), to evaluate the risks and benefits of two types of hormone therapy and to see how effective they were in reducing the incidence of heart disease, breast cancer, colorectal cancer and osteoporosis. These chronic conditions are the major causes of disability, death and frailty in older women of all races and socio-economic levels.⁸² In July 2002, the NIH prematurely ended the combined (estrogen and progesterin) hormone therapy arm of the WHI study. The study found that for every 10,000 women taking estrogen plus progesterin, there would be:

- 7 more women with heart attacks.
- 8 more women with strokes.
- 8 more women with invasive breast cancer.
- 18 more women with blood clots.
- 6 fewer cases of colorectal cancer.
- 5 fewer cases of hip fractures.⁸²

“Many risk factors for menopausal conditions prevalent among older women are modifiable through changes in lifestyle.”

— Menopause and Osteoporosis Update, 2009.⁸³

Based on the evidence from this study, many physicians stopped prescribing hormone therapy. In 2009, the Society of Obstetricians and Gynaecologists of Canada⁸³ updated its treatment guidelines for the management of menopause based on a review of this study and an evaluation of current evidence. Current evidence shows that the best way to relieve mild menopausal symptoms and achieve lasting health benefits is by making changes to one's lifestyle: eating a nutritious, balanced diet and engaging in moderate exercise to maintain a healthy weight;

developing techniques to manage stress; avoiding smoking; and limiting consumption of alcohol and caffeine. Health care providers are advised to offer hormone therapy as the most effective therapy for moderate to severe menopausal symptoms, and progestins alone or low-dose oral contraceptives for the relief of symptoms during perimenopause. If used early in menopause, hormone therapy does not increase the risk of coronary artery disease, and if/when used for five years or less, there is little effect on breast cancer risk.⁸³ There is limited evidence concerning the benefit of complementary and alternative approaches to the management of hot flashes and other vasomotor symptoms. A randomized trial comparing hormone therapy to black cohosh, soy and other botanicals found hormone therapy to be the only treatment to produce better results than the placebo effect.⁸⁴

“ Research has consistently found that women are twice as likely as men to experience depression. ”

Mental Health and Mental Illness

In the past, good mental health was considered to be the absence of mental illness. Today, the World Health Organization (WHO) defines mental health as a state of well-being in which the individual realizes his or her own abilities, copes with the normal stresses of life, works productively and contributes to his or her community.⁸⁵ Good mental health enables people to experience life as meaningful and fulfilling and enhances their ability to be creative, productive members of society. Without it, all aspects of life suffer.⁸⁶ Mental illness still carries with it a strong taboo, which can result in denial, a lack of knowledge and awareness of how to manage symptoms and conditions, or an avoidance of treatment for fear of being labelled mentally ill.

The WHO identifies gender as a critical determinant of mental health and wellness. Gender-specific risk factors include gender-based violence, socio-economic disadvantage, low or subordinate social status and rank, and unremitting responsibility for the care of others.⁸⁷ Gender affects both the position of women in society and the experiences that condition their lives, interacting with other determinants such as education, housing, and social support in complex ways.⁸⁸ For example, numerous studies have shown that jobs in which the worker faces conflicting demands and does not have a role in controlling the pace or direction of their work, are linked to psychological stress, and ultimately poor health.^{89,90} These low-control, high-demand jobs are characteristic of those in lower occupational grades⁹⁰ and are often occupied by women. This work-based stress can be compounded by a woman's dual role—her second “job” looking after her home and family members—where she may again be the subordinate party in her relationship or a lone parent, putting her at increased risk for mental health problems.



Depression

Depression is a common mood disorder in which symptoms are so severe they affect everyday activities and functioning, including those related to family life and career. Symptoms of depression often include feelings of despair, sadness, worthlessness, anxiety and guilt; having a short temper; changes to sleeping and eating patterns; lack of energy; poor concentration; inability to make decisions; a decreased desire to partake in pleasurable activities; and even suicidal behaviour.⁹¹ Although life events and circumstances can make a person feel sad or disappointed at times, with depression these feelings extend beyond a period of two weeks⁹¹ and can be overwhelming.

Although treatable, depression is primarily considered to be a chronic or recurring condition.⁹² The more common types of depression include major depressive disorder (MDD), which is considered the most severe; dysthymia, generally a milder form than MDD but lasting two or more years; and mild depression, which is similar to MDD or dysthymia but not as intense and may be of a shorter duration.^{k,93}

No single cause of depression has been identified; rather a combination of several factors likely influences its onset. One of the main risk factors concerns whether a person has ever had a major depressive episode, because of those who have, over half experience a recurrence.⁹⁴ Although a better understanding of associated risks is required, other potential variables that may increase one's susceptibility to depression include whether the condition runs in the family, having a negative outlook on life, traumatic life events, biochemical imbalances in the brain,⁹⁵ genetics, low socio-economic status, having a chronic disease, or being involved in a violent or abusive relationship.⁹¹ A few women also experience depression at times of normal hormonal fluctuations such as during menstruation, childbirth and menopause.⁹⁶

Depression can occur separately or in combination with other mental illnesses,

particularly anxiety and substance-related disorders.⁹² Although both men and women who have depression often have co-existing substance use disorders, it is more common among men. Women are more likely than men to have a co-existing anxiety disorder.^{97,98} Other mental illnesses that commonly co-exist with depression are personality disorders⁹² and eating disorders.⁹⁹ There also seems to be a link between depression and physical disease and illness, especially chronic conditions.^{92,100}

Depression and Women

Research has consistently found that women are twice as likely as men to experience depression.^{92,101,102} This gender gap appears around puberty and continues until menopause, at which time rates become similar to those of men.⁹⁹

The reasons women have higher rates of depression compared to men are not completely understood. They may relate to the increased likelihood of women to have many of the previously mentioned risk factors, including having been a victim of physical and sexual violence.¹⁰³ As presented in Chapter 3, women are also more likely than men to hold jobs that are lower in status, to receive a lower income, and to live in poverty. Finally, women are more likely to be the head of a lone-parent family, a situation that can be particularly stressful when combined with a low income.

Being poor further increases a woman's vulnerability to violence and abuse. If she is financially dependent on her partner, it can be difficult for her to leave, especially if she has children who require food and shelter. These factors wear on a woman's self-esteem, potentially making her more prone to depression. There also continues to be a tendency for roles to be gender-determined, with women as the primary housekeeper and caregiver of children, and possibly aging parents. Often, these roles are fulfilled after the woman has already worked a full day at a paying job.¹⁰⁴ With so many expectations to meet, it is understandable how over time such

^k A person can also have both MDD and dysthymia at the same time, an occurrence sometimes referred to as "double depression".⁹²

a predicament can lead to stress and burn-out. All of these factors, especially in combination with other risks, may help to explain the higher rates of depression among women.

Another potential reason behind higher rates of depression among women could be that they are more likely than men to seek treatment for depressive symptoms.¹⁰⁵ In addition, women usually experience more symptoms and have symptoms of greater severity and functional impairment than men,^{98,106} possibly making the condition more recognizable to health care professionals. Regardless, many persons experiencing symptoms do not seek medical attention. Those who do visit a health care provider may not be diagnosed with depression, and if they are they often receive inadequate treatment.¹⁰⁵ Reasons why individuals do not seek treatment might relate to being unaware they have depression,⁹¹ the stigma associated with mental illness, lack of knowledge and financial resources, or even a lack of medical resources.¹⁰⁵ Women who are lone parents may avoid seeking treatment for fear of losing custody of their children.¹⁰⁷

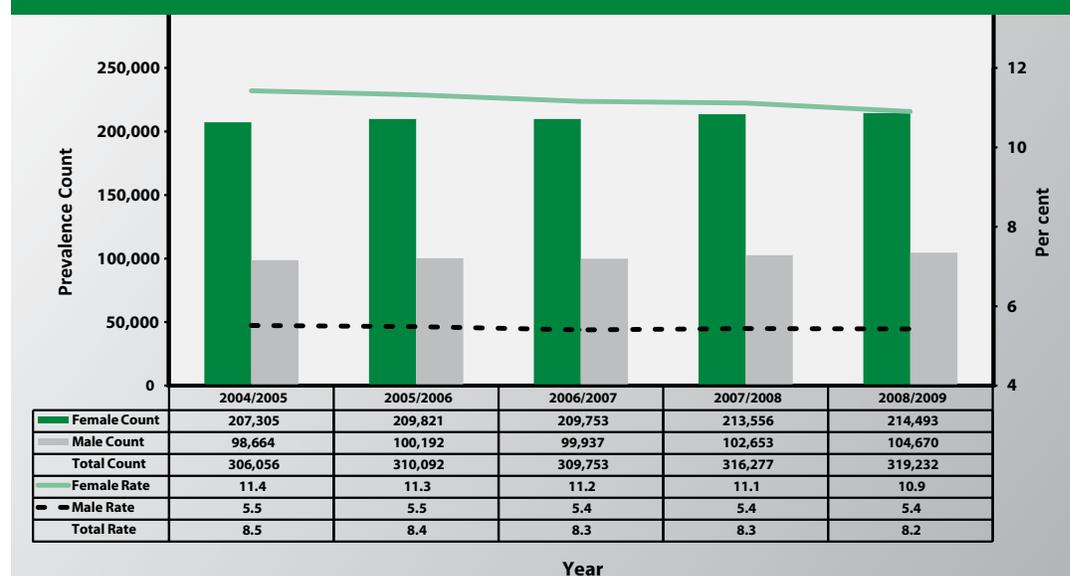
Prevalence of Treated Depression

Figures 2.30 and 2.31 measure the prevalence of depression in BC using methods derived from the Canadian Chronic Disease Surveillance System applied to administrative data from the Medical Services Plan (MSP) and hospital discharge summaries. Figure 2.30 shows that females consistently had the highest rates of depression, with a slight decreasing trend over the years. In 2008/2009, the annual age-standardized prevalence rate for treated depression was 8.2 per cent of the population aged 15 and older: 10.9 per cent for females and 5.4 per cent for males.

For comparison, in Canada it is estimated that around 4 to 5 per cent of the population will experience a major depressive episode within any given 12-month period.^{92,108} However, due to variations in methodologies and how data are reported, it is difficult to make comparisons. For example, data in Figure 2.31 include both major depression and milder forms of depression. Due to clinical and coding overlap of some mental illnesses, data may have captured some cases

Figure 2.30

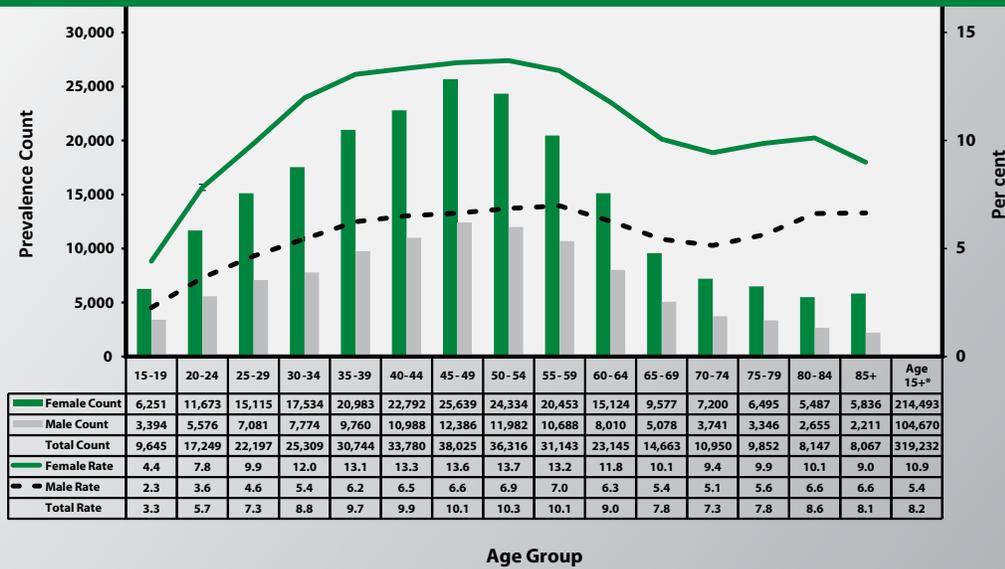
Annual Treated Depression, Age-Standardized Prevalence Rate and Count, Age 15+, by Sex, BC, 2004/2005 to 2008/2009



Note: Annual age-standardized treated prevalence rate for depression means the rate of residents in BC aged 15 and older who, during each of the specified fiscal years, had received either two depression-related medical service diagnostic codes within one year from a physician, or one hospital diagnostic code for depression during a hospital stay, regardless of whether they were diagnosed in a previous year, or were a new case. Standardized to Canadian population 1991. Total count may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified. 95 per cent confidence intervals have been applied.
Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Figure 2.31

Annual Treated Depression, Age-Specific Prevalence Rate and Count, Age 15+, by Sex, BC, 2008/2009



* Age 15+ column lists age-standardized rates (to Canadian population 1991).

Note: For some age groups, total count exceeds the sum of the female and male counts, because the total includes cases in which gender was not specified. 95 per cent confidence intervals have been applied.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

of anxiety and bipolar disorders as well, while dysthymia was not included.

Figure 2.31 illustrates how depression is distributed by age among females and males for 2008/2009. The majority of cases for both females and males occurred between the ages of 35 to 59 years; however, the number of cases was often double for women. Overall, the annual treated prevalence of depression in 2008/2009 was 319,232 cases, of which 214,493, or 67 per cent, were females.

Depression not only results in suffering for those experiencing its symptoms, but also affects others within the family, colleagues at work, and the community. The financial losses associated with depression through costs to the health care system and loss of productivity are huge.¹⁰⁵ In Canada, it is estimated that at any given time, there are 1.4 million people who are experiencing depression, resulting in direct medical costs of over \$3 billion and associated economic costs of \$1 billion.¹⁰⁹

Dementia

Dementia is a broad term that describes specific symptoms of cognitive impairment—including loss of memory, judgment, thinking ability and changes in mood, behaviour and personality—that can be caused by several diseases.¹¹⁰ Alzheimer's disease is the most common form of dementia, accounting for about two-thirds of all cases, with women representing approximately 72 per cent of those cases.¹¹¹ Vascular dementia is the second most common form, accounting for an estimated 20 per cent of dementia cases, with women representing 47 per cent of those cases.¹¹¹ Many people experience both Alzheimer's disease and vascular dementia concurrently.¹¹⁰ Overall, women are believed to account for 62 per cent of all dementias,¹¹¹ largely because women live longer than men.^{112,113} More research is required, but various risk factors may also increase women's risk for dementia, including hormonal changes that occur with menopause.¹¹³

¹ Other types of dementia include frontal lobe dementia, Lewy body dementia, and dementias associated with other diseases.

Women are not only more likely to have dementia, but, with their longer life expectancy, are most often the primary caregivers for loved ones who have dementia.¹¹⁴ Caring for people with dementia can pose great demands and stress on the caregiver, not only in the form of time, but also financially and emotionally,^{115,116} especially when such responsibility is in addition to juggling paid employment and caring for young children.¹¹⁷ Over time, especially when the care demands increase as the dementia progresses, the caregiver is at high risk for burnout and depression. In fact, one study found caregiver “distress”—which includes expressed feelings of depression, anger, or distress or an inability for the caregiver to continue providing home care because of physical, psychological, financial or social demands—to range from 16 per cent to 52 per cent, depending on the number of hours spent caring for the person, as well as the severity of the person’s dementia.¹¹⁸

Risk Factors

The cause of dementia is unknown, but it likely involves many factors, some more pertinent than others, depending on the type of dementia. According to the Alzheimer Society of Canada,¹¹³ while dementia can occur among younger adults, advancing age is the biggest risk factor; other risks or associated conditions include gender, genetics, diabetes, hypertension, overweight/obesity, hormonal changes during menopause, cardiovascular disease, Down’s syndrome, lower education, inflammatory

conditions, and a history of head injury, stroke, clinical depression, chronic stress, or early mild cognitive impairment that at the time was not sufficient for a diagnosis of dementia. Although the evidence is less conclusive, smoking, excessive alcohol intake and drug abuse are also considered risk factors for dementia.¹¹³

Prevalence

In order to gauge the prevalence of dementia in British Columbia, methods derived from the Canadian Chronic Disease Surveillance System were modified and applied to administrative data to determine how many residents aged 60 years or older^m had been diagnosed with dementia. Based on this method, it was estimated that over 47,600 people aged 60 years or older were living with dementia in 2008/2009, of which 63 per cent were females (Figure 2.32). This high proportion of cases among females is a pattern that is consistent with other studies; however, the number of cases is likely under-represented. In fact, it has been estimated that up to two-thirds of people with dementia who live in their own homes, have never been diagnosed by a physician.^{115,119} Such a gap in diagnosis and treatment would explain the difference in numbers and rates reported in this report and those from other sources, such as the Alzheimer’s Society of BC,¹¹¹ which states that over 70,000 BC residents are living with dementia and approximately 10,000 of them are younger than 65 years.

Figure 2.32 indicates that the age-standardized dementia prevalence rate among people aged 60 years and older in BC in 2008/2009 was 4.1 per cent: 4.3 per cent for females and 3.8 per cent for males. Comparison of these rates with other studies is a challenge due to variations in methods, the time period for which data apply, the age range captured in the data, and how information is reported. However, a longitudinal population-based study, the Canadian Study of Health and Aging, puts prevalence rates among Canadians aged 65 years and older at around 8 per cent.^{112,114}

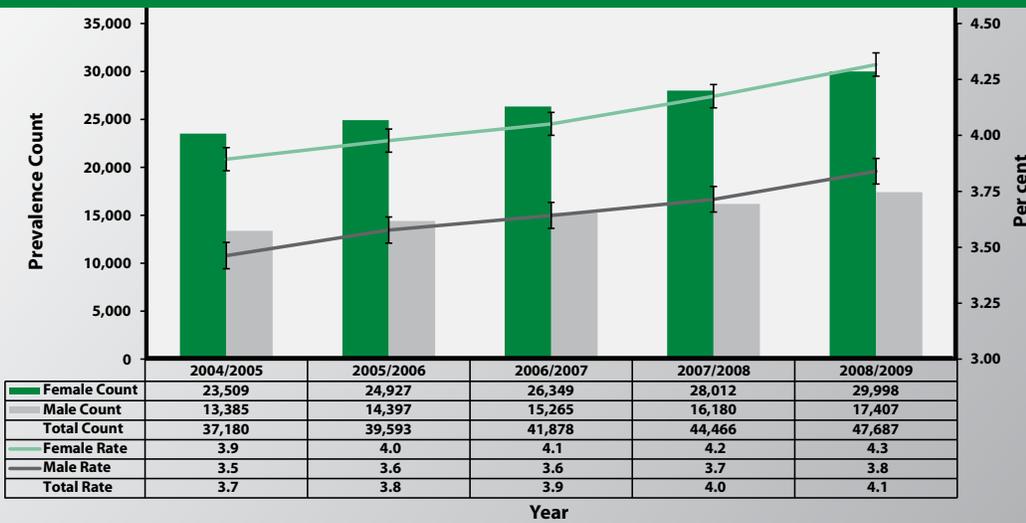
In the 85 and older age group, 16,287 women were living with diagnosed dementia in 2008/2009, compared to 6,572 men.



^m Because research indicates that dementia does exist among people younger than represented in this report, future population surveillance work will include younger age groups.

Figure 2.32

Dementia, Age-Standardized Prevalence Rate and Count, Age 60+, by Sex, BC, 2004/2005 to 2008/2009



Note: In order to qualify as a case, persons required either two dementia-related medical service diagnostic codes within one year from a physician, or one hospital diagnostic code for dementia during a hospital stay. Hospital diagnoses are assumed to be more accurate, while physician diagnoses typically require the confirmation of a second claim. Standardized to Canadian population 1991. For some years, total count may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified. 95 per cent confidence intervals have been applied.
Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

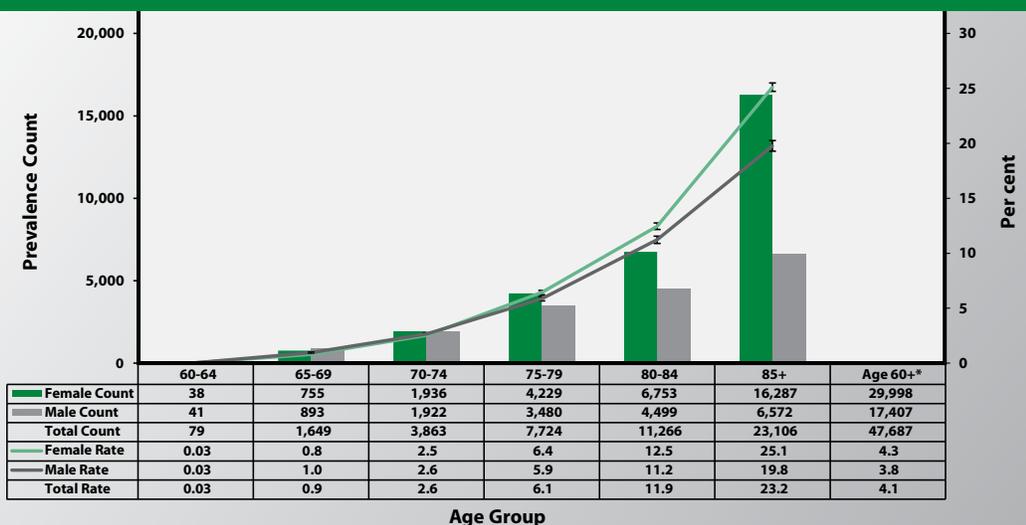
As shown in Figure 2.32, the dementia prevalence rate continues to increase every year and, due to the aging population, it is anticipated that rates could double within the next 25 years.¹¹¹

Figure 2.33 shows that by age 70 and older, women account for more cases

of diagnosed dementia. The greatest difference can be seen in the 85 and older age group, where 16,287 women were living with diagnosed dementia in 2008/2009, compared to 6,572 men. This trend is consistent with other studies¹¹² and can largely be attributed to women living longer than men.

Figure 2.33

Dementia, Age-Specific Prevalence Rate and Count, Age 60+, by Sex, BC, 2008/2009



* Age 60+ column lists age-standardized rates (to Canadian population 1991).
Note: For some age groups, total count exceeds the sum of the female and male counts, because the total includes cases in which gender was not specified. 95 per cent confidence intervals have been applied.
Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Impact of Mental Illness on Women's Health

Figures 2.34 and 2.35 show the impact of depression, bipolar disorder and schizophrenia on women's health and on health services. Rate ratios are used to compare the hospital co-morbidity experience of women who have selected mental conditions with that of women who do not have these mental conditions. A rate ratio > 1.0 means that women with the mental condition have a higher rate of hospitalization for a given condition (e.g., cervical cancer, diabetes, assault, etc.) than women who do not have that mental condition. Similarly, a rate ratio ≤ 1.0 means that women with the mental condition have a lower rate of hospitalization for a given condition than women who do not have that mental condition.

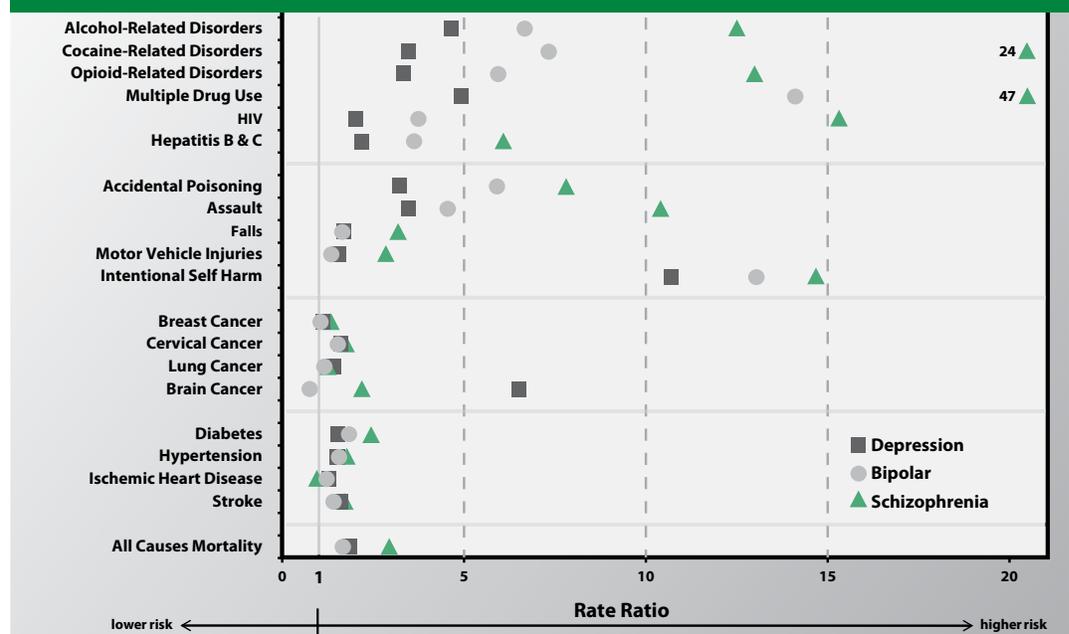
Of the 20 other conditions included in Figure 2.34, women with schizophrenia had the highest rate ratios in 17 of the 20 conditions, which indicates a much lower health status in comparison to women without mental conditions. While

morbidity and mortality is increased with all three mental health conditions, women with depression had the lowest rate ratios in 13 of the 20 other conditions, and women with bipolar disorder had the lowest rate ratios in 6 of the 20 other conditions. Taken together, this information indicates that women with mental conditions have an increased risk of all causes mortality and of hospitalization for many diseases, injuries and problematic substance use, with the highest morbidity experienced by women with schizophrenia.

Figure 2.34 provides evidence that health services for women with mental conditions need to take into consideration that many of these women also require treatment and support for other medical conditions, particularly injuries and problematic substance use. Women with schizophrenia are especially vulnerable. Although these data are not definitive in terms of actual disease risk, it is of concern that women with depression had a six-fold higher rate of hospitalization for brain cancer, and women with schizophrenia had a two-fold higher rate for the same condition.

Figure 2.34

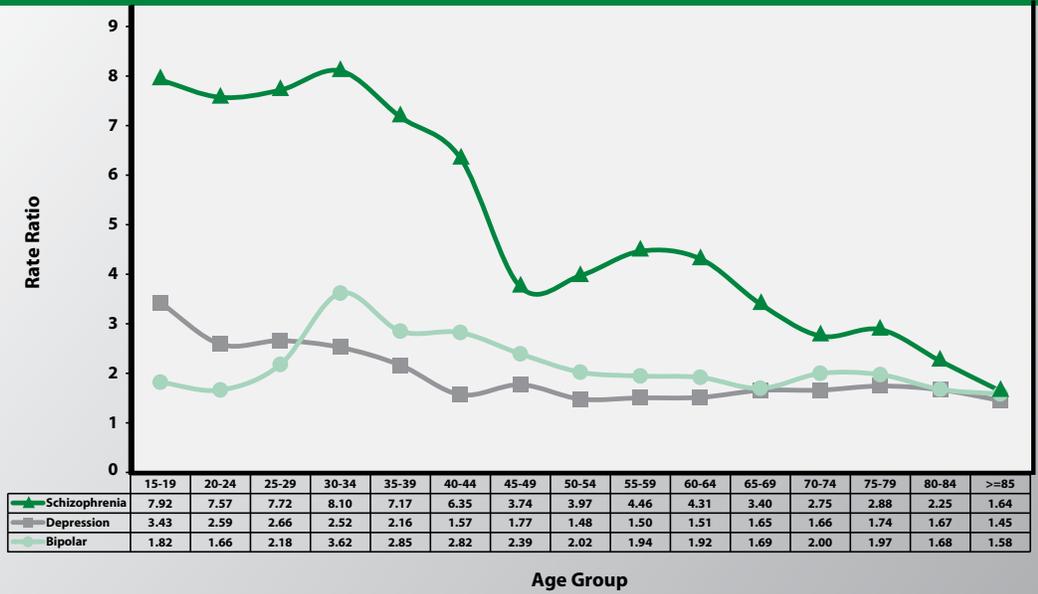
Women with and without Mental Health Conditions, Rate Ratios for Selected Hospital Co-Morbidities and All Causes Mortality, BC, 2005/2006-2009/2010



Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Figure 2.35

Age-Specific Mortality Rate Ratios, Females with Schizophrenia, Depression or Bipolar Disorder Compared with Females without the Condition, BC, 2005/2006-2009/2010



Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Figure 2.35 compares “all causes” mortality rate ratios for women with and without schizophrenia, depression or bipolar disorder. Women without these mental conditions have a background risk of death, with an assigned rate ratio = 1.00. Women with any one of these mental conditions have a rate ratio > 1.00 for every age group, and women with schizophrenia have the highest rate ratios in all age groups. For example, the 30–34 age group has a rate

ratio of 8.10, which means that women 30–34 who have schizophrenia have a mortality rate over 8 times higher than women who do not have schizophrenia.

For all three conditions, the highest rate ratios were generally among younger women, indicating that young women with these conditions were much more likely to die than those without these mental conditions.

Young women with schizophrenia, bipolar disorder or depression are much more likely to have a lower health status and to die prematurely than those without these mental conditions.



Summary of What We Know

- BC females rated their health slightly below the Canadian average: 56.5 per cent in BC compared to 58.8 per cent in Canada. In comparison to males across age groups, fewer females than males rated their health as very good to excellent, although the gender differences were not statistically significant.
- The picture is better for mental health, with 72.3 per cent of BC women rating their mental health as very good to excellent, slightly higher than the rate for men, although the differences were not significant. Positive mental health declined slowly but steadily from early adulthood on.
- Women have gained an additional 3.2 years in life expectancy from 1990 to 2009, compared to 4.8 years of life expectancy for men. The gap between the genders has decreased due to a decline in smoking rates and improved medical treatment for various conditions that BC men are experiencing. Women are not experiencing the same improvement, due to increased smoking rates, stress levels and rising rates of obesity.
- Women in the highest income group have a health-adjusted life expectancy at age 25 that is 9.5 years longer than those women in the lowest income group. The corresponding disparity calculated using the conventional life expectancy measure was only 7.4 years.
- All causes mortality rates have gradually decreased for women to a rate of 42 per 10,000 in 2008 (or 15,587 female deaths), a decline from 51.9 per 10,000 in 1993. The leading causes of death for women in 2008 were malignant neoplasms (12.8 per cent per 10,000), cardiovascular disease (8.0 per 10,000) and cerebrovascular diseases (3.4 per 10,000).
- Across the lifespan, causes of death for women vary with each phase of life. For infants and young children, the main causes of death are congenital anomalies and perinatal conditions. The teenage years see the start of a shift to external causes and cancer, which extends and expands into mid-life. For women who live into their 80s, the most common causes of death are cancer, heart disease and stroke.
- According to the Canadian Community Health Survey, BC women reported a significantly higher rate of normal weight than men: close to 60 per cent for women and 45.6 per cent for men. The highest rates of healthy weights for females were seen in urban and southern areas such as the Lower Mainland and southern Vancouver Island. Obesity rates for women decline with age, as research indicates that there is an increase in mortality for the elderly due to obesity.
- In the 2008 AHS, close to 4 per cent of adolescent females who were sexually active had sexually transmitted infections. The majority of sexually active females reported having had sexual intercourse with one person in the past year, and 5 per cent indicated high-risk behaviour (i.e., having had sex with six or more people in the past 12 months). Having multiple sex partners increases the risk of sexually transmitted infections.
- Immunization rates for HPV vary across health service delivery areas in the province, with Richmond having the highest rate at 80 per cent and Kootenay Boundary the lowest at 50.4 per cent. A new study of HPV screening rates suggests a high-risk HPV-positive rate for BC women of approximately 8 per cent, with highest positive rates of almost 25 per cent in the 25–29 age group.
- It is concerning that the chlamydia infection rate for women has increased 47.9 per cent between 2000 and 2009, although some of this may be due to women being more likely than men to experience symptoms and seek testing.

- Women are at the greatest risk of contracting this disease in their mid-teens and early twenties.
- Infection rates for gonorrhea for women were one-third the rate for men in 2000, but the gap has narrowed over the past nine years, with 2009 rates sitting at 22.4 per 100,000 for females, compared to 36.4 per 100,000 for males. The highest rates for women were in the 15–19 and 20–24 age groups.
 - HIV rates for females dropped between 2000 and 2009, from 4.1 per 100,000 to 3.2 per 100,000. Of concern is the number of female newly tested cases based on heterosexual contact.
 - The AHS 2008 noted 23 per cent of youth used withdrawal as a method to prevent pregnancy the last time they had sex, thus leaving themselves vulnerable to unintended pregnancy and sexually transmitted infections. Rates of condom use to prevent pregnancy reported by teenage females varies from 60.4 per cent at age 13 to a high of 65.2 per cent at age 14. Condom usage rates were higher than for oral contraceptive pills, but the gap narrowed and was not statistically significant in females aged 17 and 18.
 - Abortions in BC are most commonly provided to women under age 30. Women age 20–24 had the highest rate at 30.2 per 1,000 in 2005, with women age 25–29 second highest at 21.6 per 1,000. It should be noted that women over age 30 make up an increasing percentage of abortions.
 - Abortions performed in BC hospitals decreased by over 42 per cent between 1996 and 2005. Decreases in abortions performed in rural and remote hospitals may be higher, largely due to the retirement of physicians providing services in these settings, combined with a lack of appropriately trained physicians willing to locate to these areas to fill this service gap. This gap in service represents a restriction to abortion access among women in rural and remote communities and among women with a lower socio-economic status.
 - The annual age-standardized prevalence rate for treated depression in 2008/2009 was 8.2 per cent of the population aged 15 and older: 10.9 per cent for females and 5.4 per cent for males. The majority of cases for both females and males occurred between the ages of 35 to 59 years; however, the number of cases was often double for women. Overall, the annual treated prevalence of depression in 2008/2009 was 319,232 cases, of which 214,493, or 67 per cent, were females.
 - In 2008/2009, the age-standardized dementia prevalence rate of people aged 60 years and older was 4.1 per cent: 4.3 per cent for females and 3.8 per cent for males. A longitudinal population-based study, the Canadian Study of Health and Aging, puts prevalence rates among Canadians aged 65 years and older at around 8 per cent.
 - By age 70 and older, the gap between females and males diagnosed with dementia increases considerably. The greatest difference can be seen in the 85 and older age group, where 16,287 women were living with diagnosed dementia in 2008/2009, compared to 6,572 men. This difference is due in part to women living longer than men.
 - Women with mental conditions such as schizophrenia, bipolar disorder and depression, have an increased risk of all causes mortality and of hospitalization for many diseases, injuries and problematic substance use, with the highest morbidity experienced by women with schizophrenia. Young women with these conditions were much more likely to die than those without these mental conditions.

Chapter 3

Living and Working Conditions

For women, the most important influences on health are the conditions they experience in their day-to-day lives. Research has shown that income and social status are among the most important factors. People at each step on the income and social ladder are healthier than those on the rung below. Even in a prosperous country such as Canada, the gap between the richest and poorest produces significant differences in health status. The links between socio-economic factors and health are especially important for women, who still on average have lower incomes and job status than men, and face greater challenges in balancing the demands of work and family life. The good news is that because these health determinants are shaped by the distribution of resources, money and power, public policy interventions have the potential to improve these outcomes.¹

Meaningful work, affordable and accessible child care and elder care, sufficient income, adequate housing, family connectedness and social supports significantly enhance women's health. Gender inequalities in the distribution of resources, such as income,

education, health care, nutrition and political voice, are strongly associated with reduced well-being. In their working life, women often face challenges related to their lower status. They often have less control, which leads to more difficulty in balancing the demands of paid work and work at home, and gives rise to work-related fatigue, infections, mental ill-health and other problems. Women may live longer but their lives are not necessarily healthy.²

Employment, Education and Career Factors

Employment

Gender roles with respect to employment are not innate; they change across time and place and vary by cultural and geographical location. This can be seen in a review of Census data from the early 20th century. The primary role of most adult women living in the first half of the 20th century was to care for their family and home. Men

Once upon a time...

“A little more than one hundred years ago, [a woman in Canada] would have been completely dependent on either her father, a husband or a male relative. She could not have voted, attended university, trained for a profession or except in rare circumstances, stood for election, even for her own town council....She had no control over the money she earned herself or received from an inheritance.”

—Doris Anderson, *The Unfinished Revolution*. 1991.³

had paid work outside the home and were considered the “head of the household”, while most women did not participate in the paid labour force. For Census takers, women working in their homes were considered to have no occupation. In 1931, for example, just 16 per cent of women were involved in paid employment compared to almost 70 per cent of men. Women’s work, traditional or non-traditional, was often not valued and not documented by government sources and thus went officially unnoticed.⁴

Employment is not just a source of income; it is also linked to good mental, physical and social well-being, and provides a sense of identity, purpose, social contacts and a chance for personal development. Unemployment, underemployment and stressful work are associated with poorer health.^{5,6,7} Studies have shown that people who have more control over their work circumstances and fewer work-related demands that cause stress are healthier and often live longer than those in more stressful or riskier work activities.⁸

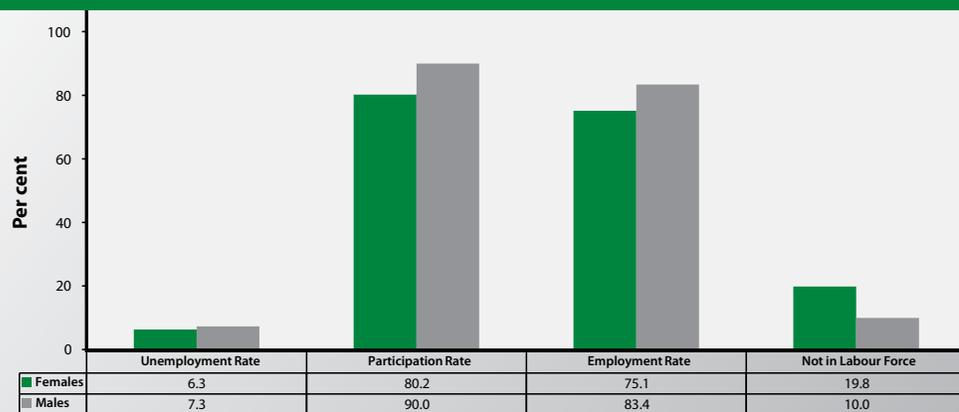
Figure 3.1 shows that in 2010, women had lower rates of labour force participation

and employment compared to men: 80.2 versus 90 per cent for labour force participation, and 75.1 versus 83.4 per cent for employment. In spite of this, the unemployment rate is only 1 per cent lower for women than men. The lower rates could be due to the fact that women may be performing household duties and caring for children, looking after elderly parents or family members who are ill, attending school or retiring on a pension.

Women’s employment is still concentrated in traditional, lower paying fields. As shown in Figure 3.2, women most often work in service industries, health care, finance and insurance, and education. Compared to men, there are five times as many women working in the health care and social service sectors. Certain categories such as retail trade or accommodation and food services do not pay well and do not provide opportunities for advancement. On the other hand, men are almost six times as likely as women to work in construction, about three times as likely to work in transportation and warehousing and twice as likely to work in manufacturing, which all have better pay and more positive future prospects.

Figure 3.1

Select Labour Market Statistics, Age 25-54, by Sex, BC, 2010

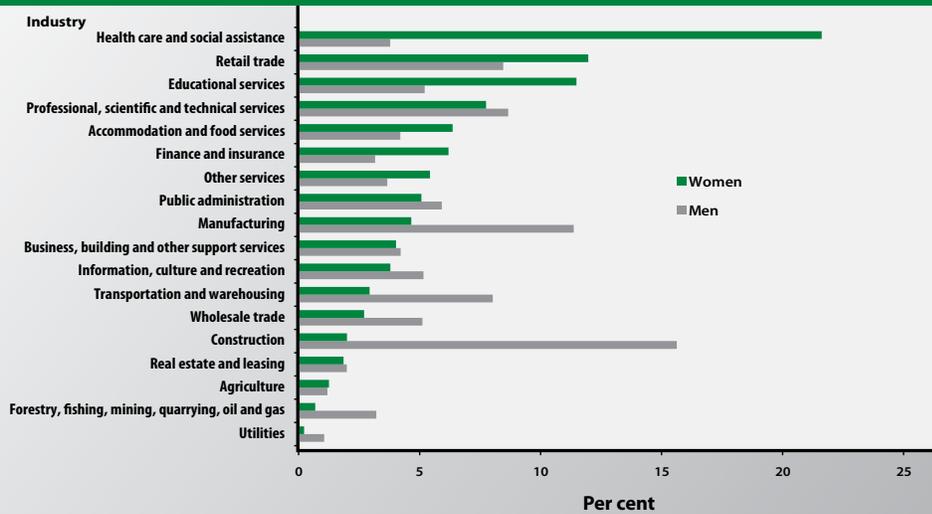


Note: The employment rate represents persons in employment, as a percentage of the working age labour force. The unemployment rate represents the number of persons who are not employed, as a percentage of the working age labour force. The labour force participation rate is the ratio of the labour force to the working age population, expressed as a percentage. Persons not in the labour force includes all persons who were neither employed or unemployed during the short reference period used to measure current activity. They may be classified as attending an educational institution, performing household duties, retired on pension or capital income, or other reasons, including disability or impairment.

Source: Statistics Canada, CANSIM Table 282-0002; data provided by BC Stats; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

Figure
3.2

Women and Men Employed in the Labour Force, Age 25-54, by Sex and Industry, BC, 2010



Note: This chart includes those people in the labour force who were employed at the time and does not include those who were unemployed. People working in industries deemed to be "unclassified" have been excluded.

Source: Statistics Canada, CANSIM table 282-0008; data provided by BC Stats; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

Unemployment

Unemployment has been consistently linked to poor health and has been associated with higher mortality rates, especially from heart disease and suicide. Women who are unemployed have higher rates of anxiety and depression and lower self-rated health status.⁶

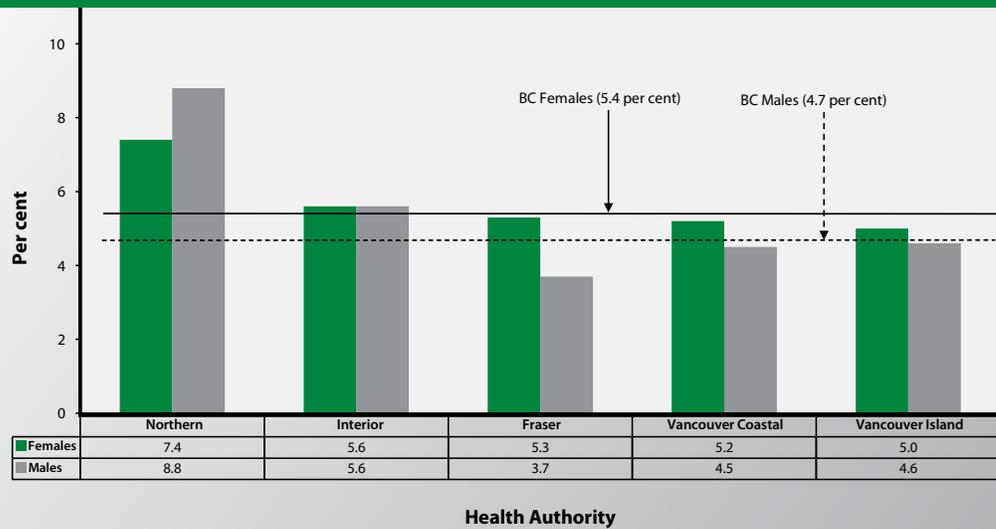
Many women have been negatively affected by cuts to Canadian social programs, such as Employment Insurance. For example, only 39.1 per cent of women in BC received Employment Insurance in 2008, compared with 45.5 per cent of men, whereas in 1989, 70 per cent of women would have been covered by this program.⁹ In BC, only 34.7 per cent of women received Employment Insurance in 2008 compared to 41.4 per cent of men.¹⁰ Employment Canada has expanded maternity benefits to self-employed workers, which enables women in this group to access benefits. As many studies have found, it is not just that low income status is more likely to be associated with poor health; it's that inequity itself can make people sick. People who are poor are more prone to depression, anxiety, problematic substance use, and feelings of hostility, despair and hopelessness.¹¹

In 2006, women in BC had a slightly higher unemployment rate than men (5.4 per cent among females looking for work compared to 4.7 per cent among males). An examination of regional trends in BC for that year reveals a fairly consistent unemployment rate for women (in the 5 per cent range) in every region, with the exception of Northern Health Authority at 7.4 per cent (Figure 3.3).



Figure 3.3

Unemployment Rate, Age 25+, by Sex and Health Authority, BC, 2006



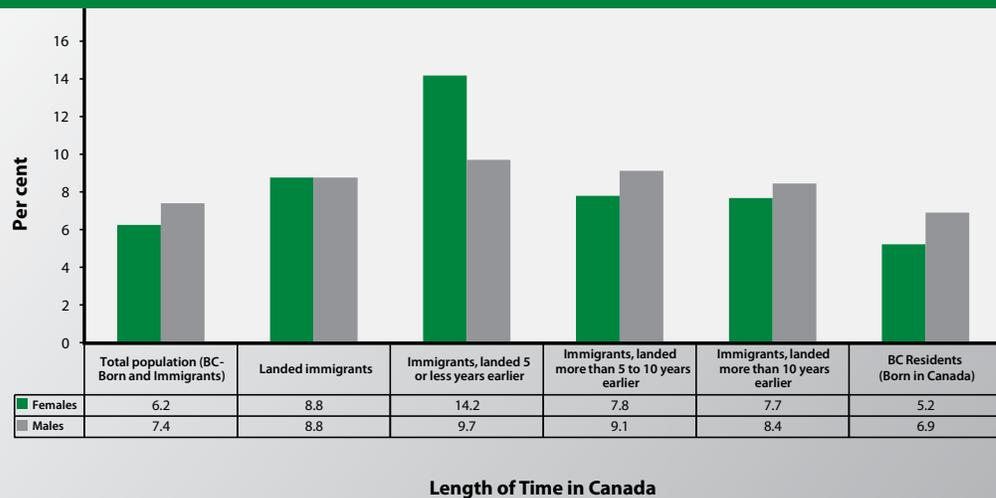
Source: Statistics Canada 2006 Census data; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

BC has a higher proportion of immigrants (27.5 per cent of the BC population) than other provinces, and there are more immigrant women than men living in BC.¹² As shown in Figure 3.4, it is more difficult for immigrant women in BC to gain

employment than non-immigrant women. Overall, immigrant women and men are equally likely to experience unemployment and at higher rates than non-immigrant BC residents. Within the first five years of landing, immigrant women are more

Figure 3.4

Unemployment Rate for Immigrants, Age 25-54, by Sex and Length of Time in Canada, BC, January 2010



Note: The employment rate for BC residents (men and women) that were Canadian-born has been included for comparison purposes. All other categories apply to immigrant men and women. These 2010 annual rates were based on the monthly unemployment rates extracted from CANSIM table 282-0107 and are therefore subject to slight rounding errors.
Source: Statistics Canada, CANSIM Table 282-0107 (Labour Force Survey estimates, by immigrant status), 2010; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

likely to be unemployed than immigrant men, but after five years the trend reverses and immigrant women are more likely to be employed.

According to a recent study by Statistics Canada,¹³ immigrants who arrived in the 1990s and 2000s are not reporting as much satisfaction with life in Canada as those who landed in earlier decades. Among immigrants who arrived in 2000/2001, those in the skilled worker category, university degree holders, and persons between the ages of 35–54 were less likely to give positive assessments of life in Canada. The disparity between expectations and outcomes is greater for the latter group. One-third of immigrants in the skilled worker category reported being worse off in material terms than they were prior to immigration.

There are a variety of barriers that make it difficult for immigrant women to gain employment, including lack of English language proficiency, access to training and employment services; difficulty in transferring foreign educational credentials; and lack of access to child care, as immigrant women are often not eligible for government subsidies, and may not

be able to rely on friends and family due to the social isolation that often follows immigration to a new country.

Education

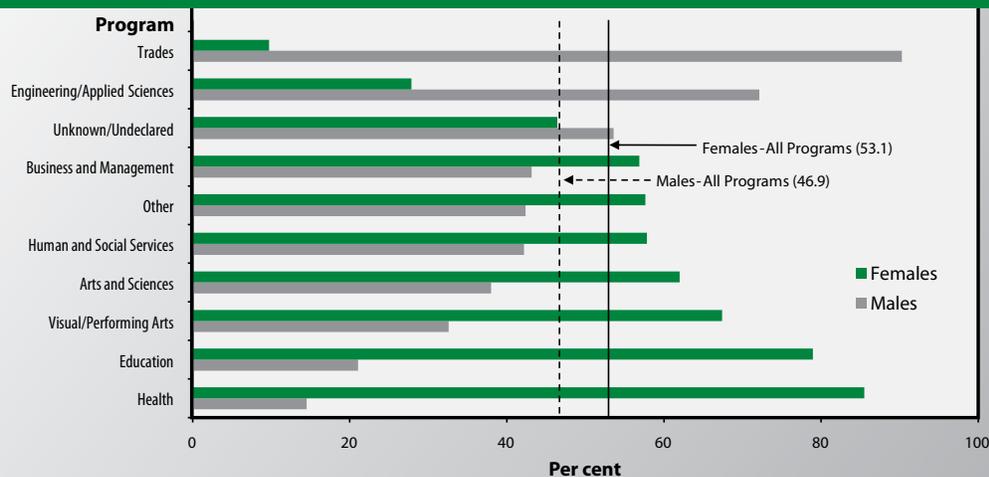
Young women are no longer restricted to a narrow set of educational opportunities and career paths; nevertheless, women's educational and occupational choices and attainments have been and continue to be different from those of men. Post-secondary enrolment data from the BC Ministry of Advanced Education (Figure 3.5) show that in the 2007/2008 academic year, females represented 53.1 per cent of overall enrolment in post-secondary compared to 46.9 per cent for males. The majority of female students were in the fields of health (85.5 per cent), education (78.9 per cent) and visual/performing arts (67.4 per cent). The proportion of females was much lower in the fields of trades (9.7 per cent) and engineering/applied sciences (27.9 per cent).

Field of Study

Although more BC women than ever before are successfully pursuing post-secondary studies, there is still a large gender gap in

Figure
3.5

Post-secondary Enrolment, Non-Research Institutions,
by Sex and Program of Study, BC, 2007/2008 Academic Year



Note: The category "Other" includes Personal Improvement, Leisure Programs, Continuing Education and High School/Secondary Diploma and Certificate Programs. The analysis excludes those records where gender is unidentified. Students enrolled in more than one program are counted in each program in which they are enrolled. Institutions in this data set include Community Colleges, Institutes and Special Purpose Universities. Research Universities are excluded.

Source: Central Data Warehouse, May 2009 submission, Ministry of Advanced Education and Labour Market Development; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

Education and Health

A recent Canadian study showed a strong correlation between lower levels of education and poor health. The health risks for women who have not finished high school are usually quite substantial. Women with lower levels of education are much less likely than those with a university education to breast-feed their child, wear a bicycle helmet or use sunscreen. They are also less likely to have had a mammogram or lead a better than inactive lifestyle.¹

science-related occupations and a gender-based wage gap. A report by the Canadian Council on Learning¹⁴ found a number of factors that discourage girls and women from pursuing science and engineering, including parental attitudes, social pressures and girls' perceptions of and experiences with science. The under-representation of women in science and engineering leads to a similar under-representation of women in related occupations.

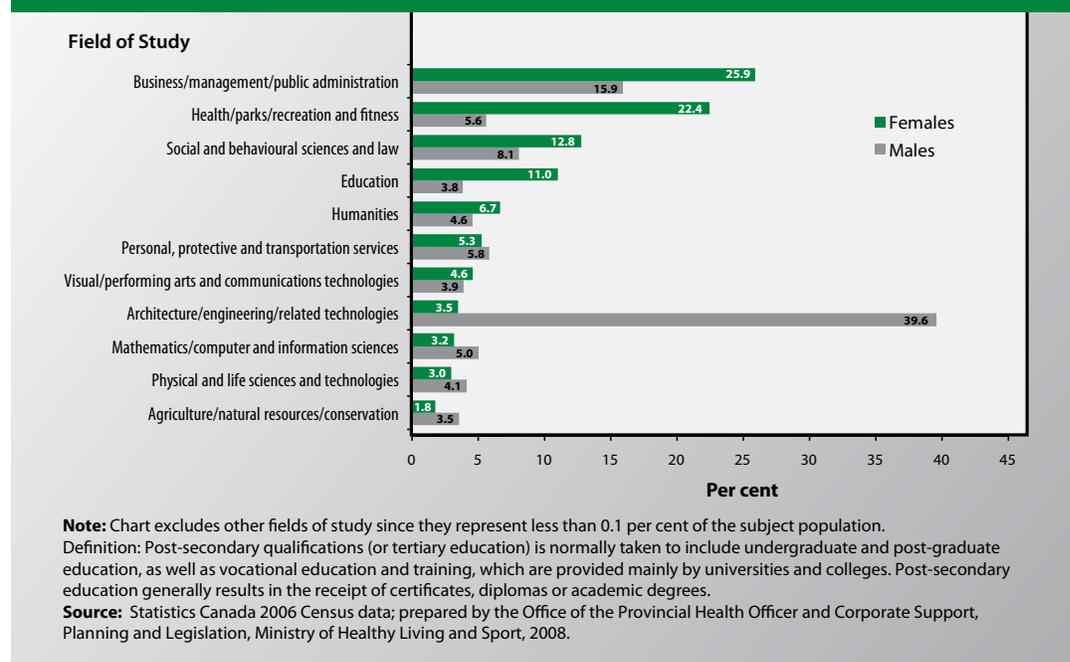
The lack of women in science and engineering also contributes to a gender-based wage gap. In recent years, real wages have decreased in female-dominated disciplines such as health and education, while wages have increased in male-dominated disciplines such as engineering,

mathematics, computer science and physical sciences. Earnings for young men in computer and information systems (the most commonly held occupations among young university-educated men) increased by 15 per cent between 1995 and 2000, while earnings for women in female-dominated fields increased 1 per cent.¹⁴

As seen in Figure 3.6, almost 26 per cent of women had qualifications in the fields of business, management and public administration, compared to almost 16 per cent of men. While these fields include professional occupations in business and finance, they also include administrative, secretarial and clerical occupations, which tend to be at the lower end of income levels. Compared to men, women were four times

Figure 3.6

Total Population with Post-secondary Qualifications, Age 25-64, by Sex and Major Field of Study, BC, 2006



as likely to have qualifications in the fields of health, parks, and recreation and fitness. Conversely, women are under-represented in the fields of architecture, engineering and related technologies, which tend to be high-paying professions that are generally male-dominated. There are over 11 times as many men with post-secondary qualifications in this area (3.5 per cent of women compared to 39.6 per cent of men).

According to the 2005 National Graduates Survey, male graduates had higher earnings than female graduates at all levels of

education. In addition, as the earnings level increased, the gap between the genders also increased among college, bachelor and master graduates. Female graduates were more likely to be working in part-time jobs at all levels of education compared to males, and those who were working full-time generally earned less.¹⁵

Career Advancement for Women

As previously noted, women are more often found in lower paying, service-oriented jobs, so they are not always in a position to influence the decisions that may affect their lives. Figure 3.7 shows the advancement of women in select professions—those that have traditionally been occupied by men and that can lead to the corridors of power.

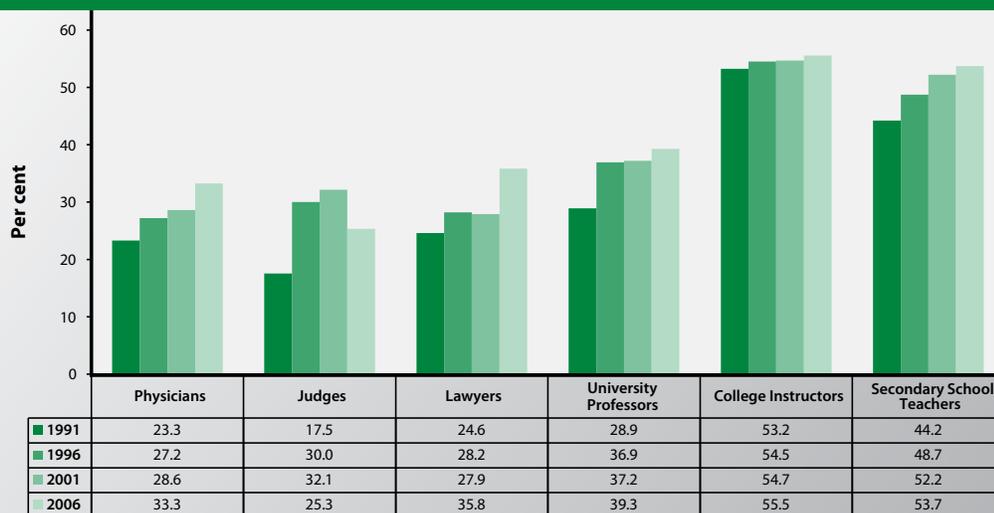
In two areas, secondary school teachers and college instructors, women make up the majority of positions, while at the university level, 39 per cent of positions were held by women in 2006 (Figure 3.7). The percentage of female lawyers has increased from 25 per cent in 1991 to 36 per cent in 2006. However, less than one-third of women lawyers practice full-time, and more women leave the profession than men, according

The Advancement of Women at the University of Victoria

A recent report by the University of Victoria showed that 49 per cent of faculty were women, and the representation of women in senior management positions was 50 per cent, double the national rate of 24.2 per cent.¹⁶

Figure 3.7

Females in Selected Professions, BC, 1991, 1996, 2001, 2006



Source: Statistics Canada, 1991, 1996, 2001 and 2006 Census data, provided by BC Stats; prepared by the Office of the Provincial Health Officer, May 2010.

to a Law Society of British Columbia task force on retention and advancement of women in private practice.¹⁷ A similar shift is being experienced for physicians, with the percentage of female physicians increasing from 23 per cent in 1991 to 33 per cent in 2006. Physician graduation rates are higher for females than males, so as the baby boomers retire, the percentage of female doctors will increase. The percentage of female judges has not shown a consistent trend.

Women on Boards: The Glass Ceiling

Research¹⁸ has shown that there is a strong business case for companies to appoint more women as members of their boards of directors. Companies with at least two female board members have shown higher returns and better overall financial performance, especially in the areas of audit and risk management, according to research by the Conference Board of Canada. This is a correlation, not a causal link, and may be a sign the company is more flexible and open to new ideas. Female members of the board can serve as role models, and their inclusion on the board can send a signal to other women within the company that their input is valued.

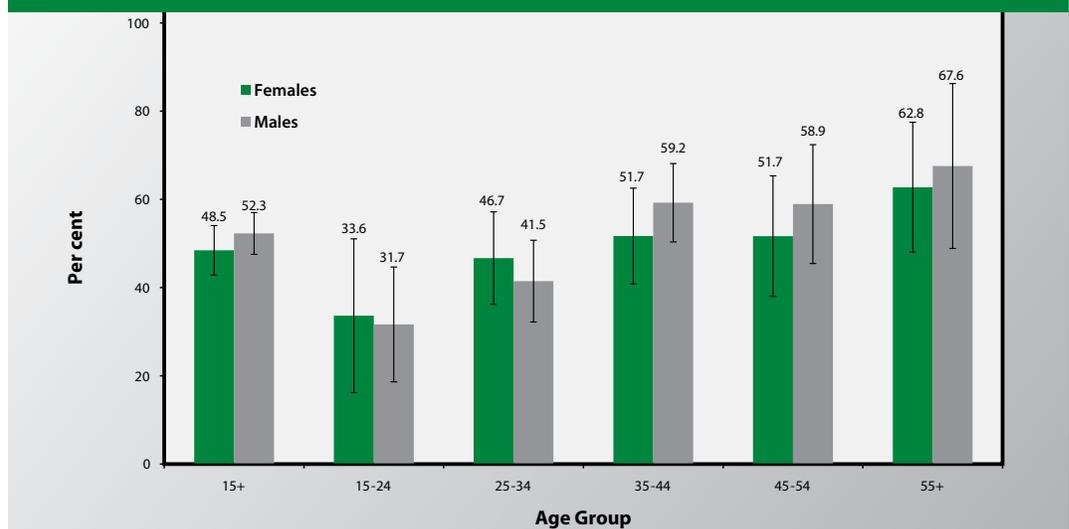
Working Conditions

Some work environments are more supportive and healthier than others. Employees who have more control, fewer stress-related job demands and greater social support at work are healthier. Job satisfaction is higher and health is better when employees are able to use their skills and abilities at work. Figure 3.8 shows that approximately 48.5 per cent of females and 52.3 per cent of males reported being very satisfied with their work. Rates were lower in the teens to mid-twenties but increased over time to a high of almost 63 per cent for females and 67.6 per cent for males. Males had higher rates of job satisfaction from 35 years and over, possibly an indication of their stronger career progress and the challenges many women face juggling family and career. However, the differences between the sexes were not statistically significant for any age group.

A characteristic that leads to greater job satisfaction is decision latitude, or the ability to control the work flow and have decision-making authority. Close to 76 per cent of females and 81 per cent of males 15 years of age and over reported being very satisfied with their decision latitude at work. Rates were

Figure 3.8

People Who Were Very Satisfied with Their Jobs, Age 15+, by Sex and Age, BC, 2004/2005



Note: Includes those respondents aged 15 and over who were employed at the time of the survey. Includes only those who were very satisfied. Excludes non-responses.
Source: Statistics Canada, National Population Health Survey, 2004/2005; prepared by the Office of the Provincial Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

lowest for those aged 15–24 (a time when people are starting out in the workforce) and rose as experience was gained and a career path was developed. Differences between the sexes were not statistically significant.

Income

Previous research has shown that income is a key determinant of health. Adequate income ensures safe housing and the ability to afford sufficient and nutritious food. Low-income Canadians are more likely to die at a younger age and suffer from illnesses compared to those with higher incomes, regardless of age, gender, race or place of residence.

The degree of control that people have over their own life circumstances and their discretion to act are key influences on their health. Higher income and social status generally result in more control and discretion. The healthiest populations occur in societies with equitable distribution of wealth. It has been suggested that the distribution of income in a given society may be a more important determinant of health than the total amount of income earned

by society members. In fact, large gaps in income distribution can lead to increased social problems and poorer health among the population as a whole.¹⁹

Income Distribution

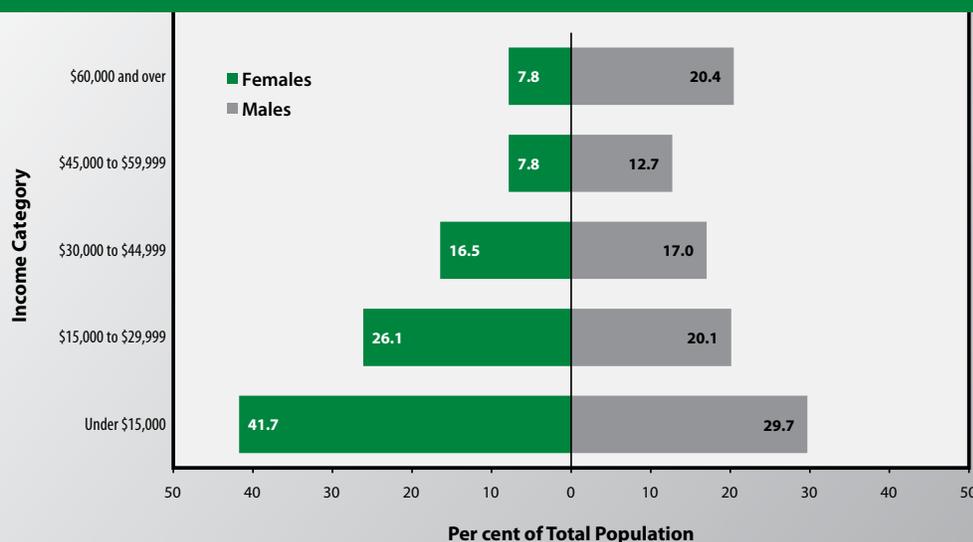
Figure 3.9 shows, based on 2006 Census data, there were almost 40 per cent more women than men struggling with an income of less than \$15,000 per year (41.7 per cent of women and 29.7 per cent of men). The gender gap is also evident in the higher income categories; for example, there are over two-and-a-half times as many men in the \$60,000 and over income category.

Based on a full-time, annual salary, women earned an average of 71.3 cents for every dollar a man earned in 2008, down from 71.9 in 2006.²⁰ If the calculation is done based on an hourly wage, women in 2008 earned 83.3 cents for every dollar earned by men, up from 75.7 in 1988. Figure 3.10 shows the shift in percentage of the female-to-male hourly wage ratio by select age groups between 1988 and 2008. Women in their mid- to late-twenties consistently earned in the 90 per cent range of their male counterparts.

“Income is a key determinant of health.”

Figure 3.9

Total Annual Income, by Sex and Income Category, Age 15+, BC, 2006



Source: Statistics Canada, 2006 Census data; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Figure 3.10

Female-to-Male Hourly Wage Ratio, by Age, Canada, 1988 to 2008



Note: The female-male wage ratio is calculated by dividing the female wage rate for a particular group or cohort by the male wage rate for the same group or cohort. The unit of measurement is hourly wages expressed in 2007 dollars.
Source: Statistics Canada, Labour Market Activity Survey, 1988 to 1990; Survey of Labour and Income Dynamics, 1993 to 1996; Labour Force Survey, 1998 to 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

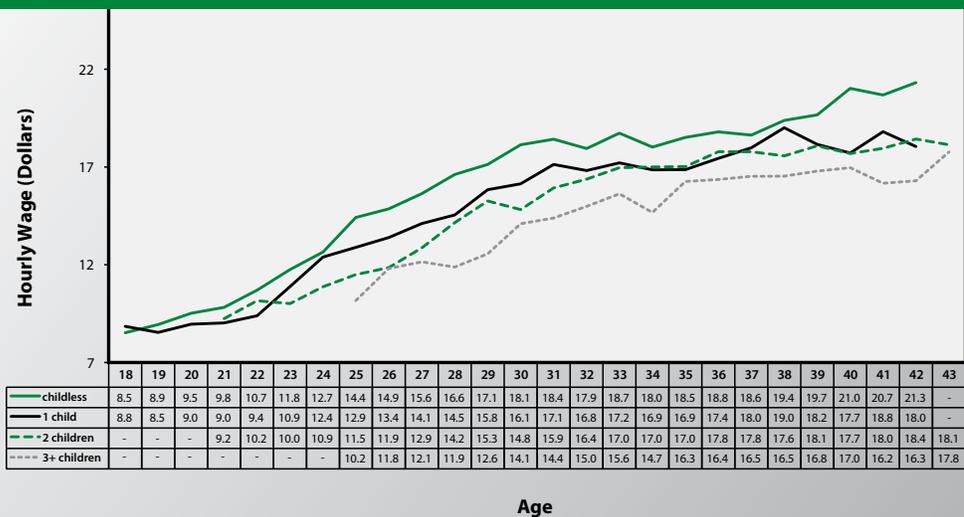
The 45–49 age group had the lowest ratio, while the 50–54 age group had the largest improvement, going from 64.5 per cent in 1988 to 80.7 per cent in 2008.

In addition to the income gap that exists between men and women, there is also an income gap between women with children

and those without. A recent study²¹ found that the earnings of women with children were 12 per cent less than women with no children. The study also showed that the wage gap widened when there were more children: approximately 20 per cent for women who had three or more children (Figure 3.11). In addition, when mothers

Figure 3.11

Comparative Hourly Wages for Childless Women and Women with Children at Home, Age 18-43, Canada, 1993-2004



Note: Some data series in this chart do not cover the full age range (18-43) because of relatively small numbers for those age ranges.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 1993 to 2004. As presented in the research article, Earnings of Women With and Without Children, by X. Zhang, March 2009.

**Table
3.1****Median Earnings of Recent Immigrants and Canadian-born Wage Earners with or without a University Degree, Age 25-54, by Sex, Canada, 1980 to 2005**

Year	Recent Immigrant Earners				Canadian-born Earners				Earnings Ratio (Recent Immigrant to Canadian-born)			
	With a University Degree		Without a University Degree		With a University Degree		Without a University Degree		With a University Degree		Without a University Degree	
	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males
1980	24,317	48,541	18,548	36,467	41,241	63,040	21,463	43,641	0.59	0.77	0.86	0.84
1990	25,959	38,351	17,931	27,301	41,245	61,332	23,267	40,757	0.63	0.63	0.77	0.67
2000	22,511	35,816	16,794	25,951	43,637	61,505	25,622	39,902	0.52	0.58	0.66	0.65
2005	18,969	30,332	14,233	24,470	44,545	62,566	25,590	40,235	0.43	0.48	0.56	0.61

Note: 2005 constant dollars. The numbers refer to all earners, whether or not they worked on a full-time basis for a full year. Individuals with self-employment income are included, while those living in institutions are excluded.

Source: Statistics Canada, Census data, 1981, 1991, 2001, 2006.

remained out of the workforce for longer periods of time, the wage gap was even greater.

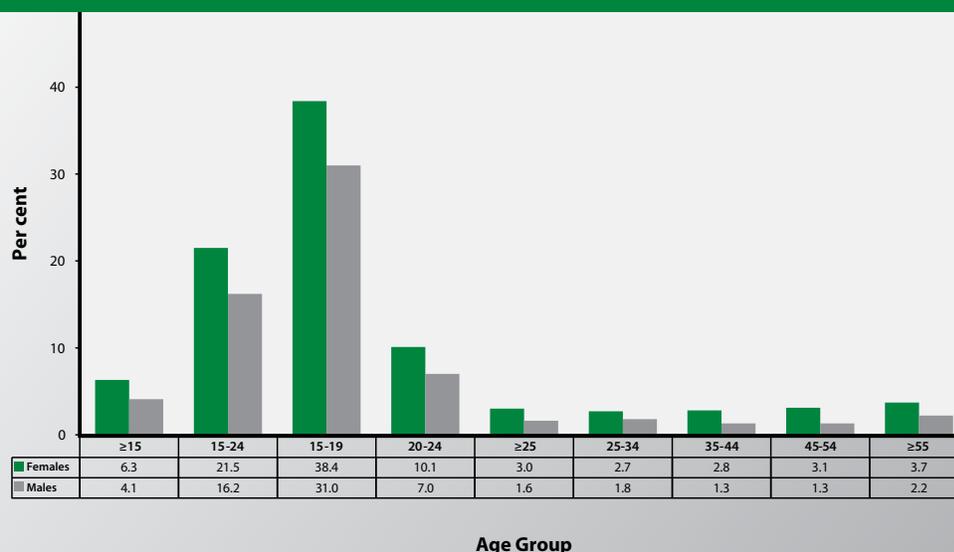
Earnings were even lower for immigrant women. Comparing the median earnings of immigrant men and women and the earnings of their Canadian-born counterparts, it appears that the gap in earnings between immigrants and the Canadian-born population is increasing, particularly for immigrant women.

Table 3.1 shows that since 1980, immigrant women with no university degree have gone from earning 86 cents for every dollar earned by Canadian-born women to 56 cents for

every dollar (2005 constant dollars). In the same time period, immigrant women with degrees have gone from earning 59 cents for every dollar earned by Canadian-born women to 43 cents for every dollar.

Figure 3.12 shows the incidence of people working for minimum wage in Canada. More women than men are minimum wage earners in all age groups, with the highest percentage in the 15–19 age group. This information is consistent with labour force distribution information presented previously (Figure 3.2), which showed that many women worked in the lower paying retail and accommodation/food services sectors.

“ Since 1980, immigrant women with no university degree have gone from earning 86 cents for every dollar earned by Canadian-born women to 56 cents for every dollar. ”

**Figure
3.12****Proportion of Employees Who Work for Minimum Wage, by Sex and Age, Canada, 2008**

Source: Statistics Canada, Labour Force Survey, 2008; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

Low Income

As many studies have found, it is not just that low income status is more likely to be associated with poor health; it's that inequity itself can make people sick. People who are poor are more prone to depression, anxiety, drug use, and feelings of hostility, despair and hopelessness.¹¹ Individuals living in households with combined incomes of less than \$20,000 are almost three times more likely to experience a decline in self-rated health than people with the highest incomes. Stressors such as job strain, financial problems and marital problems were more common among lower income individuals.²² Ethnic minorities are dramatically over-represented among the poor, with poverty rates among some communities being four times higher than those of European heritage. A report by the Canadian Association of Social Workers¹ also indicates that immigrants are staying poor longer over time and it is not simply a case of a “lag-time” before they catch up with the majority of other Canadians.

A common measure of low income in Canada is the Low Income Cut-offs (LICO) reported by Statistics Canada. The LICO is an income threshold below which a family or individual

will likely devote a larger share of their income on the necessities of food, shelter and clothing than the average family or unattached individual.²³ Figure 3.13 shows that elderly females are most likely to be living below the LICO at 22 per cent, followed by female lone-parent families at 16.4 per cent. The female lone-parent rate dropped below the elderly female rate in 2008 for the first time in over 25 years and may be due to the increased longevity of women and the increasing proportion of the population who are seniors aged 65 and over.

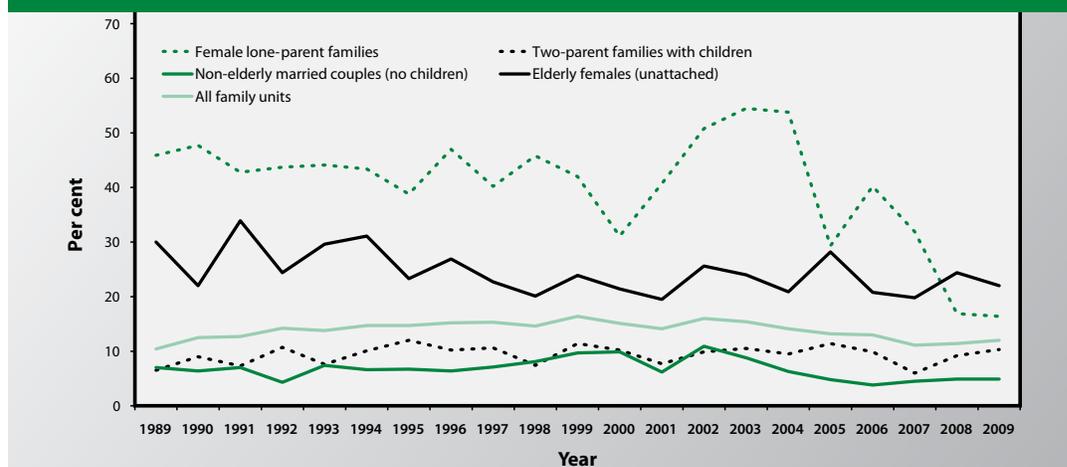
As Townson²⁴ observed, “children are poor because their parents are poor. And it is the poverty of women that is behind the poverty of so many of our children.” Reports such as one published by the Canadian Association of Social Workers in 2006¹ have pointed to the “mathematics of the daily routine” for lone-parent, low-income women, who often have little time for family and friends and are constantly working long hours (cooking, cleaning, shopping, doing laundry and helping children with homework). They often feel shame when they cannot provide for their families. Even something as simple as a doctor’s appointment could translate into missing a day’s pay—a situation that can mean hardships elsewhere in their life.

“Poverty: a human condition characterized by the sustained or chronic deprivation of the resources, capabilities, choices, security and power necessary for the enjoyment of an adequate standard of living and other civil, cultural, economic, political and social rights.”

United Nations Office of the High Commissioner for Human Rights

Figure 3.13

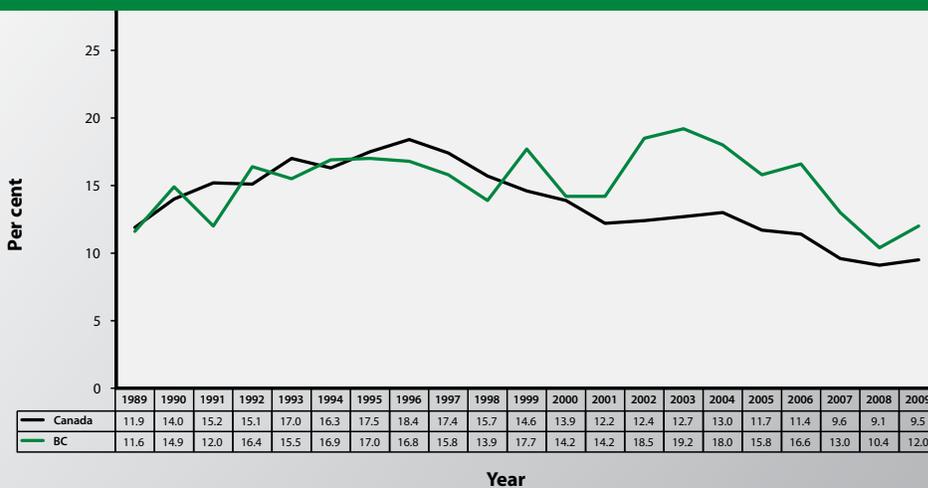
Low-Income Rates, by Select Family Type and Unattached Individuals, BC, 1989 to 2009



Note: After-tax low-income cut-offs (1992 base) were determined from an analysis of the 1992 Family Expenditure Survey data. These income limits were selected on the basis that families with incomes below these limits usually spent 63.6 per cent or more of their income on food, shelter and clothing. Low-income cut-offs were differentiated by community size of residence and family size. An economic family is a group of individuals sharing a common dwelling unit who are related by blood, marriage (including common-law relationships), or adoption.
Source: Statistics Canada, CANSIM Table 202-0804 - Persons in low income, by economic family type, annual data; data provided by BC Stats; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Figure
3.14

Child Poverty, BC and Canada, 1989 to 2009



Note: After-tax low-income cut-offs (1992 base) were determined from an analysis of the 1992 Family Expenditure Survey data. These income limits were selected on the basis that families with incomes below these limits usually spent 63.6 per cent or more of their income on food, shelter and clothing. Low-income cut-offs were differentiated by community size of residence and family size.

Source: Statistics Canada, CANSIM Table 202-0804 - Persons in low income, annual data; data provided by BC Stats; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Research in early childhood development and education has demonstrated that the conditions experienced by children from birth to age five have a key impact on an individual's health and well-being and future productivity.²⁵ As seen in Figure 3.14, child poverty rates in BC dropped to a 20-year low in 2008, possibly reflecting the province's stronger economic performance between 2006 and 2008; however, the BC rate was still above the national average. In 2009, it rose to 12 per cent, well above the national average of 9.5 per cent, an increase of over 15 per cent since 2008. Most of the increase is due to the rise in the number of two-parent families with children living below LICO.

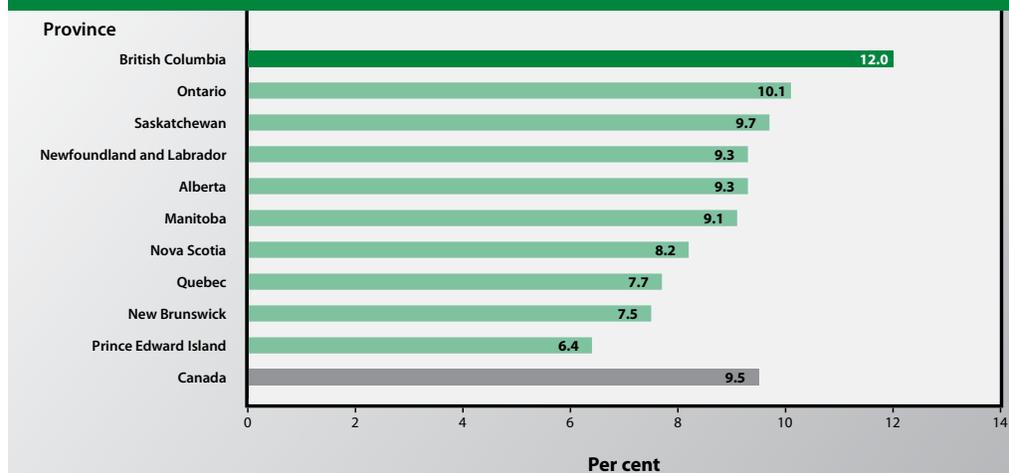
“ Children are poor because their parents are poor. And it is the poverty of women that is behind the poverty of so many of our children. ”

M. Townson, 2000



Figure
3.15

Child Poverty Rate, by Province, Canada, 2009



Note: After-tax low-income cut-offs (1992 base) were determined from an analysis of the 1992 Family Expenditure Survey data. These income limits were selected on the basis that families with incomes below these limits usually spent 63.6 per cent or more of their income on food, shelter and clothing. Low-income cut-offs were differentiated by community size of residence and family size.

Source: Statistics Canada, CANSIM Table 202-0804 - Persons in low income, annual data by province; data provided by BC Stats; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

BC continues to have the highest child poverty rate in Canada at 12 per cent, 26 per cent higher than the national average (Figure 3.15) and well above the second highest province, Ontario, at 10.1 per cent. Potential contributing factors are the provincial minimum wage, which was the lowest in Canada at that time, and the high cost of housing, both rental and owned, in the two largest urban centres in BC.²⁶

Caregiving and Housework

The difference between care provided in the past and present is that in today's society, women are more likely to be working outside the home. As well, many caregivers will be caring for children, in addition to caring for aging parents. This "sandwich generation" is likely to grow, due to factors such as an aging population and delayed marriage and children.²⁷

Child Care

Quality child care helps support women's equality—without proper child care, women are unable to meet their children's needs and participate fully in economic,

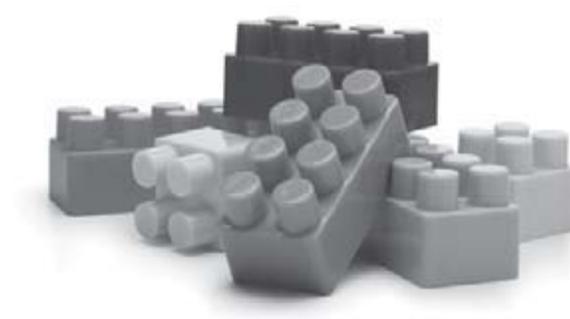
social, political or cultural life. Child care is necessary if parents are to work, train or educate themselves, and is essential for poor families struggling to make a better life for themselves. In Canada, responsibility for education and child care fall primarily under provincial jurisdiction; the federal role is limited largely to the transfer of funds to provincial and territorial governments for early childhood programs and services.²⁸

In January 2006, the federal government gave one year's notice that it would cancel the bilateral child care agreements with the provinces, to be replaced with a taxable Child Care Allowance (renamed the Universal Child Care Benefit) of \$100 a month for every child under age 6.²⁸ Although the face value of the Universal Child Care Benefit is \$1,200 for each child under age 6, in reality some families receive less, because the benefit increases their taxable income, which results in reductions in federal and provincial/territorial income-tested benefits as well as increases in taxes.

In British Columbia, access to child care is a challenge for many families. In October 2008, the BC Child Care Advocacy Forum made a submission to the BC government's

Select Standing Committee on Finance and Government Services. They described child care in BC as “going backwards” in three main areas. The first area was parent fees for child care, which went up dramatically from 2001 to 2006. According to their submission, fees for preschool-aged children had increased by \$672/month compared to 2001. For school-aged children, the increase was in excess of \$800/month. The second area was growing wait lists for child care in BC, particularly for infant and toddler care, and before- and after-school care. The submission argued that government proposals for new licensed child care spaces would be insufficient to fill the gap. The third area of concern was continued low wages for child care workers, most of whom are women, with wages for some actually decreasing. In some cases, this has resulted in early childhood educators leaving the field to pursue other careers, which reduces the availability of quality child care.²⁹

In Quebec, the provincial government implemented a \$5/day child care system in 1997, which has now evolved into a \$7/day child care system. The program has been very successful, as it has 43 per cent of Canada’s regulated child care spaces (as of 2007), while

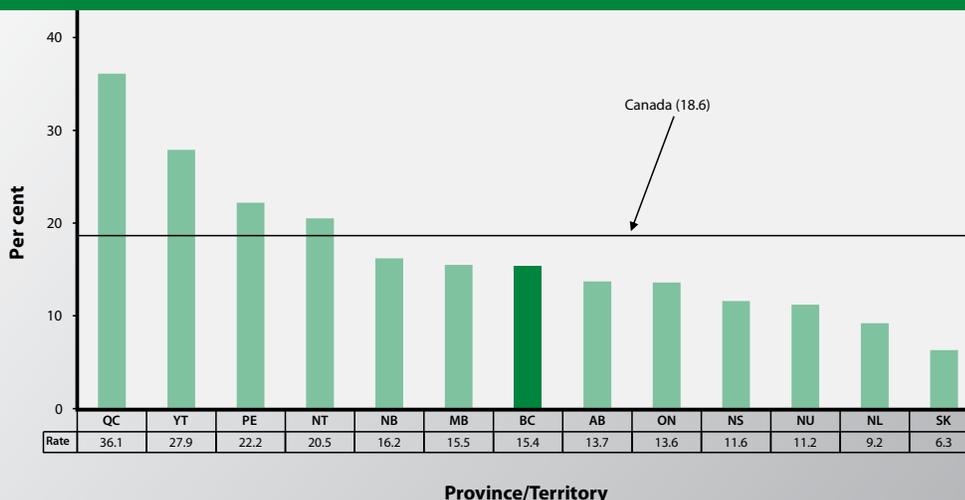


having only 23 per cent of the country’s children under the age of 13 years.²⁵ The costs associated with such a program have been given as a reason for other provinces not undertaking similar programs. In a 2007 study, Kershaw²⁵ stated that in many Canadian jurisdictions, child care has simply not been made a priority. The study points to an Organisation for Economic Co-operation and Development ranking of early learning and child care services, where Canada ranked last compared to 14 other countries with comparable expenditure data.

Figure 3.16 shows that Quebec has the greatest percentage of available regulated child care spaces for children 0–12 years, at 36.1 per cent. This is almost double the Canadian average of 18.6 per cent, and more than double the BC average of 15.4 per cent.

**Figure
3.16**

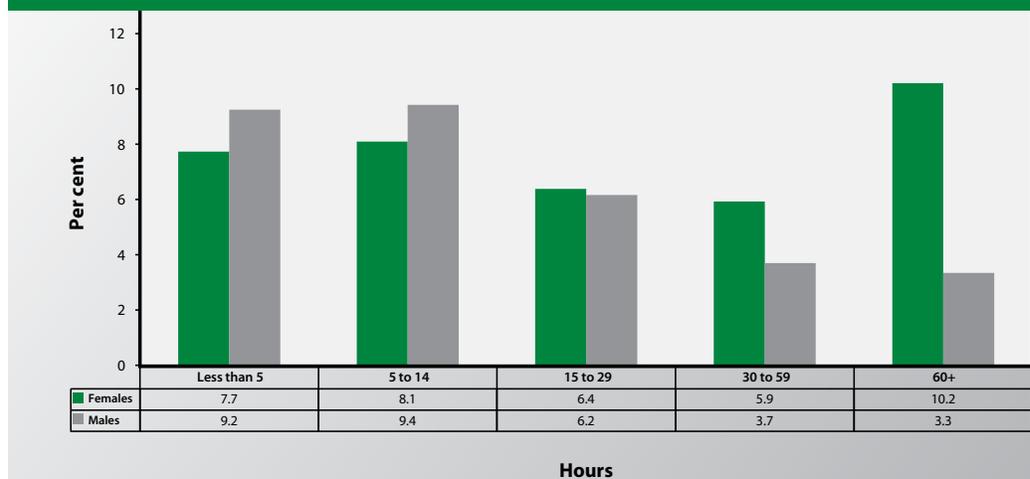
**Children for Whom There Is a Regulated Child Care Space, Age 0-12,
by Province/Territory, Canada, 2008**



Source: 2008 data taken from table number 23 of *Early Childhood Education and Care in Canada 2008*, 8th edition, 2009. Please refer to the publication for other available years and detailed footnotes; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

Figure
3.17

Unpaid Hours Spent Looking After Children, Age 15+, by Sex, BC, 2006



Note: The census data reported that 61.7 per cent of women and 68.1 per cent of men did not spend any time looking after children without pay (not shown). All differences between the sexes are statistically significant. Looking after children includes looking after one or more of this person's own children, or the children of others, without pay (e.g., bathing or playing with young children, driving children to sports activities or helping them with homework, and talking with teens about their problems).

Source: Statistics Canada 2006 Census data; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

Regardless of their occupation or employment status, women most often have the primary responsibility for maintaining the household and caring for children. Figure 3.17 uses 2006 Census data to compare the hours men and women spend caring for children. The data show that 22.5 per cent of women and 13.2 per cent of men spent 15 or more hours looking after children without pay. There were over three times as many women as men who spent 60 or more hours per week looking after children without pay.

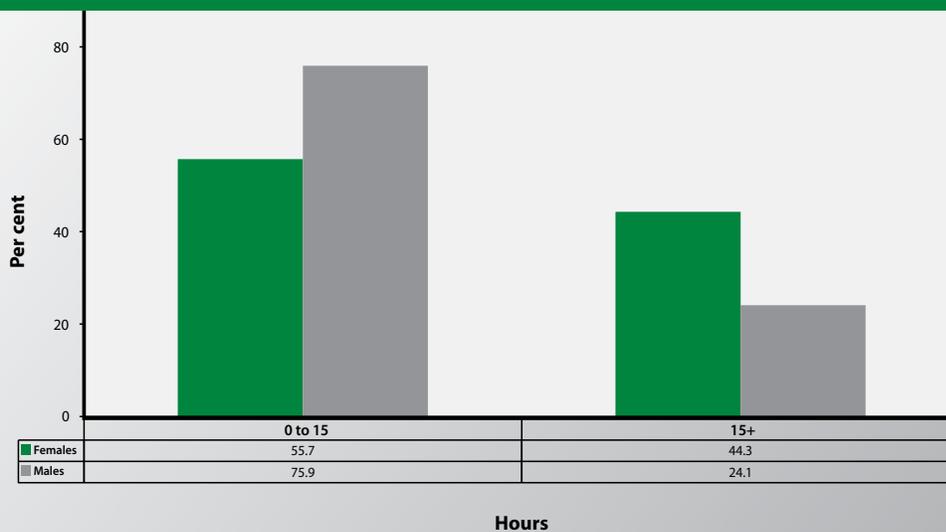
Kershaw's research²⁵ also showed that 94 per cent of stay-at-home parents in single-earner couples are women (based on 2001 Census data). Women employed part-time were also nine times more likely than men to report that child care obligations prevented them from pursuing full-time employment. This study further suggested that a different approach is needed to deal with the influence that policy has on male and female caregiving patterns. More flexibility, particularly for males, is needed in the patterns of paid work time and reductions in paid work over the course of the working life in order to provide more time for caregiving for children. More

specifically, changes in statutory regulations and social norms governing full-time employment, overtime pay and holidays should be considered in order to eliminate the functional division between breadwinner and unpaid caregiver.²⁵

One aspect of child care that is often overlooked is the provision of child care for women who work non-standard hours, such as nurses, who are mostly women. There is a need to expand child care to evenings and weekends in order to address the needs of low-income working mothers and non-employed poor mothers who cannot find a daytime job but who might be able to work during non-standard hours if affordable day care were available. This would also assist women who are furthering their education by taking courses in the evenings.

Housework

In addition to child care, women do a greater portion of housework compared to men. Figure 3.18 shows the number of hours of unpaid housework for men and women based on 2006 Census data. A recent change to the Census format means

**Figure
3.18**
Hours of Unpaid Housework, Age 15+, by Sex, BC, 2006


Source: Statistics Canada 2006 Census data; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

that questions relating to unpaid work will no longer be part of the Census, reducing the amount of information available to researchers about the household division of labour. Over 44 per cent of women do 15 or more hours of housework compared to 24 per cent of men. The vast majority of men (76 per cent) do less than 15 hours of household chores per week. Women are almost twice as likely as men to do more than 15 hours of unpaid housework per week. Men tend to spend more time doing outdoor tasks such as household repairs and automotive maintenance, while women spend time on everyday tasks such as laundry, cooking and cleaning.

An American study by Presser³⁰ in 2003 found that women's share of household work was significantly reduced when both spouses were in professional and management positions. However, this was not attributed to men taking on an increased proportion of household work, but rather to the hiring of domestic help. Male spouses who were much older relative to their female spouses were less likely to do housework, while male spouses with higher levels of education were willing to do a greater share.³⁰ In the case of female lone-parent families, the entire responsibility for earning, caring and housekeeping is born by one person, which significantly increases stress and time constraints.



Seniors Caring for Seniors

In 2007, 24 per cent of caregivers were seniors themselves (over 65 years of age).³¹ Most of these elderly caregivers are women, which is to be expected, given that women on average live longer than men.

**Table
3.2**
Caregiving Tasks

Caregiving Tasks	% Done by Women	% Done by Men
Personal care (e.g., bathing, dressing, toileting, etc.)	37	17
Care management (e.g., scheduling/coordinating caregiving tasks, managing professional help, managing finances, making appointments, etc.)	42	33
Medical care (e.g., assisted with medical treatments or procedures, such as giving injections, changing bandages, giving medications, etc.)	25	17
Inside tasks (e.g., meal preparation, housecleaning, laundry, etc.)	57	32
Outside tasks (e.g., house maintenance, garden work, etc.)	33	53

Source: Statistics Canada, General Social Survey, 2007.³¹

Elder Care

Providing care to elderly relatives is not a new phenomenon. In the past, it was not unusual to find elderly parents living with their children's families, often being cared for by the middle-aged woman in the home.²⁷ Informal elder care is growing. As of 2007, 2.7 million family members and/or friends aged 45+ provided care to a senior due to a long-term health condition,³¹ up from 2 million in 2002. The majority of informal caregivers are women (57 per cent), and 1 in 4 are seniors themselves. The majority of informal caregiving is provided by close family members, almost 70 per cent in 2007.³¹

The type of care provided is often divided along gender lines. Women are more likely than men to provide personal care, care management, medical care, or undertake tasks inside the home, while men are more likely to undertake outside tasks (Table 3.2).

Possibly because the type of care women provide is more time-consuming, women often spend more time caregiving than men. Results from the 2002 General Social Survey showed that female caregivers were more likely to be high-intensity caregivers than men (providing four or more hours per week caregiving): 44 per cent of female caregivers, compared to 27 per cent of males.³²

Caregiving has been shown to have consequences for the caregiver, such as changes in social activities, holiday plans and sleep patterns, and extra expenses.³² These consequences are experienced more often by women, possibly as a result of their higher

Female Caregiver Experiences

18.9% spend less time with children

28.5% miss work

33.7% have extra expenses

levels of caregiving. According to the 2007 General Social Survey, in Canada, 20.9 per cent of female caregivers reported cancelling holiday plans (compared to 15.8 per cent of males); 20.1 per cent reported spending less time with a spouse (compared to 16.8 per cent of males); 18.9 per cent reported spending less time with children (versus 13 per cent); and 33.7 per cent reported having extra expenses (compared to 31.4 per cent of males). In addition, women more often reported missing full days of work (28.5 per cent versus 19.8 per cent for men) or reducing their work hours (16.4 per cent versus 14.7 per cent) compared to men.

An analysis of the results of the 2002 General Social Survey by Pyper³² on balancing career and care showed that the more hours women worked, and the higher the intensity of caregiving provided, the more likely they were to cause stress. Even unemployed women who were low-intensity caregivers (providing one hour or less of caregiving per week) reported feeling stress (25 per cent); however, the longer the hours worked, and the higher the intensity of caregiving, the more stress that was felt: 82 per cent of high-intensity female caregivers working over 40 hours reported sometimes or nearly always feeling stressed balancing responsibilities.

Social Support and Community Belonging

Social support is the practical, physical and emotional comfort given to us by family, friends, co-workers and others. Having social support means knowing that we are part of a community of people who love and care for us: there are people in our world we can count on. Social support can therefore be a resource to support good health. When social support is lacking, it can lead to social isolation and social exclusion. Some groups, particularly those with low income or older adults,^{33,34} are more vulnerable than others.

Loneliness is subjective and is measured by asking questions that gauge relationships, social activity and feelings about interactions with others. On the other hand, social isolation is an objective indicator that can be measured using observations of an individual's social interactions and network. According to the World Health Organization,³⁵ social isolation and exclusion are associated with “increased rates of premature death, lower general well-being, more depression, and a higher level of disability from chronic diseases.” However,



the links between social support and loneliness, and their impacts on health and social service usage, are complex.

Figure 3.19 charts the relationship between the sense of belonging to the local community and self-perceived health. In this

Figure 3.19

Sense of Belonging to the Local Community, with Very Good to Excellent General Health, Age 12+, by Sex, BC, 2007/2008



Sense of Belonging

Note: Excludes non-responses.

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

instance the differences between males and females were not statistically significant. For both sexes, the level of very good to excellent health decreases with diminished feeling of connectedness to the local community. This drops in a stepwise gradient, with only 43.2 per cent of females and 42.2 per cent of males reporting the highest level of health when community connection is very weak.

Research outlined in *Living in Isolation: Women's Experiences of Poverty and Exclusion*³⁶ looked at isolation among low-income women. The research project included over 80 women on low income, 11 community service providers, and six academic researchers from the University of British Columbia. Material scarcity was the most commonly cited reason for isolation. Many women felt their material deprivation led to a loss of self-esteem and increased stress and depression. In fact, the women spoke persistently about social isolation as a “central experience of living in poverty.”³⁶ Lone-parent women also mentioned that they found it difficult to have a social network of friends because their lack of child care meant they were unable to spend time with friends.³⁶ Overall, researchers found that isolation is a result of overlapping personal and systemic issues—such as material scarcity and discrimination, gender roles and responsibilities, health, disability and impairments, and immigration—rather than individual experiences of loneliness and disconnection.

Housing

A good home provides a place of safety, security and personal control and can also be an expression of one's identity. Adequate housing is a key social determinant of health and is of particular concern for women across their lifespan. Despite gains for well-educated women, many others continue to face challenges in finding an adequate place to live.

As mentioned previously, women overall have lower incomes than men, are responsible for the care of other family members and are more likely to live alone as seniors. This gendered division of household labour has a major impact on women's ability to pay for housing and other necessities of life.³⁷ Money often must be taken from other areas of their budget to help cover housing costs. In addition, women are still highly concentrated in a small range of traditionally female occupations and in part-time work.³⁸ Because women earn less over their lifetimes and take time off for childrearing and elder care, they also receive lower Canada Pension Plan benefits, which will adversely affect their income in their senior years. Women will likely have more difficulty securing affordable market housing than men until there are significant changes in responsibility for caregiving of all kinds and for domestic labour, and better access to effective supports such as affordable day care.³⁹

Neighbourhood safety and the built environment are of special concern for women. In some cases, low-end rental or subsidized housing may be poorly managed and maintained, and buildings may be located in areas where gang activity, drug dealing and harassment are common. Friendly, supportive neighbours and safe, well-lit streets, parking facilities, building entrances and stairwells are important to a woman's personal safety and mental and physical well-being.⁴⁰

Women with families need housing with easy access to grocery stores, schools, transit and other facilities. Many are faced with frequent moves to secure more affordable housing, and moving disrupts their child(ren)'s learning and puts them at a disadvantage. Women often do not hold key decision-making positions in society; thus, they often do not have the ability to guide decisions on the issues that profoundly impact their lives, such as taxation, housing policy and funding.^{9,38,39}

In 2005, British Columbia had some of the highest housing costs in Canada; however, the median household income in the same year was approximately \$52,709, which was below the national average of \$53,634 and well below the provinces of Alberta (\$63,988) and Ontario (\$60,455).⁴¹



According to the 2006 Census, British Columbia had some of the highest median single-detached house values in the country, with 18 of its 26 urban centres in the top 50 of about 150 urban areas across the country. Six of the top ten most expensive centres were in BC, with Vancouver and Victoria placing second and third respectively. In British Columbia, 17 of 26 urban centres had housing prices above the national median.⁴¹

Housing that costs less than 30 per cent of before-tax household income is defined as “affordable” by the Canada Mortgage and Housing Corporation. Spending 30 per cent or more of household income on shelter can impact the amount of money available for food, medicine, utilities, transportation and child care.⁴² In 2001, in Canada, there were an estimated 1.5 million households in core housing need, representing about 13.7 per cent of all households in Canada. In 2006, this figure increased to 3 million households—24.9 per cent overall. The high number of households in core housing need is due in part to the rise in shelter costs by 18.5 per cent between 2001 and 2006. This is substantially higher than the inflation rate of 11.3 per cent for that time period.⁴³

While British Columbia had some of the highest housing costs in the country, the median household income in 2005 (\$52,709) was below the Canadian average (\$53,634) and well below that of Alberta (\$63,988) and Ontario (\$60,455). Regions with the highest shelter costs were Squamish-Lillooet, Whistler, Greater Vancouver, Greater Victoria, Central Okanagan, Northern Rockies and the Fraser Valley.⁴¹

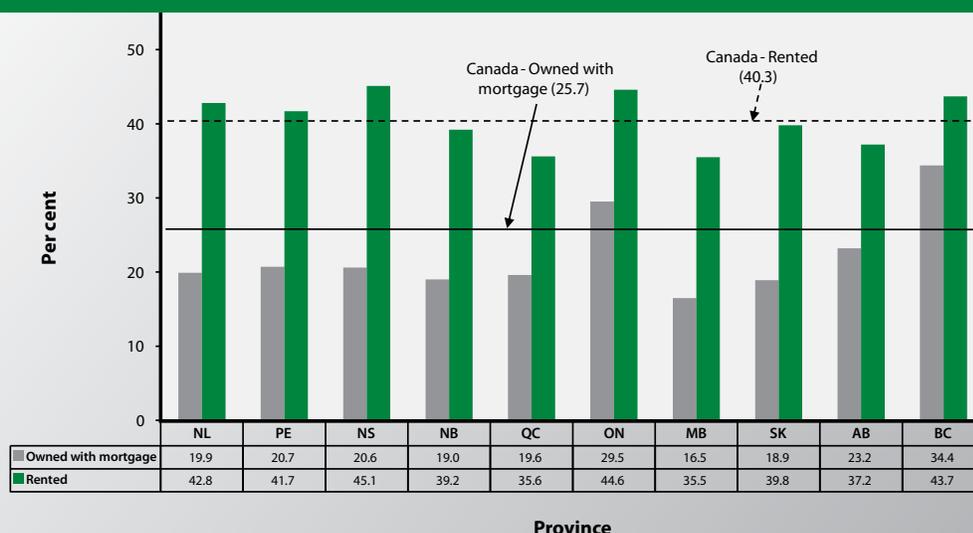
Data from the 2006 Census show that overall, 29.1 per cent of households in BC spent more than 30 per cent of their income on housing (slightly higher than the 2001 rate of 28.6 per cent). Renters in BC were almost twice as likely as homeowners^a to be in this situation (43.7 and 22.8 per cent respectively).⁴¹ Age also had a considerable impact, with nearly 60 per cent of renters either under 25 years of age or 75 years and older having the greatest challenge. Homeowners with mortgages in those age groups were also more likely to experience difficulties with housing affordability.⁴¹

As shown in Figure 3.20, the rates of both renters and homeowners with mortgages spending more than 30 per cent of their household income on shelter were much

Based on the 2006 Census, nearly half of all lone-parent families in BC (80 per cent of whom are women) were spending 30 per cent or more of their household income on shelter.⁴¹

Figure 3.20

Households Spending 30 Per cent or More of Household Income on Shelter, by Province, Canada, 2006



Source: BC Stats, 2006 Census Fast Facts: Housing Affordability in British Columbia (Table 97-554-XCB2006038.ivt), August 2008; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

^a Homeowners with and without mortgages.

higher in BC compared to the national average (43.7 versus 40.3 per cent for renters, and 34.4 versus 25.7 per cent for homeowners). As may be expected, lone-parent family households had the greatest challenge with housing affordability among the household types, with 43.1 per cent spending 30 per cent or more of their household income on shelter.⁴¹

Housing and Social Assistance

Low-income women with children often find it difficult to obtain affordable housing, especially in areas where the market prices are high such as Victoria or Vancouver and the Lower Mainland. Social assistance and employment insurance are set at insufficient levels, forcing women into continued cycles of poverty. Some women stay in abusive situations because they cannot afford alternative housing.

Table 3.3 shows the percentage of social assistance spent on rent for major cities across Canada. In 2005, a single mother in Vancouver spent 86 per cent of her income on rent with \$158 left over for food, transportation, school fees and other expenses.^{44,45}

In the late 1960s, the gap between the income of owners and renters was approximately 20 per cent. Today that gap has widened to the point that many people will never be able to afford to own a home.⁴⁶ Based on Hulchanski's⁴⁶ analysis of Statistics Canada's Survey of Financial Security, between 1984 and 1999, the wealth gap between owners and renters increased by approximately 1 per cent per year. Canadian

homeowners' wealth increased from 29 times the wealth of renters in 1984 to 70 times the wealth of renters in 1999.

According to the 2006 Census, 10 per cent of all rental housing requires major repairs, and the low-end rental stock has an average age of close to 50 years. Social housing stock is deteriorating rapidly due to a chronic under-funding for maintenance and modernization. The most significant decline in provincial spending occurred between 1996 and 2003—the period when the federal government withdrew funding for new social/affordable housing programs. The federal Affordable Housing Initiative has resulted in renewed provincial spending, demonstrating the critical role that federal government cost-shared funding programs play in stimulating provincial involvement.⁴⁷

The University of Victoria-based Women's Housing Action Team (WHAT) developed a model, dubbed the Housing Wheel, to define the key elements for women's housing. Adopting women-friendly housing policies means that the interests and needs of women are understood and that women participate in identifying those interests and in creating responsive housing policy and practice. Building on the Canada Mortgage and Housing Corporation's standards for adequate housing, the Housing Wheel adds further requirements: safety, control (including security and permanence), freedom from discrimination, proximity to necessities (e.g., transportation, schools, etc.), connections and relationships, and advocacy. Safety is necessary for the foundation of physical and mental well-

**Table
3.3**

Welfare Incomes and Average Rents: National Snapshot for 2005

City	Monthly Welfare Income Single Mother + 1 Child	Average Monthly Rent 2-Bedroom Apartment	Remaining Income after Rent (for other costs such as food, transportation, school fees, incidentals, etc.)	Percentage of Income on Rent
Toronto, ON	1,204	1,052	164	87%
Halifax, NS	1,076	762	314	71%
Edmonton, AB	1,027	732	295	71%
Vancouver, BC	1,162	1,004	158	86%

Note: Totals are in Canadian dollars.

Source: Data taken from National Council of Welfare (2006)⁴⁴ and Canada Mortgage and Housing Corporation (2005).⁴⁵

being, both inside and outside the home. Safe housing means having proper lighting and locks, as well as policies and processes that ensure problems with neighbours are dealt with in a fair and timely manner. Close proximity to necessities and easy access to transportation are key requirements and can often be challenging for low-income women. Recognition of the importance of social networks and relationships means having space for friends or family to visit and safe spaces for children to play. Harrison House in Victoria, a transition house for middle-aged women, was developed according to these principles.³⁹

Homelessness

Homelessness represents the extreme experience of insecurity. Studies suggest that homelessness transforms a person's core identity, taking away their sense of personal control and the feeling of being in charge of their lives, disconnecting them from their support network and alienating them from society.^{48,49} When homeless, women fear for their personal safety more than men, and deal with extreme poverty and homelessness by disguising their gender, finding a boyfriend to protect them, or using public facilities to better maintain the appearance of being housed.⁵⁰ Women's homelessness is generally less visible than men's homelessness: they couch surf, stay in shelters, sleep in a car or tent, house sit, stay with older adults for whom they provide care, or stay in abusive relationships because they see no other alternatives.⁵¹ Women are more likely than men to become homeless as a result of domestic violence and often have children with them in these situations.^{52,53}

Programs that have succeeded in reaching out to homeless women take a respectful, non-judgmental and empowering approach. Studies have shown that providing comprehensive, client-centred care that addresses practical needs has a better chance of success than service delivery based on specific steps or stages of support. Interagency collaboration to provide for both medical and non-medical needs and basic supports such as housing and food are essential to stabilizing an individual's life

and helping them take the steps necessary to improve their health.⁵⁴

Homeless Youth

Longitudinal research on Victoria-area youth shows that lower parental education, higher unemployment, limited familial support and household instability are linked to early entry into adulthood for street-involved male and female youth.⁵⁵ Homeless youth are less visible and often sleep outside, avoiding shelters. Their most likely reasons for leaving home are family conflict, violence, abuse or neglect. Many have had previous involvement with the Ministry of Children and Family Development, and the majority use alcohol and/or drugs.⁵² Sexual abuse is both a major cause and consequence of homelessness among young women and girls. Girls who flee their homes due to violence and sexual abuse tend to seek out a partner to provide protection for them on the streets. They often become sexually active to maintain these relationships, even if the relationship is a bad one. Once homeless, girls are much more likely to become pregnant compared to those who remain with their families. The combined challenges of teenage parenting and homelessness make the situation worse.⁵⁶ Evidence shows that children raised on the streets are malnourished, suffer more infections, are developmentally delayed and experience learning difficulties.⁵⁷

Violence Against Women

Violence affects men and women but, in comparison to men, women are more vulnerable because they generally have less access to social, economic and political resources. Violence is about power and control. The United Nations Declaration on the Elimination of Violence against Women defines violence against women as

*any act of gender-based violence that results in, or is likely to result in, physical, sexual or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life.*⁵⁸

“Violence can be prevented and its impact reduced, in the same way that public health efforts have prevented and reduced pregnancy-related complications, workplace injuries, infectious diseases, and illness resulting from contaminated food and water in many parts of the world. The factors that contribute to violent responses—whether they are factors of attitude and behaviour or related to larger social, economic, political and cultural conditions—can be changed.”

—Krug et al., *World Report on Violence and Health*, 2002⁶⁰

Women’s experience with violence varies by socio-economic status, ability/disability, Aboriginality, immigrant status, education, cultural group, geographic location, occupation, religion and sexuality.⁵⁹

Violence against women is difficult to measure, as much of it goes unreported. In 2009, only 23.5 per cent of female spousal violence victims in Canada reported the matter to the police. Women’s reasons for not reporting spousal violence to police were that they considered it a personal matter, had dealt with it another way, it wasn’t important enough, they didn’t want to get involved with the police or didn’t want anyone to find out.⁶¹ In order to get a clearer picture of this important issue, data in this section are taken from multiple sources, including national and provincial surveys, crime statistics and BC hospital data.

Wife assault has not always been illegal in Canada. In earlier times, men were allowed to physically “discipline” their wives within certain limits, and up until 1960, Canada’s Criminal Code had a special provision for “wife battering”. This meant a woman who was beaten by her husband had to prove a higher level of injury than regular assault victims. Starting in the late 1960s and early 1970s, women’s rights advocates began to raise awareness of women’s issues and set up shelters to help women and children escape violent situations. As a result of their actions, laws dealing with violence against women have been strengthened, and societal attitudes have changed.⁶²

Violence and trauma are linked to a number of physical, emotional and psychological health problems including depression,

anxiety, eating disorders and sexual dysfunction; increased sexual risk-taking behaviours among teenage girls; transmission of sexually transmitted infections; and unwanted pregnancies and gynaecological problems. According to the World Health Organization,⁶³ perpetrators of violence against women are almost exclusively men, and usually are men they know. Physical abuse in intimate relationships is generally accompanied by verbal and emotional abuse.

Indicators of potential vulnerability for violence include age, gender, economic status, Aboriginal or immigrant status, and geographic location. Aboriginal women are three times as likely as non-Aboriginal women to be the victim of violence from their partners.⁶⁴ Their vulnerability to violence is due to systemic social, economic and historical factors that arise out of colonization and the multi-generational impact and disruption of healthy family life brought about by residential schools.^{64,65} Aboriginal women often avoid reporting abuse by their partners and others to avoid further trauma and discrimination and to protect themselves from retaliation for speaking out.⁶⁶ The missing women along the “Highway of Tears” and Aboriginal women victims in the Pickton case in the Downtown Eastside are the legacy of colonialist policies that valued one race over another.⁶⁷

Immigrant women can also be vulnerable to violence. Adjusting to life in a new country can be challenging, and difficulty securing skills-related employment can lead to financial tensions and frustration, and lowered self-esteem. Financial challenges can add to the significant burden of stress due to the adjustments of being in a new

country and can lead to violence toward the most vulnerable members of the family.^{68,69} Financial and psychological dependence both contribute to women's hesitancy to leave abusive and violent relationships.⁶⁸ Most immigrant women enter the country as legally married dependents and they may fear losing their status if they leave an abusive partner.⁶⁸

Disabled women are also more likely to be subjected to violence and abuse than other women in Canada. According to the Physical Activity Limitation Survey data presented earlier in this report, approximately 20 per cent of women in British Columbia and Canada are living with disabilities, and they are more vulnerable to abuse from personal attendants, health care providers, strangers and family members.⁷⁰ Research by Brownridge⁷¹ showed women with disabilities were 40 per cent more likely to experience violence in the five years before the study was conducted and to be at risk for severe violence. Women with disabilities are more vulnerable to violence than able-bodied women because they depend on a wider range of people for assistance.⁷² This is compounded by the fact that they also routinely encounter difficulties accessing services.⁷³

Gender Preference

In certain cases, violence against women starts before birth. In most populations, women give birth to slightly more boys than girls, resulting in a sex ratio of about 105 males for every 100 females born. Since infant and child mortality rates are usually higher for boys than for girls, as children

grow up, the number of girls and boys gradually evens out. However, in countries and cultures with a strong preference for sons, studies have shown that the balance has become skewed due to sex-selective abortion. A preference for sons has deep social and cultural roots: male children carry on the family name, inherit the family property and play a special role in family traditions. In such societies, there is considerable pressure for a woman to produce a male heir.^{74,75} In fact, as fertility has declined and sex-selection technology has improved, the ratio of boys to girls has risen steadily in countries or cultures with strong preferences for sons.^{76,77}

A study led by Canadian researcher, Dr. Prabhat Jha,⁷⁸ shows that there is a growing imbalance between the numbers of girls and boys aged 0–6 years in India. It is estimated that there may be as many as 12 million girls “missing” from the population since 1985. The sex-selective abortion of girls, especially if the first born is female, has increased substantially and is now widespread. The practice is more prevalent in mothers with at least ten years of education than in mothers with no education, and in more well-off households than poorer ones. There are indications that this practice is also occurring in BC.⁷⁹

In Canada, sex-selective abortion is not illegal: women are not required to give their reason for terminating a pregnancy, nor is it being suggested that this non-disclosure policy should be changed. However, evidence from the 1993 Royal Commission on Reproductive Health showed that 92 per cent of Canadians are against sex-selective abortions; thus, while sex-selective abortion is not illegal, the public do not support practices that are considered to violate the principle of equality between the sexes.⁸⁰

A 1992 Supreme Court ruling on access to medical records supports a woman's right to autonomy over her personal health records and thus, disclosure of ultrasound results determining fetal sex. To this end, the Society of Obstetricians and Gynaecologists of Canada recommends that fetal genitalia be examined as part of the routine second trimester obstetric ultrasound, and that a

“In certain cases, violence against women starts before birth.”

“There is a clear distinction to be drawn between supporting access to safe abortions, which we vigorously defend, and the abortion of fetuses solely to prevent the births of female babies due to biased socio-cultural norms...It is a practice rooted in misogyny.”

—Raminder and Ujjal Dosanjh,
Ottawa Citizen, April 2008⁷⁹

patient's request for disclosure be respected.⁸⁰ The College of Physicians and Surgeons of British Columbia policy on ultrasound use, which is currently under review, states that any physician who orders or conducts an ultrasound must do so only for appropriate clinical indications. The use of ultrasound for the sole purpose of obtaining a picture or video image of the fetus or to determine the gender of the fetus without medical reasons, is contrary to good medical practice and is not insured under the Medical Services Plan.⁸¹ In 2007, the provincial government did propose a \$50 fee for disclosure of fetal sex at the second trimester ultrasound, but that policy has not been adopted.⁸²

As concerns have been raised in the press over several years regarding the practice of sex-selective abortion, this report examines the data to see if there is evidence of this practice in BC. While direct evidence is not available, the male:female ratio for babies born in BC to parents from other countries of origin can be examined to see if they differed from the ratio for BC residents in general. A study of male and female live births as a proportion of all live births between 1986 and 2009 found that the proportion of male births in the BC

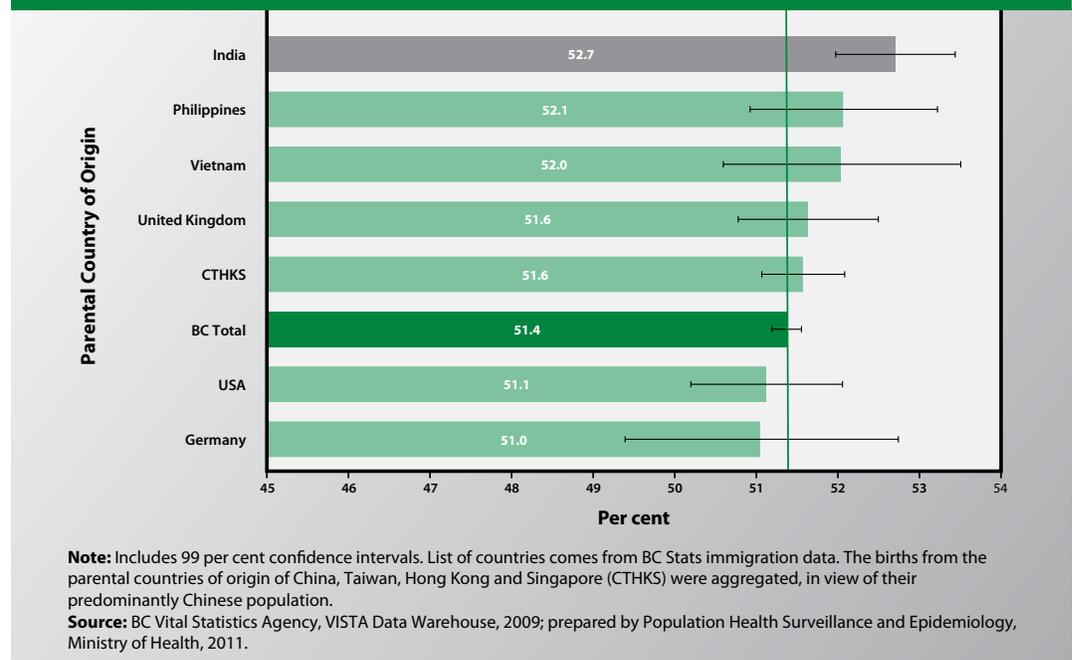
population has increased slightly from 51.2 per cent in 1986 to 51.6 per cent in 2009, a statistically significant change. Accordingly, the proportion of female births gradually decreased from 48.8 per cent in 1986 to 48.4 per cent in 2009.

As a next step, the birth data by parental country of origin was examined. To obtain an adequate volume of data, the parental countries of origin that had more than 10,000 births over the period 1986 to 2009 were examined. The proportion of male births ranged from a high of 52.7 per cent for India, to a low of 51.0 per cent for Germany (Figure 3.21). Differences between the results were conservatively assessed with 99 per cent confidence intervals, and only India had a result that was significantly different (higher) than the BC total, and thus was unlikely to be due to chance. Because of this statistically significant difference, births by the parental country of origin of India were further examined.

The proportion of male births for the Indian (South Asian) immigrant group was higher than the rest of the provincial birth population in 20 of the last 24 years, especially since 1990, with no statistically

Figure 3.21

Male Live Births as a Percentage of Total Births, by Country of Origin of One or Both Parents, BC, 1986-2009



significant trend. Removing the Indian immigrant births from the provincial total births turns the previously noted statistically significant increasing BC male birth trend into a flat trend that is not statistically significant.

Excluding the period prior to 1990, the estimated annual shortfall in female births ranged from 28 to 167, for a total of 1,892, or an average of 95 per year (including the anomalous year 2007, when fewer males were born). In comparison, the average annual estimate of 95 fewer females born during the period 1990 to 2009 compares with a total of 27,168 actual female births over this period, or an average of 1,358 actual female births per year. On average, the 95 fewer female births per year represents 6.5 per cent of the 1,453 expected female births per year. The pattern of increased male births to India country of origin parents is unique among country of origin parents, has persisted for 20 years, and is unlikely to be due to chance alone.

After noting the relatively high proportion of male births to India country of origin parents, it raises the question of whether a similar pattern is evident in culturally

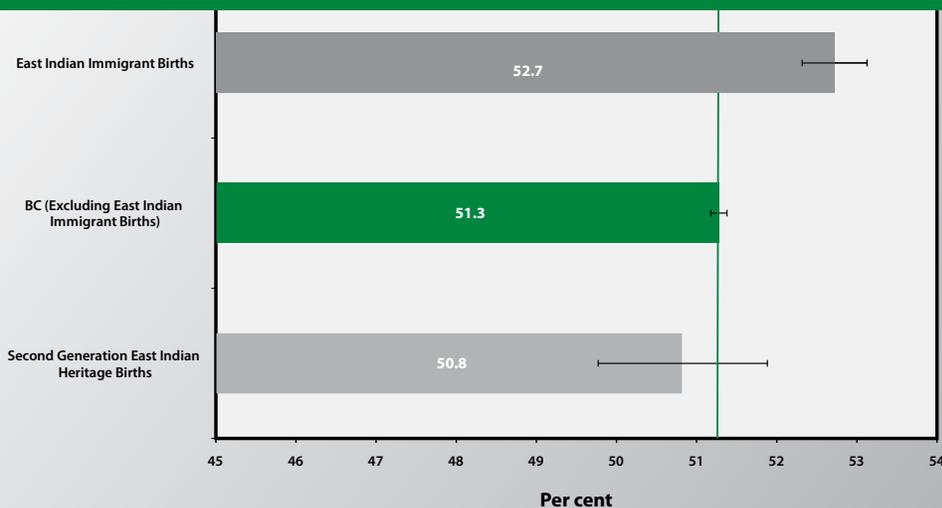
associated parents, i.e., second or subsequent generation parents. In this comparison, Figure 3.22 shows that the male birth proportion in the culturally associated group (50.8 per cent) was not significantly different from the provincial average (51.3 per cent), but was significantly lower than the India (South Asian) immigrant group (52.7 per cent). These data suggest that gender selection is occurring in BC but is clearly not representative of the Indo-Canadian community as a whole.

Violence-related Hospitalization

According to an analysis of police-reported violent crime in Canada, women are more likely than men to be victims of common assault—a form of assault that typically results in less serious injury.⁸³ As such, common assaults would be less likely to require a hospital admission and would not be counted in the analysis that follows in this chapter. Additionally, people who are injured as a result of an assault caused by a partner or family member (as is more often the case with women), might be less inclined to report the true nature of the assault and be more likely to explain the injury as being due to a fall or other unintentional cause. Therefore,

**Figure
3.22**

Percentage of Male Live Births, BC, 1986-2009

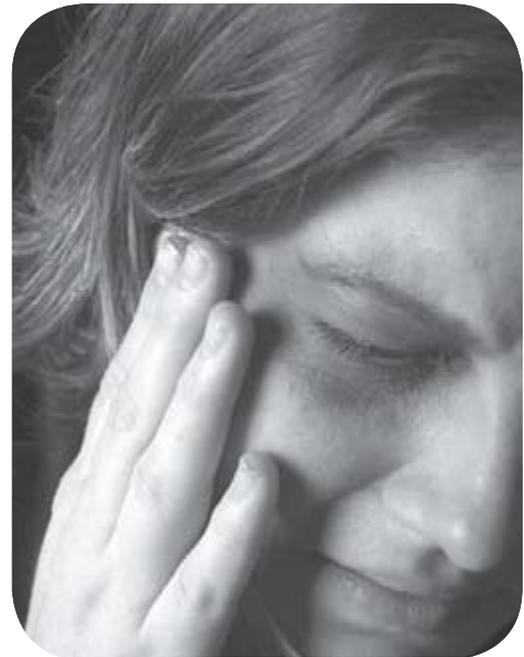


Note: Includes 95% confidence intervals. East Indian heritage is imputed from combined weighted probabilities for partial names estimated from a BC immigrant reference population. The second generation East Indian heritage births exclude births where either parent gives "India" as their country of birth on the child's BC birth registration (i.e., excludes first generation).

Source: Vital Statistics data produced by Health Sector IM/IT Informatics group, Ministry of Health Services; prepared by Population Health Surveillance and Epidemiology, Ministry of Health Services, December 2010.

hospitalization data presented in this section will under-represent forms of violence-related injury more common among women.

Overall, rates of violence-related injuries resulting in hospitalization were considerably lower for women than men across all years. As shown in Figure 3.23, the age-standardized rate for women hospitalized with a violence-related injury was 0.13 per 1,000 in 2009/2010, for a total of 291 women hospitalized during the year with an injury related to a violent incident. During this year, women comprised 16.0 per cent of all cases with a violence-related injury resulting in hospitalization. Over the 10-year period from 2000/2001 to 2009/2010, the age-standardized rate for hospitalization remained relatively stable for women.



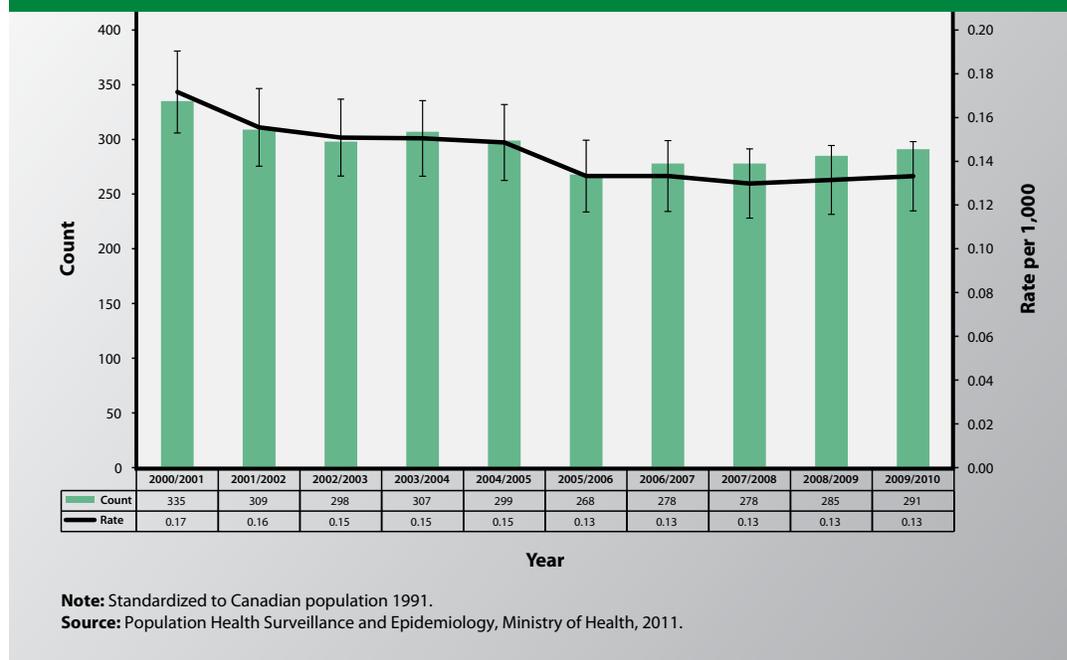
Age-specific rates for 2009/2010 showed markedly different patterns for women compared to men. Rates for men peaked between the ages of 20–24 years, with an age-specific rate of 1.91 per 1,000. For women, rates were highest among those age 35–39 years (0.25 per 1,000). Notably, in early childhood and later in life, differences

between rates for women and men were minimal, and most likely represented incidences of neglect and abuse.

Among both women and men, over half of violence-related injuries resulting in hospitalization were for assault due to bodily force.^b For women, this represented a total of

Figure 3.23

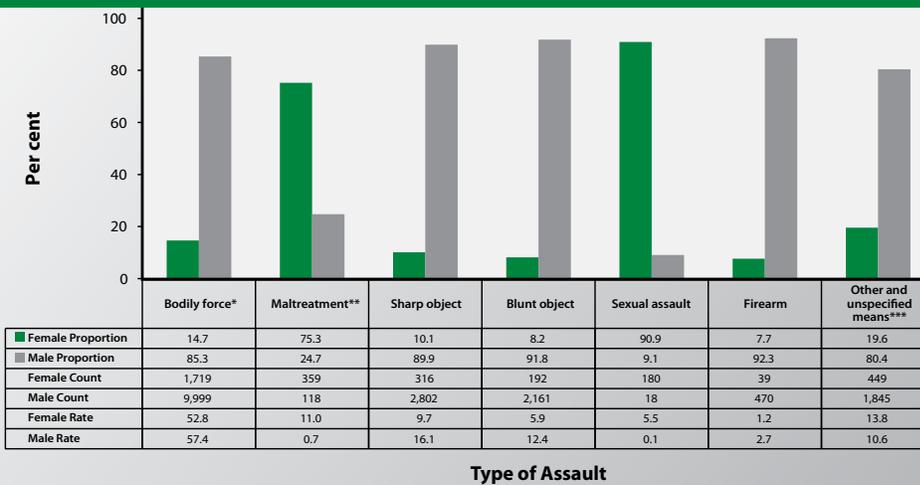
Violence-related Injuries Resulting in Hospitalization, Age-Standardized Rate and Count, Females, BC, 2000/2001 to 2009/2010



^b Bodily force includes an injury as a result of a fight, brawl, strangulation, suffocation or drowning.

Figure
3.24

Violence-related Injuries Resulting in Hospitalization, by Sex and Type of Assault, BC, 2000/2001-2009/2010



* Including fight or brawl, strangulation, suffocation and drowning.

** Including neglect, abandonment and abuse.

*** Including sequelae of assault and late effects of purposefully inflicted injury.

Note: Counts represent number of hospital diagnostic codes of corresponding type. Individuals may have received multiple diagnostic codes in a single hospitalization or individuals may have been hospitalized on multiple occasions with the same or different codes. Data has been aggregated over a five-year period.

Source: Population Health Surveillance and Epidemiology, Ministry of Health, 2011.

1,719 injuries over the 10-year period from 2000/2001 to 2009/2010, or 52.8 per cent of all injuries among women (Figure 3.24). Assault with bodily force accounted for 57.4 per cent of all injuries among men—a total of 9,999 of this type of assault over the ten-year period. Women accounted for only 14.7 per cent of all injuries related to bodily

force. However, this was very similar to the overall proportion of injuries of all types for women (15.7 per cent), compared to men (84.3 per cent). Two types of violence-related injury were higher among women: maltreatment, neglect, abandonment and abuse (75.3 per cent of all maltreatment injuries) and sexual assault (90.9 per cent of the total in this category).

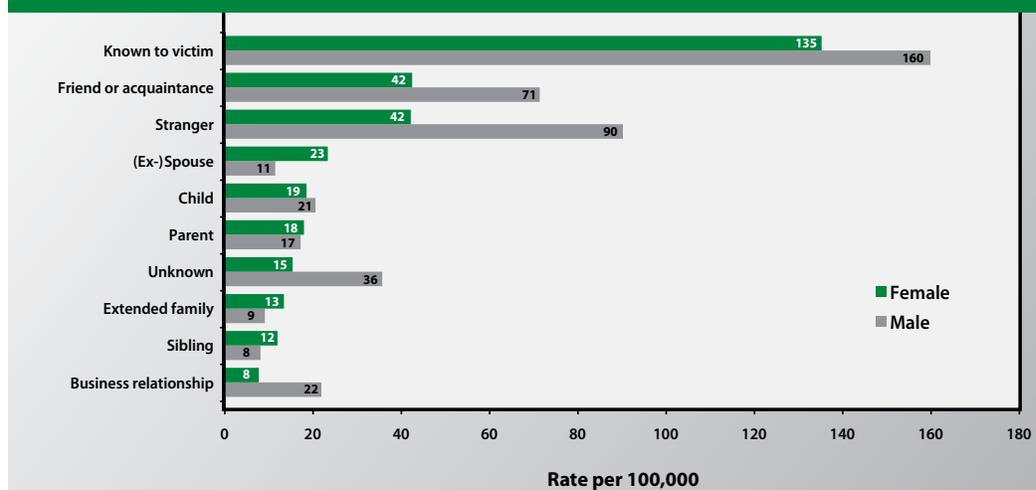
Elder Abuse

Older abused women may have a long history of personal violence and trauma and are also more likely to experience financial abuse at the hands of their families.⁸⁴ It can be more challenging to leave an abusive relationship because of the children, property, extended social networks and treasured possessions that are part of being in a long-term relationship. Furthermore, the signs of abuse, such as depression, fatigue, anxiety and confusion, are often attributed to the aging process and are either misdiagnosed or not treated.⁸⁴ Family violence against seniors tends to be lower compared to younger age groups.⁸⁵ Overall, the rate of violent crime victimization was higher for senior men than senior women. Senior women were more likely than senior



Figure 3.25

Victims of Violent Crime, Age 65+, by Sex and Accused-Victim Relationship, BC, 2009



Note: Not all categories are mutually exclusive (e.g., Known to victim). Data submitted by BC police services represent 99 per cent of the provincial population. Extended family includes aunts, uncles, cousins, sisters/brothers-in-law, etc. A friend or acquaintance includes friends, boy/girlfriends, ex-boy/girlfriends, authority figures and casual acquaintances. There was one incident not shown on this chart of a "criminal relationship" for males in BC.

Source: Statistics Canada, Canadian Centre for Justice Statistics, UCR2 Incident-based Survey, January 2011 extraction; data provided by the Canadian Centre for Justice Statistics, Statistics Canada; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

men to be assaulted by a spouse or ex-spouse, a parent, sibling or extended family (Figure 3.25). It is possible that a percentage of violence against seniors goes unreported.

Child Abuse

When it comes to violence, the most vulnerable members of society are children and youth. Child abuse is the physical, psychological, social, emotional or sexual maltreatment of a child. Child abuse endangers a child's safety, self-esteem, growth and development, and even its survival. Most often this abuse comes at the hands of those closest to the child, such as a parent, other relative or friend. Witnessing family violence is as harmful as experiencing it. Parents may believe their children are unaware of spousal violence, but research has shown that children are aware 40 to 80 per cent of the time, and they suffer the same consequences as those who are directly abused.⁸⁶

The sexual abuse and exploitation of children and youth is a betrayal of trust, an abuse of power and a serious violation of the basic human rights of the child.⁸⁷ In some cases, victims may be too young to explain what

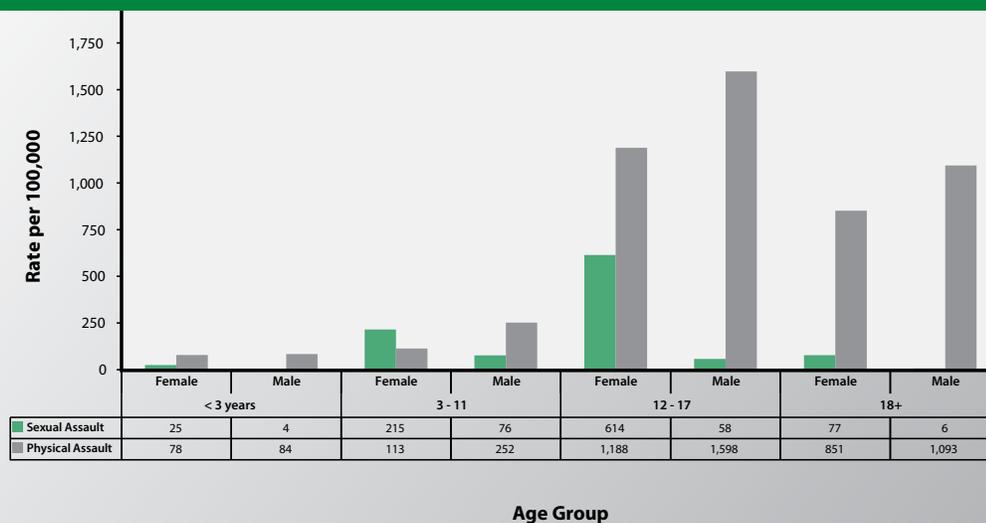
happened to them, or they may experience feelings of powerlessness if they have been threatened that if they disclose the abuse, they or someone close to them will be harmed. Disclosure is also hampered by the child being dependent on the abuser. Children may fear that they will not be believed, that they will be stigmatized, or that their sexual identity will be called into question. Children who are abused often feel conflicted and suffer confusion or shame and they may blame themselves for the abuse. Victims may tell others about the abuse, but be unwilling to report the abuse to authorities for reasons noted earlier.⁸⁷

The effects of family violence can be devastating to children and youth who are abused themselves or who witness the abuse of their mother or father. Children who have been abused exhibit behavioural problems including developmental delays; disruptive classroom behaviour; school-age pregnancy; skipping school and running away;⁸⁸ delinquency and involvement in the sex industry;⁸⁹ early use of illicit drugs and alcohol; addictions; and suicide/suicide attempts.^{86,90} The impact of childhood abuse can stretch into adulthood, instilling

“When it comes to violence, the most vulnerable members of society are children and youth.”

Figure
3.26

Victims of Physical and Sexual Assault, by Sex and Age, BC, 2009



Note: Data submitted by BC police services represent 99 per cent of the provincial population.

Source: Statistics Canada, Canadian Centre for Justice Statistics, UCR2 Incident-based Survey, 2009 (January 2011 extraction); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

a lack of trust in the individual that leads to social isolation and lower levels of social support, re-victimization and problematic substance abuse.⁹¹

Data from the Incident of Crime Statistics, from the Canadian Centre for Justice Statistics, provide rates of sexual and physical assault from early childhood to adult. As seen in Figure 3.26, the 12–17 age group has the highest rates for both females and males. Rates of sexual assault were higher for females than males in every age group. It is important to keep in mind that assault, particularly sexual assault, is significantly under-reported.

To put crime statistics into perspective, a study undertaken at the BC Women's Sexual Assault Service reviewed all Vancouver sexual assault cases seen by the Service from January 1993 to December 1997, to determine the likelihood of adult sexual assault cases leading to conviction. The study found that of 462 cases examined, charges were filed in 151 (32.7 per cent), and only 51 (11 per cent) resulted in conviction. The more severe the injury the more likely that charges would be laid.⁹² Clearly, when looking at crime

statistics on sexual assault, it must be kept in mind that they provide at best a limited picture of the extent of sexual assault. The true rates are undoubtedly much higher.

Impacts of Violence

Data from the McCreary Centre Society Adolescent Health Survey show that youth who experience abuse are more likely to harm themselves. Figure 3.27 compares the tendency to self-harm between those who have and have not experienced abuse (physical or sexual). In all categories, girls were more likely to engage in self-harm

Sex Assault Cases Review

462 sexual assault cases

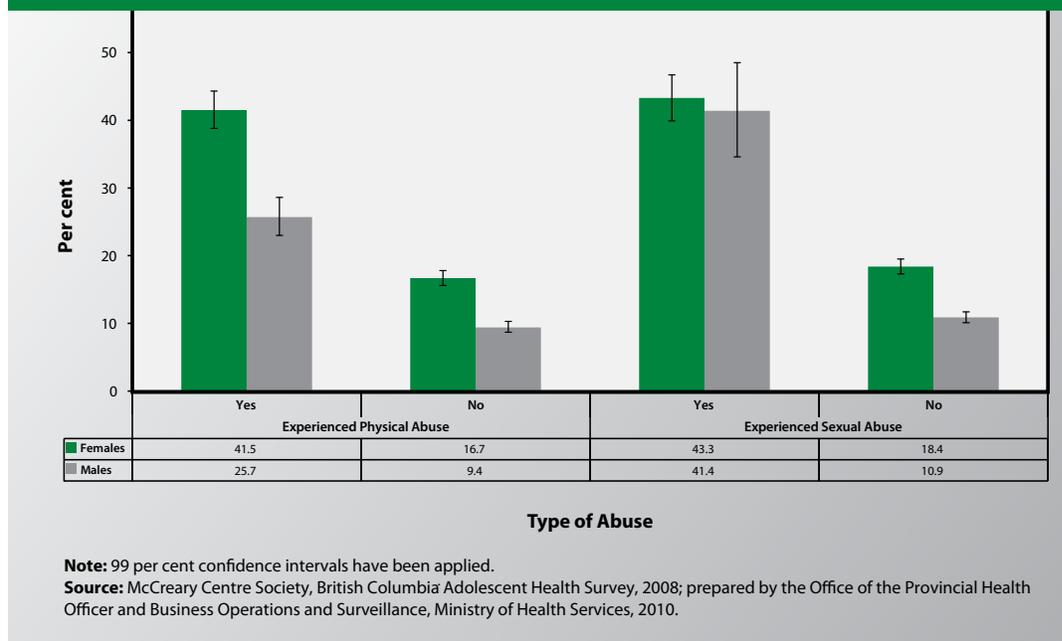
151 charges laid

51 convictions

January 1993 to December 1997 - BC Women's Sexual Assault Service⁹¹

Figure 3.27

Self-harm Behaviour, Public School Students, Grades 7-12, by Sex and Type of Abuse, BC, 2008

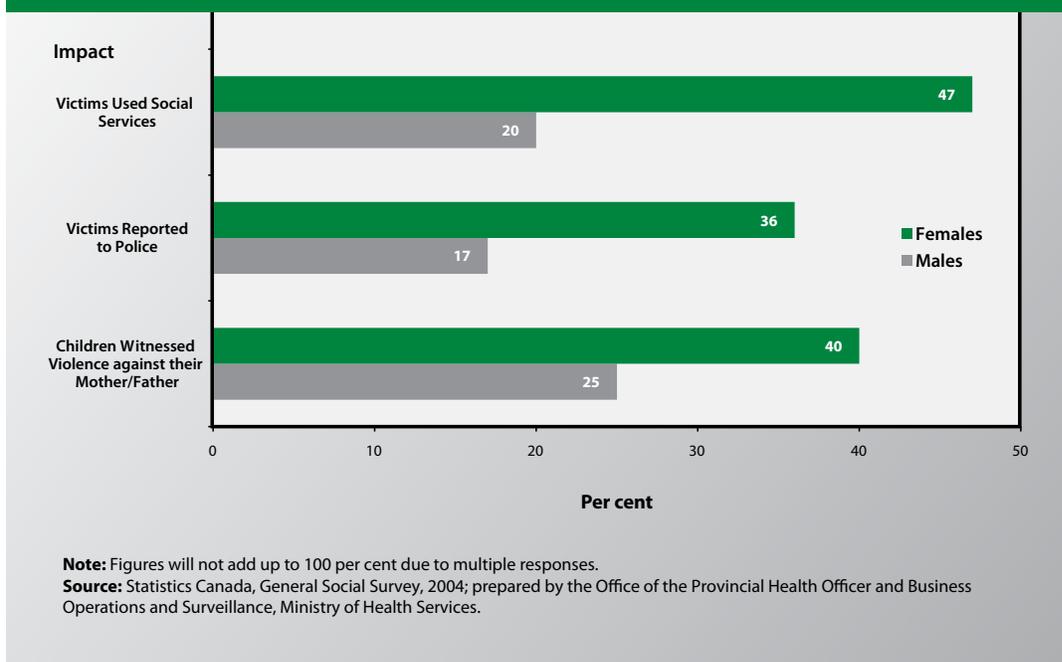


behaviour than boys. Approximately 42 per cent of girls who had experienced physical abuse had engaged in self-harm behaviour compared to 26 per cent of boys. The rate of self-harm behaviour for girls experiencing sexual abuse (43.3 per cent) was similar

to the rate for girls experiencing physical abuse, while the rate of self-harm behaviour for boys experiencing sexual abuse (41.4 per cent) was significantly higher than the corresponding rate for boys experiencing physical abuse.

Figure 3.28

Societal Impact of Spousal Violence on Victims, by Sex, Canada, 1999-2004



The societal impact of spousal assault is significant. Using data from the General Social Survey, Figure 3.28 shows that 47 per cent of female victims in Canada reported using social services, and 36 per cent reported the incident to police. Both these rates were over twice the rates for male victims. Of further concern is the fact that 40 per cent of girls and 25 per cent of boys witnessed violence against their mother or father.

The experience of physical and sexual assault can have health consequences that continue long after the incident occurs. The Public Health Agency of Canada has prepared a *Handbook on Sensitive Practice for Health Care Practitioners: Lessons from Adult Survivors of Childhood Sexual Abuse*,⁹³ to help health care practitioners practise in a manner that is sensitive to the needs of adult survivors of childhood sexual abuse and other types of interpersonal violence. As many as one-third of women and 14 per cent of men are survivors of childhood sexual abuse.⁹⁴ For survivors, common examinations and procedures that health care providers might consider normal or routine can be distressing, because they trigger memories of the original trauma. Lack of control, invasion of personal boundaries, exposure, vulnerability, pain and a sense of powerlessness are common experiences in a health care environment and may be extremely difficult for survivors to cope with.⁹³

Sexual Exploitation of Youth

Sexual exploitation of youth occurs when youth under age 19 exchange sexual activities for money, drugs, gifts, food, services, shelter or transportation, also called survival sex. Sexual exploitation is sexual abuse, but many youth do not see it that way. They may feel it was their choice to exchange sex for resources, when in reality they may have been manipulated or coerced into thinking that what has happened to them is normal or temporary. Sexual exploitation of children and youth is never considered prostitution or consensual.⁹⁵ According to an analysis of McCreary Centre Society data by the University of British Columbia, one in three street-involved youth indicated they were sexually exploited, and the average age



when youth were first exploited (male or female) was 13 to 15 years old. In all surveys, exploited females were more likely to report family sexual abuse than exploited males.

Youth who feel marginalized are more vulnerable to sexual exploitation. Youth who have a physical or mental health condition that limits their activities, who are Aboriginal or who are in government care are more likely to be exploited. Lesbian, gay and bisexual youth are disproportionately found among the street-involved population, due in part to the rejection they experience when they disclose their sexual orientation. In 2006, 43 per cent of sexually exploited females identified as lesbian or bisexual, while only 17 per cent of males identified as gay or bisexual.⁹⁶

It is important to recognize the distinction between sexually exploited youth and adult sex workers. The sexual exploitation of children and youth is abuse and inherently exploitative. Adult sex workers can also be exploited due to poverty, abuse of power, substance use, violence and other factors. However, it is also important to see the different positions of power occupied by survival sex workers and those who are working in the adult sex industry with greater degrees of control and consent.⁶⁵

Sex Workers

Sex workers face many challenges and hazards in their working life including stigma, violence and sexually transmitted infections.^{97,98} It is not illegal to be a sex worker, but communication in public for the purposes of prostitution has been against the law until very recently, when that law was struck down by an Ontario Supreme Court ruling.⁹⁹ The illegal nature of the sex trade has a major impact on workers' rights, safety and health. Mental health and self-esteem of sex workers are negatively impacted by being marginalized but are also affected by early childhood experiences that often include an unstable home life, abuse and neglect. According to a study of Victoria sex workers by Benoit and Millar,¹⁰⁰ only a minority of study participants used illicit addictive substances, and a minority indicated that addiction was a factor in their entry into sex work.

It is important not to generalize about the sex industry. Not all sex workers work for intermediaries or pimps,¹⁰¹ and the prevalence of pimps may vary by region.¹⁰¹ People involved in sex work do so for different reasons and have differing levels of control over their work environment. Escort services operate within the law, and are licensed for business by local municipalities.¹⁰⁰ Street prostitution accounts for a minority of sex work. Street-based sex workers generally have less control over their working conditions, are more likely to be victimized and be substance dependent than sex workers who work either independently or for escort services. Among street-based sex workers, some are part of organized networks that regularly move them between different cities. While some choose to work on the street occasionally for quick access to money, others who are substance dependent turn to the street for survival sex in order to finance their habit.¹⁰¹

Homicide statistics indicate that prostitution is one of the most dangerous occupations in Canada. A study by the Canadian Centre for Justice Statistics notes that between 1991 and 2001, 73 street-level sex workers were killed while working. They also suffered more



serious harm more frequently than people working indoors, due to isolation, predators, robberies, bad dates and stigma. Most street-based sex workers fear conviction under the communication law and thus will not report assaults to police.^{97,98,102} The stigma associated with sex work,¹⁰³ the transient nature of the workers themselves and the legal ambiguity that leads workers to avoid reporting violent incidents to police, all serve to make outdoor sex workers easy targets for predators. These conditions helped to create an environment where women went missing from Vancouver's Downtown Eastside for over a decade before a serious investigation was undertaken to look into the possibility that a serial killer might be at work.

International and Domestic Human Trafficking

Human trafficking is defined as the recruitment, transportation or harbouring of a person for the purpose of exploitation, often involving coercion, force or deceit.¹⁰⁴ Exploitation can include sexual exploitation, domestic servitude or forced labour, or the removal of organs. Trafficked persons are also sometimes legally employed, but forced to give their earnings to their trafficker. There are two types of human trafficking: international and domestic. International trafficking involves a foreign

national entering a country, legally or illegally. Domestic trafficking involves the exploitation of people within their own country and most often results in sexual exploitation. The groups most at risk of trafficking are youth and women who face poverty and inequality, with the Aboriginal population being the most vulnerable. Domestic trafficking follows recognized inter-city circuits in Canada.¹⁰⁵ Human trafficking is a serious violation of human rights and is a crime in Canada under the federal *Immigration and Refugee Protection Act* and also under the Criminal Code.

In 2007, BC became the first province to set up an Office to Combat Trafficking in Persons (OCTIP) to deal with human trafficking, helping over 100 trafficking victims in BC since its inception. Unfortunately, the head office in Victoria was closed in August 2011 and the executive director let go, as a result of cuts that saw a drop in its budget from \$500,000 to \$300,000.¹⁰⁵ This action came less than a year after Prime Minister Stephen Harper promised a \$20 million National Action Plan to Combat Human Trafficking by 2012.¹⁰⁶

It is hard to determine the number of trafficked people in Canada. Due to the hidden nature of the crime, most human trafficking activities go undetected and unreported. According to estimates by the US State Department, which monitors the situation worldwide, approximately 800,000 people are trafficked across borders every year; if trafficking within countries is included, the estimate rises to between 2 and 4 million.¹⁰⁷ Fifty-six per cent of victims are women and girls, and 70 per cent of this group are trafficked into the commercial sex industry. It is estimated that human trafficking nets organized crime an estimated \$9.5 to 16 billion worldwide each year.¹⁰⁸

Summary of What We Know

- Women have lower rates of labour force participation and employment compared to men: 80.2 versus 90 per cent for labour force participation, and 75.1 versus 83.4 per cent for employment. The lower rates could be due to the fact that women may be performing household duties and caring for children, looking after elderly parents or family members who are ill, attending school or retiring on a pension.
- Women's employment is still focused in traditional, lower paying fields. Women most often work in service industries, health care, finance and insurance, and education, often in positions that do not pay well and do not provide opportunities for advancement.
- It is more difficult for immigrant women in BC to gain employment than non-immigrant women. Overall, immigrant women and men are equally likely to experience unemployment and at higher rates than non-immigrant BC residents. Within the first year of landing, immigrant women are more likely to be unemployed than immigrant men, but after five years the trend reverses and immigrant women are more likely to be employed.
- Women have made significant progress in the professions, particularly as secondary teachers and college instructors, where they hold the majority of positions. The percentage of female lawyers has increased from 25 per cent in 1991 to 36 per cent in 2006, and a similar shift is being experienced for physicians. Physician graduation rates are higher for females than males so as boomer retirement looms the percentage of females in these professions will increase.
- Almost 26 per cent of women had qualifications in the fields of business, management and administration compared to almost 16 per cent for men. While these fields include professional occupations in business and finance, they also include administrative, secretarial and clerical occupations, which tend to be at

the lower end of the pay scale. Compared to men, women were four times as likely to have qualifications in the fields of health, parks, and recreation and fitness, and less likely to be found in the fields of architecture, engineering and related technologies, which tend to be high-paying professions.

- Almost 40 per cent more women than men were struggling with an income of less than \$15,000 per year in 2006 (approximately 42 per cent of women and 29.7 per cent of men). The gender gap is also evident in the higher income categories; for example, there are over two-and-a-half times as many men in the \$60,000 and over income category.
- The earnings of women with children were 12 per cent less than women with no children. The wage gap widened when there were more children (20 per cent for women who had three or more children). When mothers remained out of the workforce for longer periods of time, the wage gap was even greater.
- More women than men are minimum wage earners in all age groups, with the highest percentage in the 15–19 age group. This information is consistent with labour force distribution information, which shows that many women work in the lower paying retail and accommodation/food services sectors.
- Elderly females are at the greatest risk of being below the Low Income Cut-offs at 22 per cent, followed by female lone-parent families at 16.4 per cent. Child poverty rates in BC also dipped to a 20-year low in 2008, but remained the highest in Canada. In 2009, it rose to 12 per cent, well above the national average of 9.5 per cent, an increase of over 15 per cent and well above the closest province, Ontario, at 10.1 per cent.
- BC is fifth among the provinces in providing regulated spaces for children age 0–12 years at 15.4 per cent, which is slightly below the Canadian average of 18.6 per cent.
- Regardless of their occupation or employment status, women most often have the primary responsibility for maintaining the household and caring for children. Almost 23 per cent of women and 13 per cent of men spent 15 or more hours looking after children without pay.
- Women continue to do a greater portion of housework compared to men. Women are almost twice as likely as men to do more than 15 hours of unpaid housework per week. Men tend to spend more time doing outdoor tasks such as household repairs and automotive maintenance, while women spend time on everyday tasks such as laundry, cooking and cleaning.
- As of 2007, 2.7 million family members and/or friends aged 45+ provided care to a senior due to a long-term health condition, up from 2 million in 2002. The majority of informal caregivers are women (57 per cent), and 1 in 4 are seniors themselves. In today's society, women are more likely to be working outside the home and caring for children, in addition to caring for aging parents.
- Renters in BC were almost twice as likely as homeowners (with and without mortgages) to spend more than 30 per cent of their income on housing (43.7 and 22.8 per cent respectively). The rates of both renters and homeowners with mortgages spending more than 30 per cent of their household income on shelter were higher in BC compared to the national average (43.7 versus 40.3 per cent for renters, and 34.4 versus 25.7 per cent for homeowners).
- Women's experience with violence varies by socio-economic status, ability/disability, Aboriginality, immigrant status, education, cultural group, geographic location, occupation, religion and sexuality, and often goes unreported due to the stigma associated with it. During 2009/2010, women represented 16.0 per cent of all cases with a violence-related injury resulting in hospitalization.
- The proportion of male births in the BC population has increased slightly from 51.1 per cent in 1986 to 51.6 per cent in 2009, a statistically significant change. Based on birth data by the most frequent parental countries of origin, only Indian (South Asian) immigrant births had a

proportion of male births (52.7 per cent) that was significantly higher than the BC total (51.4 per cent). The proportion of male births for the South Asian immigrant group was higher than the rest of the provincial birth population in 20 of the last 24 years, especially since 1990, with no change in trend.

- Births to second (and subsequent) generation South Asian parents have a male/female balance that is similar to the general provincial birth cohort. These data suggest that gender selection is occurring in BC but is clearly not representative of the Indo-Canadian community as a whole.
- Among both women and men, over half of violence-related injuries resulting in hospitalization were for assault due to bodily force. Two types of violence-related injury were higher among women: maltreatment, neglect, abandonment and abuse (75.3 per cent of all maltreatment injuries) and sexual assault (90.9 per cent of the total in this category).
- Family violence against seniors tends to be lower compared to younger age groups. Overall, the rate of violent crime victimization was higher for senior men than senior women. Senior women were more likely than senior men to be assaulted by a spouse or ex-spouse, a parent, sibling or extended family.
- Forty-seven per cent of female victims in Canada reported using social services, and 36 per cent reported the incident to police. Both of these rates were over twice the rates for male victims. Of further concern is the fact that 40 per cent of girls and 25 per cent of boys witnessed violence against their mother or father.
- The quasi-legal status of prostitution contributes to the high rates of violence that sex workers experience. People involved in sex work do so for different reasons and have differing levels of control over their work environment. Street-based sex workers generally have less control over their working conditions, are more likely to be victimized and be substance dependent than sex workers who work either independently or for escort services.

Chapter 4

Maternal and Infant Health

Reproduction—the ability to conceive, nurture a fetus and give birth—is a uniquely female characteristic. In 2008, there were 44,156 live births to BC resident women, a birth rate of 28.9 per 1,000 population, and 619 children were adopted.¹ In 2008, over half of all live births in BC were among women aged 30 years and older (54.2 per cent), a steady increase since 1993 (42.2 per cent). The age of mothers varies geographically: Northern Health Authority had the youngest mothers in 2008, with 65.5 per cent of live births to women under age 30, while Vancouver Coastal Health Authority had only 29.1 per cent of live births to women under age 30.² Based on 2006 Census data, the average number of children per family was 1.76, down from 1.81 in 2001. Married couples^a with children had an average of 1.87 children in the home, with female lone-parent families having 1.52 children at home. More couples are deciding not to have children, and of those that do, their children are remaining at home longer.³

This chapter looks at a selection of topics relating to the health of mothers prenatal and postnatal, birthing services and birth outcomes, and infant health. The health of mothers and infants has been internationally accepted as an indicator of the health and well-being of a population. Having a baby is an exciting and rewarding experience for most women; however, some women suffer from illness and complications in which the effects can extend beyond their own health to the health of their unborn baby, as well as their family. For this reason, it is important to look at maternal health indicators to detect any apparent trends and

“Women having two children will spend about 5 years trying to get pregnant or being pregnant, and more than 30 years trying to avoid pregnancy.”

— Dr. Dorothy Shaw
VP, Medical Affairs
BC Women's Hospital &
Health Centre

determine areas requiring improvement. Factors affecting fetal and infant health occur through the pre-conception phase, pregnancy and delivery, and across the life span. Trends in indicators such as infant mortality, substance use during pregnancy, teenage pregnancies and births, preterm and low birth weight births provide an understanding of how healthy the infants are in a population and what needs to change to create better health outcomes for both mother and child.

Maternal Health

Maternal health refers to a woman's health while she is pregnant, through childbirth and the postpartum period.⁴ Good maternal health is essential for both women and healthy fetal and infant development. Having a healthy mother who is supported with good prenatal and postnatal care contributes to a healthy start for an infant and reduces the risk of illness and possible death.

^a For the 2006 Census, a married couple may be of opposite or same sex.

Better access to contraception and abortion has given women greater control over the number, timing and spacing of children, and this has played an integral part in the advancement of women in society. At the end of the baby boom in the early 1960s, women in British Columbia had an average of 3.9 children. However, by the early 1970s, fertility rates fell below the replacement level of 2.1, and have remained so ever since.⁵ Today, the average age of mothers has increased, and the fertility rate has fallen further as many women are active in a highly competitive job market and choose to establish their careers first before starting a family, or decide not to have children at all.

One of the challenges in addressing maternal, fetal and infant health is that, even with advancements in access and effectiveness of birth control, the vast majority of girls and women still do not know for sure when, or if, they will become pregnant.⁶ Approximately 50 per cent of pregnancies are unintended. It is important that women in their childbearing years of all socio-economic levels and cultures are supported to make

healthy choices and reduce risk that can negatively affect potential pregnancies and the ability to be an effective parent.

Fertility Rates

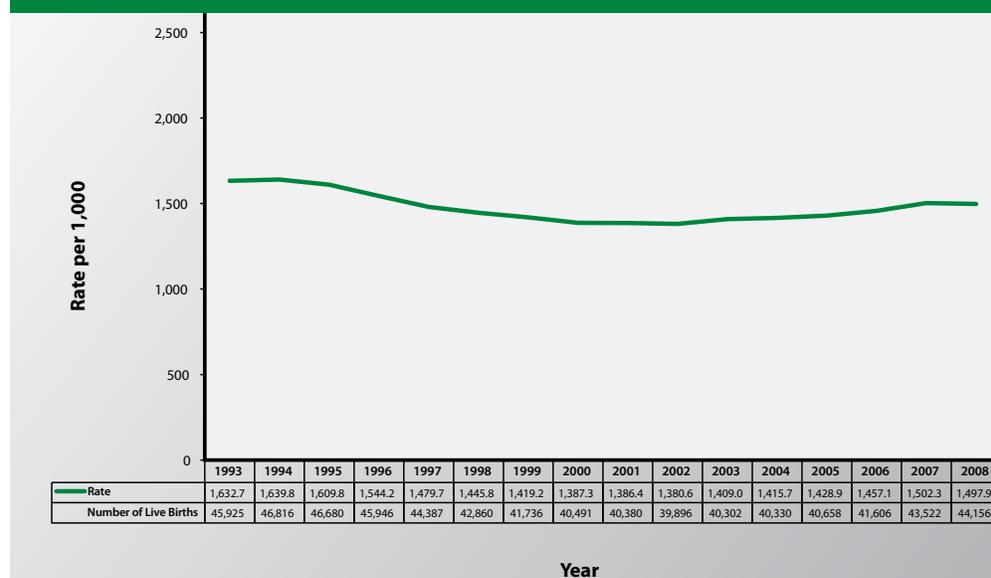
The fertility rate^b in BC dropped slightly between 1993 and 2002, to a low of 1,380.6 per 1,000 in 2002, then increased to 1,497.9 per 1,000 in 2008 (Figure 4.1). Aggregate fertility rates vary significantly in the health regions, with Northern, Fraser and Interior Health Authorities all higher than the provincial average.

Infertility

A couple is considered infertile if they have been having regular intercourse (two to three times per week) without using any form of birth control and have not conceived after one year, although a diagnosis can be made as early as six months, particularly if the woman is over 35. The Royal Commission on New Reproductive Technologies⁷ established the first measure of infertility prevalence in Canada in 1993, showing an

Figure 4.1

Total Fertility Rate, Age 15-44, BC, 1993 to 2008



Source: BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health, and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.

^b The total fertility rate (TFR) is the number of births that a group of 1,000 women would have if, during their childbearing years, they had the age-specific birth rates observed in a given calendar year. TFR is a hypothetical measure of completed family size based on current levels of fertility by age.¹

8.5 per cent prevalence rate at 12 months, and 7 per cent prevalence after two years.⁸ Approximately 80 per cent of couples will conceive after one year of unprotected sex, and of the remaining 20 per cent, most will succeed in their second year of trying.⁹

For couples, a diagnosis of infertility is challenging for social, economic and psychological reasons. The emotions attached to both receiving the diagnosis and attempting to remedy the condition can be difficult to manage.¹⁰ Infertility treatments are expensive, can put a strain on family finances and are not within the reach of lower socio-economic couples. Societal expectations of couples to have a family and the pressure to continue the family lineage contribute to feelings of stress and guilt.^{11,12}

About one-third of infertility cases are related to women's reproductive health,¹⁵ including ovulation disorder; pelvic inflammatory disease, which can result in scarring and blockages; endometriosis; hormone imbalance; congenital anomalies; and environmental and occupational exposure to chemicals.¹⁵ Male infertility is less complicated than female infertility, and accounts for about one-third of cases.¹⁴ The most likely reasons for male infertility include sexual dysfunction; low semen counts or quality; sexually transmitted infections; and major surgery and certain diseases or conditions such as diabetes, thyroid disease and anaemia.

Meta-analysis of infertility studies conducted in the 1990s showed a 50 per cent drop in average sperm counts worldwide between 1938 and 1991;¹⁶ however, these results have been challenged due to inconsistencies in methodology, statistical analysis and regional variations in sperm counts.^{17,18}

In some cases, infertility involves both partners, and sometimes no cause can be found, even after thorough testing.¹⁴ For both sexes, the ability to conceive can be enhanced by maintaining a healthy weight and eating nutritious food, exercising regularly, developing techniques to manage stress, and reducing or eliminating tobacco and alcohol consumption.¹⁴ Lifestyle changes



Rates of infertility in women increase with age

7%	in women aged 20–24
9%	in women aged 25–29
15%	in women aged 30–34
22%	in women aged 35–39
29%	in women aged 40–44

Source: Healthlink BC, 2010;¹³ Mayo Clinic, 2011.¹⁴

can be challenging, especially for women of lower socio-economic status who may not have control over these circumstances.

Assisted Human Reproduction

In terms of physiology, the ideal time for a woman to have children is in her twenties. However, from a career perspective, this may not be the best time, and many women now delay having a family until their thirties or even later. As women grow older, their ability to conceive declines. Women who wait to have children until their mid-thirties or older are more likely to have difficulty conceiving and have more complications during pregnancy than women in their twenties.¹⁵ Assisted reproductive technology has become an increasingly common option for those experiencing infertility, as well as single

parents and same-sex couples who desire help in creating their families.¹⁹

Assisted human reproduction (AHR) refers to the range of methods used to help a woman become pregnant or deal with a couple's infertility. This includes the use of ovulation-inducing drugs and assisted insemination, as well as technologies that involve the manipulation of both sperm and egg outside the woman's body. In vitro fertilization (IVF) usually takes place in a fertility clinic with staff specially trained in reproductive technologies.⁹ These treatments are expensive and often must be tried multiple times to achieve success, which puts the procedure out of reach for women of lower socio-economic status. In July 2010, Quebec became the first jurisdiction in North America to announce that it would cover the cost of up to three cycles of IVF treatment.²⁰

Assisted Human Reproduction and Adverse Outcomes

AHR treatments are not risk free. Reactions to ovulation-enhancing drugs range from mild (e.g., causing headaches or flushing) to dangerous (e.g., ovarian hyper-stimulation syndrome). The risk of having a multiple

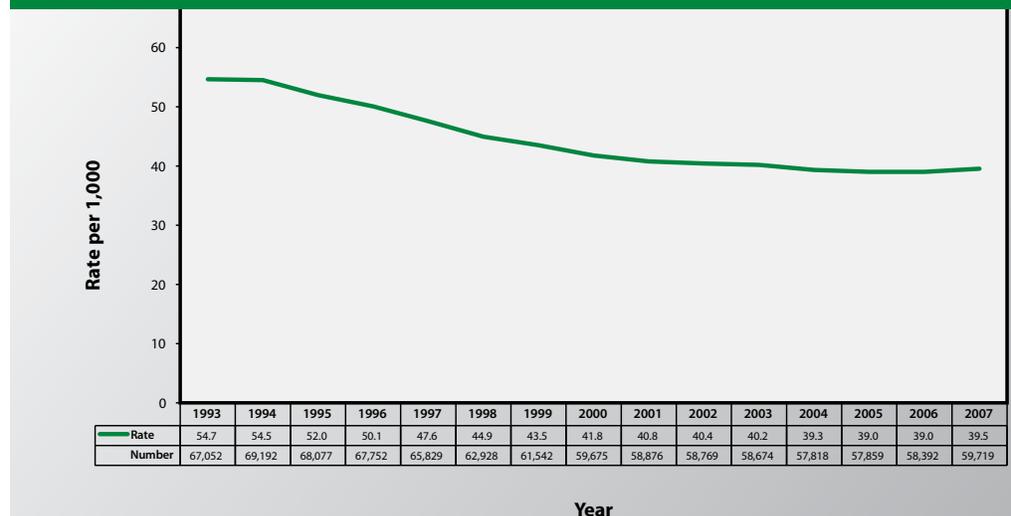
pregnancy after IVF or intracytoplasmic sperm injection is 20 times higher than normal and is the greatest risk to both the mother and her infants. Multiple pregnancies can often result in miscarriage, and babies are more likely to be born prematurely and be of low birth weight, which can lead to poor health and developmental problems. Mothers are also at higher risk of gestational diabetes, hypertension and pre-eclampsia. The risk of infant death within the first week of life is more than four times greater for twins than for a single baby and seven times greater for triplets.²¹ AHR singleton pregnancies also show elevated rates of perinatal complications such as low birth weight infants, preterm birth and perinatal mortality, as well as maternal complications such as pre-eclampsia, gestational diabetes, placenta previa, placental abruption and caesarean delivery.²² Preterm and very low birth weight infants are at increased risk for perinatal death and permanent disabilities.²³

Pregnancy Rates

The pregnancy rate has dropped close to 28 per cent, from 54.7 per 1,000 (67,052 pregnancies) in 1993 to 39.5 per 1,000 (59,719 pregnancies) in 2007 (Figure 4.2).

Figure 4.2

Pregnancies, Age 10-59, BC, 1993 to 2007



Note: Pregnancy includes live births, still births, miscarriages and abortions.
Source: Discharge Abstract Database, Health Sector IM/IT Division, Ministry of Health; BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health, and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.



Teen Pregnancy Rate

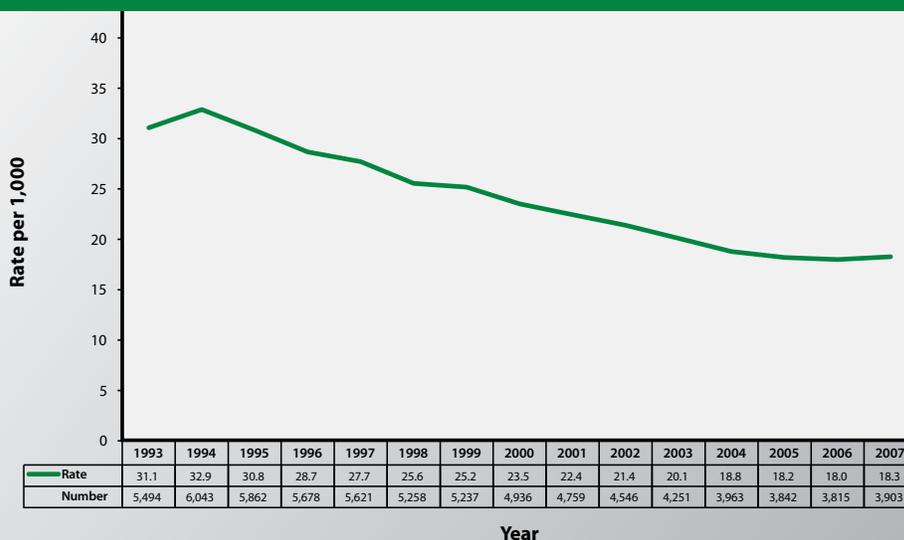
Figure 4.3 illustrates the decreasing trend in teen pregnancies^c over the years, from a high of 32.9 per 1,000 teen females in 1994 to 18.3 per 1,000 in 2007. Possible reasons for this decreasing trend include increased availability of contraceptives and emergency contraception, and the expansion of the scope of practice for registered nurses so that teens do not have to go their family

doctor for contraception, coupled with a heightened awareness of the risks associated with unprotected sex, including sexually transmitted infections such as HIV.²⁴ As discussed in Chapter 2, there are also more choices for birth control, although in Canada, oral contraceptives and condoms are still among the most preferred methods.²⁵

When regional trends are examined, teen pregnancy rates are significantly higher in

Figure
4.3

Teen Pregnancies, Age 12-19, BC, 1993 to 2007



Note: Pregnancy includes live births, still births, miscarriages and abortions.

Source: Discharge Abstract Database, Health Sector IM/IT Division, Ministry of Health; BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health, and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.

^c Unless otherwise indicated, teen pregnancy is defined in this section as the number of pregnancies occurring among young women aged 12–19 years, represented as a rate per 1,000 of the female population in this same age category. The rate includes those pregnancies resulting in spontaneous and induced abortions, ectopic pregnancies and stillbirths.

the Northern Health region at 16 per 1,000, the only region with a rate above the BC average. Rates in health service delivery areas (HSDAs) were highest in the Northeast (19.5 per 1,000), Northwest (18.1), and Northern Interior (13.2), reflecting the impact of lower socio-economic status and lack of easy access to contraception in these areas.

BC's teen pregnancy rate in 2005 (25.3 per 1,000) was slightly above the Canadian average (24.6 per 1,000), and was in the mid-range compared to other provinces/territories. Prince Edward Island had the lowest rate at 16.1 per 1,000 (Figure 4.4).

Adequacy of Prenatal Care

Prenatal care helps ensure the health of the mother, in order to increase the likelihood of a healthy pregnancy and a healthy baby. Making the lifestyle changes that help support a healthy pregnancy can be challenging.²⁶ Women may find that a lack of time, other commitments, lack of money, and lack of support from their partner, family or friends can make it more difficult to change their behaviours.²⁶ Information and advice from a health professional can help a woman understand the impacts of

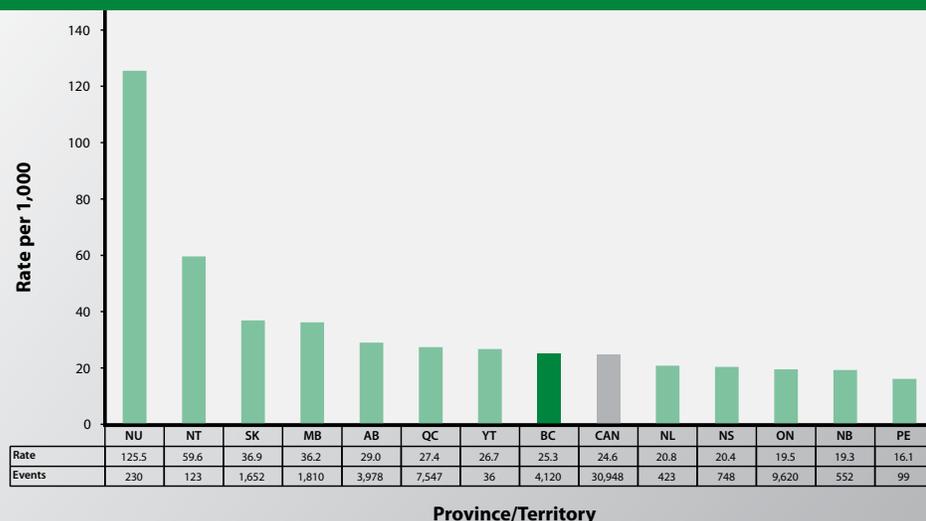
health behaviours for herself and her baby and support her to find ways to overcome some of the barriers to good health she may be experiencing.

Ideally, prenatal care is accessed during the first trimester, allowing for timely identification and management of risk factors and health conditions throughout the pregnancy.² Data from the BC Perinatal Health Program for 2007/2008 show that a majority of women (68 per cent) accessed



Figure 4.4

Teen Pregnancies, Age 14-19, by Province/Territory, Canada, 2005



Note: Pregnancies equal the sum of live births, fetal loss and induced abortions. Rates for the "under 20 years" age group are based on the female population aged 14 to 19 years. In 2004 and 2005, information on induced abortions performed in clinics in Manitoba was not submitted to the Therapeutic Abortion Survey.

Source: Statistics Canada, Canadian Vital Statistics, Birth Database and Stillbirth Database; Canadian Institute for Health Information, Hospital Morbidity Database and Therapeutic Abortion Database. Data extracted from CANSIM table 106-9002.

Table
4.1

Body Mass Index Classification

Classification	BMI Category (kg/m ²)
Underweight	< 18.5
Normal Weight	18.5–24.9
Overweight	25.0–29.9
Obese	≥ 30.0

Source: Health Canada, 2003.²⁹

prenatal care prior to 20 weeks gestation, while 7 per cent accessed prenatal care after this point.^d

The number of prenatal visits may indicate adequacy of care; however, there is a lack of consensus on how many visits are required. The Society of Obstetricians and Gynaecologists of Canada recommends prenatal visits every four to six weeks in early pregnancy, every two to three weeks after 30 weeks gestation, and every one to two weeks after 36 weeks gestation, while the Public Health Agency of Canada defines inadequate prenatal care as four or fewer prenatal visits during pregnancy.²

Healthy Weights during Pregnancy

Healthy mothers help make healthy babies—studies have shown that certain chronic conditions have their beginnings in utero.²⁷ Having a normal body mass index (BMI)^e at the start of pregnancy has a significant benefit to the health of the child. Having a normal BMI decreases maternal, fetal and newborn risks.²⁸

Risks increase for all BMI categories outside of the normal range. Women who are underweight pre-pregnancy are more likely to have preterm births and a baby that is small for gestational age, compared to

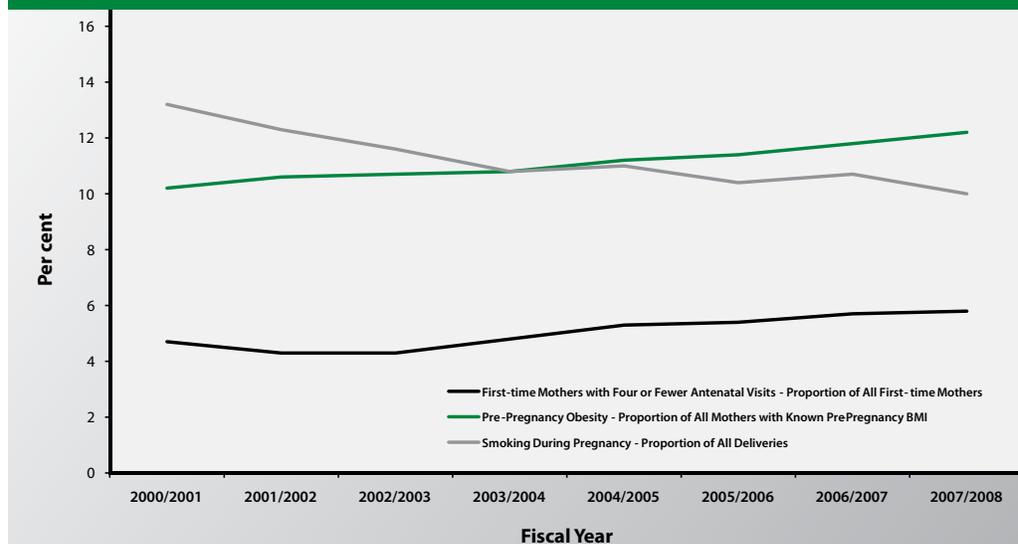


^d Twenty weeks was used as an indicator of early access to care because some women do not learn they are pregnant until they near 20 weeks. The gestational age at first prenatal visit could not be identified for the remaining 25 per cent of pregnant women, due to missing information.²

^e Body mass index is a calculation based on an individual's body weight divided by the square of his or her height.

Figure 4.5

Select Perinatal Indicators, BC, 2000/2001 to 2007/2008



Note: The population used for this table includes all mothers and all newborns, regardless of place of residence and place of delivery. The pregnancy body mass index (BMI) was calculated using the formula $BMI = \text{weight (kg)} / \text{height}^2 (\text{m}^2)$.
Source: BC Perinatal Database Registry, 2008; prepared by the Office of the Provincial Health Officer, Ministry of Health Services, 2011.

women of normal pre-pregnancy weight. Risks of having a preterm birth also increase for women who are overweight or obese pre-pregnancy, as do the risks of having a baby that is large for gestational age, having a caesarean section (elective or emergency) or having a stillbirth.²

Substance Use during Pregnancy

Tobacco Smoking

Smoking during pregnancy is linked to many adverse health outcomes for both the mother and baby, including spontaneous abortion,²⁷ intrauterine growth restriction, lower birth weight, placental complications, preterm births, stillbirth and sudden infant death syndrome.^{2,27} Smoking during pregnancy is also associated with a higher risk of infant mortality and morbidity, with some conditions affecting the child later on, and throughout life.^{2,27} Exposure to second-hand smoke during pregnancy is also a concern, as it is believed to cause similar problems to those experienced by infants of pregnant women who smoke, with risks potentially compounded since women who smoke are also more likely to be exposed to second-hand smoke.²

Figure 4.5 shows select perinatal indicators, including first-time mothers with four or fewer antenatal visits (a measure of adequacy of care), pre-pregnancy obesity and smoking during pregnancy. While smoking rates have declined since 2000/2001, rates for pre-pregnancy obesity have risen significantly during that time. The percentage of first-time mothers with four or fewer antenatal visits has remained fairly consistent since 2000/2001.

Alcohol Use

Alcohol use by women of childbearing age is common, as is unintended pregnancy.^{30,31,32} The highest rate of unintended pregnancies occurs in women aged 15 to 19 years (82 per cent of total pregnancies). This age group also has the highest risk of binge drinking.³³ Binge drinking has been defined by a single standard for males and females as five or more drinks on one occasion, but given sex differences in how alcohol is metabolized, it should be four or more drinks on one occasion for women. For more information on this topic please see Chapter 5.

Alcohol use during pregnancy is not only associated with many of the same health

“ While smoking rates have declined since 2000/2001, rates for pre-pregnancy obesity have risen significantly during that time. ”

issues that result from smoking during pregnancy, but also causes other problems, including fetal alcohol spectrum disorder (FASD). FASD is an umbrella term that refers to a range of alcohol-associated harms to the fetus during pregnancy. Although FASD is difficult to predict and diagnose, it is estimated that approximately 9 out of every 1,000 children in Canada are born with the disorder.³⁴ These children struggle with life-long disabilities that may include cognitive, neurodevelopmental, behavioural, physiological and physical impairments.²⁷ Aside from the challenges children with FASD endure, there are also costs to society, which in Canada are estimated to be \$5.3 billion annually, for those from day of birth to 53 years.³⁵

Women's substance use is highly stigmatized, making women less likely to reveal problems associated with their alcohol and other substance use when accessing services.³⁶ Another barrier women may encounter is lack of support from partners, family and friends for their decision to seek treatment.³⁷ Women's roles as mothers and caregivers



can also inhibit help-seeking and treatment, as most treatment programs do not provide child care or have programming for children. Women report they are afraid to talk about their substance use with their doctor or other health care professional, because they fear their child(ren) will be apprehended by child welfare authorities or they will be treated unsympathetically because of their substance use.³⁶

Because of the high rate of unintended pregnancy combined with the frequency of alcohol consumption in women of reproductive age, education about the effects of alcohol consumption should be included in the care of all women of reproductive age. Evidence shows that taking a harm reduction approach can be helpful.³⁸ A harm reduction approach involves helping women reduce harms associated with substance use and set realistic and achievable goals to reduce their alcohol use, which may not involve total abstinence.³⁹ This is accomplished by moving away from blame and confrontation and adopting a more respectful, non-judgmental approach.³³

Because FASD is difficult to diagnose, rates of maternal alcohol consumption are often used as an indicator for alcohol-exposed pregnancies. Even then, rates vary depending on the method used to obtain data. Information obtained from the Canadian Community Health Survey (CCHS) yields much higher rates for alcohol or drug use than data obtained from hospital admissions or physician billings. One explanation for this difference is that women may opt to provide a “socially acceptable” response due to the fear of having their child/ren apprehended by authorities. In addition, health care providers may choose not to record alcohol use on their patient's chart.² The CCHS data for 2005 indicate that 10.5 per cent of mothers in Canada reported drinking alcohol during pregnancy, a decrease from 12.4 per cent in 2003 and 12.2 per cent in 2000/2001.²⁷ The CCHS data also reveal that in British Columbia, close to 9 per cent of mothers reported drinking alcohol, regardless of amount or frequency, during pregnancy in 2005, which is a decline from rates in previous years.²⁷



Issues in Birthing Services

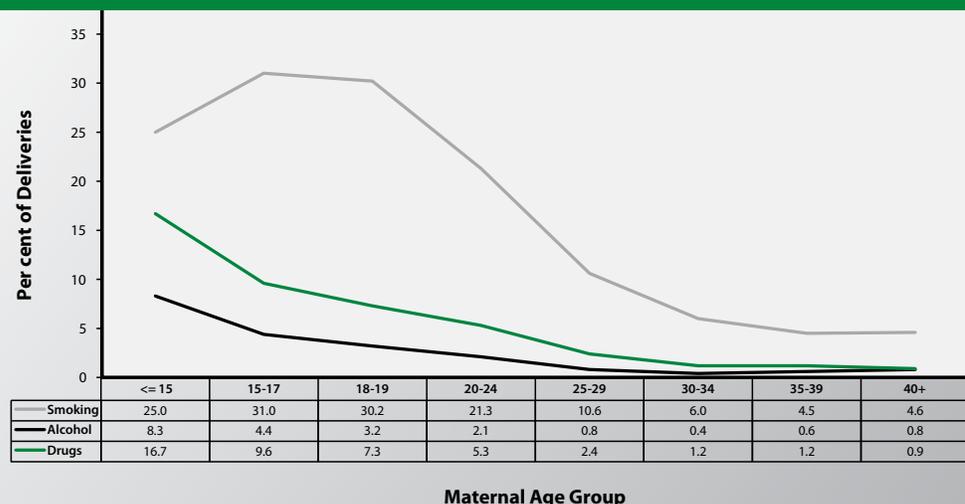
As defined by the BC Perinatal Health Program, “normal” birth refers to pregnant women who enter spontaneous labour at term, with one fetus in the head down position, and no history of caesarean section (C-section). In 2007/2008, just over half of all women delivering in BC were “normal” at the start of labour, with 76 per cent resulting in a spontaneous vaginal delivery, about 12 per cent having an assisted vaginal delivery and just over 11 per cent having a C-section.

Among first-time mothers, spontaneous vaginal deliveries decreased to just under 50 per cent in 2007/2008 from 52 per cent in 2000/2001, C-section deliveries increased from 27.5 per cent in 2000/2001 to 33.0 per cent in 2007/2008. In 2007/2008, for women who had previously had children, 66.5 per cent gave birth vaginally (down from 72.9 per cent in 2000/2001), and 28.7 per cent had a C-section (up from 21.2 per cent in 2000/2001). Between 2000/2001 and 2007/2008, the rate for attempted vaginal birth after C-section for all mothers with a previous caesarean delivery in BC dropped from 40.6 per cent to 23.5 per cent.

Figure 4.6 shows the rates of tobacco, alcohol and other drug use during pregnancy as reported by health professionals on the antenatal record. There are higher rates of use for each substance among the younger age groups (≤ 15 , 15–17 and 18–19), particularly for smoking, while rates for alcohol and drug use peak before age 15. Smoking remains at approximately 4.5 per cent in the 35 and older age groups, while alcohol and drug use drop to around 1 per cent each.

Figure 4.6

Smoking, Alcohol and Drug Use during Pregnancy, by Maternal Age Group, BC, 2007/2008

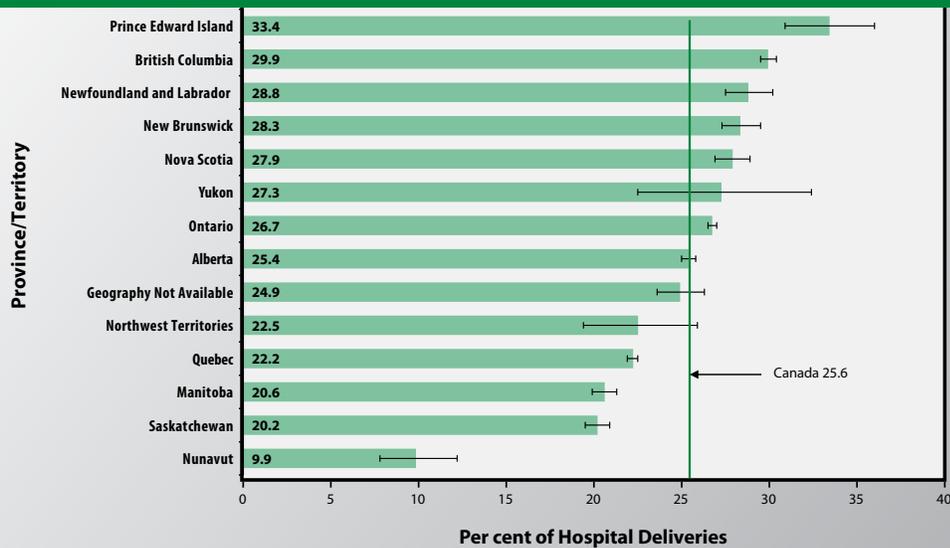


Note: Alcohol in Pregnancy (Risk) - Care provider lists mother’s use of alcohol as a risk factor in the pregnancy; Drugs in Pregnancy (Risk) - Care provider lists mother’s use of drugs (prescription, non-prescription, illicit) as a risk factor in the pregnancy; Smoking in Pregnancy (Risk) - There is documentation that the patient smoked during the current pregnancy. If the patient smoked at any time during pregnancy, even if she quit during the pregnancy, she is categorized as a smoker in the current pregnancy.

Source: BC Perinatal Database Registry, 2008; prepared by the Office of the Provincial Health Officer, Ministry of Health Services, 2011.

Figure
4.7

Caesarean Deliveries, by Province/Territory, Canada, 2004-2005



Source: Public Health Agency of Canada, Canadian Perinatal Report (2008 edition). Data provided by the Canadian Institute for Health Information, Hospital Morbidity Database, 2004-2005; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

Caesarean Sections

In certain circumstances, medical interventions such as C-sections may be required during labour and delivery. However, as with any surgical procedure, there are associated risks, including excessive blood loss, infection and a longer recovery than what is normally required after a vaginal birth. There are multiple reports on the adverse effects of C-sections on maternal morbidity and mortality, newborn morbidity, and maternal complications in a subsequent pregnancy. C-sections cost the health care system up to twice as much as vaginal birth.⁴⁰

In 2004/2005, BC had one of the highest rates of caesarean deliveries in Canada, at 29.9 per cent of hospital deliveries, second only to Prince Edward Island (Figure 4.7). The Canadian average was 25.6 per cent.

The rate for live births by C-section has increased significantly over the past 15 years. In 1993, 20.8 per cent of live births were by C-section, and in 2008, the percentage had risen to 30.6, close to 50 per cent higher (Figure 4.8). Factors that may contribute to the rise in C-section births include changes to obstetrical practices, as well as

maternal characteristics, such as an increase in maternal age, women having fewer babies, and more women being overweight or obese.²⁷ In addition, research suggests that due to social and cultural changes, women may now feel insecure about their ability to give birth without technical interventions.⁴¹

When the aggregate data for 2003-2007 are examined at the HSDA level, certain areas stand out as being well above the provincial average, which is already higher than rates in the rest of Canada. These areas include South Vancouver Island (34.7 per cent), Thompson Cariboo Shuswap (33.1 per cent), Fraser South (31.6 per cent) and Richmond (31.3 per cent). Kootenay Boundary is notable for having a lower percentage of C-section deliveries at 24.1 per cent.

A report by the BC Perinatal Health Program, Caesarean Birth Task Force,⁴² concluded that factors leading to increased caesarean delivery rates include higher maternal age, increased rates of hypertension, diabetes and multiple gestations. However, the increase in the proportion of C-sections outstrips the increase in these conditions (both individually and collectively) in pregnant women, indicating that the rate is

“ The rate of C-sections is rising faster than medical or demographic conditions support. ”



rising faster than medical or demographic conditions support. As well, rates of induced labour have remained stable, while the caesarean delivery rate for induced mothers has increased from 22.6 per cent in 2000 to 25.7 per cent in 2005.⁴²

Following the release of this report, several professional organizations, including the Society of Obstetricians and Gynaecologists of Canada, the Association of Women’s Health, Obstetric and Neonatal Nurses of Canada, the Canadian Association of

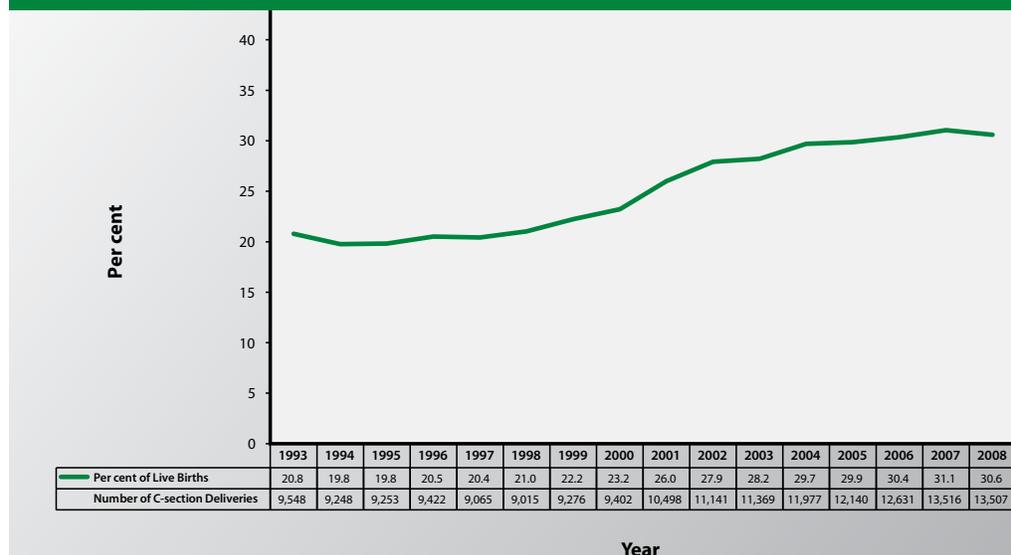
Midwives, the College of Family Physicians of Canada, and the Society of Rural Physicians of Canada, have expressed concern about the increase in interventions during childbirth, including C-sections, as they can cause unnecessary risk to the mother and baby. They have issued a Joint Policy Statement on Normal Childbirth,⁴¹ which sets out recommendations to support best practices that promote, protect and support normal childbirth.

Attitudes of Patients and Practitioners

Research by the University of British Columbia-affiliated Child & Family Research Institute suggests that the increase in C-section rates across Canada may be due in part to the attitudes and beliefs of obstetricians and other providers towards birth technology and C-sections.⁴³ This study analyzed responses by obstetricians to a National Maternity Care Attitudes Survey. The research found that attitudes and beliefs varied by age of practitioner. Younger obstetricians who responded to the survey (81 per cent of respondents 40 years of age or younger were women) were significantly more likely to favour a hospital-based, medically managed birth and the routine

Figure 4.8

Live Births by Caesarean Section Delivery, All Ages, BC, 1993 to 2008



Source: BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health, and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.

use of epidural analgesia in normal births. They were less likely to support vaginal birth after C-section or to appreciate the importance of the mothers' role in their own birthing experience. They also appeared to be more "fearful" of the consequences of vaginal birth, particularly in relation to urinary incontinence and sexual problems, and were more likely to select a C-section for their own births. On the other hand, older obstetricians who responded to the survey (40 per cent of respondents over age 40 were women) were more supportive of a woman-centered model of care, more positive about birth plans, and were more likely to see vaginal birth as more empowering to the mother than C-section.

The research finding that younger, usually female obstetricians appeared to have less appreciation of the role of a woman in her own birthing experience than older, usually male obstetricians is counterintuitive and requires further study. These attitudes appear to be related to experiences in medical education and training rather than to gender, as younger male obstetricians had similar attitudes to their female counterparts. Without addressing the educational system, attitudes will be difficult to change.

Another study by this group found that clients of midwives were more supportive of women's roles in their own deliveries and were less likely to support the use of technology, compared to physicians' patients.⁴⁰ It should be noted that regardless of the type of care provider, many women reported a lack of knowledge of common procedures. Women's lack of knowledge about procedures such as epidural analgesia, C-section and episiotomy raises concerns about prenatal education and prenatal care. Attendance at prenatal education classes is decreasing in all regions of Canada, and most pregnant women indicated they use health care providers, books and the Internet as their main sources of prenatal information.^{40,44} When these findings are combined with evidence on the nature of obstetrical power and control, and research showing that many providers are not evidence-based in their views, it suggests that even a woman with strong values and

beliefs could find it challenging to assert her choices in the professionally controlled process of birth.^{45,46} Women, especially first-time mothers, who do not have evidence-based knowledge are likely to be particularly sensitive to negative attitudes toward birth procedures and processes, from providers and other sources.⁴⁷

A third study from this group⁴⁸ found that family doctors who do not provide intrapartum care have more negative attitudes toward birth and are less evidence-based about what is going on in the delivery suite. Since this group of doctors provides more than 50 per cent of the antenatal care in Canada, efforts to keep them up-to-date need to be implemented, lest they transmit these negative attitudes to women before the women are transferred to other providers for birth care.

Finally as C-section rates continue to rise steadily, with BC having the second highest rate in Canada, and for the first time, maternal mortality and morbidity rates are increasing due to overuse of C-sections, it is time for the public to realize that while C-sections can be life-saving when needed, they are not as safe as vaginal births,^{41,49,50} and they should not be considered as just another way to have a baby.

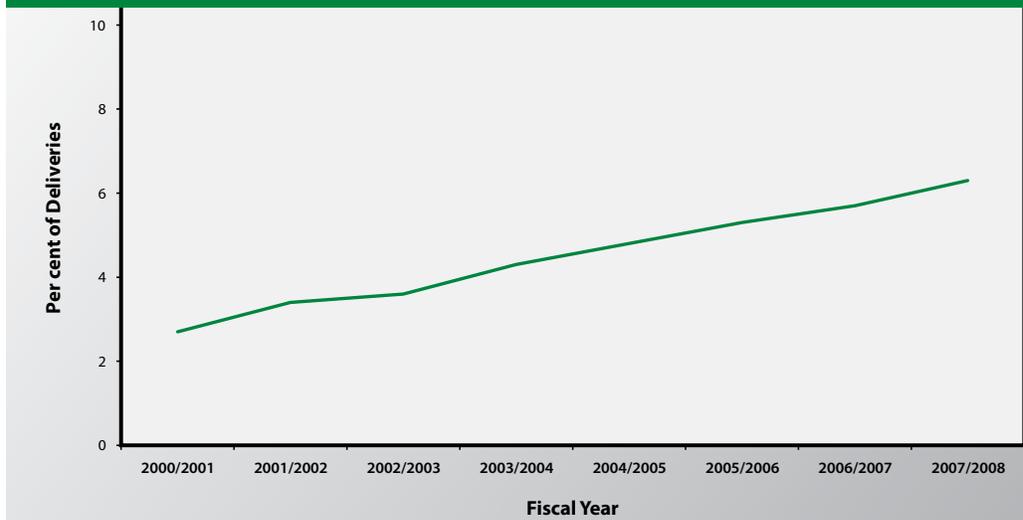
Midwifery

Midwifery has been a regulated health care profession in BC since 1998. Midwives provide safe, individualized, community-based primary care to healthy pregnant women and their newborns from early pregnancy up to six weeks postpartum, based on a partnership between a woman and her midwife or midwives. Midwifery recognizes women as the primary decision-makers and promotes decision-making as a shared responsibility between the woman, her family and her caregivers. Midwives often work in pairs, as a group, or collaboratively with other health care professionals.⁵¹ They order and interpret tests and discuss results, and screen for physical, psychological, emotional and social health. They are with women during pregnancy, labour and birth—both normal and complicated—and

“ It is time for the public to realize that while C-sections can be life-saving when needed, they are not as safe as vaginal births, and they should not be considered as just another way to have a baby. ”

Figure 4.9

Midwife Deliveries as a Proportion of All Deliveries, BC, 2000/2001 to 2007/2008



Note: The population used for this table includes all mothers and all newborns, regardless of place of residence and place of delivery. The midwifery deliveries are in reference to only the care provider who delivers the baby and does not necessarily reflect midwifery involvement throughout pregnancy or during delivery.
Source: BC Perinatal Database Registry, 2008; prepared by the Office of the Provincial Health Officer, Ministry of Health Services, 2011.

provide follow-up home visits up to six weeks postpartum. A midwife helps a new mother establish breastfeeding and adjust to life with her baby. The scope of practice includes the use of many medications used during pregnancy, during birth including emergency situations or pain medication, and for mom or baby postpartum.⁵² The percentage of midwife deliveries has more than doubled between 2000/2001 and 2007/2008 (Figure 4.9).

“The health of infants and children has been internationally accepted as an indicator of the health and well-being of a population.”

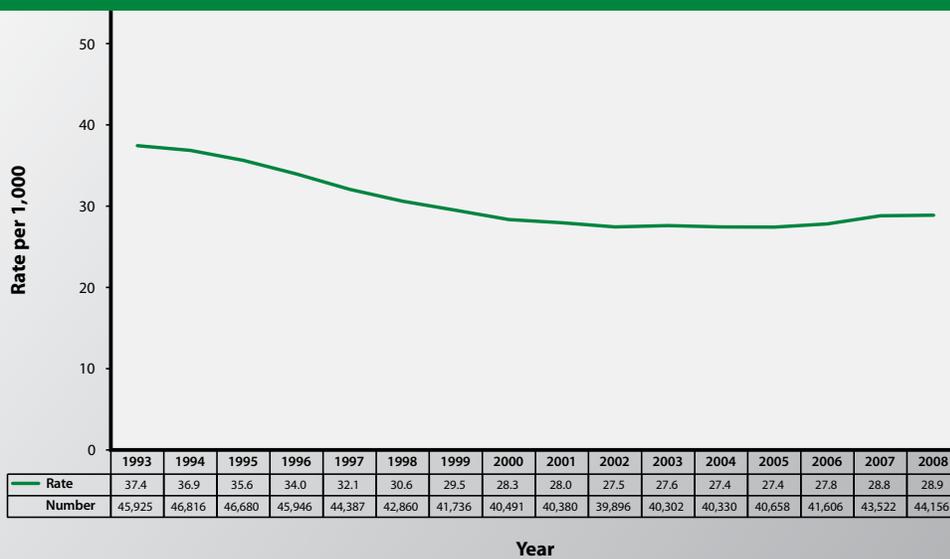
Home Births

In a study of planned home births in British Columbia, women who had planned a home birth (attended by a registered midwife) were less likely to have a newborn that suffered birth trauma, required resuscitation or required oxygen therapy beyond 24 hours. These women were also at a reduced risk of all obstetric interventions assessed and were at a similar or reduced risk of adverse maternal outcomes compared with women who planned to give birth in a hospital accompanied by a midwife or physician.⁵³



Figure
4.10

Live Births, Age 10-59, BC, 1993 to 2008



Source: BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health, and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.

Birth Outcomes and Determinants

The health of infants and children has been internationally accepted as an indicator of the health and well-being of a population. Trends in indicators such as infant mortality, substance use during pregnancy, teenage pregnancies and births, preterm and low birth weight births provide an understanding of how healthy the infants are in a population and what needs to change to improve health outcomes for both mother and baby. These indicators form part of the criteria, along with the social determinants such as socio-economic status and education level of the parent, that help to determine an individual's growth and development throughout his/her life.

Live Births

Since 1993, the rate of live births has dropped, from 37.4 per 1,000 to a low of 27.4 in 2005. By 2008, the rate had increased slightly to 28.9 per 1,000, for a total of 44,156 births (Figure 4.10). As with the fertility rate, the rate of live births varies by health region, with Northern Health Authority having the

highest aggregate rate at 34.0 per 1,000 for the period between 2003 and 2007, followed by Fraser Health Authority at 31.0 per 1,000. Vancouver Island Health Authority had the lowest rate at 24.6 per 1,000.

Maternal Age

Maternal age is defined as the mother's age in years at time of delivery. Mothers of young maternal age (19 years of age or younger) are more likely to have lower education status and lower income, which increases the likelihood of having inadequate food or housing. They are also more likely to experiment with substances such as alcohol or drugs, and engage in higher risk behaviours. The resulting health risks to the mother include poor weight gain during pregnancy, anemia, inadequate prenatal care and a higher likelihood of using drugs or alcohol or smoking.² Risks to the infant include prematurity, low birth weight, and increased morbidity and mortality.² Mothers of advanced maternal age (35 years of age or older) are more likely to access prenatal care and are less likely to smoke; however, they are at higher risk of experiencing chronic illnesses, placental problems and prolonged labour, and of having a caesarean delivery.²

According to the BC Perinatal Health Program,² the average maternal age of mothers who have had at least one previous birth has increased to 31.3 years in 2008, while the average maternal age of women having their first baby has remained steady for the past few years at 28.8 years. As illustrated in Figure 4.11, in BC there is a growing trend to delay childbearing, a fairly common occurrence in industrialized countries.²⁷ In 2008, over half of all live births in BC were among women aged 30 years and older (54.2 per cent), a steady increase since 1993 (42.2 per cent). Live births among women aged 29 years and under have decreased, with the rate for teenagers decreasing from 5.3 per cent in 1993 to 3.4 per cent in 2008. At the same time, live births to women of advanced maternal age (35 years of age and older) have increased, with those 35–39 years representing the highest increase (from 11.1 per cent of live births in 1993 to 18.6 per cent in 2008).



antenatal care, and an increased likelihood of smoking, drinking or using drugs during pregnancy. In BC between 2001/2002 and 2006/2007, 20 per cent of first-time mothers were under 25 years of age (Figure 4.12). Twenty-five per cent of first-time mothers under 25 years of age received premium assistance, which was more than two times higher than the rate for first-time mothers over 25 years of age (11.48 per cent).

Teen Live Births

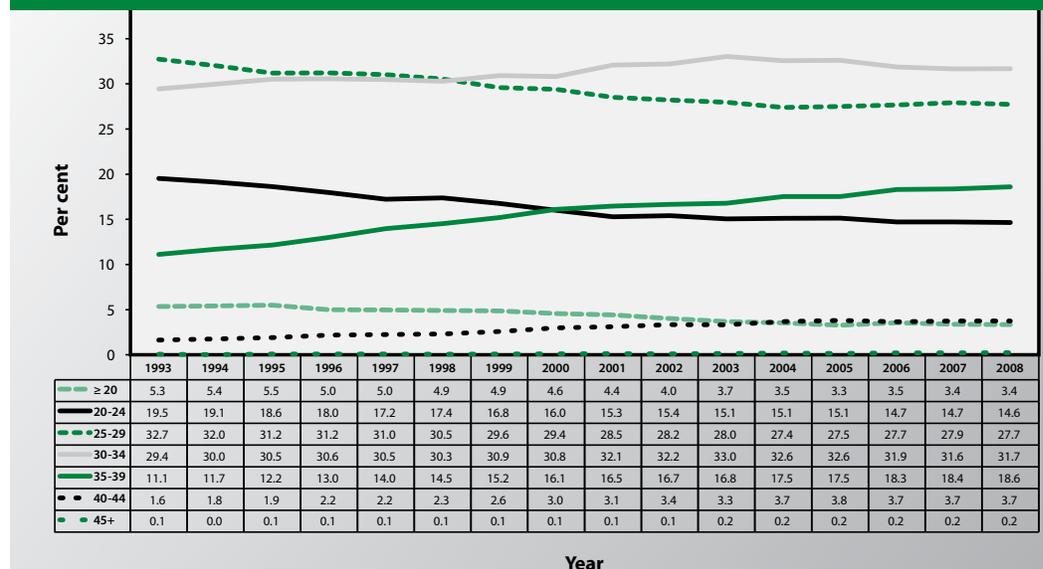
Although the rate of teen live births has decreased over the past several years in BC, it remains an important public health concern, due to associated risks of negative maternal and infant health outcomes.²⁷ The poorer outcomes associated with teenage childbearing include poor maternal weight gain and anaemia; double the likelihood of having a low birth weight baby or a preterm birth and almost three times the rate of neonatal mortality compared to adult mothers; and a greater chance of reducing or stopping attendance at school. These outcomes are brought about by the interaction of multiple factors such as biological immaturity, disadvantaged social environment, lack of social support, physical and sexual abuse, drug use and smoking, and inadequate antenatal care.

Maternal Age and Socio-economic Status

Maternal age is an important factor in the health and well-being of young children. Young maternal age is associated with socio-economic disadvantages, including low education and income levels, inadequate

Figure 4.11

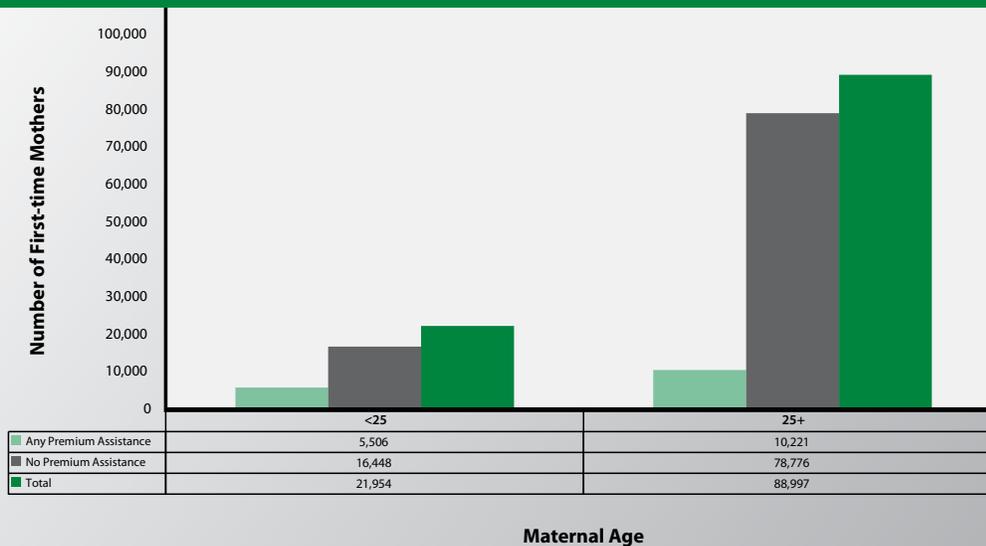
Live Births, by Maternal Age, BC, 1993 to 2008



Source: BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health, and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.

Figure 4.12

Estimated Number of First-time Mothers, by Maternal Age and MSP Premium Subsidy Status, BC, April 1, 2001 to March 31, 2007



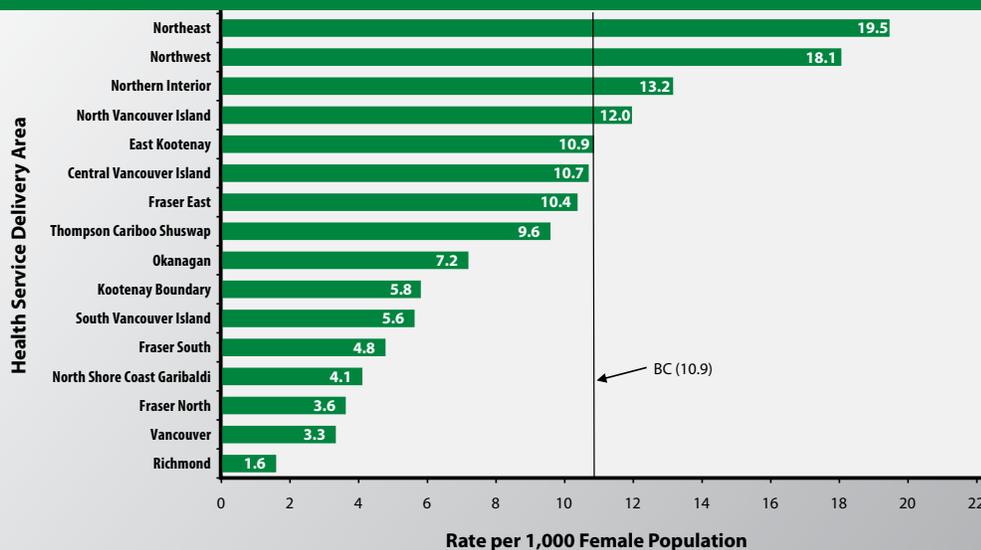
Source: Medical Service Plan (MSP) recipients Registration and Premium Billing history records, Discharge Abstract Database and MSP physician services billings database, Ministry of Health; prepared by Population Health Surveillance and Epidemiology, Ministry of Health, June 2, 2011.

Teen live births are defined as the number of live births among young women aged 12 to 19 years, as a rate per 1,000 females in the same age group. Figure 4.13 illustrates teen live births per 1,000 live births in each

HSDA for the period 2003–2007. Only four HSDAs had teen live birth rates higher than the provincial average for this time period of 10.9 per 1,000: the Northeast (19.5), followed by the Northwest (18.1), Northern

Figure 4.13

Teen Live Births, Age 12-19, by Health Service Delivery Area, BC, 2003-2007



Source: BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health, and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.

Interior (13.2) and North Vancouver Island (12.0). All of these HSDAs are more remote, with more limited access to birth control, including abortion.

Preterm Births

A preterm birth is when an infant is born alive after 20 weeks but before 37 weeks gestation.² In Canada, preterm births are the leading cause of infant mortality and greatly add to infant morbidity.^{2,27} Although the most severe effects of prematurity are

seen among infants less than 32 weeks gestation, even those born slightly premature face higher risks of mortality and morbidity, including health conditions such as respiratory failure, immunological deficiencies, gastrointestinal complications, and long-term problems with motor skills, cognitive functions, vision, hearing, growth and behaviour.²

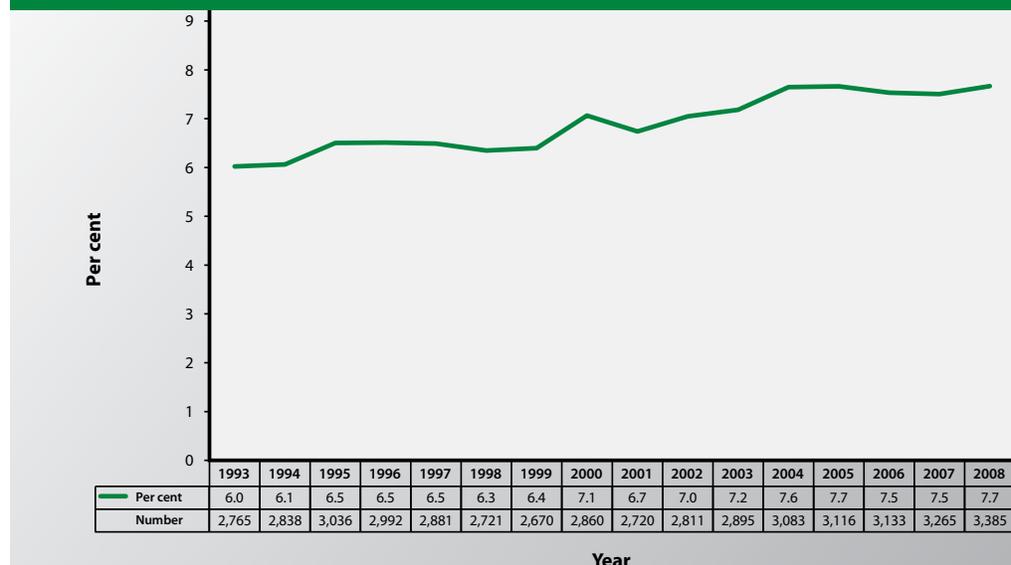
As Figure 4.14 illustrates, preterm births in BC have been increasing over the years, from a rate of 6.0 per 100 live births in 1993 to 7.7 in 2008. Many factors have contributed to the rise in preterm births, including increases in multiple births, a rising maternal age and obstetrical interventions.²⁷ For example, while most preterm births in BC are spontaneous, there has been a noticeable increase in the percentage of preterm births resulting from induced labour and/or caesarean delivery in the absence of labour, from 2.9 per cent of all live births in 2000/2001 to 4.2 per cent in 2007/2008.²

For the five-year period 2003–2007, only four HSDAs had preterm birth rates equivalent to or below the provincial average rate of 7.6 per cent. Fraser South HSDA had the highest rate (11.2), while the lowest rate was in the Northeast HSDA (4.5).



Figure 4.14

Preterm Births, BC, 1993 to 2008



Source: BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health, and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.

Low Birth Weight

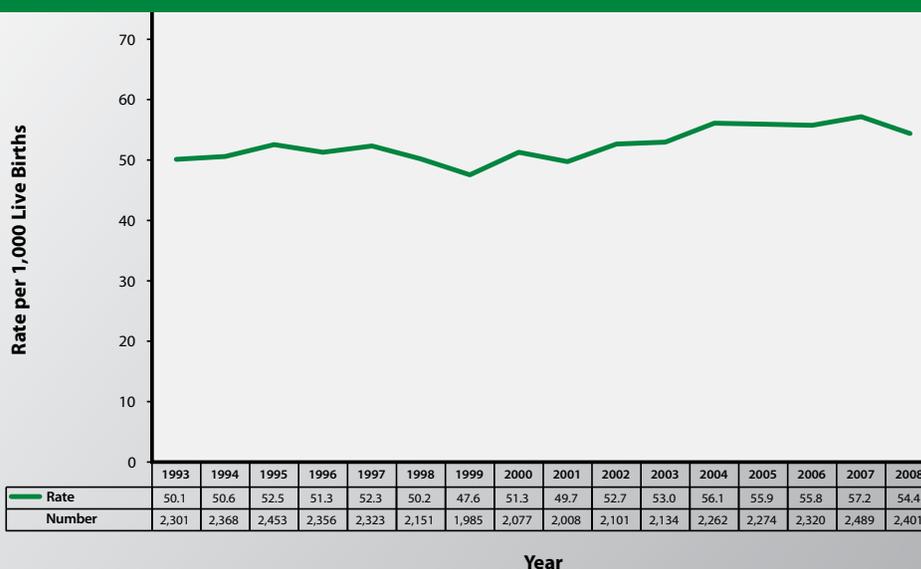
Low birth weight (LBW) is defined as an infant weighing less than 2,500 grams at birth, and often includes infants that are small for gestational age.²⁷ LBW has been associated with higher hospital readmission rates² along with increased rates of mortality and morbidity.⁵⁴ An association has also been found between LBW in infancy and an increased risk of Type 2 diabetes and coronary heart disease later in life.²⁷ Many factors contribute to LBW in infants, including maternal health issues and behaviours such as smoking, poor nutrition, short maternal stature, low pre-pregnancy weight, and also having a baby for the first time.⁵⁴ In BC, the rate of LBW births has been fairly steady since 2003, with only a small increase, from 50.1 per 1,000 live births in 1993 to 54.4 in 2008 (Figure 4.15).

Multiple births increase the risk of adverse health outcomes for mothers, such as anaemia, pre-eclampsia or premature labour.²⁷ Multiple-birth infants are more often low birth weight, small for gestational age, and have higher mortality rates compared to singletons. The increase in



Figure 4.15

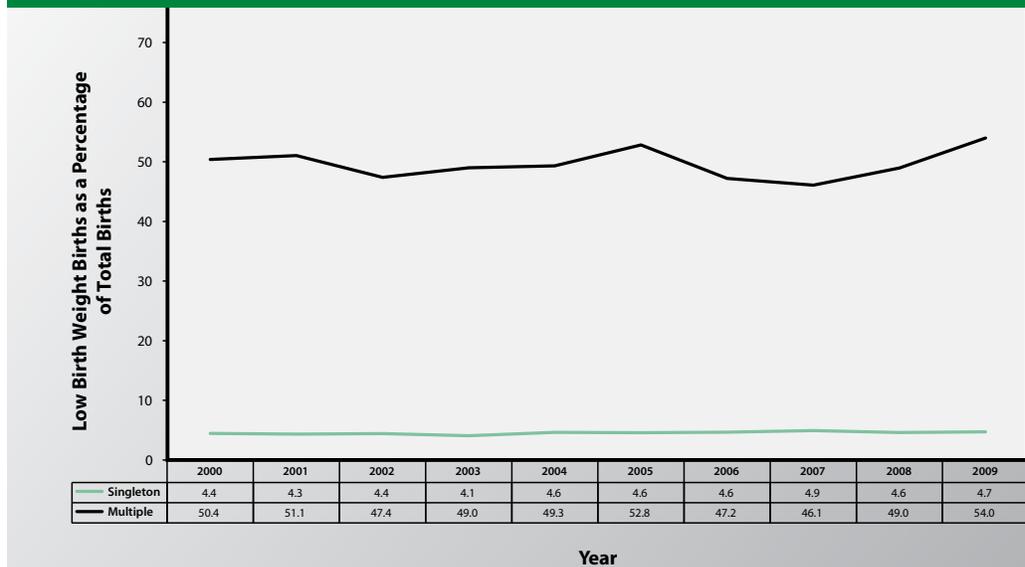
Low Birth Weight Births, BC, 1993 to 2008



Source: BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health, and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.

Figure 4.16

Proportion of Low Birth Weight Singleton and Multiple Births, Mothers Age 35+, BC, 2000 to 2009



Source: BC Vital Statistics Agency, 2009; data extracted from VISTA website; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

multiple births has been linked to assisted reproduction such as in vitro fertilization methods as well as to an increase in maternal age.²⁷ Older mothers are more likely to give birth to multiples even without fertility treatments. Figure 4.16 shows that of births to mothers aged 35 and older, low birth weight births were much higher in multiple births than in singleton births, and the rates for low birth weight multiple births is increasing.

Infant Outcomes and Determinants

Breastfeeding

Breastfeeding is recognized worldwide as the best method of feeding newborns, not only because of its beneficial effects on infants' health and development, but because it has positive effects for mothers. These benefits



Baby-friendly Hospital Initiative

The Baby-friendly Hospital Initiative is a global program initiated in 1991 by the World Health Organization and the United Nations Children's Fund to encourage and recognize hospitals and maternity facilities that help women to successfully initiate and continue to breastfeed their babies. There are currently two hospitals in BC with a baby-friendly designation.

For more information on the Baby-friendly Hospital Initiative please access the following link:

<http://www.bcbabyfriendly.ca/BFHI.html>

include reduced postpartum bleeding, delayed ovulation and improved bone re-mineralization.²⁷ The Canadian Paediatric Society, Dietitians of Canada and Health Canada recommend exclusive breastfeeding for the first six months after birth for healthy term infants, after which time complementary foods may be introduced along with continued breastfeeding up to two years of age and beyond.²⁷

While the majority of mothers begin breastfeeding in hospital, survey data reveal that exclusive breastfeeding rates drop off well before current recommendations. According to the 2008 Canadian Perinatal Health Report,²⁷ 93 per cent of women surveyed in BC reported initiating breastfeeding, compared to the national average of 87 per cent. In 2007/2008, BC ranked first among the provinces with approximately 38.2 per cent of mothers reporting exclusively breastfeeding for at least six months, compared to the national average of 23.1 per cent. At the national level, there were no significant differences in rates by income quintile.⁵⁵

Because so many mothers stop breastfeeding soon after leaving the hospital, questions have been raised as to whether more reinforcement

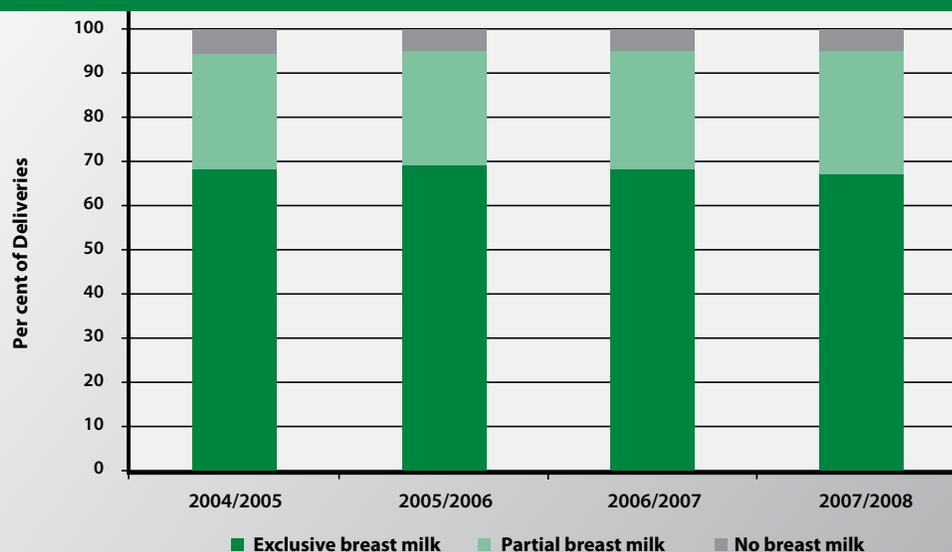
and support is needed from families and communities, including workplace efforts.⁵⁶ Higher rates of breastfeeding initiation and exclusive breastfeeding for six or more months are associated with advanced maternal education, increased maternal age, higher household income, married versus unmarried women, immigrant versus non-immigrant women, and women living in urban versus rural areas.⁵⁶

Based on CCHS data from 2007/2008, of the women in Canada who had given birth to a live infant and reported they did not breastfeed, the main reasons given were that bottle feeding was easier, the mother had a medical condition and breastfeeding was unappealing.⁵⁵ Only a small proportion reported a return to work or school prevented them from breastfeeding, and a few women responded that they smoked.⁵⁶

Figure 4.17 shows that the rate of exclusive breastfeeding of newborns declined slightly between 2004/2005 and 2007/2008, from 67.7 per cent to 66.9 per cent. There was also a small decline in the proportion of infants who were not breastfed at all, from 5.7 per cent to 5.0 per cent during the same time period.

Figure
4.17

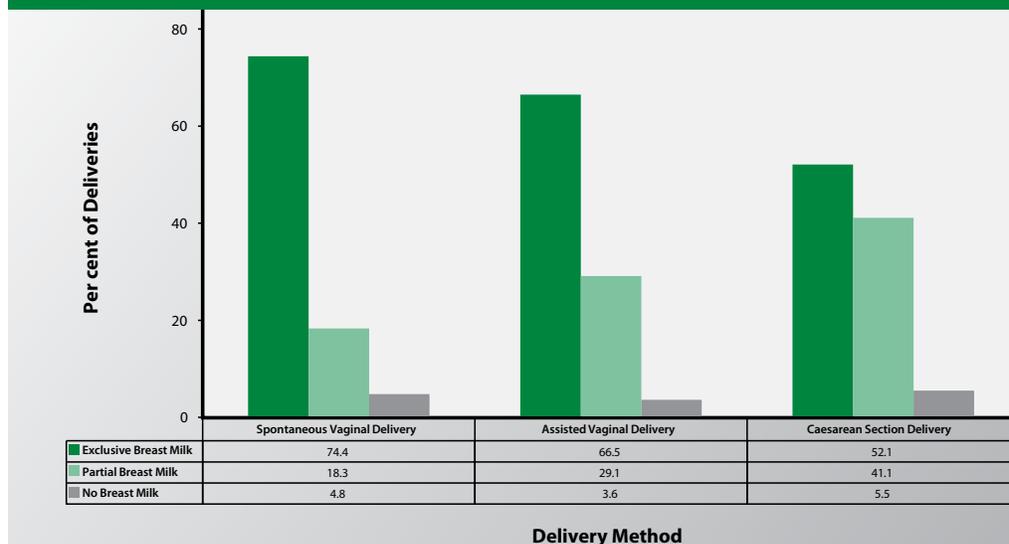
Newborn Feeding, All Hospital Births, BC, 2004/2005 to 2007/2008



Source: BC Perinatal Database Registry, 2010.

Figure 4.18

Newborn Feeding, by Method of Delivery, BC, 2007/2008



Note: Assisted vaginal deliveries are those deliveries in which vacuum and/or forceps are used to assist in the delivery of the baby when a spontaneous vaginal delivery has not progressed adequately.
Source: Perinatal Database Report, 2008.

Although prematurity or caesarean delivery are not considered to be contraindications to breastfeeding, statistics do reveal that these factors influence breastfeeding rates. According to the BC Perinatal Health Program,² infants born at term are more likely to be exclusively breastfed, whereas preterm infants are more likely to be partially breastfed or not breastfed at all. Figure 4.18 shows that in 2007/2008, infants born through vaginal delivery (whether spontaneous or assisted) were more likely to be exclusively breastfed than infants born by caesarean section.

Infant Mortality

Infant mortality is defined as the number of deaths of live-born babies in the first year of life, expressed as a rate per 1,000 live births. It is considered to be the single most comprehensive measure of health in a society,²⁷ as it not only reflects mortality, but also the health status and health care of a population, the effectiveness of preventive care, and the consideration given to maternal and child health.⁵⁷

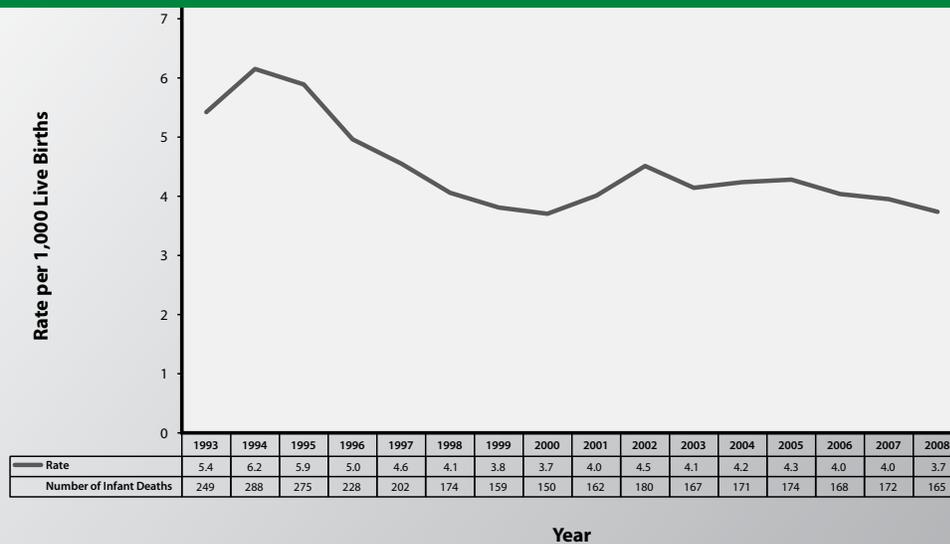
As illustrated in Figure 4.19, infant mortality rates in BC have generally declined over the years, from a rate of 5.4 per 1,000 live

births in 1993 to 3.7 in 2008. According to the BC Vital Statistics Agency,¹ the most frequent causes of infant mortality in 2008 were “conditions originating in the perinatal period” (including prematurity/postmaturity and fetal growth disorders, and infants affected by maternal factors), which accounted for 48.5 per cent of the deaths. The second highest cause of infant death was congenital malformations and chromosomal abnormalities (21.2 per cent), followed by sudden infant death syndrome (SIDS) (7.3 per cent), metabolic disorders (1.8 per cent), other disorders of the nervous system (1.8 per cent), and other causes (19.4 per cent). It is important to note that some of the infant deaths classified as other causes were still under investigation and may have subsequently been re-classified as SIDS. Over half of all infant deaths occurred in the first week after birth,



Figure
4.19

Infant Mortality, BC, 1993 to 2008



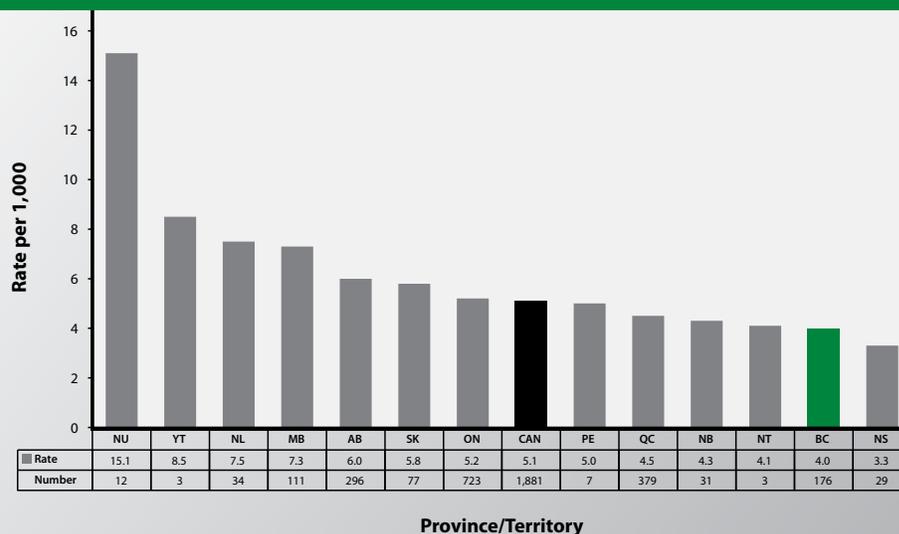
Source: BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.

and almost 65 per cent occurred within 28 days of birth. There was also a tendency for infant mortality to increase as gestational age and birth weight decreased.¹

BC's infant mortality rate (4.0 per 1,000) is the second lowest rate in Canada next to Nova Scotia. The Canadian infant mortality rate is 5.1 per cent (Figure 4.20).

Figure
4.20

Infant Deaths, by Province/Territory, Canada, 2007



Note: An infant death is the death of a child under one year of age. The infant death rate is the number of infant deaths during a given year (excluding stillbirths) per 1,000 live births in the same year.

Source: Statistics Canada, Infant Deaths and Mortality Rates (CANSIM Table 102-0507); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Infant mortality rates for countries in the Organisation for Economic Co-operation and Development show Canada lagging far behind the lowest rates in Luxembourg (1.8), Iceland (2.0) and Sweden (2.5), and being on par with Estonia (5.0) (Figure 4.21).

Sudden Infant Death Syndrome

Sudden infant death syndrome (SIDS), also known as crib death, occurs when a baby dies suddenly while sleeping. SIDS is most likely to occur in babies between two and four months of age, and the death cannot be explained even after a full autopsy.⁵⁸

In this report, the term SIDS will be used exclusively to refer to such deaths, despite the existence of a new term, Sudden Unexplained Death in Infancy (SUDI), which distinguishes such deaths in which no anatomical cause of death was determined but known risk factors were identified.⁵⁹

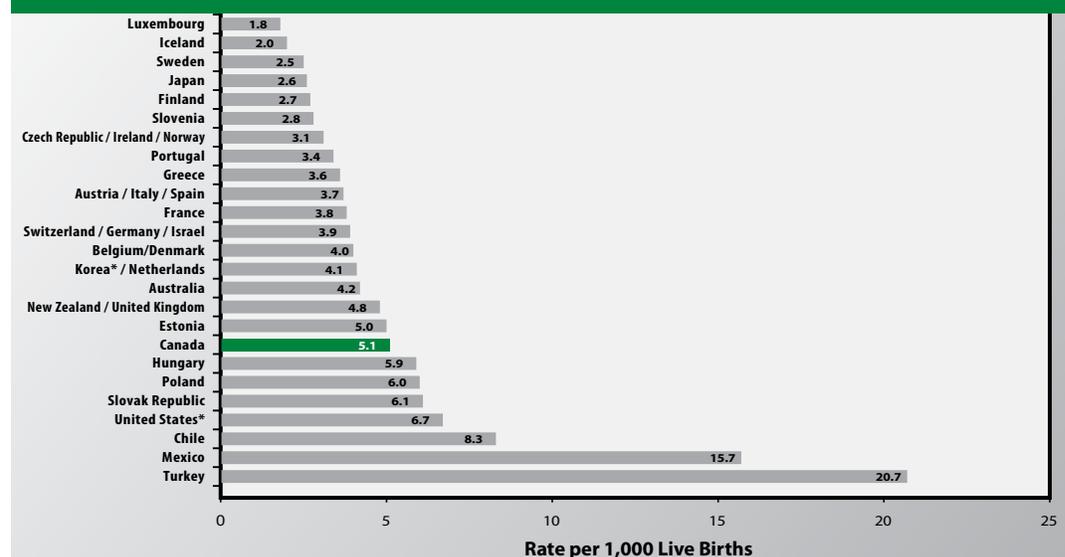
In 2009, the Child Death Review Unit with the BC Coroners Service completed a detailed investigation of the deaths of infants less than one year of age that occurred suddenly and unexpectedly in sleep-related circumstances, for 2003 through 2007.

Through their analysis several risk factors became apparent, and many of the deaths had several risks at one time. Risk factors identified included prematurity, low birth weight, sex (male babies have a significantly higher risk) and age (peak occurrences were between two and four months of age). Additional to these infant-related factors were conditions relating to the physical environment such as sleeping position, an overheated room, exposure to tobacco smoke, and lower socio-economic conditions or lack of prenatal care and poor personal care practices.⁵⁹

Bed sharing has been identified as a risk factor for SIDS and can also lead to suffocation. Bed sharing or co-sleeping is when parents share the same sleep surface as their baby, whether it is a bed, couch, futon, beanbag, recliner, armchair, air mattress, memory foam or any makeshift bed. Bed sharing is unsafe because a baby can suffocate if he or she becomes trapped between the sleeping surface and the body of a parent or caregiver, the wall or other objects; if the parent, caregiver or another child rolls over onto the baby; or if the parent uses soft bedding material such as pillows or

**Figure
4.21**

Infant Mortality, by OECD Country, 2007



* The infant mortality rate for 2007 was not available for Korea and the United States in this particular OECD extract, so 2006 data was applied for these two countries.

Note: OECD = Organisation for Economic Co-operation and Development.

Source: Organisation for Economic Co-operation and Development (OECD Health Data 2010 Version). Data extracted on March 16, 2011, 20:11 UTC (GMT) from OECD.Stat; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

“ Bed sharing has been identified as a risk factor for SIDS and can also lead to suffocation. ”



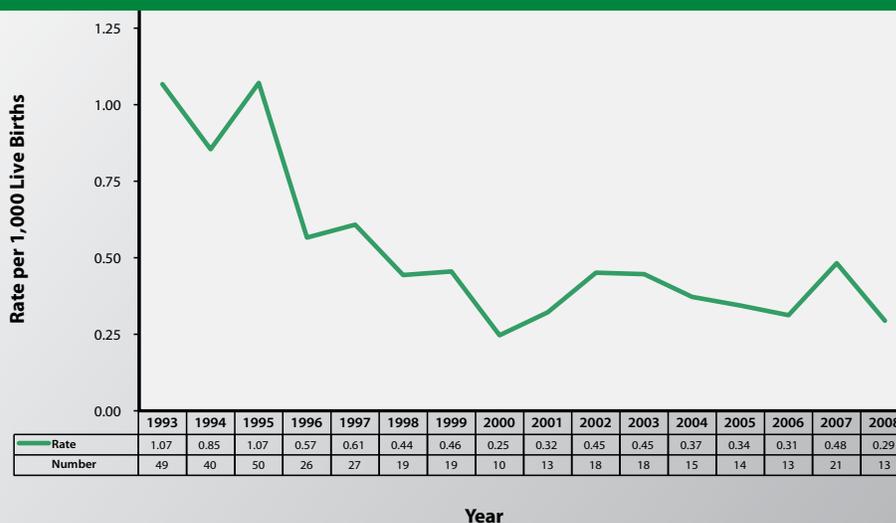
comforters. The risk of death is even higher for the baby if the person sharing the same sleep surface is a smoker, is very tired, or is under the influence of drugs, alcohol or medications that make them sleepy.⁶⁰

As can be seen in Figure 4.22, the overall mortality rate from SIDS has declined since 1993, although not without intermittent

spikes and drops in various years. In 2008, there were 13 SIDS deaths, or 0.29 deaths per 1,000 live births in BC, accounting for over 7 per cent of infant deaths for that year. This rate is in line with the 2006 rate of 0.31 SIDS deaths per 1,000 live births. It is interesting that from 1999 to 2000, there was a sharp drop in the mortality rate from SIDS, which is the same time period when

Figure 4.22

Sudden Infant Death Syndrome Mortality, BC, 1993 to 2008



Note: Post-neonatal death is defined as the death of a child between 28 and 364 days after birth. Rates shown in this figure may differ from rates shown in original Vital Statistics Agency annual reports or other sources, depending on whether the sudden unexpected infant death was classified into an alternate category such as "other causes" (not shown), or was subsequently re-classified as a SIDS death upon a completed investigation, which may have occurred after the above chart was produced. Caution is required when comparing rates among different sources, jurisdictions and years.

Source: BC Vital Statistics Agency, 2009; prepared by Health Sector IM/IT Division, Ministry of Health, and Population Health Surveillance and Epidemiology, Ministry of Health, 2009.

SIDS

In order to reduce the risk of SIDS and create a safe sleep environment, the Public Health Agency of Canada⁶⁰ recommends the following:

- Provide a smoke-free environment—both before and after birth.
- Always place an infant on his or her back to sleep—night time and nap time.
- Place the infant to sleep in a crib next to the adult’s bed for the first 6 months.
- Research has shown that *room sharing* is associated with a reduced risk of SIDS, and is recommended until your baby is at least six months old.
- Provide a safe crib environment that has no toys or loose bedding (use only a fitted sheet) and a comfortable room temperature.

It may be difficult for a woman to control some of these situations without the help of a supportive partner and sufficient income to allow for room sharing and a safe crib.

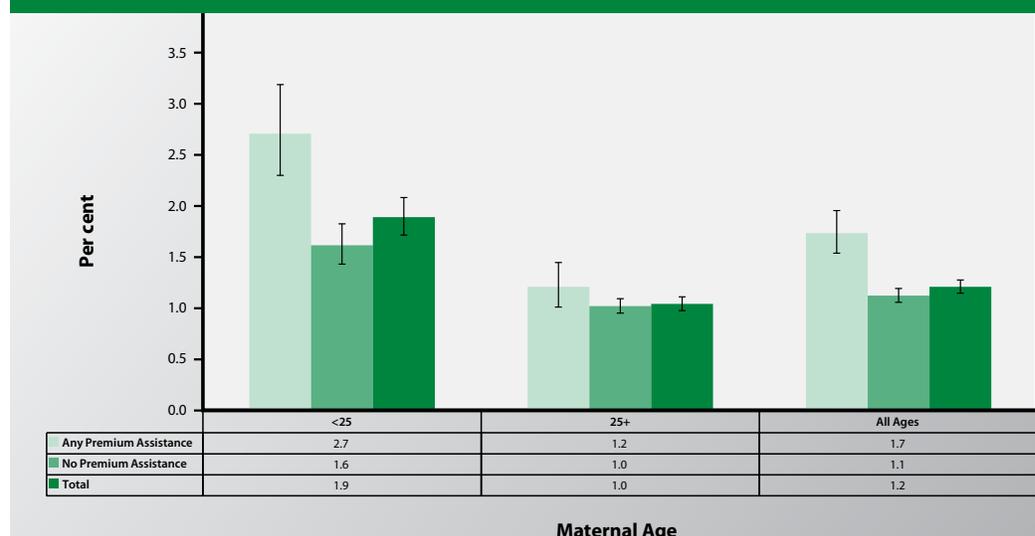
the “Back to Sleep” campaign was initiated in Canada. This campaign is credited with increasing the number of babies put to sleep on their backs and reducing the SIDS rate by almost 50 per cent.⁶⁰

Injury and Infancy

Unintentional injuries such as those caused by falls, poisoning, burns and road traffic are the leading cause of hospitalization

Figure 4.23

Hospital Separations Associated with Injury, First-born Children under 3 Years of Age (Born between April 1, 2001, and March 31, 2007), by Maternal Age and MSP Premium Subsidy Status, BC, 2001/2002 to 2009/2010



Source: Medical Service Plan (MSP) recipients Registration and Premium Billing history records, Discharge Abstract Database and MSP physician services billings database, Ministry of Health; prepared by Population Health Surveillance and Epidemiology, Ministry of Health, 2011.

(2003–2007) in young children 0–4 years of age in BC.⁶¹ Based on data from April 2001 to March 2007, children born to first-time young mothers (<25 years of age) had a higher rate of hospitalizations for injury than children of first-time mothers older than 25 years of age (Figure 4.23). The rate of injury hospitalization was highest for young children of mothers under 25 years of age who were receiving Medical Services Plan premium assistance.

Further analysis and comparison with results for children of the older mothers group suggests that a proportion of these injuries could have been prevented if the gap between these two groups of infants was reduced. Targeted prevention activities and support to young first-time mothers at risk, such as the recently announced Nurse-Family Partnership,^f has been shown to improve both maternal and child physical and mental health.

Perinatal Depression

Perinatal depression refers to a range of mild to major depressive episodes, occurring any time during pregnancy and up to one year after childbirth.^{62,63} When such depressive episodes occur after the baby is born, the term postpartum depression is commonly used.⁶⁴ Although many mothers experience a short period of emotional upset after having a baby, commonly called “baby blues”,⁶³ depression causes several debilitating symptoms that are experienced most of the day, every day, for at least two weeks, including feelings of despair, worthlessness, guilt, changes to sleeping and eating patterns, lack of energy, poor concentration, inability to make decisions, muscle aches, a decreased desire to take part in pleasurable activities, and thoughts of suicide.⁴⁴

Any woman can be affected by perinatal depression, including adoptive mothers or women who have had a stillbirth or abortion.⁶⁵ Even partners of women with perinatal depression can become

depressed.⁶⁶ The cause of perinatal depression is unknown, but several risk factors are believed to make some women more prone to the condition, including a woman’s personal history of anxiety or depression, family history of depression, lack of social support, stressful life events, partner dissatisfaction, low socioeconomic status and complications during pregnancy.⁶³ Substance abuse, having an unwanted pregnancy and having a history of violence may further increase a woman’s vulnerability to perinatal depression.⁶⁷

Approximately half of all women who have a history of depression will experience perinatal depression,⁶³ while mothers who have a history of postpartum depression have a 40 per cent risk of having another postpartum depression and a 25 per cent risk of having a future major depressive disorder unrelated to childbirth.⁶⁸ In addition, over 50 per cent of women with a previous episode of postpartum depression will likely experience depression during their next pregnancy.⁶⁷

Although treatable, perinatal depression is a major health concern for both the mother and baby, increasing the risk for poor maternal self-care, obstetrical complications, preterm birth, lower infant birth weight, fetal distress, growth retardation, poor maternal-infant bonding and possible behavioural problems or cognitive impairment later in childhood.⁶⁹ Effects may also extend to include other family members and interrupt family interactions.⁶⁹ Unfortunately, many women who experience perinatal depression are so ashamed that they suffer in silence and avoid seeking treatment, a situation possibly stemming from the stigma associated with mental illness and cultural and societal expectations of motherhood.⁶⁷ However, a study in the United States⁷⁰ found that the majority of women identified as having perinatal depression are willing to be treated; such findings emphasize the need for routine screening. Treatment options vary and depend on



“ Children born to first-time young mothers (<25 years of age) had a higher rate of hospitalizations for injury. ”

^f The Nurse-Family Partnership program is a nurse home-visitation program available to vulnerable, young, first-time mothers who have low incomes, and who are at an early stage in their pregnancy (28 weeks or earlier). The program provides one-on-one health and nutrition counselling, pre- and post-natal advice and guidance.

several factors, but primarily include counselling, medications or a combination, as well as self-care approaches.⁶³

Figure 4.24 shows that in BC, women were significantly more likely to have received at least one Medical Services Plan (MSP) service for depression during the perinatal period, among all age groups, compared to non-birthing women (24.5 per cent of mothers aged 15 to 49 years, compared to 17.3 per cent of non-birthing women). Mothers between 15 and 19 years of age were most likely to have received an MSP service for depression (28.5 per cent), while non-birthing mothers in the same age group were least likely to have received an MSP service for depression (9.2 per cent). The high percentage may be due in part to the likelihood that mothers in this age group would be more prone to having at least one of the aforementioned risk factors, such as low socio-economic status, higher stress or an unwanted pregnancy.

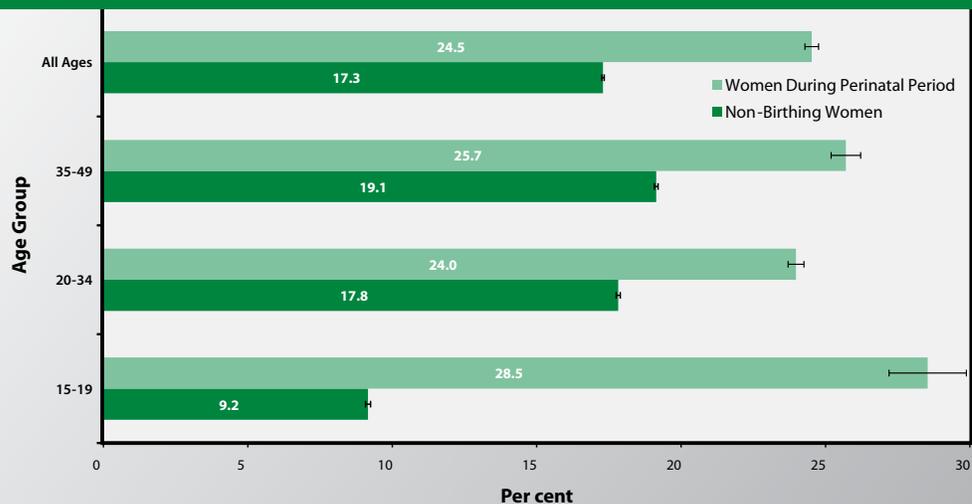
Data on perinatal depression may vary due to differences in methodology used and the manner in which data are reported. Most literature states that perinatal depression occurs among 10 to 20 per cent of women,⁶⁷

“ Mothers between 15 and 19 years of age were most likely to have received an MSP service for depression. ”



Figure 4.24

Proportion of Women with MSP Services for Depression, by Age, BC, 2006/2007-2008/2009



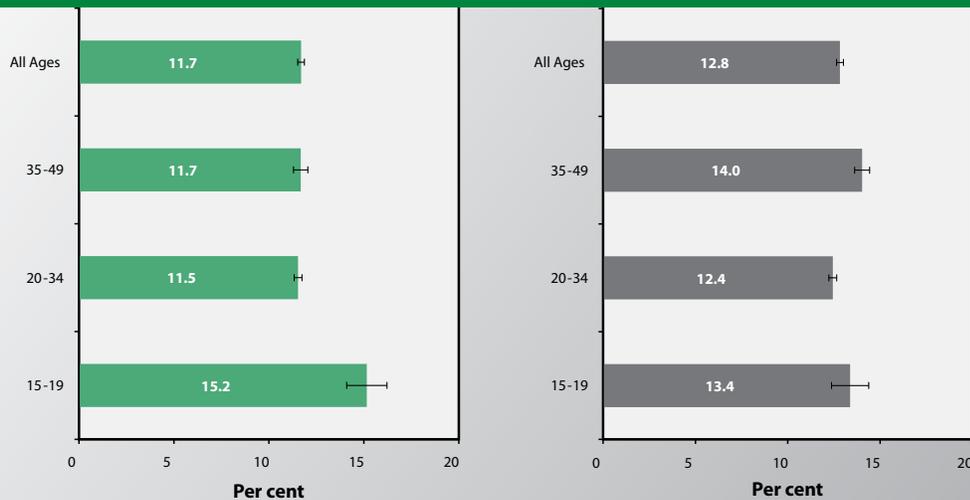
Note: Due to ambiguous presentation of depression and coding practices, these rates may capture some bipolar and anxiety cases. Caution is required with interpretation of rates, as they are not based on a 12-month period (refer to section on methodology). Confidence intervals calculated at 95%.

Source: Discharge Abstract Database and Medical Services Plan data; prepared by Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Figure 4.25

Proportion of Perinatal Women with MSP Service for Depression First Recorded During 9-month Prenatal Period, by Age, BC, 2006/2007-2008/2009

Proportion of Perinatal Women with MSP Service for Depression First Recorded During 12-month Postnatal Period, by Age, BC, 2006/2007-2008/2009



Note: Due to ambiguous presentation of depression and coding practices, these rates may capture some bipolar and anxiety cases. Caution is required with interpretation of rates, as they are not based on a 12-month period (refer to section on methodology). Confidence intervals calculated at 95%.

Source: Discharge Abstract Database and Medical Services Plan data; prepared by Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

although for teenage mothers it can be as high as 25 per cent.⁶⁴ Research has also found that the prevalence of depression among women during the perinatal period is similar to that among women who are not pregnant.^{62,71,72} However, most sources do suggest that the perinatal period increases a woman's vulnerability for depression, particularly if risk factors are present.^{62,67,73} It is uncertain whether proportions given in Figure 4.24 are a result of higher rates of perinatal depression or enhanced pre/postnatal screening by physicians.

Rates often vary depending on the case definition and window period. For example, in a 2003/2004 study, the BC Reproductive Mental Health Program⁶³ based the perinatal depression rate solely on one ICD-9⁹ code for depressive disorder, using a window period of conception to nine months post-delivery to obtain a "minimum baseline estimate" of 12 per cent for BC. This same source also found that 37 per cent of women had at least one mental health service

for any mental disorder during the same timeframe. However, a more comprehensive case definition, as was used to obtain rates of depression for this report, may justly represent a higher baseline of 24.5 per cent over the perinatal period.

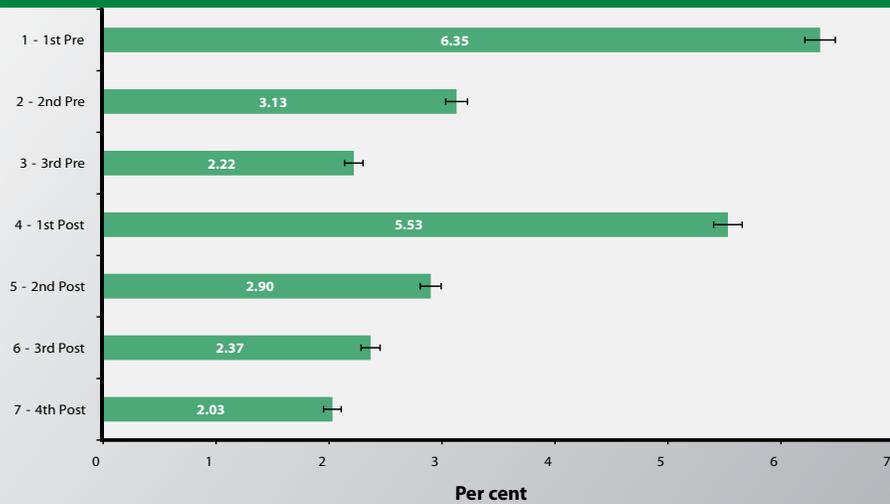
Figure 4.25 shows that adolescent girls aged 15 to 19 and women of advanced maternal age (35 years and older) were more likely to receive an MSP service for depression. Those aged 15 to 19 were most likely to first receive the MSP service in the prenatal period, while women aged 35 years and older were most likely to first receive the MSP service in the postnatal period. Interestingly, it is young women and women of advanced maternal age who are also more likely to experience an array of complications during pregnancy and childbirth.² The BC Reproductive Mental Health Program⁶³ also found that teenagers and women in their early forties had received the most health services during the perinatal period.

“ Young women and women of advanced maternal age are more likely to experience an array of complications during pregnancy and childbirth. ”

⁹ International Statistical Classification of Diseases and Related Health Problems, Version 9.

Figure 4.26

When Women First Received an MSP Service for Depression during the Perinatal Period, BC, 2006/2007-2008/2009



Note: Due to ambiguous presentation of depression and coding practices, these rates may capture some bipolar and anxiety cases. Caution is required with interpretation of rates, as they are not based on a 12-month period (refer to section on methodology). Confidence intervals calculated at 95%.

Source: Discharge Abstract Database and Medical Services Plan data; prepared by Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Figure 4.26 takes a more detailed look at which stage of pregnancy women are more likely to receive an MSP service for depression.^h Previous research has shown that the third trimester of pregnancy is the most likely time for depression to occur.⁷⁴ However, the symptoms of pregnancy and depression (tiredness, difficulty with eating or sleeping, mood swings, anxiety) are often similar in the first and third trimester, which can mask/conflate symptoms of depression.⁶⁷ It is often easier to diagnose depression in the second trimester, as women have generally adjusted to the pregnancy and are more likely to feel well, so any expression of concern regarding depression will likely result in a quicker diagnosis.⁶⁷ Depression is also commonly diagnosed after childbirth,⁷⁰ particularly within the first three months after delivery.^{62,63} This may be due to the onset or worsening of symptoms stemming

from problems during labour and delivery, or the many other variables associated with caring for a baby, such as stress, adapting schedules and a change to sleep patterns or lack of sleep.⁷⁰

Figure 4.26 shows that the highest proportion of women who first received an MSP service for depression was during the first trimester of pregnancy, or within the first three months after delivery. Data showed that young women between 15 and 19 years had the highest rates during the first trimester, as well as at many of the other stages of the perinatal period. This is not surprising, considering the aforementioned risks associated with this age group, coupled with the upcoming challenges in caring for a baby while trying to meet their own educational, economic, social and living needs.

^h The stages of the perinatal period were divided into seven, three-month time intervals: three for the prenatal period (the first trimester of pregnancy [1st pre], second trimester [2nd pre] and the third trimester [3rd pre]); and four during the postnatal period (giving birth to 3 months post-delivery [1st post], 4 to 6 months post-delivery [2nd post], 7 to 9 months post-delivery [3rd post], and 10 to 12 months post-delivery [4th post]).

Summary of What We Know

- The fertility rate in BC dropped slightly between 1993 and 2002, to a low of 1,380.6 per 1,000 in 2002, then increased to 1,497.9 per 1,000 in 2008. Aggregate fertility rates vary significantly in the health regions, with Northern, Fraser and Interior Health Authorities all higher than the provincial average.
- The pregnancy rate for females age 10–59 has dropped close to 28 per cent, from 54.7 per 1,000 in 1993 to 39.5 per 1,000 (59,719 pregnancies) in 2007. There has also been a decreasing trend in teen pregnancies, from a high of 32.9 per 1,000 teen females in 1994 to 18.3 per 1,000 in 2007. BC's teen pregnancy rate for females age 14–19 (25.3 per 1,000) is slightly above the Canadian average (24.6), and is in the mid-range compared to other provinces/territories.
- For first-time mothers, smoking rates have declined since 2000/2001, and rates for pre-pregnancy obesity have risen significantly. The percentage of first-time mothers with four or fewer antenatal visits has remained fairly consistent since 2000/2001.
- Data on the use of substances, including tobacco, alcohol and drugs, during pregnancy show higher substance use rates among the younger age groups (≤ 15 , 15–17 and 18–19), particularly for smoking, while rates for alcohol and drug use peak before age 15. Substance use declines by maternal age.
- In 2004/2005, BC had one of the highest rates of caesarean deliveries in Canada, at 29.9 per cent of hospital deliveries, second only to Prince Edward Island. The Canadian average was 25.6 per cent.
- The rate for live births by caesarean section has increased significantly over the past 15 years. In 1993, 20.8 per cent of live births were by C-section, and in 2008, the percentage had risen to 30.6, close to 50 per cent higher.
- Certain health service delivery areas (HSDAs) stand out as being well above the provincial average for caesarean deliveries, which is already higher than rates in the rest of Canada. These areas include South Vancouver Island (34.7 per cent), Thompson Cariboo Shuswap (33.1 per cent), Fraser South (31.6 per cent) and Richmond (31.3 per cent). Kootenay Boundary is notable for having a low percentage of C-section deliveries at 24.1 per cent.
- Research by the University of British Columbia-affiliated Child & Family Research Institute suggests that the increase in C-section rates across Canada may be due in part to the attitudes and beliefs of obstetricians and other providers towards birth technology and C-sections.
- Attendance at prenatal education classes is decreasing in all regions of Canada, and most pregnant women indicated they use health care providers, books and the Internet as their main sources of prenatal information.
- Midwifery has been a regulated health care profession in BC since 1998. Midwives provide primary care to healthy pregnant women and their newborns from early pregnancy up to six weeks postpartum. The percentage of midwife deliveries has more than doubled between 2000/2001 and 2007/2008.
- Since 1993, the rate of live births has dropped from 37.4 per 1,000 in 1993 to a low of 27.4 in 2005. By 2008, the rate had increased slightly to 28.9 per 1,000, for a total of 44,156 births. As with the fertility rate, the rate of live births varies by health region, with Northern Health Authority having the highest aggregate rate at 34.0 per 1,000 for the period between 2003 and 2007, followed by Fraser Health Authority at 31.0 per 1,000. Vancouver Island Health Authority had the lowest rate at 24.6 per 1,000.
- In 2008, over half of all live births in BC were among women aged 30 years and older (54.2 per cent), a steady increase since 1993 (42.2 per cent). Live births among women aged 29 years and under have decreased, while at the same time, live births to women of advanced

maternal age (35 years of age and older) have increased, with those 35–39 years representing the highest increase (from 11.1 per cent of live births in 1993 to 18.6 per cent in 2008).

- In BC between 2001/2002 and 2006/2007, 20 per cent of first-time mothers were under 25 years of age. Twenty-five per cent of first-time mothers under 25 years of age received premium assistance, which was more than two times higher than the rate for first-time mothers over 25 years of age (11.48 per cent).
- For the period 2003–2007, only four HSDAs had teen live birth rates higher than the provincial average of 10.9 per 1,000: the Northeast (19.5), followed by the Northwest (18.1), Northern Interior (13.2) and North Vancouver Island (12.0).
- Preterm births in BC have been increasing over the years, from a rate of 6.0 per 100 live births in 1993 to 7.7 in 2008. Contributing factors include increases in multiple births, a rising maternal age and obstetrical interventions. Although most preterm births in BC are spontaneous, there has been a noticeable increase in the percentage of preterm births resulting from induced labour and/or caesarean delivery in the absence of labour, from 2.9 per cent of all live births in 2000/2001 to 4.2 per cent in 2007/2008.
- In BC, the rate of low birth weight births has been fairly steady since 2003, with only a small increase, from 50.1 per 1,000 live births in 1993 to 54.4 in 2008.
- The rate of exclusive breastfeeding of newborns declined slightly between 2004/2005 and 2007/2008, from 67.7 per cent to 66.9 per cent. There was also a small decline in the proportion of infants who were not breastfed at all, from 5.7 per cent to 5.0 per cent during the same time period.
- According to the BC Perinatal Health Program, infants born at term are more likely to be exclusively breastfed, whereas preterm infants are more likely to be partially breastfed or not breastfed at all. In 2007/2008, infants born through vaginal delivery (whether spontaneous or assisted) were more likely to be exclusively breastfed than infants born by caesarean section.
- While the majority of mothers begin breastfeeding in hospital, survey data reveal that exclusive breastfeeding rates drop off well before current recommendations. In 2007/2008, BC ranked first among the provinces with approximately 38.2 per cent of mothers reporting exclusively breastfeeding for at least six months, compared to the national average of 23.1 per cent.
- The overall mortality rate from SIDS has declined since 1993, although not without intermittent spikes and drops in various years. In 2008, there were 13 SIDS deaths, or 0.29 deaths per 1,000 live births in BC, accounting for over 7 per cent of infant deaths for that year. This rate is in line with the 2006 rate of 0.31 SIDS deaths per 1,000 live births.
- Based on data from April 2001 to March 2007, children born to first-time young mothers (<25 years of age) had a higher rate of hospitalizations for injury than children of first-time mothers older than 25 years of age. The rate of injury hospitalization was highest for young children of mothers under 25 years of age who were receiving Medical Services Plan (MSP) premium assistance.
- In BC, women were significantly more likely to have received at least one MSP service for depression during the perinatal period, among all age groups, compared to non-birthing women (24.5 per cent of mothers aged 15 to 49 years, compared to 17.3 per cent of non-birthing women). Mothers between 15 and 19 years of age were most likely to have received an MSP service for depression (28.5 per cent).
- Adolescent girls aged 15 to 19 and women of advanced maternal age (35 years and older) were more likely to receive an MSP service for depression. Those aged 15 to 19 were most likely to first receive an MSP service in the prenatal period, while women aged 35 years and older were most likely to first receive an MSP service in the postnatal period.

Chapter 5

Individual Skills and Choices

Our sense of identity, our ability to communicate and participate in daily life, our coping skills and our lifestyle choices are key influences on our physical, mental and social health. These abilities and health behaviours are profoundly influenced by our social and economic environments. They are also profoundly influenced by sex differences and gender equity. In this chapter we take a life stages approach, looking at childhood, adolescence, adulthood and elder years, and provide information and data on a number of domains (e.g., behaviours and significant populations, including women with disabilities).

Childhood

In considering the health status of women, it is important to trace the health of women back to early childhood. What happens at a very young age can have a significant impact on a woman's health in later childhood, into adolescence and potentially right through to adulthood. Many studies have shown that girls start out life with biological advantages over boys. Girls have a lower rate of infant mortality and birth-related complications than boys, a lower incidence of birth defects, and stronger immune systems. However, these biological advantages do not necessarily translate into lifelong health and well-being, in part because of the persistence of gender stereotypes and marginalizing practices, which limit many girls from entering and completing their education, experiencing positive relationships, and developing the resilience that will help them face life's challenges.

Childhood is a key period that profoundly influences growth and development throughout life. During these early years, children acquire the sense of identity, the ability to learn, the social and coping skills, and the trust and relationships they need to lead healthy, productive lives. For a young girl, the socialization that begins with her parents and family continues in the school and community, shaping her behaviour and accomplishments for the rest of her life.¹

School Readiness and Educational Attainment

When girls start school, they are more likely than boys to achieve good results, especially at reading and writing, and are also more likely to be successful at making new friends.¹ However, not all girls start equal. Research by the Human Early Learning Partnership (HELP)^a suggests that inadequate early childhood development is at the root of many adult conditions and social issues, including mental health

“...by the time children are Kindergarten aged, it is possible to identify the children who have not had secure, nurturing and stimulating early childhood experiences...we know that approximately 25 per cent of Canadian children are developmentally vulnerable when they enter school. We need to continue to monitor the state of early childhood development at the level of the population. We also need to provide universal access to environments that support healthy child development, not just protection for those at risk.”

—Hertzman et al., 2010²

^a The Human Early Learning Partnership is an interdisciplinary research consortium of faculty, researchers and graduate students from BC's six major universities.

problems, obesity, heart disease, criminality and a lack of competence in literacy and numeracy.³ HELP launched the Early Child Development Mapping Project in 1999, and as a result of this project BC has become the first jurisdiction to track the development of its entire kindergarten population.³

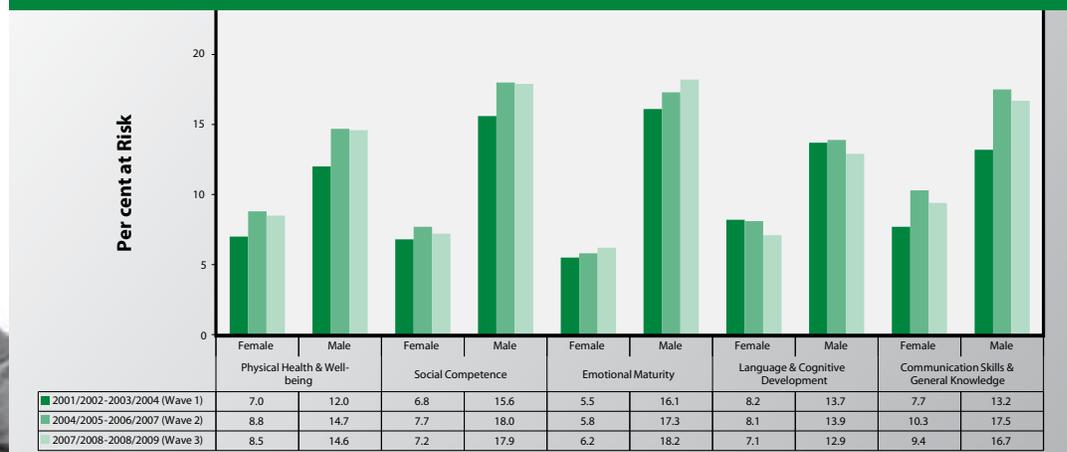
The Early Development Instrument

The Early Development Index (EDI) was designed to obtain teachers' informed views on the development, skills and abilities of kindergarten children in the classroom. Data are collected for kindergarten children in schools within BC, including kindergarten children in public, independent and First Nations-governed schools—although First Nations educators have questioned cultural bias in reporting. The Early Child Development Mapping Project does not assess kindergarten children who are homeschooled or in distance education programs. The EDI reflects three key domains of early childhood development: physical health and well-being; social/emotional development; and language and cognitive development. It includes 104 core items on the development of kindergarten children on five EDI scales of development:

1. Physical health and well-being – fine and gross motor development; levels of energy; daily preparedness for school (tired, late, hungry); washroom independence; established handedness.
2. Social competence – co-operation and respect for others (children and adults); ability to work within the school environment; socially appropriate behaviour during school activities; self-control; self-confidence.
3. Emotional maturity – pro-social behaviour: (helping, tolerance, empathy); aggressive behaviour; anxiety, hyperactivity, inattention, impulsiveness; informal, peer-to-peer interaction.
4. Language and cognitive development – interest in books, reading, language-related activities (rhyming, group reading); literacy (ability to recognize letters, read and write simple words); interest in simple math-related activities; numeracy (ability to recognize and compare numbers, count, sort, etc.).
5. Communication skills/General knowledge – ability to clearly

Figure 5.1

School Readiness, by Sex and Vulnerability Index, BC, 2001/2002 to 2008/2009



Note: The Early Development Instrument (EDI) is a tool developed by Drs. Dan Offord and Magdalena Janus. The Human Early Learning Partnership has collected information on the state of children's development at school entry in every school district in British Columbia, based on 5 EDI scales that include 104 core items. The data are aggregated over more than one school year (waves) for more reliable results. This chart excludes the first wave (Wave 0) for 1999/2000, 2000/2001 (pilot studies in 4 school districts).
Source: Data provided by the Council for Early Childhood Development, BC; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

communicate one's own needs and understand others in English; clear articulation; active participation in storytelling; interest in and general knowledge about the world.

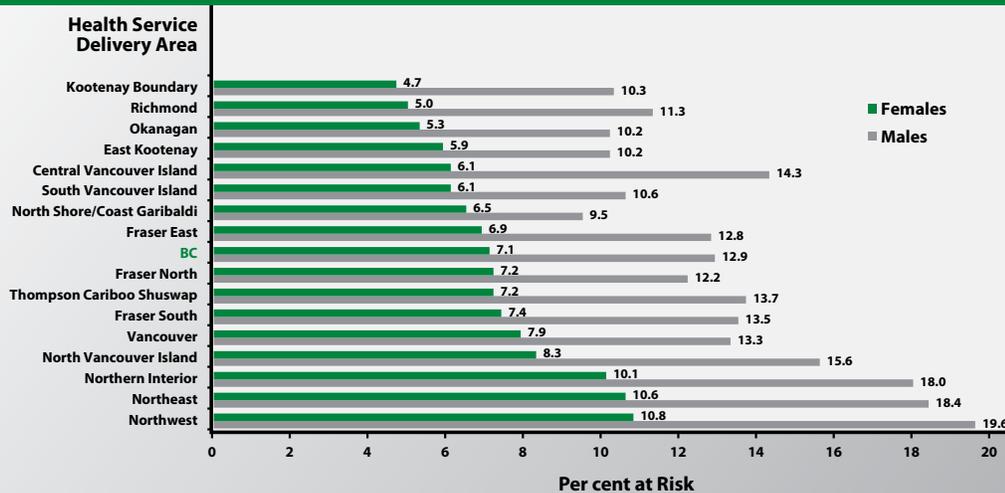
When the five EDI scales are analysed by sex, the results show that girls are doing well in most areas and are particularly strong in social competence, emotional maturity and language and cognitive development (Figure 5.1). Boys fare significantly worse than girls in each category.

At the health service delivery area (HSDA) level, Northern Health Authority's HSDAs have the highest percentage of children at risk, although the rates for female children are almost half the rates for male children (Figure 5.2). The HSDAs with the lowest percentage of girls at risk were Kootenay Boundary, Richmond and Okanagan, where there were approximately 1 in 20 girls and 1 in 10 boys who were not considered ready for entry into school. These gradients clearly show the impact of low socio-economic status on vulnerability. In general, HSDAs with a higher average socio-economic status perform better than those with a lower socio-economic status.

Successfully supporting early childhood development is clearly dependent upon coherent and focused social policy and targeted investment. In low per-capita income Cuba, basic indicators of child health and development (mortality of infants and children under 5 years old, and low birth weight rates) are in the same range as those of North America and Western Europe. Cuban children have high rates of school attendance and outperform other higher income nations in primary and secondary education.⁴ Between 1983 and 2003, Cuba established *Educa a Tu Hijo* (Educate your Child), a community-based, family-centred program that combines health and education services into a single system during prenatal life, infancy, childhood and adolescence. Child development services start early, are universal, and involve the participation of different government ministries, social organizations, families, and an extended support network including teachers, doctors and other trained professionals. A recent follow-up of *Educa a Tu Hijo* revealed that only 13 per cent of participating children reached school age with unsatisfactory development in key domains. This is about half the rate found in Canada and Australia.^{2,5}

Figure
5.2

School Readiness, Language and Cognitive Vulnerability Index, by Sex and Health Service Delivery Area, BC, 2007/2008-2008/2009



Note: The Early Development Instrument (EDI) is a tool developed by Drs. Dan Offord and Magdalena Janus. HELP has collected information on the state of children's development at school entry in every school district in British Columbia based on 5 EDI scales that include 104 core items. The data are aggregated over more than one school year (waves) for more reliable results. This chart includes wave 3 only.

Source: Data provided by the Council for Early Childhood Development, BC; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

Educational Attainment

A good education provides a solid foundation for a healthy, prosperous life and is associated with almost every measure of population health. Education helps individuals develop life skills, understand others and build relationships among individuals and groups. A high school education is a foundation for higher education, future employment and income. The relationship between education and health was emphasized in a recently published American report, which showed that higher levels of parent education lead to healthier lifestyles for the entire family, provide parents with coping mechanisms to deal with life issues, and can prevent a variety of chronic and other diseases.⁶ Those people who do not graduate from high school are much more likely to be in higher risk health and socio-economic situations. A recent Canadian study showed that those people who did not graduate from high school represent 34 per cent of the population but make up 74 per cent of the prison population.⁷ In addition, almost one-third

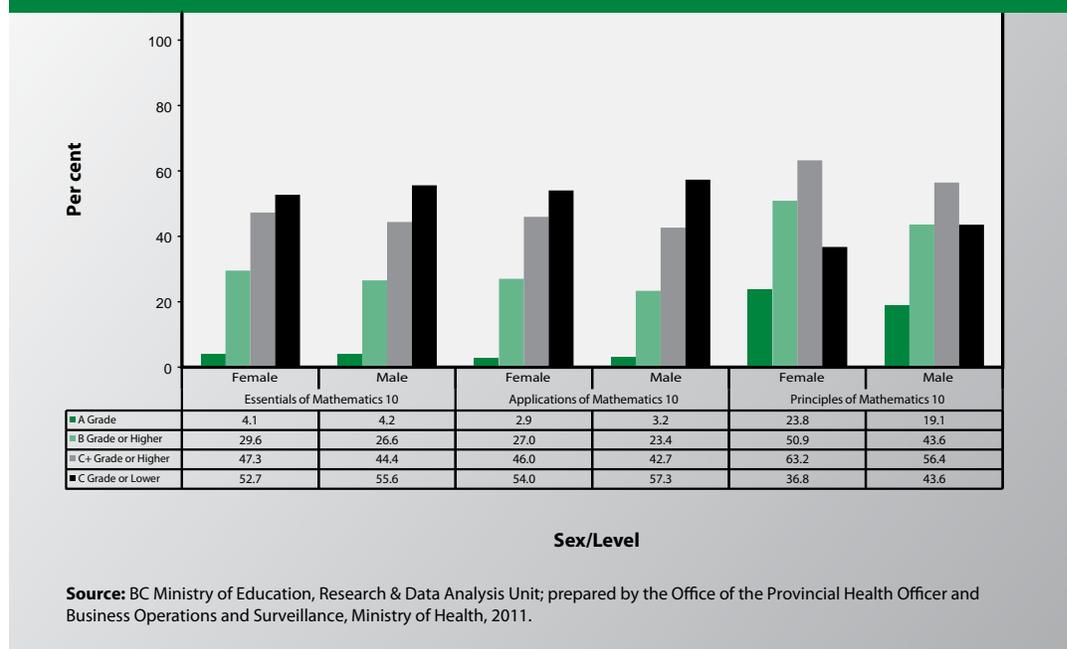
of those who did not graduate from high school receive social assistance, compared to 6.7 per cent of high school graduates.⁷ An Ontario study found the key risk factors for young women not completing high school included pregnancy, childbirth, caring for family members, being kicked out of their parent's home or leaving to escape abuse, and needing to support themselves, and often, their child(ren).⁸

According to Figure 5.3, females achieved higher grades than males in the three different streams of grade 10 mathematics classes. In particular, females dominated the higher grade categories for Principles of Mathematics 10, a course that leads to university-level qualification.^b This is a good indication that girls are focused on earning grades that will support future career development. Longitudinal research has shown that higher grades in grade 10 predict higher self-esteem in grade 12.⁹

In the past, girls did not perform as well as boys in the sciences, and science courses are important for qualifying for university

Figure 5.3

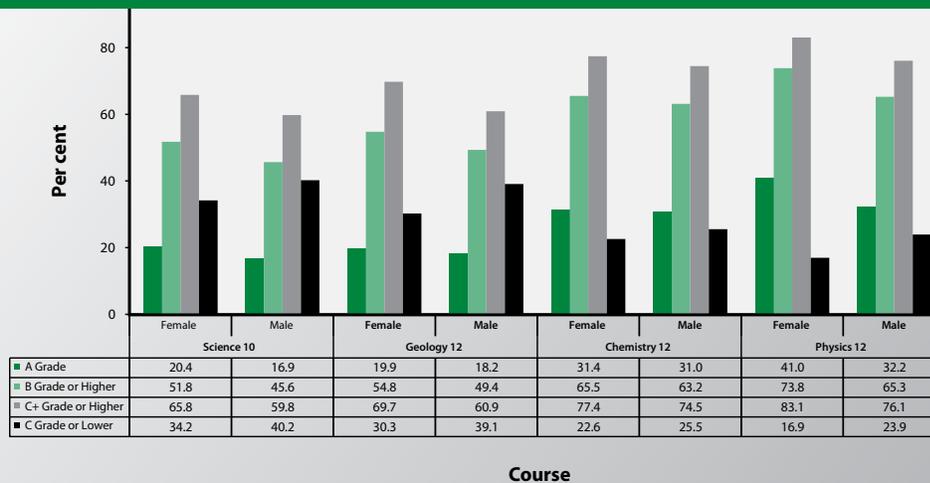
Grade 10 Mathematics, All Students, by Sex and Course Level, BC, 2009/2010



^b The Essentials of Math Course is targeted to students who are experiencing difficulty with math and who are not considering post-secondary courses. The Applications of Math course is for students who have stronger math skills and who may wish to enter a career in the trades or technical industry.

Figure 5.4

High School Sciences, All Students, by Sex and Course, BC, 2009/2010



Note: Grades are based on the combined school mark and exam results. These scores represent exam marks and include examinations that were written in English as well as those that were written in French. Students enrolled in School District 093 (Conseil scolaire francophone) usually write the “French version” of the exam. Geology 12, Chemistry 12, and Physics 12 are optional courses.
Source: BC Ministry of Education, Research & Data Analysis Unit; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Health, 2011.

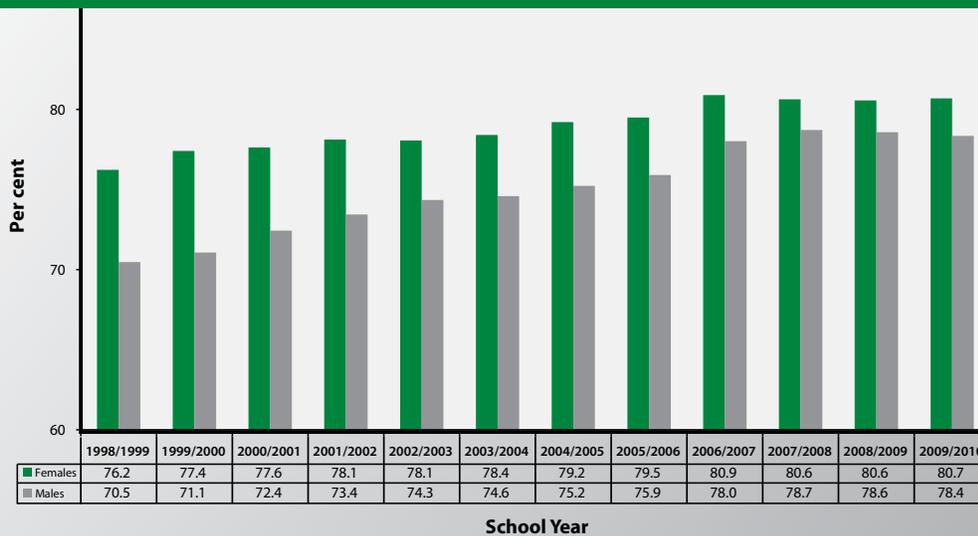
programs that lead to better-paying jobs. Figure 5.4 shows that girls scored higher than boys in all science classes in grades 10 and 12, including Science 10, Geology 12, Chemistry 12, and Physics 12.

According to Figure 5.5, between 1998/1999 and 2009/2010, girls were more likely than boys to be a first-time graduate, although the gap has narrowed over the years and rates are now just over two percentage points apart.



Figure 5.5

First-time Graduates (Grade 12), All Students, by Sex and School Year, BC, 1998/1999 to 2009/2010



Note: The graduation rate, for first-time graduates (grade 12), is the proportion of students who graduate, with a Certificate of Graduation, within six years from the first time they enrol in Grade 8, adjusted for migration in and out of British Columbia.
Source: BC Ministry of Education, Research & Data Analysis Unit; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Adolescence

Adolescence, or the teen years, is a time of both opportunities and challenges. Because there are so many physical, emotional, social and cognitive changes occurring around the same time, teens may feel vulnerable, confused and stressed in their transition to independence and adulthood. While in many respects behavioural risks have decreased among adolescents, there are still some areas of concern. The figures in this section illustrate data from the McCreary Centre Society’s 2008 BC Adolescent Health Survey (AHS), which is based on self-reported information from over 29,000 BC public school students in grades 7 through 12. Information gained from this survey is not only vital for detecting trends and patterns of high-risk behaviours or protective factors, but also provides a better understanding of emerging issues among adolescents.



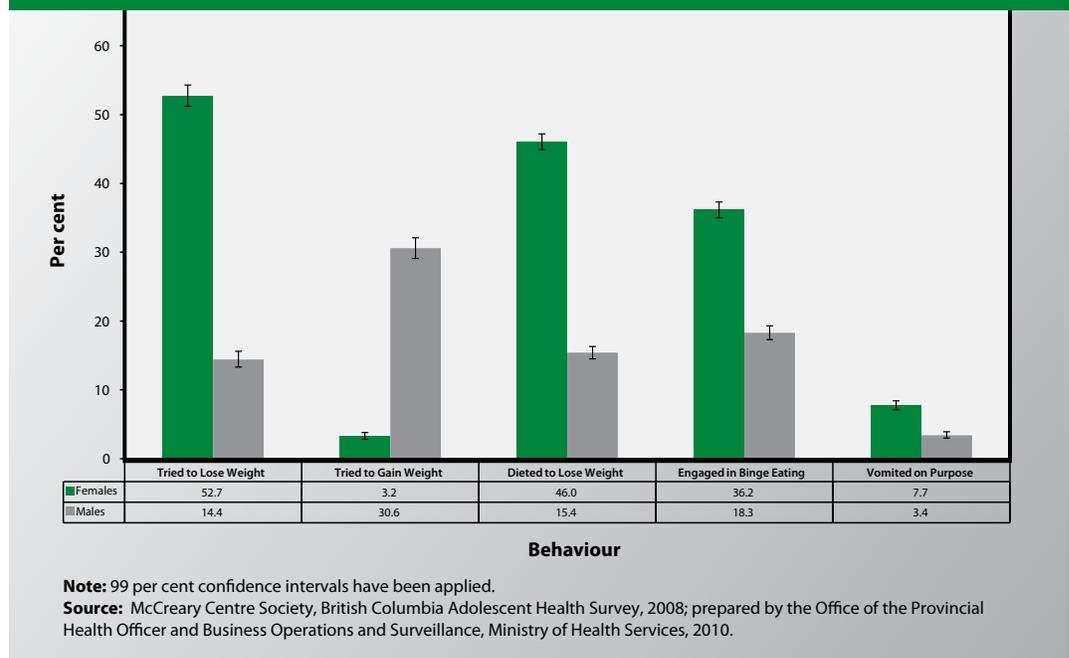
Identity Formation

Adolescence is a time of rapid personal and physical growth and a key period for the development of one’s identity and self concept, a combination of self-esteem and

sense of mastery—or the extent to which a person feels in control of events in his or her life.¹⁰ This next section looks at three aspects of identity formation: body image and self-esteem, sexual orientation, and culture and ethnicity.

Figure 5.6

Weight Loss/Gain and Eating Behaviours, Public School Students, Grades 7-12, by Sex, BC, 2008



Body Image, Media and Self-Esteem

Body image and self-esteem are so closely linked that satisfaction with one's appearance has been shown to be the strongest predictor of self-esteem for both male and female adolescents.^{11,12,13} Research further suggests that when girls' bodies begin to change there is a drop in self-esteem that manifests in dissatisfaction with their bodies and their appearance.¹ This close association between body image and self-esteem is especially challenging for girls who grow up in the midst of mass consumer society, which presents an ideal of female beauty that few can attain.¹⁴

In this context, it is not surprising that in 2008 in BC, only 10 per cent of adolescent girls, grades 7 to 12, rated themselves as very satisfied with their body image, compared to 19 per cent of adolescent boys. That same year, while 53 per cent of healthy weight girls were trying to lose weight, 31 per cent of healthy weight boys were trying to gain weight (Figure 5.6). Thirty-six per cent of girls reported engaging in binge eating and 8 per cent of girls reported vomiting on

purpose after eating (bulimia). These figures have not changed substantially over the past five years.

Eating Disorders

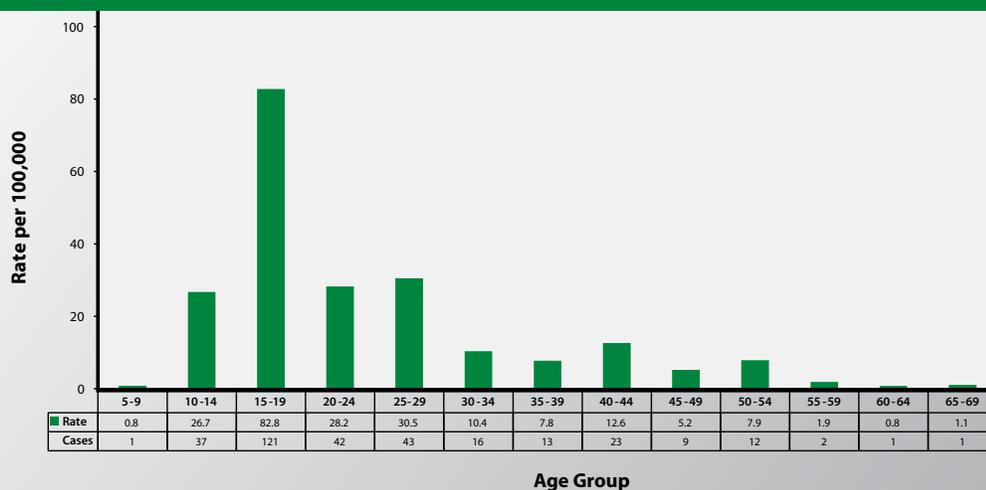
Women have a much higher rate of hospitalization for eating disorders than men. Figure 5.7 shows that the majority of hospital admissions for eating disorders occur between the ages of 10–29, with the peak age range being 15–19 years. Women with anorexia have a mortality rate almost 15 times higher than other women.¹⁵

Sexual Orientation

Sexual orientation, or how a person defines their sexuality,^c is another aspect of identity that begins to unfold during adolescence.¹⁶ The hormonal and physical changes of puberty bring out sexual feelings that can be intense and sometimes confusing. It can be fairly common for adolescents to experience sexual thoughts and attractions to both the same sex and the opposite sex as their sexual feelings emerge. Regardless

Figure
5.7

Eating Disorders, Age-Specific Rate, Females, by Age, BC, 2008/2009



Note: Eating disorders include the following diagnostic categories based on ICD-10 coding: anorexia nervosa (F50.0); atypical anorexia nervosa (F50.1); bulimia nervosa (F50.2); atypical bulimia nervosa (F50.2); overeating associated with other psychological disturbances (F50.4); vomiting associated with other psychological disturbances (F50.5); other eating disorders (F50.8); eating disorder, unspecified (F50.9).

Source: Ministry of Health Services, Hospital Discharge Abstract Database; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

^c Heterosexual, homosexual (gay or lesbian), bisexual or transgendered. The term "transgender" includes anyone who has a gender identity that is different from their sex at birth, and/or expresses their gender in ways that differ from societal expectations.²²

of sexual orientation, coming to terms with one's sexuality and relationships can be a challenge.¹⁷ According to the 2008 Adolescent Health Survey, 86 per cent of students identified as heterosexual, 7 per cent as mostly heterosexual, 2 per cent as bisexual, and 4 per cent were "not sure".¹⁸ Unfortunately, many people in Canada and BC still carry negative attitudes towards lesbian, gay, bisexual and transgendered (LGBT) people, and this stigma can contribute to poorer health outcomes for this group.¹⁹

For lesbian, gay and transgendered adolescents, becoming aware of their sexual orientation can add to the challenges of rapid growth and emotional development experienced by all teens. If they do not receive the support and acceptance they need from family and friends, lesbian teens may experience low self-esteem, become depressed, perform poorly at school and develop substance use problems. Gay, lesbian and bisexual teens often report that schools are unsupportive or unsafe places. The stigma associated with a LGBT orientation may be experienced as rejection or exclusion, harassment, destruction of property and violence.²⁰

The pressure to conform and the stigma associated with their sexual orientation can lead LGBT teens to engage in riskier health behaviours such as early sexual experience, substance use before sexual intercourse and unprotected sex. Young lesbians may try to conform to societal norms by having heterosexual intercourse and getting pregnant.²¹ According to the 2007 McCreary Centre Society AHS, the majority of lesbians and bisexual youth reported opposite-gender sexual partners within the past year.¹⁹ The AHS notes that bisexual and lesbian teens are more likely to report having sexual intercourse than heterosexual teens and having sex before the age of 14. Both lesbian and bisexual females were two to three times more likely to have been pregnant than their heterosexual peers.¹⁹

The rejection, exclusion and lack of support experienced by LGBT youth can lead to emotional distress. According to the most

recent AHS data, bisexual females were five times more likely to have attempted suicide than heterosexual teens, and lesbians were over three times more likely to attempt suicide.¹⁹ Lesbian youths are also at risk for homelessness due to non-supportive home environments.^{19,20} Transgendered youth experience similar issues of identity and discrimination as LGB youth, as well as a particular set of difficulties resulting from society's lack of understanding and acceptance of transgender identity and experience.²²

Fear of discrimination can lead to avoidance of medical treatment or the non-disclosure of sexual orientation to health care practitioners. Canadian lesbians are less likely to have screening tests, specifically Pap smears, mammograms and breast examinations. In addition, advice about screening tests is usually given when providing contraceptive counselling and may be omitted when a woman is known to be lesbian. Also, lesbian women in North America consume alcohol, smoke and use street drugs more often than women in general, with consequent health problems.²¹

Culture and Ethnicity

Culture and ethnicity form a major part of one's identity. Youth in British Columbia come from a wide range of ethnic and cultural backgrounds. The majority of BC youth surveyed by the AHS (54 per cent) reported that they were of European heritage, a decrease from 61 per cent in 2003. In 2008, there was a rise in the percentage of youth who identified as South Asian (from 5 to 8 per cent) or Southeast Asian (from 4 to 5 per cent), with East Asian origin unchanged at 18 per cent. Connection to culture is an important protective factor, and youth who were the most highly connected to their culture, based on self-reporting, were the least likely to report poor or fair health.²³

Being from a minority culture may pose challenges of marginalization and discrimination. Recently emigrated children and youth experience considerable pressure to integrate quickly into the mainstream culture, which often includes the challenge of learning a new language. They may also

“ Bisexual females were five times more likely to have attempted suicide than heterosexual teens, and lesbians were over three times more likely to attempt suicide. ”

have to take on adult roles as translators, cultural interpreters, negotiators and information providers for their parents. Immigrant adolescents face additional pressure to develop their identity and keep the balance between two cultures: fitting in with their friends while meeting their parents' expectations.²⁴ For example, South Asian adolescents have reported having to behave differently inside and outside of the home, due to their parents' dislike of Western influences on their behaviour.²⁵ Intergenerational challenges can arise over choices of career path, dating or the adoption of other behaviours typical of youth in the dominant Euro-Canadian culture.²⁶ Research has shown that immigrants who have family and friends already living in Canada have an easier time adapting to their new circumstances.²⁷

All of these changes and challenges are enhanced for adolescent immigrant girls. At school, girls are exposed to and quickly internalize and adapt to the North American culture, which is more individualistic and provides a greater degree of gender parity. However, in the home, parental pressure on girls to adhere to traditional gender roles creates conflict. For example, South Asian girls have reported more family restrictions

placed on their freedom than that of boys because they are viewed as future mothers responsible for passing on cultural beliefs and practices to the next generation.²⁸ For parents, the main concern is to protect girls' safety and good reputation. On the positive side, youth participants in a national study noted that support for their children's college and university education is a central value in immigrant families and children are financially supported by their parents regardless of sex.²⁹

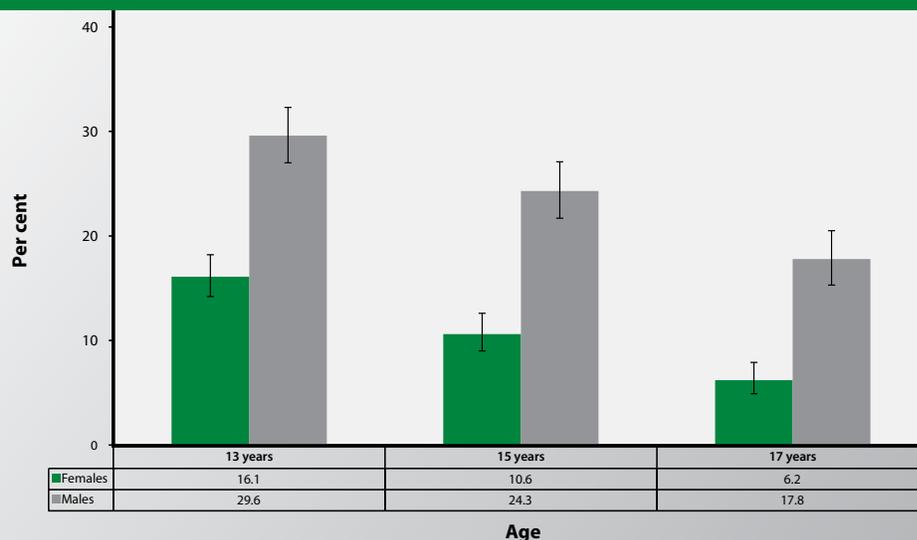
Health Behaviours

Physical Activity

Getting at least 90 minutes of physical activity a week during adolescence is important for the body and mind, as it not only strengthens muscles, builds bone density, keeps joints flexible, and is good for the heart, but has also been shown to have positive effects on mental health.³⁰ Research has demonstrated a strong connection between physical activity, participation in sports and healthy self-esteem.^{31,32} Through sports, one develops social self-esteem, a supportive relationship with a coach, a sense of mastery and physical accomplishment, a more positive body image and enhanced

Figure 5.8

Weekly Participation in Activities in the Past Year, Public School Students, Grades 7-12, by Sex and Age, BC, 2008



Note: Includes those youth that participated in at least 20 minutes of daily exercise over the past week. 99 per cent confidence intervals have been applied.

Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.



feelings of emotional well-being.³¹ Ensuring teens get regular exercise also helps to instill healthy habits that can be carried on into adult life, in turn reducing the risk of heart disease, Type 2 diabetes,³³ hypertension and stroke.³⁴ When combined with a healthy diet, physical activity will help an individual to maintain a healthy weight.^{30,34}

As Figure 5.8 illustrates, neither female nor male students are getting enough exercise, but female students were significantly less likely than male students to have exercised daily for 20 minutes in the past week, across each of the age groups. At age 13, just over 16 per cent of female students reported exercising daily for 20 minutes, and rates decreased with increasing age. By age 17, only 6.2 per cent of female students reported exercising daily for 20 minutes in the past week.

Research suggests that there are many reasons female adolescents do not participate in physical activities. Female adolescents may lack confidence in their ability to perform sports and physical activities and feel self-conscious about their performance and appearance while doing so.^{11,35} The lack of older female role models has also been cited as an influential factor concerning low physical activity levels among girls.^{36,39} Research has found that young girls and women of low socio-economic status, who

are a visible or immigrant minority, who are Aboriginal, or who are older or disabled are generally the least physically active, because they experience various social, individual and structural limitations.^{31,37,38,39} Despite all the programs and initiatives at various levels of government and among non-governmental organizations, there remains a great need for improvement in physical activity levels and sport involvement among girls in British Columbia.

Healthy Eating

A healthy diet during the adolescent years is essential for growth and development, and reducing future risk of disease. Female teens need to be particularly concerned about what they eat because nutritional intake during this period can help prevent or increase the risk for diseases and health conditions. However, the diet of many female teens can be deficient in foods that are good sources of iron, calcium and folate, either because they have not eaten enough food or they have eliminated a whole food group from their diet.⁴⁰ Iron is one of the more common nutritional deficiencies found among females, and when coupled with menses, a vegetarian and/or weight loss diet, it can lead to anemia. The symptoms of anemia include extreme fatigue, irritability, difficulty concentrating, weight loss and poor regulation of body temperature.

Female teens also require enough calcium to facilitate maximum bone mass, which peaks during adolescence, and if adequate will help to reduce risk of osteoporosis in later years.⁴¹ Folate, a B vitamin, is essential among females of reproductive age, as it is necessary for the production of normal red and white blood cells and builds new genetic material.⁴² Although most female teens consume enough food to meet energy requirements, their food choices may have little nutritional value and when combined with limited physical activity, may lead to a tendency to become overweight or obese.⁴⁰ Being overweight or obese during adolescence not only increases the likelihood of being overweight or obese as an adult, but increases the risk of developing a number of chronic conditions.³⁰

“ The majority of (teen) respondents reported eating fast foods and/or drinking pop, and were more likely to have eaten sweets than fruits and vegetables. ”

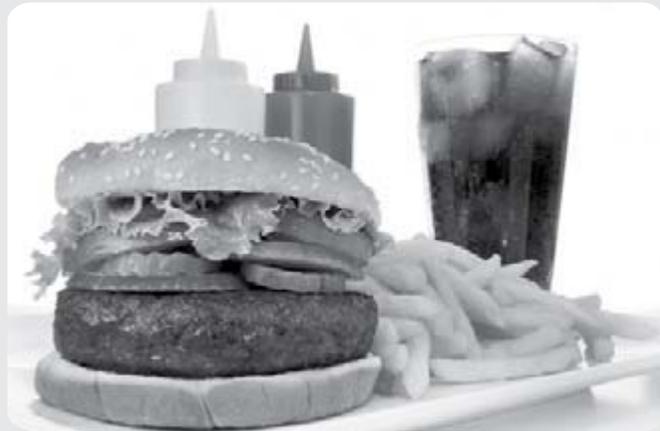
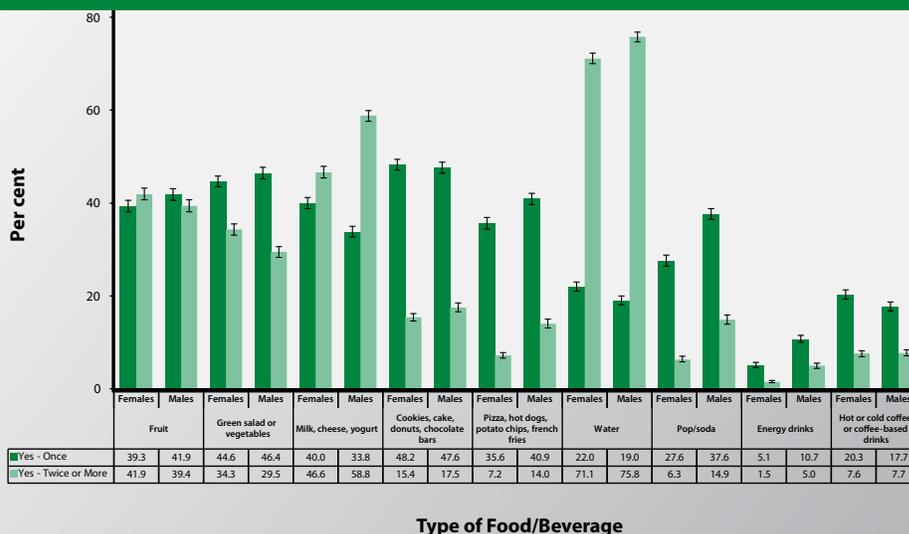


Figure 5.9 provides an excellent snapshot of teens' inadequate consumption of important food groups needed to achieve optimal nutrition, as well as their excessive consumption of energy-dense, nutrient-poor foods. Although the majority of female and male teens consumed fruits and vegetables the day prior to the 2008 AHS survey, there were still 19 per cent who did not consume fruit and 21 per cent who did not consume vegetables. Both females and

males more often reported having only one serving, as opposed to the recommended 7 to 10. Females were less likely than males to have had two or more servings of dairy products (46.6 per cent versus 58.8 per cent, respectively). The majority of respondents reported eating fast foods (pizza, hot dogs, potato chips or fries) and/or drinking pop, and were more likely to have eaten sweets (cookies, cake, donuts, chocolate bars) than fruits and vegetables.

Figure 5.9

Food or Drink Consumed Yesterday, Public School Students, Grades 7-12, by Sex, BC, 2008



Note: The percentages are additive across the three possible responses: No, Yes (once), and Yes (2+ times). The "No" responses (food not chosen) are not shown. 99 per cent confidence intervals have been applied.
Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Substance Use

Tobacco

Tobacco smoking is associated with many diseases, including several types of cancer, respiratory diseases, heart disease, osteoporosis and high blood pressure, just to name a few,⁴³ as well as higher risks of maternal and fetal complications, as discussed in Chapters 4 and 7. Most people are aware of the harm tobacco smoking causes, not only to the smoker, but also to those around them who breathe in second-hand smoke. Yet every day, new smokers, primarily teenagers, will adopt this habit.

According to the Canadian Lung Association,⁴³ the main reason teens start smoking is because their friends smoke; other reasons include having a parent who smokes, trying it out of curiosity, and thinking it was “cool”. There are differences between females and males for initiating tobacco smoking. Female adolescents are more likely to cite curiosity as the reason for starting tobacco smoking, while other girls have reported starting to help control stress.⁴⁴ Female adolescents are also more likely to start smoking to make friends, conform to

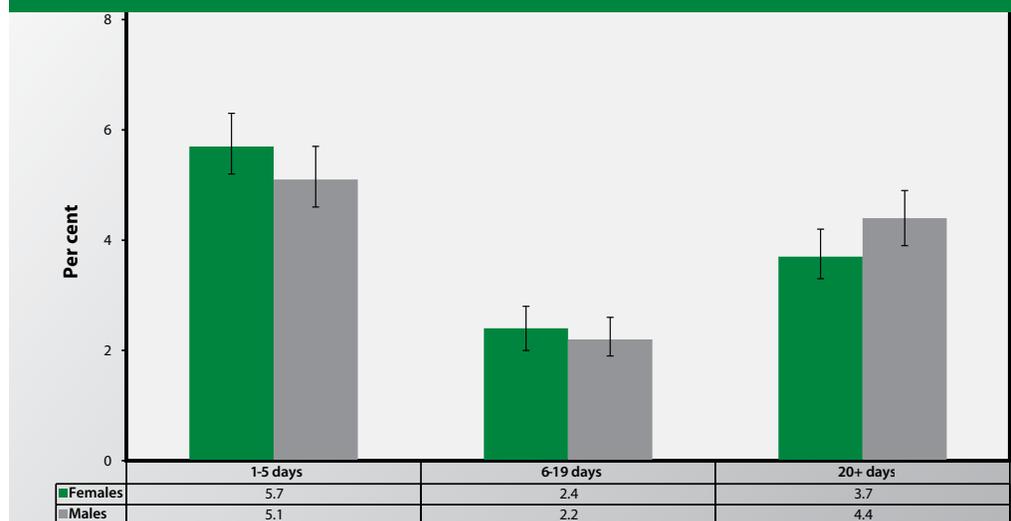
group norms, make an image for themselves, or out of rebellion; males often start to look cool.⁴⁴ In addition, various research studies have found that an estimated 9 to 34 per cent of adolescents, primarily females, use tobacco smoking as a means to lose weight.⁴⁵ According to the 2009 Canadian Tobacco Use Monitoring Survey, cigarette smoking among teens aged 15–19 years was 12.5 per cent in BC.

In the 2008 AHS, the percentage of students reporting they have ever tried tobacco smoking was down to 26 per cent, with slightly more females than males (27 per cent and 25 per cent, respectively), a significant improvement from rates of 34 per cent in 2003 and 56 per cent in 1998.^{23,46} Teens who do smoke tobacco are also waiting longer before they start.²³

As Figure 5.10 illustrates, of those students who did report tobacco smoking in the past month, slightly more females than males reported smoking 1 to 5 days or 6 to 19 days, whereas more males than females reported smoking at least 20 days or more (males 4.4 per cent, females 3.7 per cent); however, these rate differences between genders were not statistically significant.

Figure 5.10

Frequency of Smoking in Past Month, Public School Students, Grades 7-12, by Sex, BC, 2008



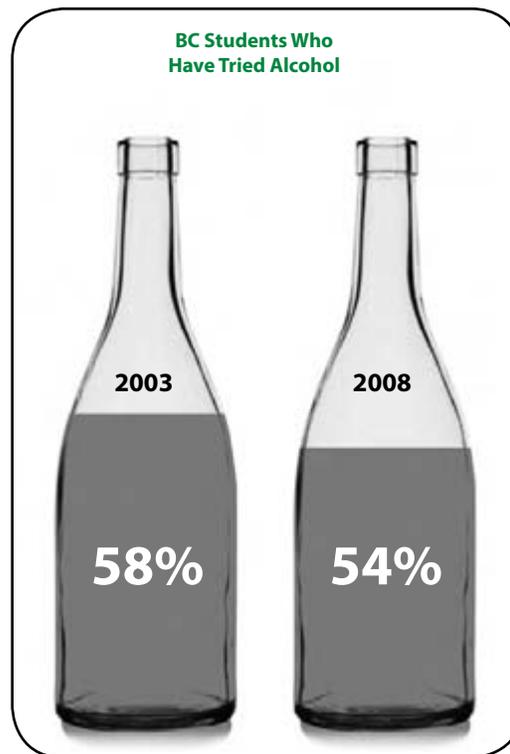
Note: 88.2 per cent of females and 88.3 per cent of males did not smoke in the past month. 99 per cent confidence intervals have been applied.

Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Alcohol

BC youth of all ages, males and females alike, are more likely to consume alcohol than any other substance.^{46,47} Although alcohol is commonly used and accepted within society, its consumption at a young age can have negative effects on puberty⁴⁸ and cognitive development,⁴⁹ may impede academic performance, and may damage personal relationships.^{49,50} At a stage when adolescents' minds and bodies are going through so many changes, and they are developing essential academic and social skills meant to prepare them for successful adulthood, any disruption during this period has the potential to jeopardize their future.⁴⁹ It has also been found that the younger a person is when they start drinking, especially if under 16 years, the more likely they are to develop an alcohol use problem later in life.^{23,50}

Fortunately, the number of students reporting that they have tried alcohol has continually decreased over the past several years to a rate of 54 per cent in 2008, compared to 58 per cent in 2003, with those figures shared almost equally among males and females.²³ Youth are also delaying drinking to a later age, as evidenced by 13 per cent of students



reporting they had first tried alcohol prior to the age of 10 years in 2008 (10 per cent of females and 16 per cent of males), compared to 15 per cent in 2003, and more of them reporting first use at age 15 or 16 years in 2008 (23 per cent) compared to their peers in 2003 (18 per cent).²³

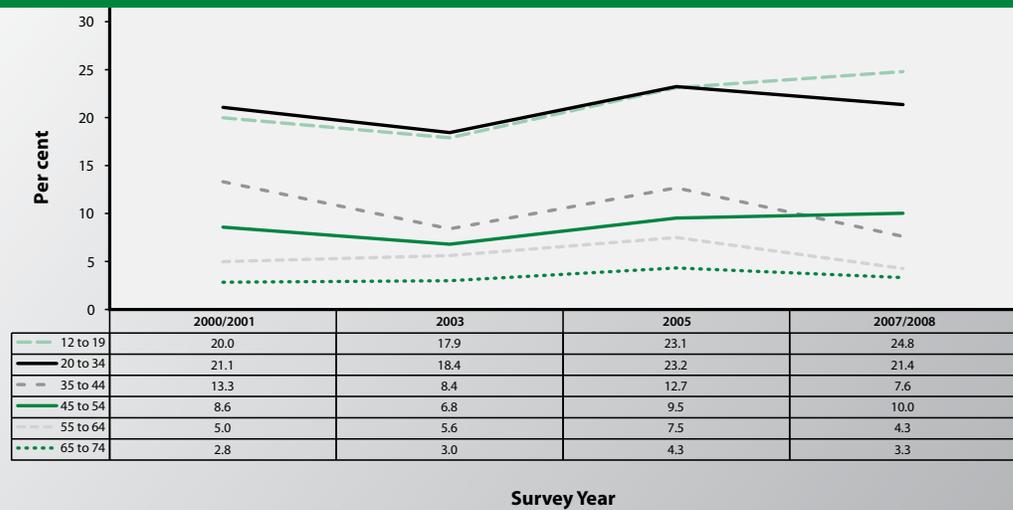
Low-risk Drinking Guidelines

Within Canada, a number of provinces have developed drinking guidelines designed to help both women and men determine safe consumption levels of alcohol and to monitor their drinking. These guidelines can help minimize the health risks associated with drinking alcohol by encouraging people to be aware of the amount of alcohol they consume, how often they drink and situations when alcohol consumption increases the risk of harm.⁵¹ New national low-risk drinking guidelines are being finalized. The following summary is based on the literature review produced for the development of these guidelines.⁵²

1. Avoid intoxication – Limit daily consumption to four standard drinks for men, three for women. Consume less if you're lower than average weight, elderly or under 19 years of age.
2. Choose abstinence in situations where “no alcohol” is the most sensible option – Some examples include when operating vehicles or machinery; when pregnant, trying to conceive or breastfeeding; when using other substances including medications; or when suffering from mental health or other health problems such as liver disease.
3. Limit drinking frequency and amounts – Limit weekly intake to 15 drinks or fewer for men, and 10 or fewer for women.
4. Know the facts about alcohol's contribution to heart health – Only middle-aged people gain the heart health from light drinking and this needs to be balanced off by the risk of alcohol-related cancers such as breast and colorectal. Non-drinkers need not start drinking alcohol to improve their heart health, as there are less risky alternatives to choose from: exercise, healthy diet, stress management and quitting smoking.⁵³

Figure 5.11

5+ Drinks on One Occasion (at Least Once per Month), Females, by Age, BC, 2000/2001 to 2007/2008



Note: 5+ drinks on one occasion is used to indicate excessive alcohol consumption. The denominator includes only those that drank alcohol during the previous 12 months. Data for the 55 to 64 age group and the 65 to 74 age group should be interpreted with caution due to small sample size and high variability. Beginning in 2007, Statistics Canada moved to an annual method of reporting with two one-year half samples of data every 2 years. At the end of the second year, the half samples are combined. A completely new and separate set of half samples runs after that (next full combined sample is 2009/2010). While the 2009 half-sample is available, the sample is not large enough to report out on for this analysis (full sample is required). Non-responses have been excluded.

Source: Statistics Canada, Canadian Community Health Survey Share Files, 2000/1, 2003, 2005, and 2007/2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Although progress has been made, alcohol use among teens remains a health risk, and when it comes to female adolescents there are special considerations. Due to sex differences in the ratio of water and fat in the body, and differing mechanisms for metabolising alcohol, girls and women have a heightened sensitivity to alcohol's effects.^{46,54,55} Girls and women are also more likely to develop

dependence at a faster rate than males, and experience alcohol-related health problems,⁵⁵ including interruption of menses and other reproductive problems.⁴⁸ Female youth who are regular heavy drinkers have an increased risk of developing osteoporosis in adulthood, since alcohol is known to affect the peak bone mass establishment that occurs during adolescence.^{41,48} Of particular concern are the risks associated with alcohol use in pregnancy, a practice that is higher among female adolescents than adult women.⁴⁸



“Female adolescents who binge drink become more vulnerable to violence and sexual assaults, which in turn increases their risk of an unwanted pregnancy and contracting a sexually transmitted infection.”

Binge drinking is a common practice among adolescents. Although it poses hazards at any age, it is of particular concern for adolescents because they may not realize the extent to which alcohol is affecting their body and may ultimately be more inclined to act on high-risk impulses,^{54,56} such as starting arguments, having unprotected sex or sex with strangers, using other drugs, driving while impaired or sustaining other injuries such as falls. As noted in Chapter 2, female adolescents who binge drink become more vulnerable to and are more likely to experience violence and sexual assaults, which in turn increases their risk of

an unwanted pregnancy and contracting a sexually transmitted infection.⁴⁸ The severe intoxication caused by binge drinking can even be fatal, as in the case of alcohol poisoning or a person passing out who ends up choking on their own vomit.⁵⁴

In BC, 44 per cent of the adolescents who had ever tried alcohol reported binge drinking^d in the past month, a rate that has remained relatively unchanged for the past ten years.²³ It is of note that this generic definition of binge drinking does not take into account the higher vulnerability of girls to the negative effects of alcohol, and as such underestimates the gendered health impacts of binge drinking. Binge drinking was equally common among females and males,²³ although this varied by age: females 15 years of age or younger were significantly more likely to binge drink in the past month than males the same age, while for adolescents aged 16 years or older, it was males who were significantly more likely to have been binge drinking in the past month.⁴⁶ In general, binge drinking was much more common among older adolescents, during which time males consumed more drinks than females.⁴⁶ Although females drank less,

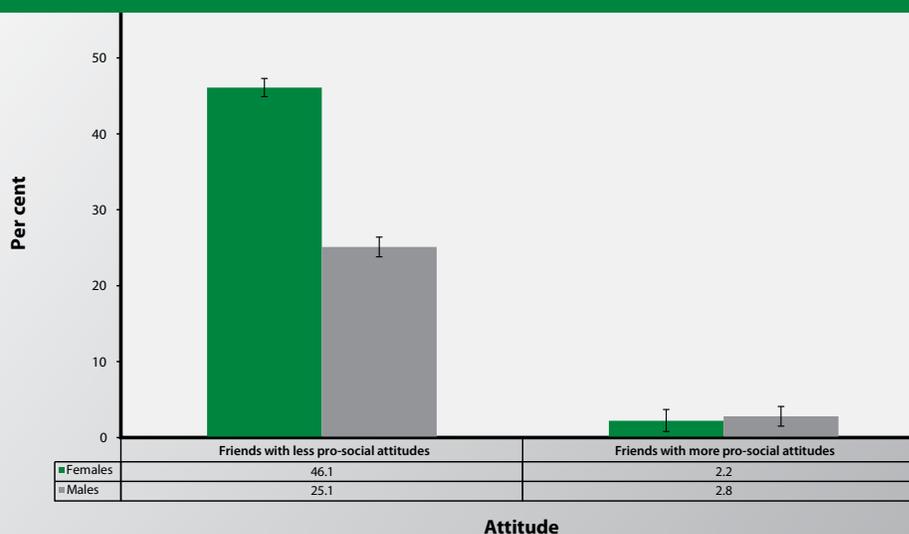
their increased sensitivity to alcohol coupled with their preference for coolers,²³ which usually have a higher concentration of alcohol than a typical beer,⁵⁰ might explain why female adolescents experience many negative consequences, discussed later in this chapter.

Figure 5.11 shows that the self-reported rate of monthly risky drinking for BC females aged 12–19 has risen steadily since 2003, with a current rate of close to 25 per cent consuming five drinks on one occasion at least once per month.

A major protective factor for binge drinking, particularly for females, was having friends with more pro-social attitudes;²³ i.e., having friends who would disapprove of involvement with certain high-risk behaviours (e.g., carrying a weapon, getting pregnant, etc.). Results, as illustrated in Figure 5.12, show that of the females who reported binge drinking the past month, 46.1 per cent had friends with less pro-social attitudes, whereas only 2.2 per cent had friends with more pro-social attitudes. The same trend was true for males, but to a lesser degree.

Figure 5.12

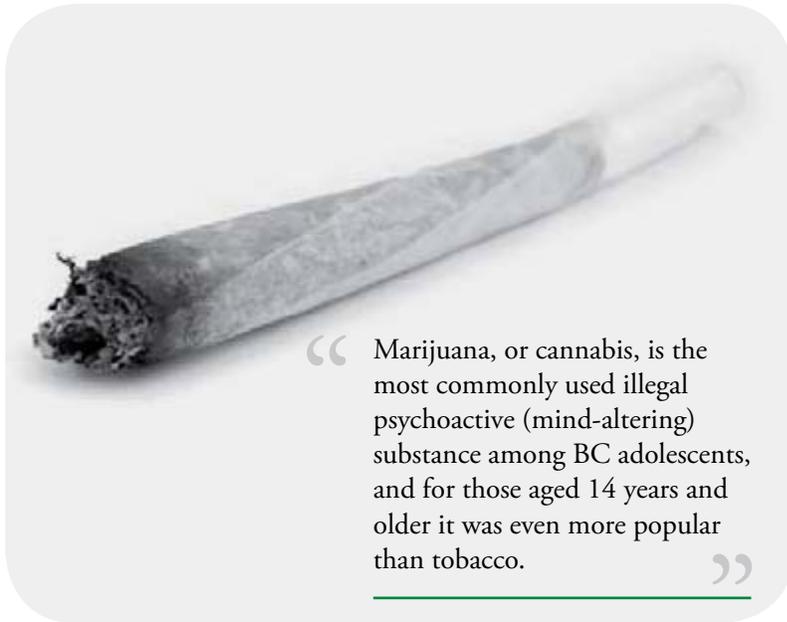
Binge Drinking, Public School Students, Grades 7-12, by Sex and Level of Peer Pro-social Attitudes, BC, 2008



Note: Includes those youth who drank during the past month. 99 per cent confidence intervals have been applied.

Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

^d The AHS defines binge drinking as having five or more drinks of alcohol within a couple hours.



“ Marijuana, or cannabis, is the most commonly used illegal psychoactive (mind-altering) substance among BC adolescents, and for those aged 14 years and older it was even more popular than tobacco. ”

Marijuana

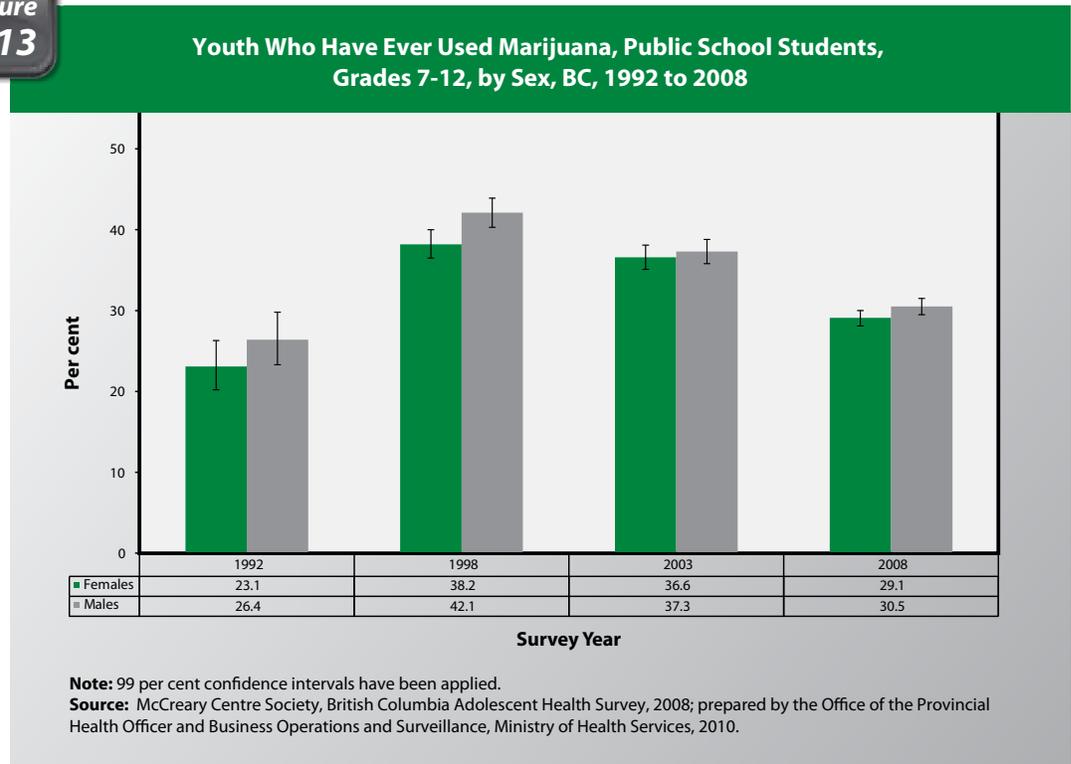
Marijuana, or cannabis, is the most commonly used illegal psychoactive (mind-altering) substance among BC adolescents, and for those aged 14 years and older it was even more popular than tobacco.⁴⁶ The main psychoactive substance of cannabis is a “cannabinoid” called THC,^e which varies

in concentration depending on the form of cannabis used.⁵⁵ BC teens have a higher rate of marijuana use than teens in any other province in the country.⁵⁷ However, as Figure 5.13 illustrates, the percentage of female students in grades 7 through 12 who have ever tried marijuana has decreased over the years, from 38 per cent in 1998 and 37 per cent in 2003 to 29 per cent in 2008. The differences in rates for females and males were not significant.²³

The decline in marijuana use is good news, because similar to alcohol use, marijuana use has risks, and is often associated with problems at school.²³ Used at the same time, alcohol and cannabis intensify each other’s effects and may result in severe impairment.⁵⁸ Unlike alcohol, cannabis intoxication on its own is not lethal. Short-term psychological and health effects of cannabis intoxication may include anxiety, euphoria, paranoia, psychomotor impairment and possibly an increased risk of injury if an intoxicated person drives a motor vehicle. Use of marijuana during pregnancy may result in the birth of a lower birth weight infant.^{55,59} Chronic heavy marijuana use may lead to

Figure 5.13

Youth Who Have Ever Used Marijuana, Public School Students, Grades 7-12, by Sex, BC, 1992 to 2008



^e THC is an abbreviation for tetrahydrocannabinol.

Family conflict is a commonly reported negative consequence for female students who use drugs and alcohol.



psychotic illnesses in predisposed individuals, and it can exacerbate psychotic symptoms in individuals with schizophrenia.⁵⁹ As with tobacco use, regular marijuana use can lead to chronic respiratory diseases such as chronic bronchitis. Cannabis smoke contains some of the same toxic, cancer-causing substances found in tobacco smoke,⁵⁵ although recent epidemiological evidence has not shown a similar demonstrable link between cannabis smoking and cancer.^{60,61}

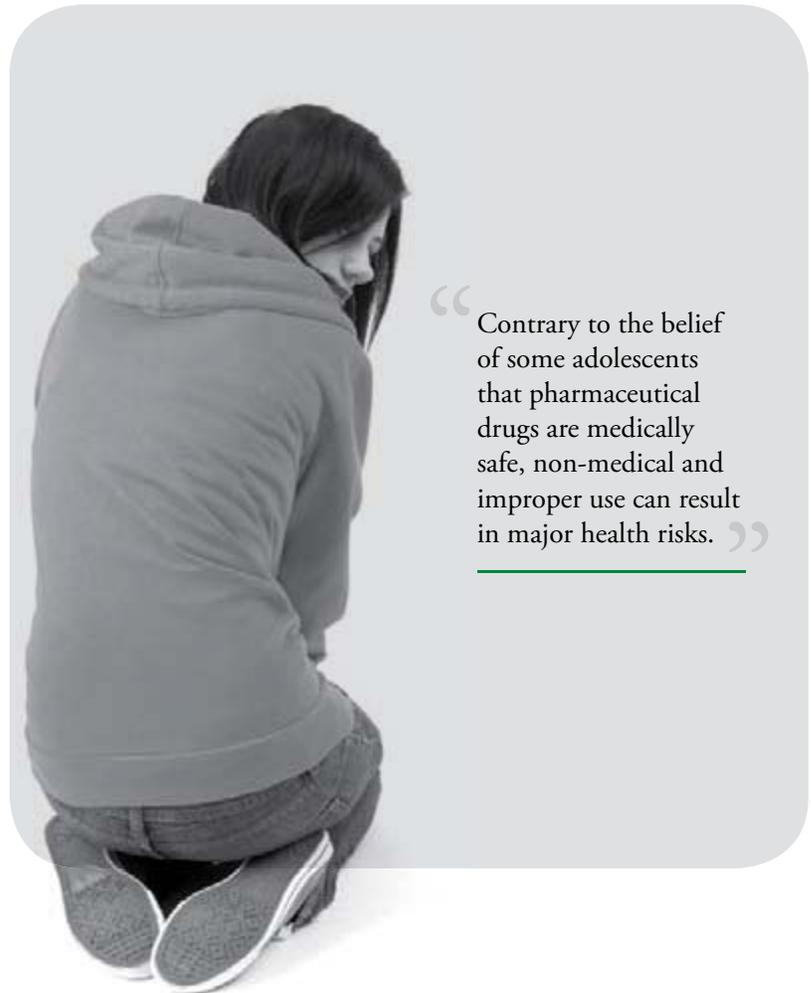
Other Substances

The rise in non-medical use of prescription drugs, particularly opioids, is of growing concern. Contrary to the belief of some adolescents that pharmaceutical drugs are medically safe, non-medical and improper use can result in major health risks.⁶² Research into non-medical pharmaceutical opioid use among adolescents has found that females are more likely to engage in this kind of substance use, as well as those with a history of illegal drug use and/or an attitude that favours such use, and those with a lower socio-economic status and low connectedness to their parents.⁶³

Use of hallucinogens has been on the rise since 2003.²³ According to the AHS, slightly more females than males reported having ever used ecstasy, a commonly used amphetamine type stimulant and known “club drug”, at rates of 7.6 per cent and 6.7 per cent respectively, although the difference is not significant.⁶⁴ Due to the lack of regulation in the production and distribution of such substances, club drugs are often mixed with other drugs and substances at varying concentrations, which increases the risk of harmful drug interactions and overdose.⁶⁵

High-risk Behaviours

While adolescence can be a very healthy time for girls, research suggests that it is also a period when young women are most likely to engage in risky behaviours. High-risk behaviours among youth are influenced by several factors, including being the victim of violence, abuse or neglect; living in poverty; having substance use issues in the family; or having a lack of connectedness to family. Female adolescents are even more



“Contrary to the belief of some adolescents that pharmaceutical drugs are medically safe, non-medical and improper use can result in major health risks.”

vulnerable compared to males, as they are much more likely to have been physically abused, sexually abused, or both physically and sexually abused.²³ Such negative situations increase a child's vulnerability and when combined with other factors (e.g., peer-pressure, academic difficulty in school, bullying, feeling unsafe, etc.), they increase the likelihood of youth engaging in risky behaviours. However, it must be noted that not all vulnerable children do poorly in school or participate in high-risk activities, and likewise, children who come from seemingly stable family environments with no history of abuse also participate in high-risk activities.

As Figure 5.14 illustrates, many students reportedly suffered consequences from their alcohol or drug use. Female students were significantly more likely to experience negative consequences from alcohol and/or drug use compared to males when it came to being unable to recall things said or done (45.7 versus 35.2 per cent), passing out (33.5 versus 28.6 per cent), arguing with family (22.0 versus 12.8 per cent), change in school work/marks or behaviour at school (14.9 versus 11.8 per cent), getting injured (13.1 versus 10.6 per cent), and losing

friends or boyfriend/girlfriend (10.6 versus 6.4 per cent). Although the rate difference was not significant, female students also reported having unwanted sexual activity at higher rates than males (7.9 versus 6.1 per cent). Female students were less likely than males to have overdosed, got in a car accident or had to get treatment for alcohol and/or drug use; however, these rate differences were not significant.

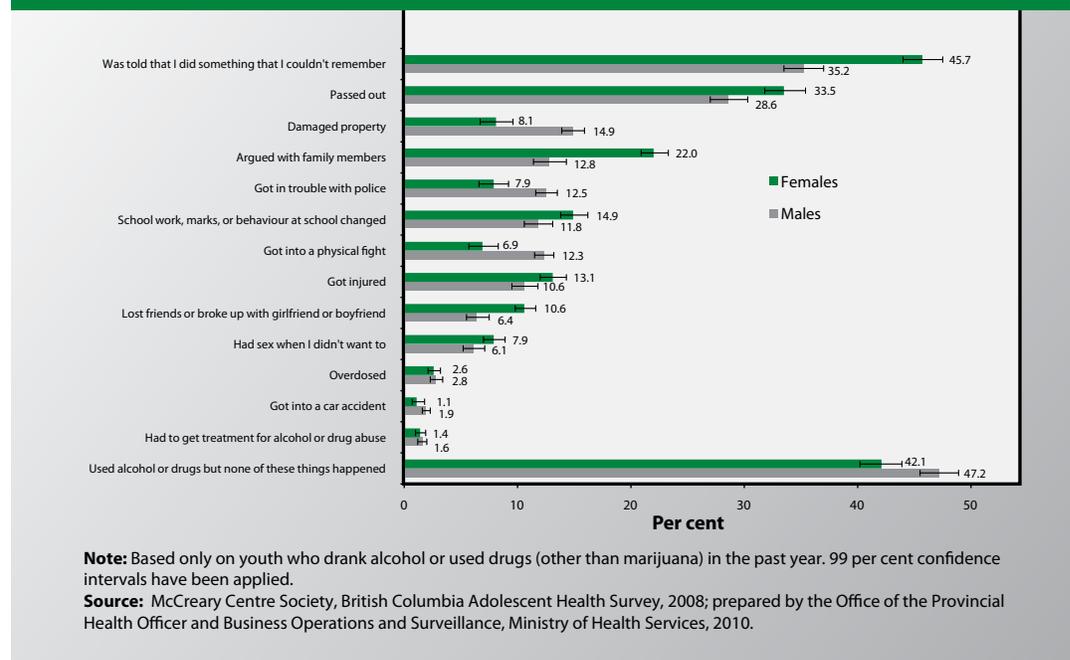
Protective Factors

A good education forms part of the foundation of good health. A study on risk and resilience in 6- and 10-year-olds found that good relationships with parents or teachers could provide a "buffer" for children in risk situations, such as living in poverty, and that girls were much better than boys at developing these relationships. The increased vulnerability seen in boys may in part be related to less support from close relationships.⁶⁶

Data from the McCreary Centre Society's AHS show that adolescents with high connectedness to school were much less likely to engage in binge drinking, contemplate suicide or report fair or poor

Figure 5.14

Consequences that Youth Suffered from Drinking or Using Drugs, Public School Students, Grades 7-12, by Sex, BC, 2008



“ When it comes to students’ emotional health, much can be gained by working to ensure a positive school environment and building strong relationships among students, teachers, staff and community members. This comprehensive approach can help to improve students’ attitudes toward school and thus their emotional health. ”

– Morrison & Kirby, 2010⁶⁷

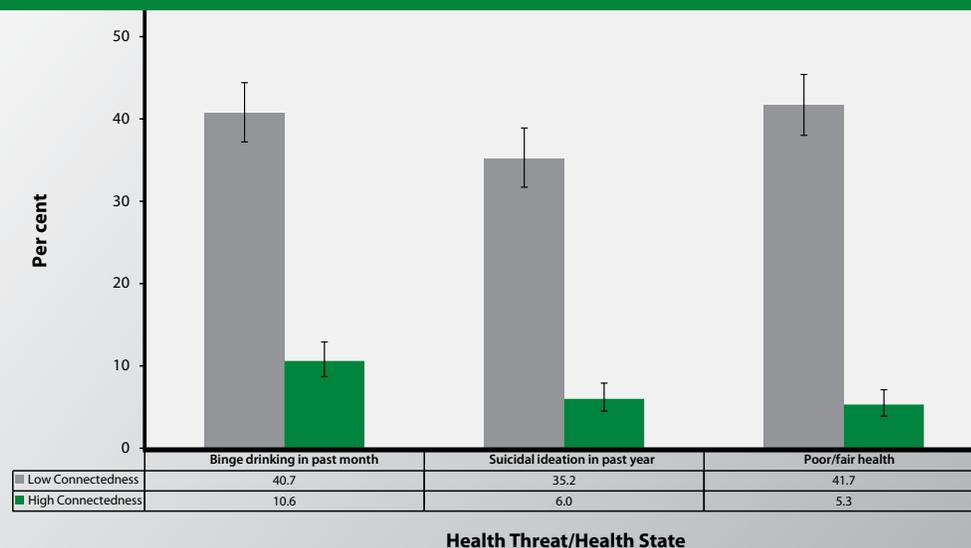


health. Females who reported a high level of school connectedness were much less likely to engage in binge drinking, experience fair or poor health, and experience suicidal ideation than females with low levels of connectedness (Figure 5.15). School connectedness was more protective than family connectedness.

Adolescence can be a challenging time and relations with parents can sometimes be strained. However, according to the AHS, the majority of students felt they could seek support from adults in their family (75 per cent) or from adults outside their family (56 per cent) if they were faced with a serious problem. This is good news; however, it does

Figure 5.15

Health by Level of School Connectedness, Public School Students, Grades 7-12, Females, BC, 2008



Note: 99 per cent confidence intervals have been applied.

Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

reflect a drop from 2003, when 78 per cent of youth were comfortable talking about their problems with adults in their family, and 59 per cent could talk with an adult outside their family.

There is a strong link between students' attitudes toward school and their emotional health. Those with the most positive attitudes also have the highest levels of emotional well-being—almost double the proportion of those with the least positive attitudes. Students with higher levels of academic achievement are also more likely to report higher levels of emotional well-being. Emotional well-being is also higher among students whose friends have positive social attitudes. Finally, students who report having good communication with their parents tend to report better emotional health.²³

Figure 5.16 shows comparative rates for female students ever having alcohol, ever having tried smoking, or having gotten into a fight in the past year, in relation to specific protective factors that are shown to reduce

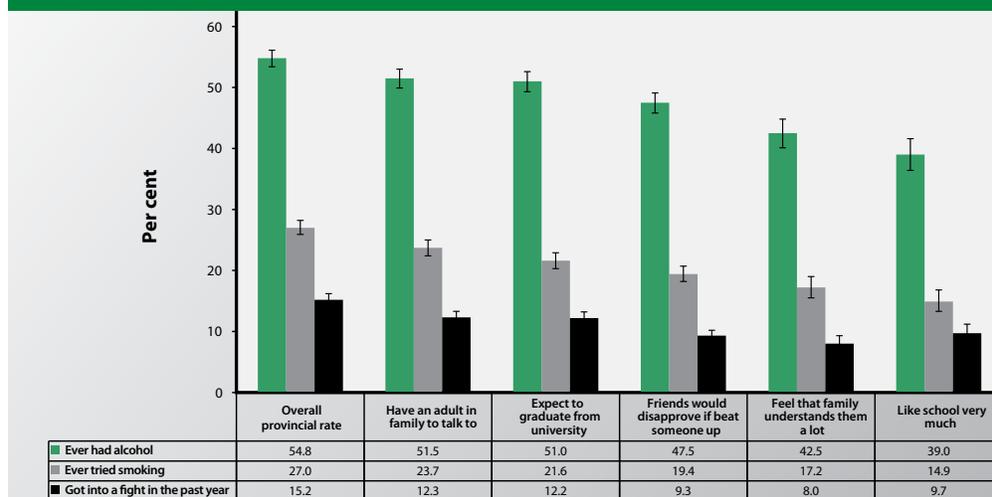
risky behaviour, as well as a comparison to the provincial average for females.^f As evident in the graph, the presence of each protective factor was linked to lower rates of alcohol use, smoking and fighting compared to the overall provincial rates. Liking school very much and feeling that family understands them a lot were the factors that had the greatest chance of reducing female risk-taking behaviours, as compared to other protective factors.

Children in Care

Studies have repeatedly shown an important link between family problems, being in care and difficulties in school. Problems in these areas can lead to involvement in the youth justice system, and to dropping out of school. Many children and youth in care have special needs both in learning and mental health. Despite having had to endure abuse, trauma and instability, the majority of children in care display an incredible ability to thrive in adversity.⁶⁸

Figure 5.16

Protective Factors for Reduction of Risk Behaviours, Public School Students, Grades 7-12, Females, BC, 2008



Note: 99 per cent confidence intervals have been applied.

Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

^f With or without protective factors.

Health Outcomes

Children in continuing care generally use more health care services more often than children not in care. For children in continuing care, the most common reasons for hospitalization were fractures, poisonings and complications resulting from medical or surgical procedures. While rates of hospitalization for girls not in care were low (approximately 0.2 per cent), rates for girls in continuing care were much higher at every age but rose dramatically starting at age 13 and declining by age 22. Rates of hospitalization peaked at 2.2 per cent at age 17.⁶⁹

While children in continuing care were almost four times as likely to be diagnosed with a mental disorder as children in the general population, they were 17 times more likely to be hospitalized for a mental disorder. Hospitalizations for mental disorders showed females were more likely to be hospitalized in their teens than males.⁶⁹

Girls up to age 19 in continuing care were more than four times as likely to see a medical practitioner for a pregnancy or birth-related condition than girls in the general population, most often due to abortions, normal deliveries and pregnancy complications. Pregnancy rates increased until age 20 for girls in continuing care, and then began to decline. For the general population, the percentage of females seeing a medical practitioner about a pregnancy or childbirth-related issue was less than half that of the continuing care population. Aboriginal girls in care visited a health care professional for a pregnancy or childbirth-related condition at a rate 1.3 times higher than for non-Aboriginal females in continuing care.⁶⁹

On leaving continuing care, young adults between the ages of 19 and 25 continued to have much higher rates of injury than the general population: 1.9 times higher for females and 1.5 times higher for males. The rate of injury for youth formerly in continuing care was similar for both males and females, while in the general population women continued to have lower rates than men.⁶⁹

Criminal Justice System

BC's youth crime rate is low compared to other provinces and has been declining for more than ten years. Children involved with the justice system do not have good outcomes. Of children who became involved with the youth justice system, less than one-third (30 per cent) went on to graduate from high school and close to two-thirds had educational special needs. About 41 per cent of children and youth in care had been involved with the justice system by the age of 21, compared to 6.6 per cent of the general population.⁶⁸ The rate for girls was half that for boys.

Adults

Health Behaviours

Being overweight or obese, unhealthy eating, physical inactivity, and tobacco and alcohol use are common modifiable risk factors associated with chronic disease.⁷⁰ However, these health behaviours, and the ability to make healthy choices, are affected by the social, cultural and physical environments in which we live and work.⁷¹ A number of studies have demonstrated that low socio-economic status can result in a lack of



knowledge in making healthy choices and of understanding what is considered a risk behaviour; low self-esteem; an unhealthy home environment; stress arising from low-wage, unstable employment with little scope for decision-making; and little opportunity to participate in one's community.⁷² These influences must be kept in mind when looking at the health behaviours of women, who more often have low incomes and experience these challenges to good health.

Physical Activity

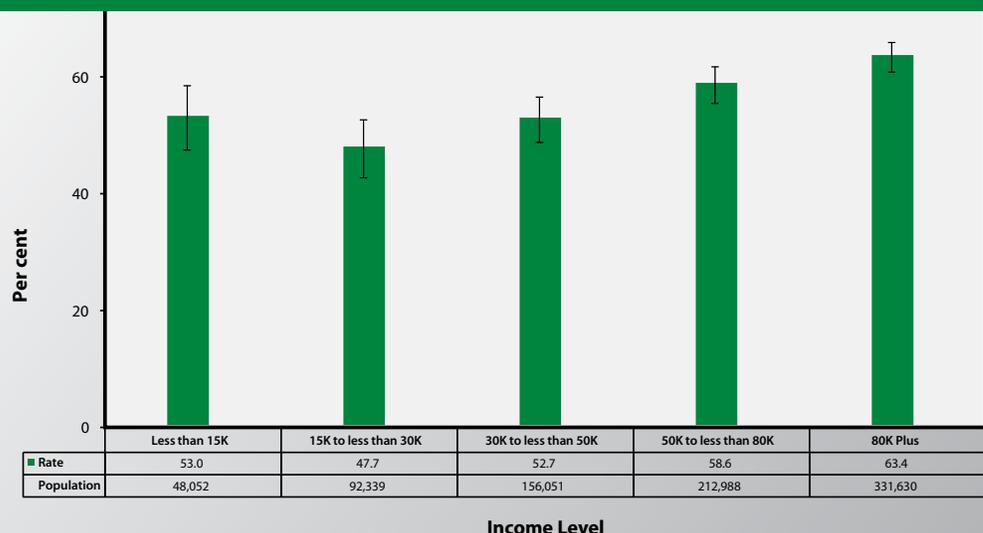
Physical activity is essential in order to stay healthy and minimize risk for disease. In fact, it is now believed that physical activity reduces the risk of over 25 chronic conditions, including heart disease, hypertension, Type 2 diabetes, breast cancer, colon cancer, mental illness and stroke.⁷³ While it was mentioned earlier that exercise among female teens is crucial in maximizing bone mass during adolescence, in adulthood physical activity helps minimize bone loss resulting from the inevitable decrease in estrogen, thus reducing the risk of osteoporosis.⁴¹ Maintaining weight, and increased endurance, strength and flexibility are other benefits of physical activity, all of which enable people to complete

everyday tasks with more ease and energy.⁷³ In fact, studies have shown that up to one-half of the functional decline seen between the ages of 30 and 70 years, previously thought to be part of the "aging process", is actually a result of having a physically inactive lifestyle.⁷³ In order to reap the many benefits of exercise and enhance overall well-being, adults should participate in 30 to 60 minutes of moderate activity, at least four days a week, whether the activity is done all at once, or broken up into 10-minute intervals.⁷⁴

In 2007/2008, over 56 per cent of females and over 59 per cent of males reported being active or moderately physically active during leisure time, a drop from 57.1 per cent for females and 62.8 per cent for males in 2003. Given that BC has an aging population, the trend, although unfortunate, is not surprising. Decreasing rates of physical activity during leisure time might also be related to the rising rates of chronic health conditions that come with having an aging population. Women in particular may find it a challenge to engage in physical activity each day, as they are more likely to be working at a paid job, and be the primary housekeeper and caregiver for their children and possibly an aging parent.³⁶

Figure 5.17

Active or Moderately Active, Females, Age 12+, by Income Category, BC, 2007/2008



“ Women in the higher income categories are more likely to be physically active than those with lower income levels. ”

Note: Non-responses have been excluded.

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Figure 5.17 shows the link between socio-economic status and physical activity for women. Women in the higher income categories are more likely to be physically active than those with lower income levels. However, those living on less than \$15,000 report more physical activity, which may be due to walking or cycling as a means of transportation, rather than driving a car.



Healthy Eating

It is important that women have a healthy diet and receive proper nutrition throughout life. Good nutrition supports the immune system and helps the body fight off disease and recover after an illness.⁷⁵ The connection between the quality of the diet and a variety of chronic diseases has been thoroughly documented.⁷⁵ Diet is linked to four of the ten leading causes of death, including cardiovascular disease, stroke, certain types of cancer and Type 2 diabetes.^{75,76} However, with so many variables influencing one's diet, including socio-economic factors, education levels, living environment, and cultural needs,⁴⁰ meeting nutritional requirements can be a challenge. For example, the cost of and access to healthy food is a major concern for those in lower socio-economic groups or for those living in more remote areas.⁷²

Healthy Food on a Low Income

Health Canada has developed the National Nutritious Food Basket to estimate the cost of a nutritious diet for a variety of individuals and family groups. In 2009, food costing was carried out in 134 randomly selected grocery stores across BC. The basket does not include household or personal care supplies nor does it take into account travel costs associated with its purchase, which can add significantly to the cost of the basket. For people living in remote areas, including many First Nations communities, buying the contents of the food basket locally may not be possible.⁷⁷

Table 5.1 shows clearly that individuals and families with low incomes, especially those receiving income assistance, do not have enough money to buy healthy food. A female lone parent with two children would need

**Table
5.1**

Cost of Food as a Proportion of Disposable Income for Six Scenarios, 2009

Monthly income and costs	Family of 4, income assistance	Single parent, 2 children, income assistance	Single older woman, income assistance	Young pregnant woman, income assistance	Family of 4, low earned income	Family of 4, median income*
Disposable income	\$1,773	\$1,724	\$649	\$694	\$2,458	\$4,491
Cost of shelter	\$1,028	\$1,028	\$648	\$648	\$740	\$1,293
% income required for shelter	58	60	100	93	30	29
Cost of food	\$872	\$659	\$219	\$274	\$872	\$872
% income required for food	49	38	34	39	35	35
What's left after shelter and food	-\$127	\$37	-\$218	-\$228	\$846	\$2,326

* Based on 2006 BC median income, the most recent year for which data was available.

Source: Dietitians of Canada. The Cost of Eating in BC 2009.⁷⁷

to spend 38 per cent of her income on food. After she had paid for food and shelter there would be \$37 remaining. A single older woman on income assistance would need to spend \$219 on food, and would only have one dollar left from rent to cover it.

Impacts of Poor Nutrition

Over the years there has been an increasing trend in overweight and obesity rates in BC, and with this trend comes increasing risks of developing diabetes, high blood pressure, heart disease and many other chronic health conditions. Obesity-related illnesses result in over 2,000 premature deaths among BC residents each year.⁷⁸ And while overweight and obesity rates are of great concern, paradoxically, most BC residents are not eating enough food from the four food groups to meet their daily nutritional requirements.⁷⁹ In other words, BC residents are either making poor food choices or do not have access to healthy food due to low income or remote location. Up to 80 per cent of the population does not eat enough fruit and vegetables, and most are not getting enough dairy products to keep bones and

teeth strong.⁷⁹ Inadequate calcium intake is particularly problematic for women, as they are more at risk to develop osteoporosis. Therefore, it cannot be stressed enough that individuals need to achieve and maintain a healthy weight by making healthy food choices. The Canada Food Guide⁸ lists the recommended food groups and serving sizes, based on age, required to meet the nutritional needs of Canadians.

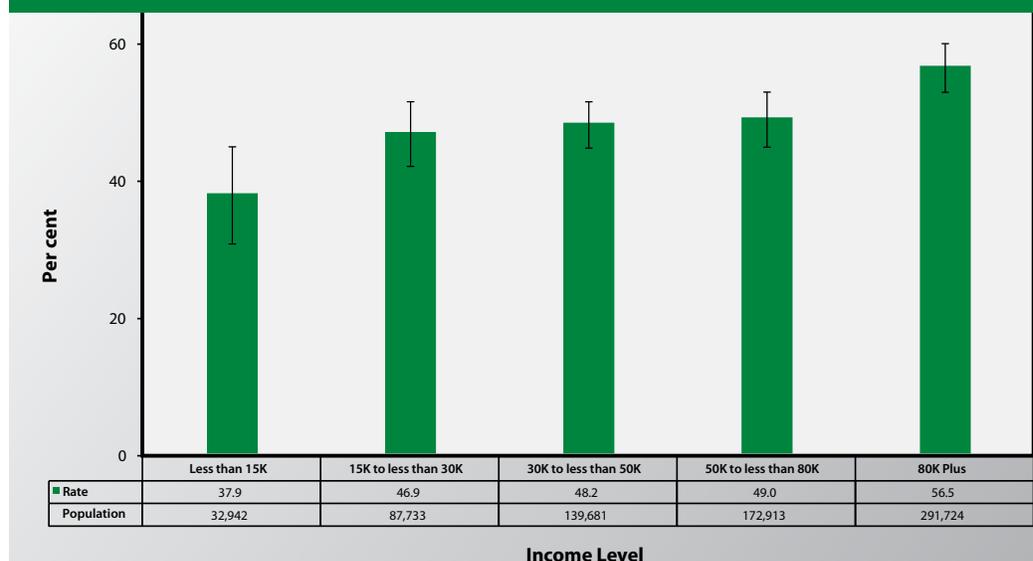
Fruit and Vegetable Consumption

Fruits and vegetables are an important source of vitamins, minerals, phytochemicals and fibre. A diet rich in fruits and vegetables may reduce the risk of heart disease and some types of cancer.⁸⁰ The percentage of females reporting consumption of fruits and vegetables five or more times per day has remained fairly constant between 2003 and 2007/2008 and was significantly higher than males. Analyzed by socio-economic status, females in the lowest income category are much less likely to consume the recommended helpings of fruits and vegetables than those in higher income groups, due to an inability to afford healthy food (Figure 5.18).

“ Obesity-related illnesses result in over 2,000 premature deaths among BC residents each year. ”

Figure 5.18

Fruit and Vegetable Consumption (5+ Times per Day), Females, Age 12+, by Income Category, BC, 2007/2008



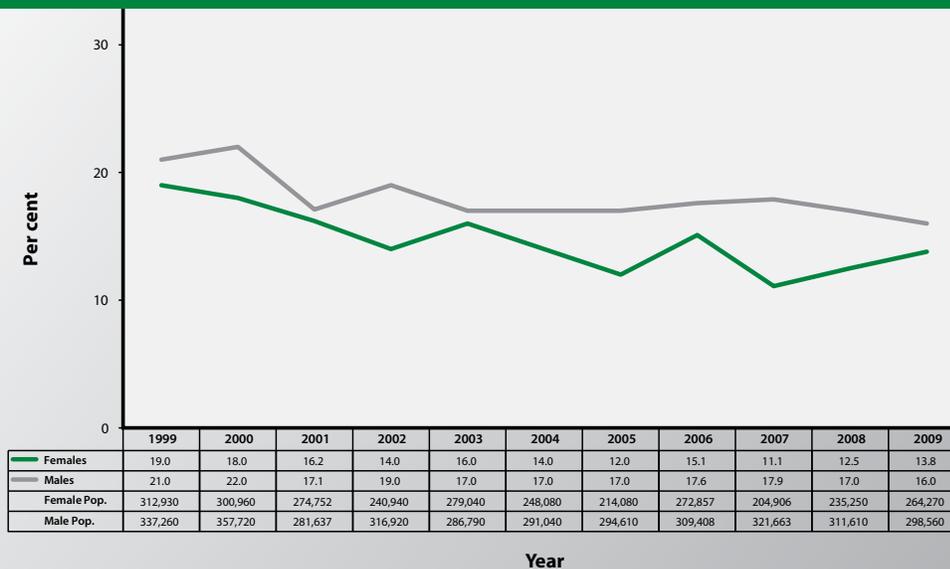
Note: : Non-responses have been excluded.

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

⁹ The Canada Food Guide is accessible at: <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/order-commander/index-eng.php>.

Figure
5.19

Current Smokers, Age 15+, by Sex, BC, 1999 to 2009



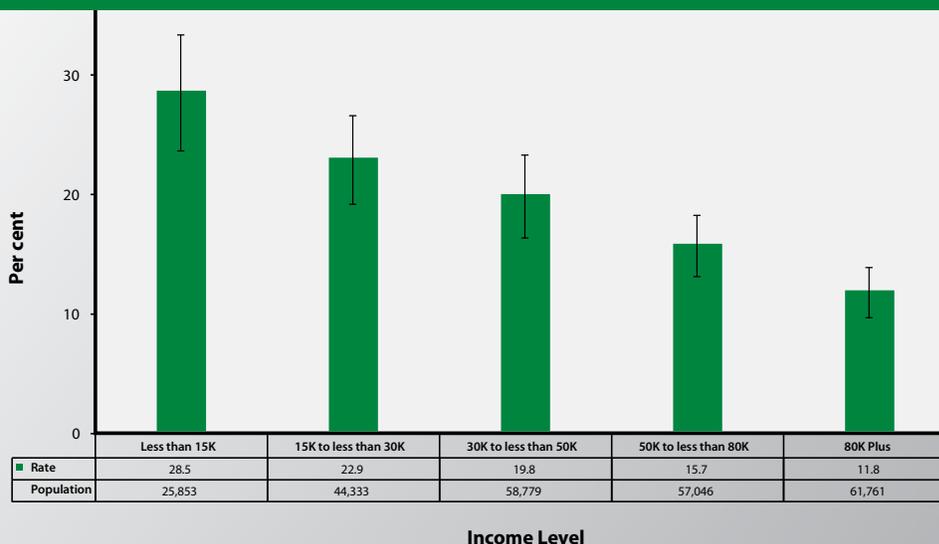
Source: Canadian Tobacco Use Monitoring Survey, Supplementary Tables (1999-2009); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Substance Use**Tobacco**

In 2007/2008, BC had the lowest rate of current smokers in the country at 14.9 per cent: 13.8 per cent of BC women and 16 per

cent of BC men (Figure 5.19).⁸¹ Overall, rates of current smokers have been decreasing over the years.

As can be seen in Figure 5.20, women in the lower income categories are much more likely to smoke than women in higher

Figure
5.20Current Smokers, Females, Age 12+,
by Income Category, BC, 2007/2008

Note: Current smokers includes those people who were daily or occasional smokers. Non-responses have been excluded.

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

income groups, although differences were not statistically significant at each step. In Canada, women are more likely to smoke if they have a lower education or low socio-economic status, are unemployed or have a service-sector job, are a lone parent, live in isolation or lack support, are victims of abuse or violence, have responsibility for work and family, or have stress and low self-esteem. Women are also more likely to continue smoking in an attempt to reduce or maintain their weight.⁴⁴



Alcohol

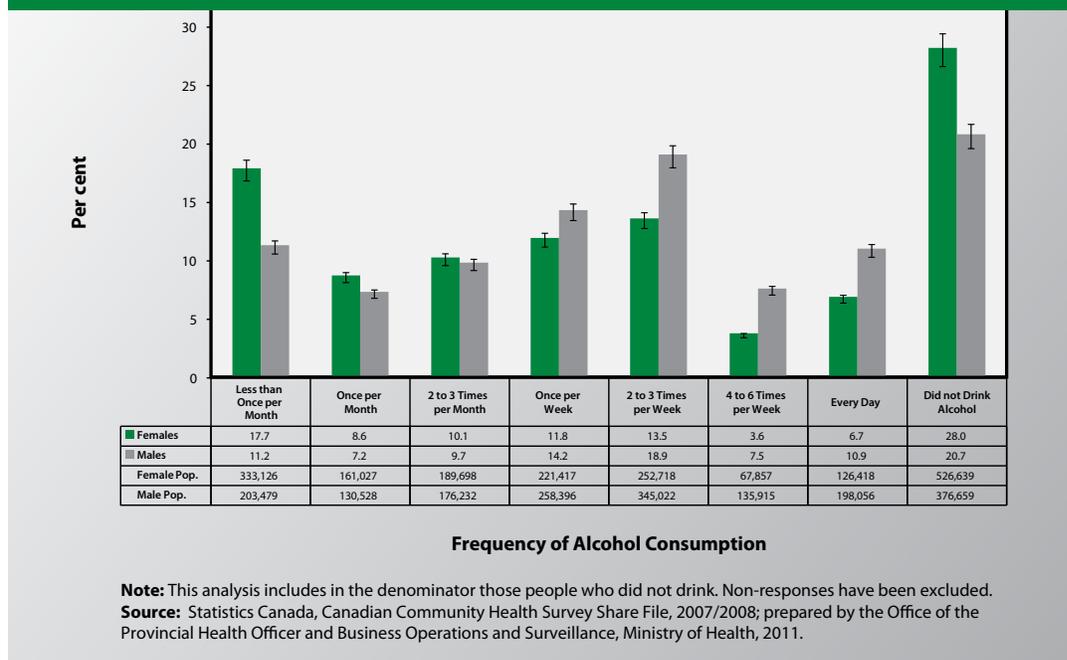
Long-term consumption of as little as one or two drinks per day has been causally linked with significant increases in the risk of several types of cancer and other serious medical conditions. Risk of these medical conditions increases with each increase in daily alcohol consumption over the long term. Low levels of consumption have also been associated with health benefits resulting in lower risks of illness and premature death, notably from ischemic heart disease, ischemic stroke and diabetes. A review by Di Castelnuovo et al.⁸² indicated that maximum health benefits from drinking could be obtained with an average daily consumption of between a half and one standard drink per day.

Survey data show that females were less likely than males to consume alcohol, with 28 per cent reporting that they did not drink alcohol in 2007/2008, and close to 18 per cent reporting that they consumed alcohol less than once a month (Figure 5.21).

Some studies conducted on children believed to have been exposed prenatally to low levels of

Figure 5.21

Frequency of Alcohol Consumption During the Last 12 Months, Age 12+, by Sex, BC, 2007/2008



alcohol have suggested cognitive impairment persisting even into adolescence.^{83,84,85,86} However, collectively these studies have not been conclusive, and there is no definitive knowledge of the precise level of alcohol intake associated with harm⁸⁷ or the role of other relevant variables such as poor nutrition.

It has been shown that a pregnant woman who reports having consumed 7–14 drinks per week is more likely to have a baby with birth defects or complications, and that drinking five or more drinks per occasion places the fetus at greatest risk of fetal alcohol spectrum disorder or fetal alcohol syndrome.^{88,89} However, comprehensive reviews of the relevant literature on maternal drinking and birth defects find no consistent evidence of damage at lower levels of consumption. As with the unborn infant, there are also reasons to be concerned about the vulnerability of newborns to exposure to alcohol in breast milk. Newborns have a rapidly developing central nervous system and an underdeveloped ability to metabolize alcohol. However, there is only limited research on the effect of alcohol during breastfeeding.

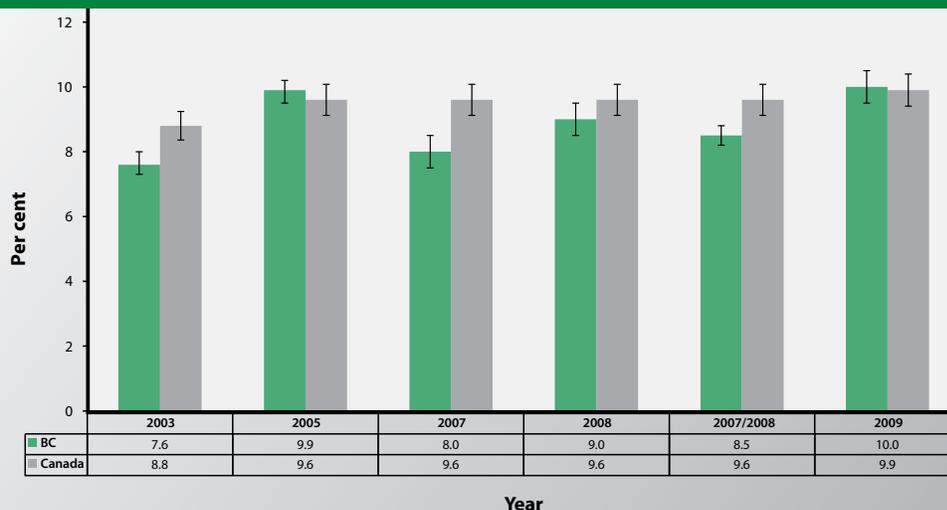
The number of BC females who consume five or more drinks on one occasion at least once a month has fluctuated but increased overall, from 7.6 per cent in 2003 to 10 per cent in 2009 (Figure 5.22). The rate for males was considerably higher. Differences between BC rates and Canadian rates for females were not statistically significant.

Approximately 85 per cent of alcohol consumption reported by females age 15–24 was in excess of the Centre for Addiction and Mental Health Low-Risk Drinking Guidelines, compared to over 90 per cent of alcohol consumption reported by males age 15–24.⁹⁰

“ As with the unborn infant, there are also reasons to be concerned about the vulnerability of newborns to exposure to alcohol in breast milk. Newborns have a rapidly developing central nervous system and an underdeveloped ability to metabolize alcohol. ”

Figure 5.22

5+ Drinks on One Occasion (at Least Once per Month) in the Past Year, Females, Age 12+, BC and Canada, 2003 to 2009

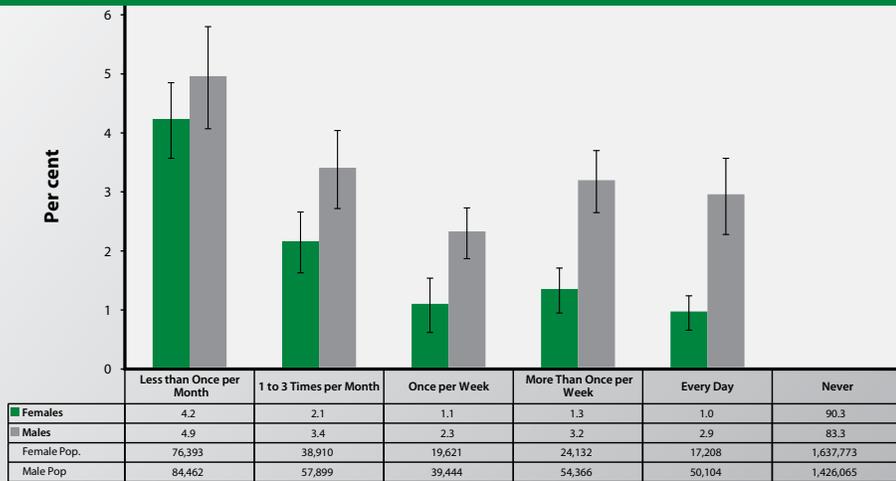


Note: Data for 2003, 2005 and 2007/2008 represent full survey samples. Data for 2007, 2008 and 2009 represent half survey samples. Starting in 2007, Statistics Canada moved to an annual reporting system that reports half samples annually, combining the results every 2 years, for a full sample. New cycles begin at the end of the second year and a new two-year reporting period begins. The next full reporting period will be for 2009/2010. There is no overlap between the two-year data collection periods (e.g., no data for 2008/2009). Non-responses have been excluded.

Source: Statistics Canada, Canadian Community Health Survey, 2003 - 2009 (CANSIM Tables 105-0501 and 105-0502); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Figure 5.23

Frequency of Marijuana Use During the Last 12 Months, Age 12+, by Sex, BC, 2007/2008



Frequency

Note: This analysis includes in the denominator those people who have never used marijuana. The rate for these non-users has been excluded from the graph portion, since the proportion was extremely high compared to the frequencies of those who did use marijuana (convenience for scaling and presentation).

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Marijuana

Females were less likely than males to report marijuana use in BC (Figure 5.23): about 10 per cent for females compared to almost 17 per cent for males. The difference was significant for all frequency of use categories except for those that used marijuana less than once a month. Women were about three times less likely to use marijuana on a daily basis. Men were more than twice as likely to use it once a week or more than once a week.



Medical Marijuana

Under Marijuana Medical Access Regulations those who are suffering from serious, debilitating illnesses can apply to receive a supply of marijuana for medicinal purposes.⁹¹ Medical marijuana can be used in the relief of nausea and vomiting, and stimulation of appetite in patients with wasting syndrome and for its analgesic properties.⁹² As of January 2010, Health Canada reported that there were 4,884 authorizations to possess medical use marijuana, the majority coming from Ontario and British Columbia, with 1,873 and 1,372 authorizations respectively.⁹¹ In 2010, the Ontario court found the current program to be unconstitutional because sick people cannot get access to medical marijuana through appropriate means if their physicians do not support their application and must resort to illegal actions such as growing their own supply. An appeal to the decision is anticipated.⁹³

Women with Disabilities

Of the working age population, women have higher rates of disability than men both overall and within each age group. The most common types of disabilities were related to pain, mobility and agility, followed by learning and hearing difficulties. More women than men had a very severe, severe or moderate disability.⁹⁴ This may be due to higher prevalence of chronic conditions such as arthritis, asthma and high blood pressure among women as compared to men. A Canadian study⁹⁵ found that women with disabilities were more likely to be of lower socio-economic status and to have less social support than men. Overall, more women with disabilities were not in the labour force than men. Women living in the Lower Mainland and Southern Vancouver Island areas were more often not in the labour force compared to those living in other regions of the province and this gap was most evident among older individuals.⁹⁴

Results from the Statistics Canada Survey of Labour and Income Dynamics showed that people in BC with activity limitations were less likely to obtain a high school diploma or a university degree, although there was

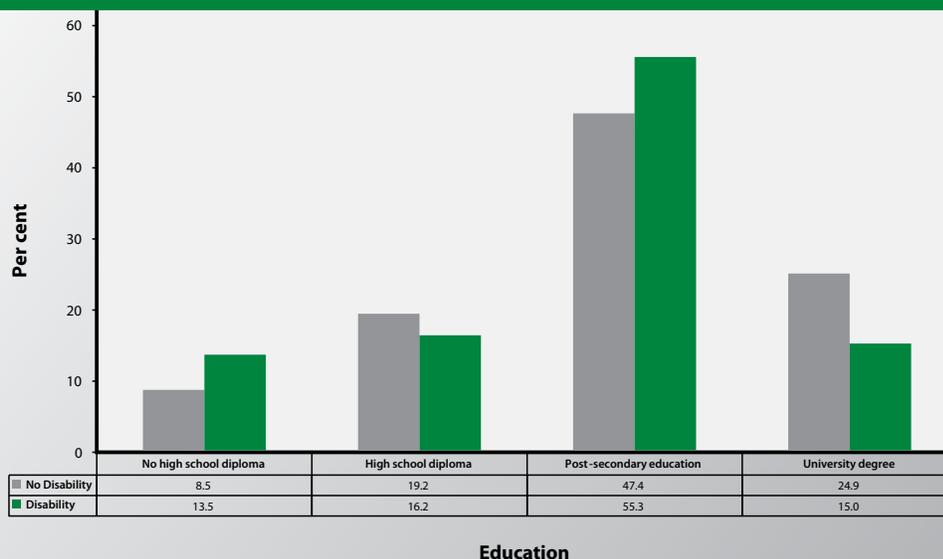


no significant difference for those achieving post-secondary levels of education below the level of a degree (Figure 5.24). Women more often achieved a high school education than men. Although disabled women were less likely to be employed at each educational level, the economic benefits received from education were larger.⁹⁴

According to a study by Masuda,⁹⁶ emotional health was the key factor for focus group participants in feeling healthy. Their emotional health was based on accepting themselves and coming to terms with their disabilities and limitations. However, for many disabled women, being healthy

Figure 5.24

Education Level for People with One or Several Activity Limitations, Females, Age 20-64, by Disability Status, BC, 2008



Note: This analysis only includes people with one or several activity limitations.

Source: Statistics Canada, Survey of Labour and Income Dynamics, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

requires more effort than for non-disabled women. Most women with disabilities live on low incomes, and sufficient, healthy food, holidays or the ability to access alternative health therapies are luxuries beyond their reach. Many disabled women fear the future and have a considerable degree of anxiety about whether they will have resources and support to meet their needs.

Healthy Aging

With the aging of the population and the migration of seniors to BC, the number of people aged 65 and older has risen steadily, and projected growth rates for this group are significantly greater than for the overall population. Females, with a historically greater life expectancy than males, make up a greater share of the senior population. Aging well involves maintaining three important characteristics: a low risk of disease and disability; high mental and physical function; and active engagement with life.⁹⁷ Infrastructure is also important to facilitate physical activity and community connectedness through the installation of sidewalks, street lighting and parks that are accessible for wheelchairs. Issues such as concern for personal safety and difficulties in using the transit system can deter elderly women from getting involved in activities in their community.

Living Arrangements of Seniors in BC

Living arrangements can impact one's health and well-being. Seniors who live alone can experience feelings of social isolation and a lack of social support, which can contribute to poorer health outcomes. While women comprise just over half of BC's total population, they represent 55 per cent of seniors (65+) and two-thirds (66 per cent) of those aged 85 and over.⁹⁸ Approximately 36 per cent of women aged 65+ lived alone in 2006, compared to just 17.4 per cent of men in the same age category. While men were more likely to be living with a spouse or common-law partner, women were more likely to be living with relatives other than a spouse. Compared to 2001, there were fewer seniors living alone.⁹⁸

“ The number of women aged 75+ living in a health care facility in 2006 was nearly triple that of men. ”



Today's seniors are living longer and are less often disabled than previous generations, but the need for services to support elders who are physically and cognitively impaired continues to grow.⁹⁹ Almost 6 per cent of BC seniors aged 65+ lived in a collective dwelling in 2006, the majority of which (94 per cent) lived in a health care facility. For those aged 75 and over, the figure increased to 10.4 per cent: 12.7 per cent of women and 7 per cent of men. By age 75, 98 per cent of those living in a collective dwelling were in a health care facility. The number of women aged 75+ living in a health care facility in 2006 was nearly triple that of men.⁹⁸

A continuum of care exists for seniors in British Columbia that includes home health services for seniors with varying health care needs (including end-of-life care); assisted living for seniors who can no longer live at home, but do not require 24-hour, seven days a week professional care; and residential care for seniors with complex care needs who need full-time professional care.¹⁰⁰ Residential care service delivery is provided by a mix of public, non-profit and private for-profit organizations. In BC since 2000, there has been an increase of over 20 per cent in publicly funded for-profit beds and a decrease of 11 per cent in publicly funded non-profit beds.¹⁰¹ The numbers of women in assisted living placements and hospitals suggests that enhancements to all modalities of community care are desirable.

Seniors in residential care facilities are older, more disabled and closer to the end of life than was the case a decade ago. This change in the health condition of residents has placed new and more complex demands on staff.¹⁰¹ The majority of facility residents are women living on low incomes who are frail, may be suffering from dementia and are not able to assert their needs.¹⁰² A recent study found that facility residents enter residential care much closer to the end of life than in the past. In British Columbia, there has been a rise in mortality rates in facilities not attached to a hospital, from 11 per cent in 1997 to 17 per cent in 2007.¹⁰¹

Loneliness and Depression

In a sample of nearly 50,000 seniors living in residential care facilities in five Canadian jurisdictions, nearly half (44 per cent) had a diagnosis and/or symptoms of depression. Residents with symptoms of depression experienced poorer overall health, including unstable health conditions, a decline in self-sufficiency, impaired mental acuity, sleep problems and pain. In addition, residents with a diagnosis of depression were much more likely to receive antidepressant medications than the general population.¹⁰³



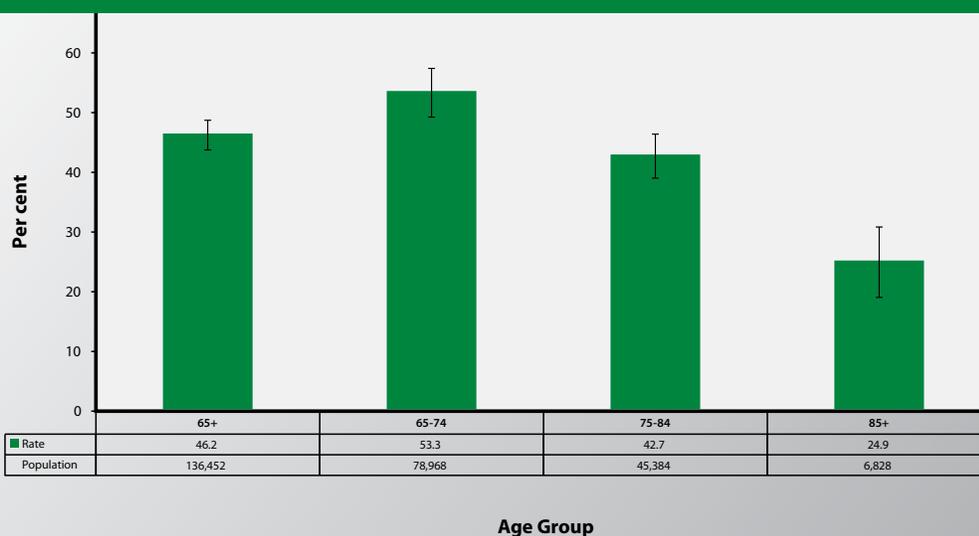
Health Behaviours

Physical Activity

The key to maintaining a healthy weight is to be physically active. The proportion of seniors who are overweight and obese is on the increase.¹⁰⁴ Figure 5.25 shows that 46.2 per cent of females aged 65+ in BC were active or moderately active in 2007/2008 (the rate for males 65+ was 56.5 per cent). Rates for females decreased with advancing age and were lower than males in each age group. Physical activity may not be a priority for many women of this generation because it is perceived to be “unladylike”.¹⁰⁵

Figure 5.25

Active or Moderately Active, Females, Age 65+, BC, 2007/2008



Note: Includes population estimates of the number of seniors who are either active or moderately active in their leisure time.

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.



Mealtimes are not just about good nutrition; gathering together for meals can also work to enhance social connectedness. Seniors are more likely to engage in healthy behaviours when they feel socially connected, because social relationships help to buffer the individual from stress.⁷⁵

Alcohol and the Older Adult

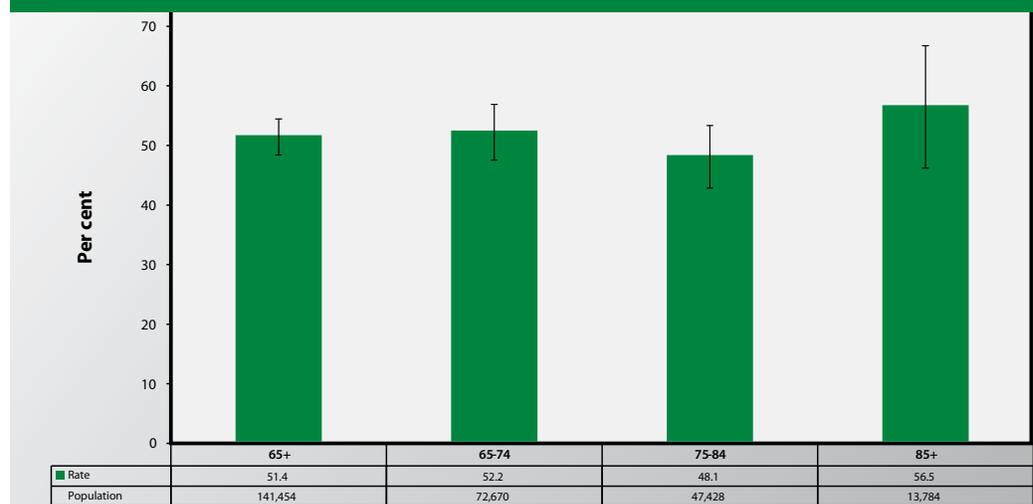
For many people, alcohol is associated with socializing, relaxing and celebrating significant life events. However, as people age, they become more sensitive to the effects of alcohol.¹⁰⁶ The same amount of alcohol will produce higher blood alcohol content in an older person than it does in a younger adult of the same weight. This, in turn, puts an increased burden on the liver. Since women produce less of the enzyme the body uses to break down alcohol, it is recommended that older women drink less than in their youth and less than men of equivalent age in order to avoid liver damage. There is also a concern that alcohol will be consumed in conjunction with medication. Even a small amount of alcohol can interfere with medication and can sometimes lead to enhanced intoxication, which may increase the risk of falls.¹⁰⁷

Healthy Eating

Although females may not be as physically active as males, they do report a higher level of consumption of five or more servings of fruit and vegetables per day. In 2007/2008, there were 51.4 per cent of females aged 65+ who reported eating the recommended amount of fruits and vegetables daily (Figure 5.26). This percentage was 25 per cent higher than the rate for males (41.6 per cent). Rates were significantly higher for women in each age group except for those in the 75–84 age category, where the difference was not statistically significant.

Figure 5.26

Fruit and Vegetable Consumption (5+ Times per Day), Females, Age 65+, BC, 2007/2008



Note: Includes population estimates of the number of seniors who consumed fruits and vegetables five or more times per day.
Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Summary of What We Know

- The Early Development Index was designed to measure the development, skills and abilities of kindergarten children in the classroom. When the five EDI scales are analysed by sex, the results show that girls are doing well in most areas and are particularly strong in social competence, emotional maturity and language and cognitive development. Boys fare significantly worse than girls in each category.
- Northern Health Authority's health service delivery areas (HSDAs) have the highest percentage of children at risk (more than 1 in 10 children), and the rates for female children are almost half the rates for male children. The HSDAs with the lowest percentage of girls at risk were Kootenay Boundary, Richmond and Okanagan, where there were approximately 1 in 20 girls and 1 in 10 boys who were not considered ready for entry into school.
- Girls achieved higher grades than boys in the three different streams of grade 10 mathematics classes. In particular, females dominated the higher grade categories for Principles of Mathematics 10, a course that leads to university-level qualification. This is a good indication that girls are focused on earning grades that will support future career development and success.
- In the past, girls did not perform as well as boys in the sciences. However, current data show that girls scored higher than boys in all science classes in grades 10 and 12, including Science 10, Geology 12, Chemistry 12, and Physics 12. Girls were also more likely than boys to be a first-time graduate between 1998/1999 and 2009/2010, although the gap has narrowed over the years and rates are now within two percentage points.
- In BC in 2008, only 10 per cent of adolescent girls, grades 7 to 12, rated themselves as very satisfied with their body image, compared to 19 per cent of adolescent boys. That same year, while 53 per cent of healthy weight girls were trying to lose weight, 31 per cent of healthy weight boys were trying to gain weight.
- As sexual orientation unfolds during adolescence, lesbian, gay, bisexual and transgendered (LGBT) teens often report that schools are unsupportive or unsafe places. The stigma associated with a LGBT orientation may be experienced as rejection or exclusion, harassment, destruction of property and violence. If they do not receive the support and acceptance they need from family and friends, lesbian, bisexual and transgendered teens may develop emotional problems such as low self-esteem, depression, poor school performance and substance use problems.
- Youth in British Columbia come from a wide range of ethnic and cultural backgrounds. Connection to culture is an important protective factor, and youth who were the most highly connected to their culture, based on self-reporting, were the least likely to report poor or fair health.
- Neither female nor male students are getting enough exercise, but female students were significantly less likely than male students to have exercised daily for 20 minutes in the past week, across each of the age groups. By age 17, only 6.2 per cent of female students reported exercising daily for 20 minutes in the past week.
- Although the majority of female and male teens consumed fruits and vegetables the day prior to the 2008 AHS survey, there were still 19 per cent who did not consume fruit and 21 per cent who did not consume vegetables, and both males and females more often reported having only one serving, as opposed to the recommended 7 to 10. The majority of respondents reported eating fast foods (pizza, hot dogs, potato chips, or fries) and/or drinking pop, and were more likely to have eaten sweets (cookies, cake, donuts, chocolate bars) than fruits and vegetables.
- According to the AHS, in 2008 the percentage of students reporting they have ever tried tobacco smoking was down to 26 per cent, with slightly more females

- than males (27 per cent and 25 per cent, respectively), a significant improvement from rates of 34 per cent in 2003 and 56 per cent in 1998. Of those students who did report tobacco smoking in the past month, slightly more females than males reported smoking 1 to 5 days or 6 to 19 days, whereas more males than females reported smoking at least 20 days or more (males 4.4 per cent, females 3.7 per cent); however, these rate differences between genders were not statistically significant.
- BC youth of all ages are more likely to consume alcohol than any other substance. Fortunately, the number of students reporting that they have tried alcohol has continually decreased over the past several years to a rate of 54 per cent in 2008, compared to 58 per cent in 2003, with those figures shared almost equally among females and males.
 - Youth are also delaying drinking to a later age, as evidenced by 13 per cent of students reporting they had first tried alcohol prior to the age of 10 years in 2008 (10 per cent of females and 16 per cent of males), compared to 15 per cent in 2003, and more of them reporting first use at age 15 or 16 years in 2008 (23 per cent) compared to their peers in 2003 (18 per cent).
 - The self-reported rate of monthly risky drinking for BC females aged 12–19 has risen steadily since 2003, with a current rate of close to 25 per cent consuming five drinks on one occasion at least once per month. A major protective factor for binge drinking, particularly for females, was having friends with more pro-social attitudes; i.e., having friends who would disapprove of involvement with certain high-risk behaviours (e.g., carrying a weapon, getting pregnant, etc.).
 - The percentage of female students in grades 7 through 12 who have ever tried marijuana has decreased over the years, from 38 per cent in 1998 and 37 per cent in 2003 to 29 per cent in 2008. The differences in rates for females and males were not significant.
 - Data from the AHS show that females who reported a high level of school connectedness were much less likely to engage in binge drinking, experience fair or poor health, and experience suicidal ideation than females with low levels of connectedness. School connectedness was more protective than family connectedness.
 - In 2007/2008, over 56 per cent of adult females and over 59 per cent of adult males reported being active or moderately physically active during leisure time. These rates are lower than the rates from previous years.
 - In 2007/2008, BC had the lowest rate of current tobacco smokers in the country at 14.9 per cent: 13.8 per cent of women and 16 per cent of men.
 - Data from the Canadian Community Health Survey show that females were less likely than males to consume alcohol, with 28 per cent reporting that they did not drink alcohol in 2007/2008 and close to 18 per cent reporting that they consumed alcohol less than once a month.
 - The number of BC females who consume five or more drinks on one occasion at least once a month has increased overall, from 7.6 per cent in 2003 to 10 per cent in 2009. The rate for males was considerably higher.
 - Of the working age population, women have higher rates of disability than men both overall and within each age group. The most common types of disabilities were related to pain, mobility and agility, followed by learning and hearing difficulties. More women than men had a very severe, severe or moderate disability. A Canadian study found women with disabilities were more likely to be of lower socio-economic status and to have less social support than men.

Chapter 6

Physical Environment

Many components of the physical environment directly influence the health and well-being of a population. In this chapter, we look at selected topics, including food safety, industrial contaminants and environmental hazards, drinking water, indoor and outdoor air quality, and ultraviolet radiation, with special attention given to topics of particular relevance for women. This review also looks at the impact of the built environment^a on women's health, because of the ability of urban design to affect the quality of the air we breathe and the amount of physical activity we are likely to engage in. Evidence shows that women's bodies respond to pollutants differently than men's bodies do and their exposures may differ due to socio-economic status, living and working conditions and neighbourhood exposures.

Impact of the Physical Environment on Women's and Children's Health

Certain aspects of the physical environment are of more concern for women, due to their role in childbearing and caring for infants, and physiological differences in hormonal and metabolic response. Daily living exposes the population to a wide variety of chemicals, and these trace elements are passed on to the next generation. Infants born into today's

society carry a body burden of chemicals that can include methylmercury, pesticides, polychlorinated biphenyls (PCBs) and other substances. These chemicals pass through the placenta to the fetus and through breast milk after birth. Babies and toddlers continue to be exposed to chemicals through contact with food, air, water, soil, household dust, and everyday products such as carpets, furniture and household goods. Children are more vulnerable than adults because they grow more rapidly and consume more food in relation to their body weight.¹

Depending on their properties, some lipid-soluble chemical substances can accumulate in a woman's body fat and be transferred into breast milk; however, the existence of chemical residues in breast milk is not a reason to avoid breastfeeding. In fact, breastfeeding is a protective factor because breast milk contains substances that strengthen the child's immune system, giving the child protection against pathogens and potentially mediating harm caused by environmental contaminants. Breastfeeding can also provide both physical and psychological benefits to mothers and their infants. While current levels of chemical residues in breast milk pose little or no health risk, lower levels of exposure to toxic chemicals would benefit everyone.¹ People whose staple diet includes large amounts of certain types of fish and sea mammals may have higher dietary levels for contaminants such as PCBs.²

“Breastfeeding is a protective factor that strengthens the child's immune system, giving the child protection against pathogens and potentially mediating harm from environmental pollutants.”



^a Built environment refers to the human-made surroundings in which people work, live, learn and play. This includes homes, schools, workplaces, parks and playgrounds, industrial and commercial areas, the products they contain, and the infrastructure, including transportation, energy and agricultural systems.⁴¹

Sensitivity to certain airborne contaminants, such as tobacco smoke and air pollutants, is higher in women and increases their risk of contracting respiratory diseases. This may be because of women's smaller lung capacity and smaller airways. Women also present with different symptoms and can be misdiagnosed, so lung cancer may hide chronic obstructive pulmonary disease (COPD), and COPD symptoms may be attributed to asthma. Vulnerability to acute respiratory disease is increased by impaired immune response, which is common in those female seniors in residential care who suffer from malnutrition.



Food and Water Safety

Most of women's and children's exposures to industrial contaminants and chemicals occur through their consumption of food and water. This can include residues of chemical contaminants such as methylmercury or PCBs in fish, bisphenol A leaching from plastic bottles and can linings, bacteria in processed foods and foodborne illness, and nitrates and chlorine disinfection by-products in drinking water.

Industrial Contaminants

Methylmercury

A chemical of particular concern to pregnant and nursing women is methylmercury, a common form of mercury often found in fish. The bloodstream distributes methylmercury throughout the body (including the brain) and, in pregnant women, to the developing fetus. People who regularly consume large quantities of

Table 6.1

BC Fish Consumption Guidelines

<i>Eat Freely</i>	<i>Fish Low in Mercury</i>	<i>Person's Age</i>	<i>Serving Limit</i>
	Salmon (wild or farmed, fresh, frozen or canned) Shrimp, Prawns, Rainbow Trout, Atlantic Mackerel, Sole, or Dover Sole	Children 6 to 24 months	No limit
		Children 2 to 12 years	No limit
		Girls and women of childbearing age, including pregnant and breastfeeding women	No limit
		Men (age 12 and older) and women after childbearing age	No limit
<i>Eat in Moderation</i>	<i>Fish Moderate in Mercury</i>	<i>Person's Age</i>	<i>Serving Limit</i>
	Canned Tuna (all varieties), Albacore Tuna (fresh or frozen), Cod (Atlantic), Bass or White Bass, Halibut (Pacific), Lake Trout, Sablefish Black Cod or Alaskan Black Cod	Children 6 to 24 months	2 servings a month
		Children 2 to 12 years	3 servings a month
		Girls and women of childbearing age, including pregnant and breastfeeding women	2 to 4 servings a <u>week</u>
		Men (age 12 and older) and women after childbearing age	4 to 6 servings a <u>week</u>
<i>Limit</i>	<i>Fish High in Mercury</i>	<i>Person's Age</i>	<i>Serving Limit</i>
	Bigeye Tuna (fresh or frozen – often called Ahi Tuna), Shark, Marlin, Swordfish, Sea Bass, Arctic Char	Children 6 to 24 months	Do not eat
		Children 2 to 12 years	1 serving a month
		Girls and women of childbearing age, including pregnant and breastfeeding women	2 servings a month
		Men (age 12 and older) and women after childbearing age	4 servings a month

Note: One serving is equal to 75 g or 2.5oz or 125mL or 1/2 cup.

Retrieved from (<http://www.healthlinkbc.ca/healthfiles/pdf/hfile68m.pdf>).⁴

Source: Prepared by Ministry of Health Services and BC Centre for Disease Control based on federal guidelines for fish consumption.

certain kinds of fish and marine mammals are at an increased risk of a wide range of adverse health effects, including impaired functioning of the central and peripheral nervous systems. In addition, higher levels of methylmercury exposure in a fetus or young child can lead to a decrease in I.Q., lack of coordination, delays in walking and talking, blindness and seizures.

Nutritional Benefits of Eating Fish

Fish provides many benefits such as protein and low levels of saturated fat. Fish also provides healthy omega-3 fats, which are good for the heart and brain. Omega-3 fats are especially important for the brain and eye development of the fetus, babies and children. Methylmercury becomes concentrated through the food chain when fish eat other organisms that have methylmercury in their tissues. Fish that are higher up the food chain, such as tuna or swordfish, can build up greater concentrations of methylmercury in their bodies than what is present in either their prey or habitat. The Canadian Food Inspection Agency conducts routine monitoring of the mercury levels in numerous fish species at processing plants

before the fish are marketed to the public. Fish that contain very low levels of mercury include shellfish, salmon, crab, shrimp, trout, herring, sole, flounder and lobster.³

The risk of mercury contamination is generally low in freshwater fish in BC, and mercury levels are not routinely monitored except where the risks are considered higher. Only three lakes in BC have consumption advisories due to mercury: Jack of Clubs, Pinchi and Williston lakes. Table 6.1 gives guidelines on fish consumption. For example, salmon, shrimp and prawns can be consumed freely without posing any major health risk, while consumption of bigeye tuna, shark and marlin should be limited because they contain higher levels of mercury.

Thimerosal or Ethylmercury in Vaccines

Concerns have been raised over exposure to mercury in certain kinds of vaccines. Thimerosal is a mercury-based preservative used in extraordinarily small amounts in the manufacture of certain multi-dose vaccines, which helps to prevent the growth of bacteria and fungi in the vaccines and to stabilize the vaccines so they remain effective over

“ In the last 50 years, immunization has saved more lives in Canada than any other health intervention. ”

Canadian Immunization Guide
(7th ed.)⁵

**Table
6.2**

Vaccine Versus Disease Risk by the Numbers – Measles/Mumps/Rubella

Disease Risk	Measles/Mumps/Rubella Vaccine Risk
<p>Measles:</p> <ul style="list-style-type: none"> • Pneumonia/Ear Infections: 1 in 10 • Encephalitis: 1 in 1,000 • Subacute Sclerosing Panencephalitis – a progressive destruction of brain cells: 1 in 100,000 (occurs years after infection and is fatal) • Death: 1 in 1,000 <p>Mumps:</p> <ul style="list-style-type: none"> • Meningitis: 1 in 10 • Encephalitis: 1 in 200 • Deafness: 1 in 200,000 • Orchitis: 2-3 in 10 in post-pubertal males <p>Rubella:</p> <p>Risk of fetal damage following maternal infection is 85 per cent in the first trimester</p>	<ul style="list-style-type: none"> • Encephalitis or severe allergic reaction: 1 in 1,000,000 • Temporary drop in the blood cells that help prevent bleeding: 1 in 30,000

Source: BC Centre for Disease Control, *Understanding Risk*.⁶

time. Thimerosal has been removed from vaccines in order to reduce unnecessary exposure to environmental mercury and due to public perception that it could cause harm, not due to safety concerns based on scientific evidence. Most vaccines licensed in Canada do not contain thimerosal, with the exception of the influenza vaccine, which contains a very small amount. Thimerosal-free flu vaccines are also available.

Table 6.2 compares the risks of getting a disease with the risks of getting the vaccine that prevents the disease (see previous page).

Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) were once widely used as industrial coolants and in electrical transformers. In 1977, they were banned because of research linking them to an increased risk of cancer. However, PCBs still persist in the environment and humans are still exposed to small amounts, primarily through foods such as salmon. Although both wild and farmed fish can carry contaminants, raw farmed salmon contains higher levels of organochlorine contaminants—including

PCBs, dioxins, toxaphene and dieldrin—than wild salmon, due to the contaminant levels in the farmed salmon feed.⁷ The average intake of PCBs from the Canadian diet is below levels expected to cause adverse health effects.⁸ Those groups at greater risk for higher exposure to PCBs include Aboriginal peoples, as well as fishers, hunters and their families, who may consume large amounts of certain sports fish, wild game and marine mammals.²

Bisphenol A

Bisphenol A (BPA) is a chemical used in the production of polycarbonate plastic and epoxy resins; approximately 3 metric million tons are produced each year worldwide.⁹ BPA is a hormonally active substance that mimics estrogen and acts as an anti-androgen. Human exposure to low doses of BPA occurs from food contact, leaching from plastic bottles and the coating on food and beverage cans. Infants can be exposed to BPA from polycarbonate baby bottles and from epoxy-based lined cans used in packaging infant formulas.

Studies by Health Canada's Food Directorate concluded that current exposures to BPA were not a hazard to the general population, including infants and young children. However, based on the "as low as reasonably achievable" principle, the Canadian government added BPA to the national list of toxic substances in October 2010, about two years after Canada became the first country in the world to ban BPA in baby bottles.¹¹

A recent review of evidence by the World Health Organization (WHO) determined that BPA is passed from the body through urine, thus keeping BPA levels in the body very low. Based on this knowledge, the WHO advised that BPA is unlikely to cause harm and the initiation of public health measures is premature.¹²

Bacteria and Foodborne Illness

This section looks at topics of concern to women of all ages, particularly pregnant women, women residing in long-term care facilities and women with compromised immune systems.

In January 2011, a petition was filed with the Commissioner of the Environment and Sustainable Development by the David Suzuki Foundation and the Montreal-based environmental group Réseau des femmes en environnement. The petition asks Health Canada to explain the use of phthalates, parabens, siloxanes and butylated hydroxyanisole as ingredients in personal care products such as shampoos, deodorants and makeup. Health Canada regulations prohibit the sale of any cosmetics that contain "estrogenic substances".

The petition was filed shortly after an announcement by the federal health minister of a ban on phthalates in children's toys and other child care products as a result of animal studies showing that phthalates may adversely affect reproduction and development.

—Schmidt S. (2011). *Ottawa slow to address 'gender-bending' chemicals*.¹⁰

Listeria

Listeria monocytogenes (commonly called *Listeria*) is a type of bacterium often found in food and elsewhere in nature. Listeriosis is an illness of particular concern for women because of its potential impact on pregnant women/unborn children and on the predominantly female elderly population in long-term care facilities, as well as on people with impaired immune function.¹³

Unlike most bacteria, *Listeria* can survive and sometimes grow on foods stored in the refrigerator. These foods can look, smell and taste normal, but be contaminated with *Listeria*. High-risk foods include deli meats, hot dogs, soft mold-ripened cheeses, cheeses made from unpasteurized milk and unpasteurized juices. Ready-to-eat and processed foods pose an increased risk because of the number of steps involved in preparing them. *Listeria* is more likely to cause death than other bacteria that cause food poisoning. In fact, 20 to 30 per cent of foodborne listeriosis infections in high-risk individuals may be fatal.¹⁴

Many people can be carriers of *Listeria*, but few actually become ill. Symptoms may start suddenly and include vomiting, nausea, cramps, diarrhea, severe headache, constipation or persistent fever. Pregnant women are about 20 times more likely to contract listeriosis than other healthy adults. Contracting listeriosis during the first three months of pregnancy may result in miscarriage. Later in pregnancy it may result in a stillbirth or the birth of an acutely ill baby. In elderly women, the risk increases with age. Despite being provided with regular meals, older women in care facilities may still suffer from malnutrition, which compromises their ability to fight infection. Saskatchewan and New Brunswick have each reported a malnutrition rate of 40 per cent in elderly residents in long-term care facilities.¹³ The provision of a varied diet can help to improve nutrition and support improved immune system function, thereby decreasing the potential for listeriosis to develop.¹³

Listeriosis can be treated with antibiotics, but early diagnosis is critical to success.

Toxoplasmosis

Toxoplasmosis is a common infection found in birds, animals and people. Cats infected with the parasite pass it on through their feces. The infection can be passed to humans by changing an infected cat litter box, digging or gardening in soil where an infected cat has left feces; eating infected meat that has not been fully cooked; or eating food that has touched tables and counters a cat has walked on.

The chance of a pregnant woman getting the infection and passing it on to her baby is low (1 to 10 infants per 10,000 each year in Canada based on US estimates). Most infected newborns have no symptoms at birth; however, without treatment, some infants can develop eye or brain damage that ranges from mild to severe. Birth defects are most likely to develop when a fetus is infected during weeks 10 through 24 of pregnancy. Toxoplasmosis can be treated with antibiotics.

To prevent contact it is best for pregnant women to avoid changing cat litter or to wear gloves when doing so.

—HealthLink BC, 2007.¹⁵

The likelihood of contracting the illness can be reduced by effectively cleaning all food preparation surfaces and equipment; refrigerating or freezing perishable and prepared foods promptly; defrosting food in the refrigerator, microwave or in cold water; and keeping leftovers for a maximum of four days at a temperature of four degrees or below.¹⁴

In 2008, a Canada-wide outbreak of listeriosis occurred, originating in ready-to-eat deli meat produced and distributed by Maple Leaf Foods in Toronto, Ontario. In British Columbia, there were five confirmed cases, four of them involving women, all with underlying medical conditions that weakened their immune systems. Of the five cases, four occurred as a result of patients eating contaminated meat while in hospital.

There were two deaths. The source of the contamination was found inside slicing machines at the Maple Leaf plant. Since the outbreak, processes have been put in place to ensure that Health Canada guidelines for *Listeria* are communicated effectively with service providers, in order to protect vulnerable individuals and to improve inspections of processing plants.¹⁶

To supplement these measures, the Ministry of Health has developed and launched a free, self-guided online course, *Caring About Food Safety*, on the safe preparation and handling of food to prevent the spread of foodborne illness.^b The course is designed for individuals who serve food to people beyond their immediate friends and family (such as operators of child day cares or small, residential care facilities), whose clients are more susceptible to foodborne illness, and for whom food safety training is not required.

Antibacterial Products

To protect against the spread of bacteria, many consumers choose antibacterial soaps. Triclosan, originally developed as a pesticide,¹⁷ has been used as an antimicrobial agent in antibacterial soaps and cleaning products, as well as deodorants, toothpastes, shaving creams and mouthwashes. In March 2006, the Canadian Paediatric Society announced that parents should stop buying antibacterial products and switch to using soap and water or alcohol rubs to wash toys, hands or household



items. Research conducted by University of Victoria molecular biologist Caren Helbing determined that triclosan has the potential to impair thyroid gland function. The thyroid plays a role in development, body temperature and metabolism.^{18,19}

In 2009, the Canadian Medical Association followed up the Canadian Paediatric Society's warning, calling on the federal government to ban all antibacterial household products due to a growing body of research showing that they can cause bacterial resistance to antibiotics. Triclosan also reacts with chlorine in drinking water to form chloroform, which is a carcinogen, and with light, to form poisonous dioxins. Researchers have also found that the majority of women now have traces of triclosan in their breast milk.²⁰

Drinking Water Quality

Access to clean, safe, reliable drinking water is essential to protect the health of the public, particularly pregnant women, infants and those with compromised immune systems. There are more than 4,500 public drinking water systems in the province, the majority serving very small communities. However, the majority of BC residents live in a small number of larger urban centres, served by water suppliers staffed by professional engineers and certified operators well-qualified to provide the public with the highest quality water possible. When water quality concerns do arise, these suppliers have processes in place to notify consumers and correct any problems. Small communities that are dependent on wells can face challenges to water supply and quality, including inadequate treatment; attracting and retaining certified operators; timely access to laboratory services for water sample testing; and lack of funding for infrastructure upgrades.²²

To better protect the health of the public, the Drinking Water Protection Regulation was revised in 2005 to improve enforcement by clarifying responsibilities for disinfection of water supplies, and by requiring testing of water samples for both *E.coli* and total

^b *Caring About Food Safety* can be accessed at: <http://www.health.gov.bc.ca/protect/food-safety-courses.html>.

coliforms. Three new laboratories have been approved to test the bacteriological quality of drinking water, in order to expand coverage in underserved areas of the province. No outbreaks of waterborne disease were reported in the most recent reporting period, but water suppliers did issue water quality advisories and boil water notices in approximately 10 per cent of communities in the same time period. These notices mainly involved small systems, which in total serve an estimated 1 per cent of the province's population. One large precautionary advisory was issued in Metro Vancouver in November 2006 due to very high turbidity; however, there was no increased illness observed and no evidence of increased pathogen numbers in the source water.²²

Nitrates

Nitrates are present in both agricultural and industrial run-off and can find their way into shallow groundwater in rural and agricultural regions. Three heavily used and highly vulnerable aquifers in the Fraser Health region have elevated nitrate levels: Hopington Aquifer in Langley, Brookwood Aquifer in Langley/Surrey, and the Abbotsford-Sumas Aquifer in Abbotsford. The main sources of nitrate contamination include the over-fertilization of crops, manure piles left uncovered in the winter and, to some extent, failing septic systems.²³ In some parts of the Fraser Valley, nutrients from manure, combined with inorganic fertilizer use, exceed the capacity of local lands to assimilate the available nutrients. About 30 per cent of farms were either in the high or very high environmental risk class for residual nitrogen, with heaviest concentrations in West Delta, South and West Matsqui, and West Sumas. Eighty per cent of all fields were in the high to very high environmental risk class for phosphorous, which represents an immediate risk due to surface runoff.²⁴

Infants exposed to elevated nitrate levels in drinking water have an increased risk of developing methemoglobinemia, or blue baby syndrome, which develops when the

immature infant stomach converts nitrates to nitrites. Nitrites reduce the ability of the baby's blood to carry oxygen. The greatest risk is to infants under the age of four months. In areas where agriculture is present or there is reason to suspect nitrate contamination, well water should be tested for nitrate levels, which can vary according to the season. If the water is contaminated, an alternate water source needs to be used. Precautions should be taken if there is risk of nitrate contamination: one should never boil water with elevated nitrate levels for drinking or mixing formula, as boiling the water will concentrate the nitrates. Infants who are formula-fed face increased risk of this contaminant as their food is mixed with contaminated water, while those who are breastfed receive the immune system support provided by breast milk and are less vulnerable to the nitrates in the water.

Chlorine Disinfection By-products

One aspect of water treatment that can impact pregnant women is chlorine disinfection by-products. Chlorine disinfection of drinking water has dramatically reduced diseases caused by bacterial contamination. However, chlorine can combine with organic material in the water (usually decomposing leaves) to form organic chlorinated compounds, which have been linked to bladder, rectal and colon cancers.²¹ Recent research suggests that there may be reproductive effects from exposure to high levels of bromodichloromethane (BDCM). However, BDCM is not a health concern in British Columbia, because bromine is rarely found in water sources in the province.²²

Actions being taken to improve and protect groundwater aquifers include the following:

- The BC Agricultural Research and Development Corporation and BC Ministry of Agriculture have prepared an updated Nutrient Management Reference Guide as part of the Environmental Farm Plan process;
- The Sustainable Poultry Farming Group is coordinating the removal of excess manure from poultry farms to farms in other locations;
- The Aquifer Stakeholders group is coordinating a community education program on groundwater protection;
- Langley Township is developing a local water management strategy and BC's first Water Management Plan to deal with groundwater quantity and quality issues; and
- The BC Ministry of Environment and Environment Canada have set up a network to monitor wells, and publish monthly nitrate values from the three vulnerable aquifers in the Fraser Health region.

Since these initiatives began, overall nitrate values have levelled off, just above the acceptable 10 mg/L maximum acceptable concentration (MAC).²³

Cosmetic Pesticide Use

Cosmetic use of pesticides refers to use for non-essential or aesthetic reasons, such as improving the appearance of lawns and gardens or to control pests. Pesticides, if used or stored inappropriately, can pose a particular hazard to fetuses, babies and children because their immune systems are still developing and because children tend to play on the floor or lawn and put their fingers or other objects in their mouths.²⁵

Pesticides are rigorously assessed and regulated in Canada through a program of pre-market scientific evaluation, enforcement and public awareness education. The federal Pesticide Management Regulatory Agency

is responsible for conducting a science-based risk evaluation of all pesticides to determine whether to approve their use by industry, agriculture and the general public and to determine how they should be used. While the federal government is the lead jurisdiction, provincial/territorial and municipal governments also have a role to play in pesticide management through various acts, regulations, guidelines and bylaws.

Six Canadian provinces have passed regulations on the cosmetic use of pesticides. In British Columbia, 33 communities have passed bylaws to ban the cosmetic use of pesticides. The Union of British Columbia Municipalities has also passed a resolution supporting a province-wide ban on the sale and use of cosmetic pesticides, as banning their use at a municipal level appears to have little effect on pesticide sales.²⁶ In response to a commitment made in the 2009 BC Government Throne Speech, the BC Ministry of Environment conducted an online public consultation on the cosmetic use of pesticides. As of March 2011, the ministry had reviewed the comments and were looking at ways to address non-essential pesticide use in BC.²⁷

Indoor Air Quality

Canadians spend an average of 90 per cent of their time indoors, so maintaining indoor air quality is very important for health and well-being. People exposed to poor indoor air quality can experience headaches; fatigue and shortness of breath; worsening allergy and asthma symptoms; sinus congestion; eye, nose, throat and skin irritation; coughing and sneezing; dizziness; and nausea. Most at risk are those suffering from allergies, asthma or lung diseases; people with suppressed immune systems; and children.

Both sex- and gender-based issues have an impact on susceptibility to respiratory diseases. For example, estrogen, through its influence on the metabolism of cigarette smoke, enhances the damaging effects of smoking and environmental tobacco smoke, and monthly changes in hormone levels can

exacerbate asthma symptoms. Women also have smaller lungs compared to men and experience greater declines in lung function associated with respiratory disease with lower levels of smoke exposure. Gender-related issues that impact women's susceptibility to respiratory diseases include women's often lower socio-economic status than men and its associated stresses, plus the aggressive targeting of women by tobacco companies. Please see Chapter 7 for a discussion of women's asthma and chronic obstructive pulmonary disease (COPD) prevalence and mortality.

Major sources of indoor air pollutants include biological contaminants, which originate from living things in or outside the home, including mold, pet dander, dust and pollen. Other indoor pollutants include combustion by-products, which are gases and tiny particles produced by the incomplete burning of fuels and from tobacco smoke. Chemicals in indoor air include volatile organic compounds, such as formaldehyde, found in certain building materials (e.g., plywood and particleboard), in furnishings, and in personal care and household cleaning products; asbestos fibres, which are often found in old flooring or insulation; and radon, a naturally occurring radioactive gas released during the natural decay of uranium. High levels of radon have been found in certain parts of northern and interior BC. Poor air quality can also occur in tightly sealed buildings where too much of the air is re-circulated. To improve indoor air quality it is necessary to control the source, improve ventilation of humidity-prone areas and clean the air with mechanical filters. Use of a high-efficiency vacuum with a HEPA filter is effective in removing contaminants that can be re-suspended into the air during vacuuming.²⁸

Environmental Tobacco Smoke

A major source of indoor air pollution is environmental tobacco smoke (ETS)—also known as second-hand smoke—a poisonous mix of the smoke from the burning end of a lit cigarette, pipe or cigar and the smoke exhaled by the person smoking. Breathing ETS can be more dangerous than inhaling

smoke through a cigarette because it has twice the nicotine and tar as the smoke that the smoker inhales and five times more carbon monoxide. People who do not smoke but live with someone who does and who are exposed to tobacco smoke on a regular basis have a 30 per cent increased risk of developing lung cancer and heart disease.

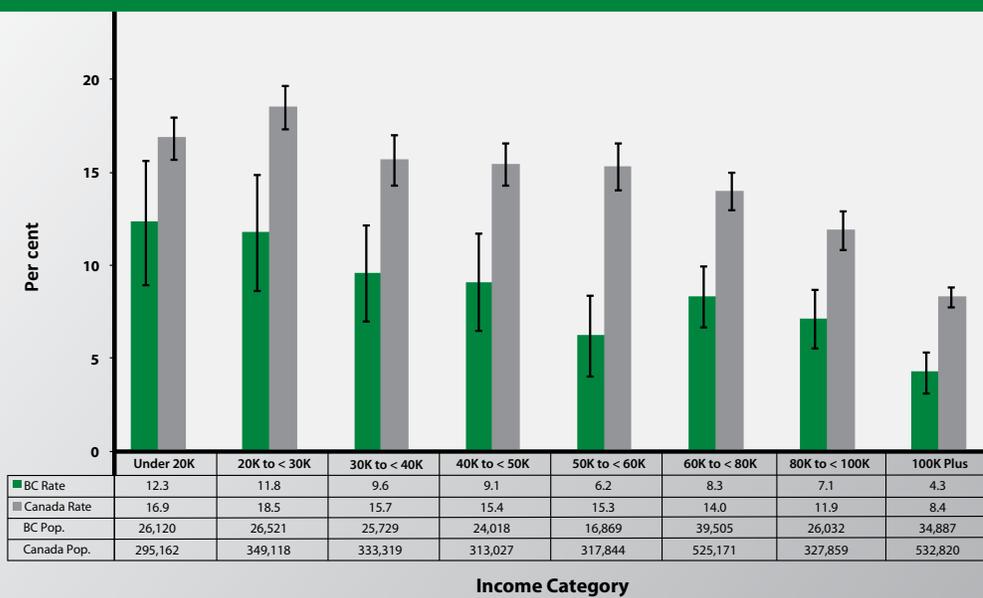
Pregnant women regularly exposed to ETS can have a greater risk of miscarriages and low birth weight babies. Children are at higher risk of getting sick because their lungs are still developing and are more easily damaged by ETS. Infants who breathe ETS have a greater chance of getting bronchitis, pneumonia, or ear infections and of dying from sudden infant death syndrome. In addition, studies have shown that children regularly exposed to ETS score lower on tests in reading, math, logic and reasoning skills.²⁹

“ The highest levels of Environmental Tobacco Smoke exposure in both BC and Canada occur in the lowest socio-economic groups. ”



Figure 6.1

Exposure to Environmental Tobacco Smoke Inside the Home, by Household Income, BC and Canada, 2007/2008



Note: Based on someone smoking in the home of the respondent, every day or almost every day, including both household members and regular visitors. Excludes non-responses. Data for the 50K to under 60K income category for BC should be interpreted with caution due to high variability. The population estimates represent the number of people who are experiencing environmental tobacco smoke within an income category.

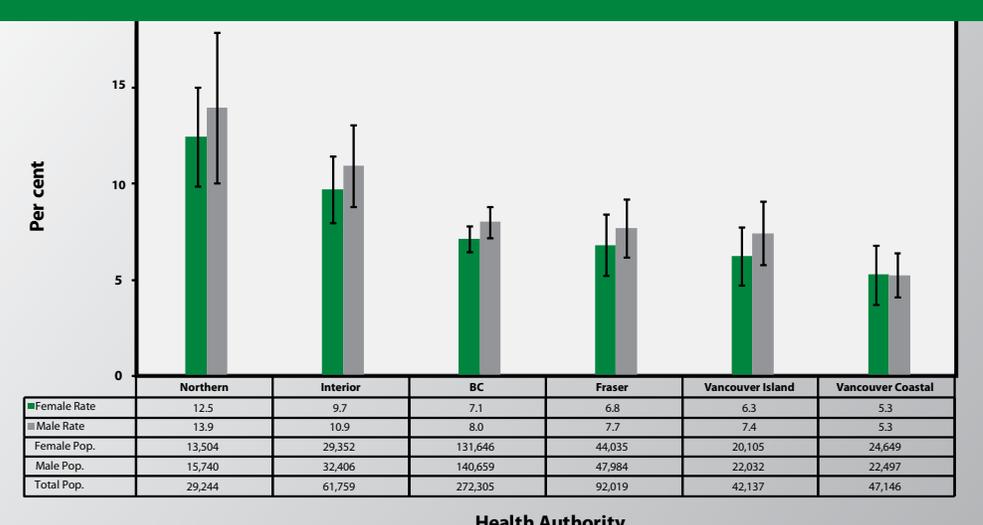
Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008 (full sample); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Figure 6.1 shows that the highest levels of ETS exposure in both BC and Canada occur in the lowest socio-economic groups. The highest rate of reported exposure in BC is in households

earning less than \$20,000 a year, at 12.3 per cent, and the rate declines as socio-economic status improves, to a low of 4.3 percent in households earning more than \$100,000.

Figure 6.2

Exposure to Environmental Tobacco Smoke Inside the Home, by Sex and Health Authority, BC, 2007/2008



Note: Based on someone smoking in the home of the respondent, every day or almost every day, including both household members and regular visitors. Excludes non-responses.

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008 (full sample); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

The Canadian Lung Association has produced a useful guide to common indoor environmental problems that may affect indoor air quality. The Healthy Home Audit provides helpful advice for creating a healthier living space. It can be accessed at: http://www.lung.ca/_resources/healthy_home_audit.pdf.

Survey data from 2007/2008 also show that the ETS exposure rate is lower for females than males, with a provincial rate of 7.1 per cent for females and 8.0 per cent for males (Figure 6.2). While there was not a significant difference in the rate of reported ETS exposure between the genders, the rate varies considerably across the health authorities, with the highest levels reported in Northern Health Authority: 12.5 per cent for females and 13.9 per cent for males. Vancouver Coastal Health Authority boasts the lowest reported rates of ETS exposure, with a rate of 5.3 per cent for both sexes.

The 2008 McCreary Centre Society's Adolescent Health Survey shows that 72 per cent of females in grades 7 to 12 reported never experiencing second-hand smoke, a rate almost identical to that of males. The only statistically significant difference

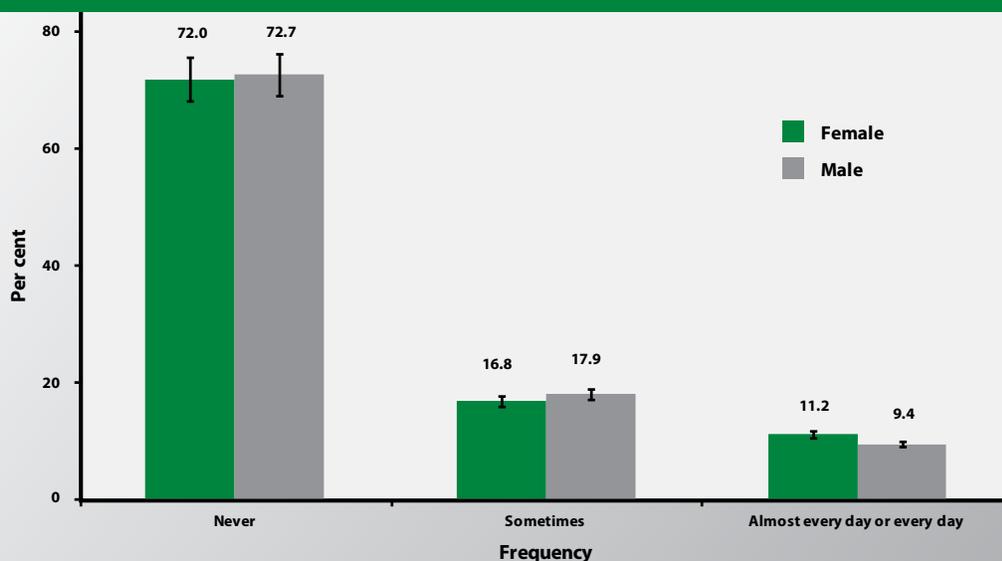
between males and females was found in the rate of students experiencing second-hand smoke every day or almost every day: 11.2 per cent of females compared to 9.4 per cent of males surveyed (Figure 6.3).

Household and Personal Care Products

Scented products enter the body through the skin and lungs and can be found in most personal care and cleaning products, air fresheners and candles. Women often have higher levels of exposure to these products as they consistently do more of the household cleaning chores and more often use perfume and scented personal care products. A typical fragrance may contain anywhere from 100 to 350 ingredients, a mixture of natural and manufactured chemicals. Chemicals used to add scents to products can cause serious health problems for some people, especially those with asthma or COPD.

Figure 6.3

Frequency of Experiencing Second-hand Smoke, Public School Students, Grades 7 to 12, by Sex, BC, 2008



Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Scented products can contain toxic chemicals that release continually into the air, attaching themselves to hair, clothing and furniture. Frequently used ingredients include chemicals made from benzene, aldehydes and many other known toxins and sensitizers. Diethyl phthalate, commonly used to make scents last longer, can cause allergic skin reactions and is classified as a skin sensitizer and reproductive toxin.³⁰ According to Health Canada labelling requirements, the term “unscented” does not necessarily mean fragrance-free, as these products may contain a masking agent used to cover up the smell of certain ingredients.³¹ Scent-free building policies can help reduce exposure to chemicals in the workplace.

Breast cancer linked to air pollution in Montreal study

According to a study by researchers at McGill University and the University of Montreal, women living in areas of heavier air pollution may be at higher risk for breast cancer. Incidences of breast cancer were charted and compared with pollution maps. The team reported that “women living in the areas with the highest levels of pollution were almost twice as likely to develop breast cancer as those living in the least polluted areas”—this, in a city that by international standards is relatively unpolluted. There may be other variables unaccounted for, as levels of air pollution exposure in early life were not determined.^{32,33}

Outdoor Air Quality

The Burden of Air Pollution on the Health Care System

The effects on human health from short-term exposure (hours or days) to air pollution include increased symptoms such as sneezing, coughing, excess phlegm production, lung infections and decreased lung function. Health system impacts include increased hospital admissions due to heart and lung conditions; increased emergency room visits, and work and school absenteeism; and increased use of medications. Long-term exposure (months and years) is associated with increased deaths due to heart and lung conditions, permanently damaged lung function, an increased number of people with lung cancer, and increased premature births and low birth weight babies.³⁴ Women have different physiological responses and are more sensitive to air pollutants, leading to heightened rates of asthma and COPD, which will be discussed further in Chapter 7.

The burden of air pollution is determined based on both measurements and estimates of exposure as well as on equations that relate exposure levels to health effects. The



2003 Provincial Health Officer's Annual Report³⁵ provided a series of estimates of annual mortality ranging from 25 to 644 air pollution-related deaths. Mid-range estimates included 712 hospital admissions and 994 emergency department visits per year for BC as a whole.

A 2008 Canadian Medical Association estimate for BC projected 306 premature deaths (of which 85 per cent relate to long-term and 15 per cent to short-term exposure); 1,158 hospital admissions; 8,763 emergency department visits; and 2,526,900 minor illnesses related to air pollution.³⁶

The Border Air Quality Study

The Border Air Quality Study examined the impact of air quality on the health of residents of the Georgia Basin-Puget Sound Airshed. The Airshed includes Vancouver, Victoria, the Sunshine Coast and Fraser Valley, as well as Seattle and the Puget Sound. The study found evidence of a link between air pollution and a number of health issues, some of which had not been well documented previously. It showed that childhood lung development is affected by exposure to air pollutants, especially those caused by traffic. As well, it showed that

For further information on air quality in British Columbia please see the following links:

<http://www.bcairquality.ca/readings/indexes-advisories.html>

<http://www.bcairquality.ca/assessment/air-quality-monitoring.html>

exposure could result in more low birth weight and premature births, and premature and low birth weight babies tend to have a higher risk of ill-health throughout their lives. The study developed tools to help air quality managers identify where high levels of pollution exist that might impact at-risk populations.

The study is also the first in North America to explore the relationship between air pollution and middle-ear infections. Middle-ear infection, or otitis media, is the number one reason for children under two years of age to visit a doctor and receive antibiotics. The study confirmed findings from Europe indicating that traffic-related air pollution is an additional risk factor for this disease, and also found a link with exposure to wood smoke.

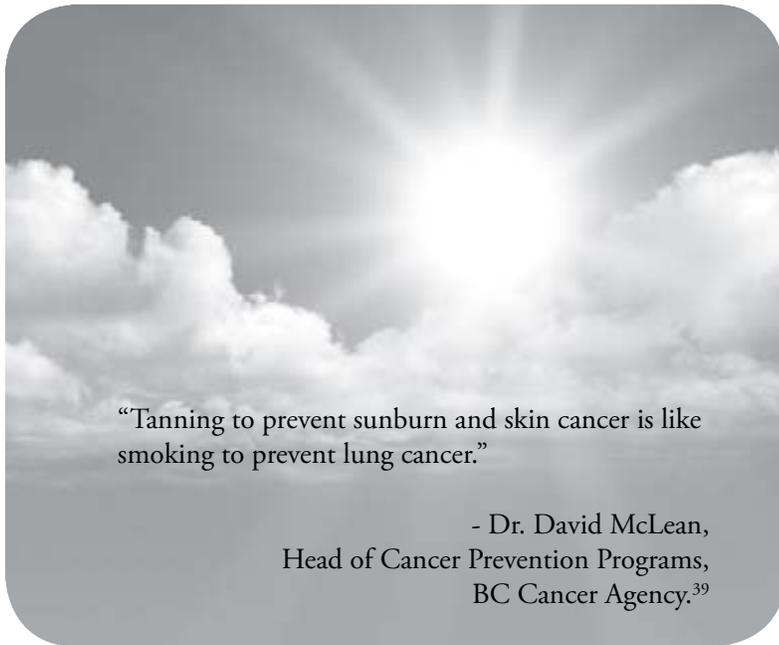
Figure 6.4 shows that the incidence rates of otitis media in children under one year of

Figure
6.4

Incidence of Otitis Media, Children Under 1 Year of Age, BC,
1996/1997 to 2006/2007



Source: Ministry of Health, MSP Claims database (ICD9: 381-382); prepared by the Office of the Provincial Health Officer, Ministry of Health Services, 2010.



“Tanning to prevent sunburn and skin cancer is like smoking to prevent lung cancer.”

- Dr. David McLean,
Head of Cancer Prevention Programs,
BC Cancer Agency.³⁹

age has dropped by almost 50 per cent, from about 30 per cent in 1996/1997 to 15.2 per cent in 2006/2007.

Asthma is a major reason for hospital stays by children. The air quality study found that early life exposure to air pollution is associated with new cases of asthma, and that the impact of traffic-related pollutants appears to be especially significant.³⁷ For further information on women and asthma please see Chapter 7.

Regular monitoring of air quality is conducted throughout the province by the BC Ministry of Environment, and by Metro Vancouver within the Greater Vancouver area. The Air Quality Health Index is a tool developed to indicate the risk to health from current and near future expected levels of three monitored air pollutants. The BC Ministry of Environment issues Air Quality Advisories when specific air pollutants reach levels of concern and exposure should be minimized. Commonly monitored pollutants include fine particulate matter ($PM_{2.5}$ & PM_{10}), ozone, nitrogen oxide, sulphur dioxide and carbon monoxide. Concentrations of many of these pollutants fluctuate throughout the day and also due to proximity to sources. For example, high pollutant concentrations can be found up to 750 metres from truck routes.³⁴

Ultraviolet Radiation Exposure

Prolonged exposure to ultraviolet (UV) A and B radiation can cause sunburns, premature skin aging, skin cancers, cataracts and other eye and skin diseases. Evidence indicates that 85 per cent or more of all skin cancers are caused by exposure to UV radiation.³⁸ A similar number of males and females are affected. Males most often develop skin cancer on the tops of their head, upper back and torso, while females often develop it on their legs below the knee.³⁹

UV radiation damage accumulates over a lifetime, and childhood UV radiation exposure is known to contribute significantly to the risk of developing skin cancers, including melanoma (the most deadly skin cancer), later in life.⁴⁰ Annually, about 80,000 Canadians are expected to develop skin cancer. One in seven of today's children are expected to develop some form of skin cancer in their lifetime. Women and girls are more often targeted by advertising for tanning salons, increasing their potential for skin cancer later in life.

In 2003 and 2005, the WHO recommended a ban on the use of artificial tanning beds by persons under 18. In July 2009, based upon increasing evidence of significant health risks, the International Agency for Research on Cancer (IARC) also recommended an age restriction on the use of commercial tanning facilities. In its report, IARC reclassified UV tanning beds to the highest cancer risk category group.⁴⁰

The Vancouver Island Health Authority conducted a public awareness campaign on the risks of skin cancer, and in the fall of 2010, the Capital Regional District (CRD) followed up with public consultations on the feasibility of banning tanning beds for youth under the age of 18. The CRD prepared a draft bylaw and reviewed feedback from the consultation to determine whether regulation was the appropriate way to deal with this issue. The bylaw, passed in January 2011, is the first of its kind in Canada.

The Built Environment

Built environments are the human-made surroundings in which people work, live, learn and play. This includes homes, schools, workplaces, parks and playgrounds, industrial and commercial areas, the products they contain, and the infrastructure, including transportation, energy and agricultural systems.⁴¹ Supporting women and girls at an early age to engage in outdoor activities such as walking and bicycling and to use recreational, sport and leisure facilities and parks, lays a solid foundation for their health as adults. Built environments that encourage active lifestyles and social connections for citizens of all ages contribute greatly to healthy communities. Feelings of personal safety and easy physical accessibility are important for women to achieve optimal health and to encourage their pursuit of educational, work and recreational opportunities after dark.

Physical Inactivity

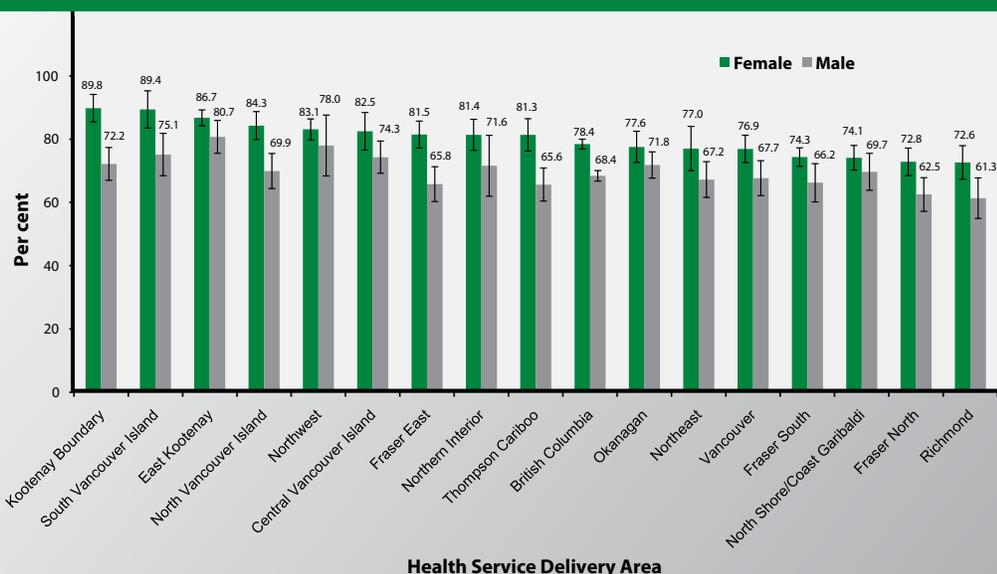
The impact of the built environment can be seen in the fact that over the past 30 years the unintentional outcome of urban planning

and design has been to contribute to an epidemic of obesity, diabetes and asthma in the general population.⁴² Of the factors that contribute to overweight and obesity, physical inactivity is theoretically the easiest behaviour to modify and has become a focus for research on the built environment.⁴³ Walking or bicycling require less specialized equipment or facilities than other vigorous physical activities, and appeal to a wider range of the population. In addition, these activities have a higher chance of being successfully adopted because they can become part of an individual's daily routine, such as walking to work, to school or to buy groceries. A well-designed urban environment can help make walking and cycling the easiest transportation choices.

Figure 6.5 shows the percentage of males and females who walked for exercise in the past three months, by health service delivery area (HSDA). Rates of walking for females were higher than for males in all HSDAs. Aside from South Vancouver Island, where females reported a rate of 89.4 per cent, most predominantly urban HSDAs had lower percentages than the BC average, and ranged from 76.9 per cent of females walking for exercise in Vancouver to 72.6 per

Figure
6.5

Walked for Exercise, Age 12+, by Sex and Health Service Delivery Area, BC, 2007/2008



Note: Includes only leisure-time activities. Excludes non-responses.

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

cent in Richmond. Areas with the highest percentages of women who walked for exercise in the past three months included the Kootenays, the north and central Interior, and all parts of Vancouver Island.

Even in neighbourhoods with lower barriers to activity, most people have regular levels of physical activity that fail to meet the more moderate guidelines for physical activity proposed by the US Surgeon General in 1996 (30 minutes, 5 times per week).^c Rates of physical activity are lower for females than males, and generally lower for minorities, the elderly and those with lower income and education.⁴⁴

Neighbourhood Walkability

There are three environmental factors that impact community walkability: connectivity, density and land-use mix.

- **Connectivity** means how easily a person can travel between two points using existing streets. High-connectivity neighbourhoods have straight streets and more intersections. Less walkable neighbourhoods occur mostly in sprawling, suburban developments with curving street networks.
- **Density** describes land-use characteristics and can be gauged by the number of people, jobs or buildings in a given neighbourhood. Higher densities mean more potential destinations in a set space, reducing travel distances and increasing the possibility of walking to appointments, shopping or work.
- **Land-use mix** refers to the number of different types of land uses, such as offices, homes, restaurants, shops and schools. The greater the land-use mix, the more variety of destinations and the more likely that people will engage in physical activity, because distances are shorter.⁴³

Accessibility and walkability can also be influenced by urban design characteristics, such as the aesthetic appeal and interest of a walking route; size and extensiveness of sidewalks; the number and width of traffic lanes; pavement surfaces; the location of crosswalks; the design of buildings; landscaping and trees; and benches and lighting. Bike lanes and bike carriers on buses expand transportation options and make it easier to engage in physical activity.⁴⁴

Neighbourhood Walkability, Air Quality and Socio-Economic Status

Air quality also notably affects the health benefits of walking and may vary with the socio-economic characteristics of neighbourhoods, especially in larger communities. A study published in 2009 by a team of experts from the University of British Columbia examined the links between neighbourhood design, physical activity and exposure to air pollution in Metro Vancouver.⁴⁴ In the study, neighbourhood walkability levels were matched to concentrations of air pollution and the income levels of residents.

The following is a summary of key findings:

- Residents of the most walkable areas in Metro Vancouver were half as likely to be overweight than those in the least walkable neighbourhoods; however, the most walkable neighbourhoods have the highest nitric oxide pollution, which can cause pulmonary irritation and contribute to respiratory health concerns.



Residents of the most walkable areas in Metro Vancouver were half as likely to be overweight than those in the least walkable neighbourhoods.

^c For information on the Canadian Physical Activity Guidelines please see the following link: <http://www.csep.ca/english/view.asp?x=804>.

- Neighbourhoods with relatively high walkability/low pollution are mostly situated 4–8 kilometres from downtown Vancouver and accounted for 1.7 per cent of the area studied. Over two-thirds (68 per cent) of addresses in these neighbourhoods have the region's highest incomes, and just 3 per cent have the region's lowest incomes. Most neighbourhoods with low walkability/high pollution are found farther from the centre and are mainly middle-income households.
- At-risk populations, including those with lower incomes such as youth, the disabled and the elderly, live in some of the least walkable regions, making it less likely they will engage in physical activity, and embedding socio-economic and demographic disparities in physical activity region-wide.
- Although some researchers have suggested that those naturally inclined to physical activity self-select certain neighbourhoods, the cost of housing in Greater Victoria and the Lower Mainland precludes this self-selection, as many people cannot afford to live in the neighbourhoods they would prefer.

Those who exercise outdoors may face increased air pollution health impacts due to their higher breathing rates. However, a recent Australian study showed that motorists faced higher exposure rates than either walkers or cyclists.⁴⁵

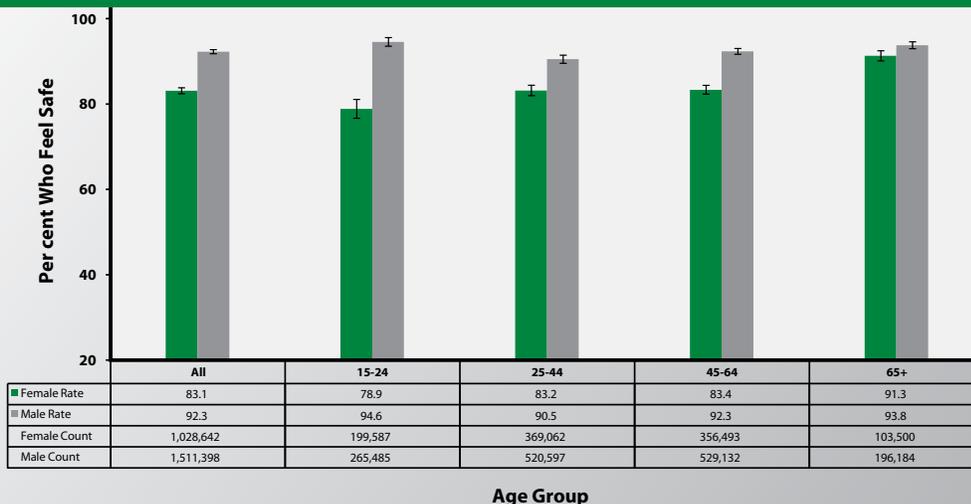
Accessibility and Concern for Personal Safety

While women's and men's health are influenced in similar ways by built environments, there are also significant differences. For women, concerns for personal safety and a fear of crime can impact their transportation decisions and ability to access services and activities, and can affect their physical and mental well-being. Fear of crime and personal injury can be a protective factor, keeping women from experiencing dangerous situations, but it can also be a negative health factor, heightening stress, reducing physical activity outdoors and increasing social isolation.

As shown in Figure 6.6, feelings of safety from crime when walking alone after dark vary by sex and age, with females feeling less safe than males across all ages, but particularly among women age 15–24 (only 78.9 per cent

Figure 6.6

Feelings of Safety from Crime (Walking Alone After Dark), by Sex and Age, BC, 2009

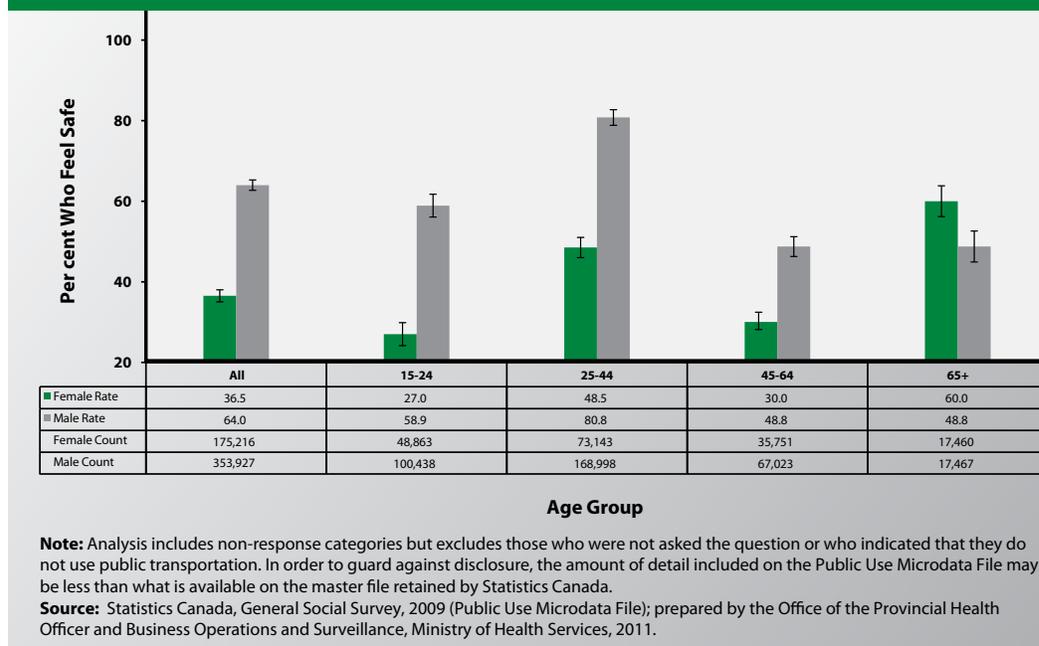


Note: Analysis includes non-response categories but excludes those who indicated that they do not walk alone. In order to guard against disclosure, the amount of detail included on the Public Use Microdata File may be less than what is available on the master file retained by Statistics Canada.

Source: Statistics Canada, General Social Survey, 2009 (Public Use Microdata File); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

Figure
6.7

Feelings of Safety from Crime (Waiting for or Using Public Transportation Alone After Dark), by Sex and Age, BC, 2009



of this age group felt safe compared to 94.6 per cent of males the same age).

Figure 6.7 reveals a greater degree of discrepancy between males and females regarding feelings of safety when waiting for or using public transit alone after dark, with 36.5 per cent of females likely to feel safe compared to 64.0 per cent of males. Feelings of being unsafe discourage transit use and significantly impact the ability of women and girls to access educational, work and recreational opportunities after dark. As was the case with walking alone after dark, the group most likely to feel unsafe was women age 15–24.

One response to reducing crime and the fear of crime in BC is the implementation of the

The Healthy Built Environment Alliance is a province-wide collaboration of health professionals, community planners, land use and design professionals, and representatives from government, health authorities and community organizations. The Alliance actively promotes networking across professions and sectors to share information and expertise on the creation of healthy built environments.

Crime Prevention Through Environmental Design (CPTED) program, which operates in many communities around the province (e.g., Lower Mainland, Victoria, Prince George).⁴⁶ Targets for crime reduction initiatives include:

- Areas offering high concealment or hiding places for perpetrators of crime.
- Areas of low prospect, with limited or no opportunities for surveillance.
- Confined or closed spaces, with few exits or opportunities for potential victims to escape.

Remedies depend on how a site is used by the public and the type of setting, current crime patterns, community attitudes and other characteristics, including area socio-economic profile. An important principle of CPTED programs is to work in conjunction with local capacity-building initiatives that emphasize community engagement. Public awareness and responsibility for crime surveillance and deterrence, including property maintenance and repair, are key to creating environments where people feel safe and where crime cannot become embedded.^{47,48}

Summary of What We Know

- Breastfeeding is a protective factor that strengthens the child's immune system, giving the child protection against pathogens and potentially mediating harm from environmental pollutants. While current levels of chemical residues in breast milk pose little or no health risk, lower levels of exposure to toxic chemicals benefit everyone.
- The risk of mercury contamination is generally low in freshwater fish in BC. Only three lakes in BC have consumption advisories due to mercury: Jack of Clubs, Pinchi and Williston lakes.
- Fish provides many benefits such as protein and low levels of saturated fat. Fish also provides healthy omega-3 fats, which are good for the heart and brain. Omega-3 fats are especially important for the brain and eye development of the fetus, babies and children.
- In 2008, there was a Canada-wide listeriosis outbreak, and British Columbia had five confirmed cases, four of them involving women, all with underlying medical conditions that weakened their immune systems. Of the five cases, four occurred as a result of patients eating contaminated meat while in hospital.
- Recent research into the effects of chlorine disinfection by-products suggests that there may be reproductive effects from exposure to high levels of bromodichloromethane (BDCM). However, BDCM is not a health concern in British Columbia because bromine is rarely found in water sources in the province.
- Actions being taken to improve nitrate levels in Fraser Valley groundwater aquifers include the removal of excess manure; the coordination of a community education program on groundwater protection; the development of a local water management strategy in Langley, and a well monitoring program. Since these initiatives began, overall nitrate values have levelled off, just above the acceptable 10 mg/L maximum acceptable concentration (MAC).
- Survey data from 2007/2008 show that ETS exposure rates are lower for females than males, with a provincial rate of 7.1 per cent for females and 8.0 per cent for males. Regional rates vary, with the highest levels reported in Northern Health Authority: 12.5 per cent for females and 13.9 per cent for males. Vancouver Coastal Health Authority boasts the lowest reported rates of ETS exposure, with a rate of 5.3 per cent for both sexes.
- In January 2011, the Capital Regional District passed a bylaw banning the use of tanning beds by youth under the age of 18. This bylaw is the first of its kind in Canada.
- A 2008 Canadian Medical Association estimate of the burden of air pollution for BC projected 306 premature deaths (of which 85 per cent relate to long-term and 15 per cent to short-term exposure); 1,158 hospital admissions; 8,763 emergency department visits; and 2,526,900 minor illnesses related to air pollution.
- Rates of walking for exercise for females were higher than for males in all health service delivery areas (HSDAs). Aside from South Vancouver Island, most predominantly urban HSDAs had lower percentages than the BC average, and ranged from 76.9 per cent of females walking for exercise in Vancouver to 72.6 per cent in Richmond. Areas with the highest percentages of females who walked for exercise included the Kootenays, the north and central Interior, and all parts of Vancouver Island.
- Residents of the most walkable areas in Metro Vancouver were half as likely to be overweight than those in the least walkable neighbourhoods. The most walkable neighbourhoods have high nitric oxide pollution, which can contribute to respiratory health concerns; however, recent research has shown that motorists face higher exposure rates than walkers or cyclists.

- Neighbourhoods with relatively high walkability/low pollution are mostly situated 4–8 kilometres from downtown Vancouver. Over two-thirds (68 per cent) of addresses in these neighbourhoods have the region's highest incomes, and just 3 per cent have the region's lowest incomes.
- At-risk populations, including those with lower incomes such as youth, the disabled and the elderly, live in some of the least walkable regions, making it less likely they will engage in physical activity, and embedding socio-economic and demographic disparities in physical activity region-wide.
- Feelings of safety from crime when walking alone after dark vary by sex and age, with females feeling less safe than men across all age groups, but particularly among women aged 15–24 (only 78.9 per cent of this age group felt safe compared to 94.6 per cent of males the same age).
- Females are much less likely than men to feel safe when waiting for public transit alone after dark. Feelings of being unsafe discourage transit use and significantly impact the ability of women and girls to access educational, work and recreational opportunities after dark.
- Crime Prevention Through Environmental Design (CPTED) programs operate in many communities around the province (e.g., Lower Mainland, Victoria, Prince George) and help to reduce crime by targeting areas of high concealment for perpetrators of crime, areas with limited or no opportunities for surveillance, and confined spaces that offer limited possibility for potential victims to escape.

Chapter 7

Chronic Disease and Injury

This chapter provides data and analysis on select chronic diseases, falls and injury, and the major causes of death for women. Individuals cannot always control the factors that determine their health. Individual-level health behaviours are profoundly influenced by socio-economic status, education, family and social network, and gender roles, and these factors are generally outside an individual's control.¹ This is not to say that personal choice does not play a role in the development of chronic disease, but that these choices are strongly influenced by one's social context.²

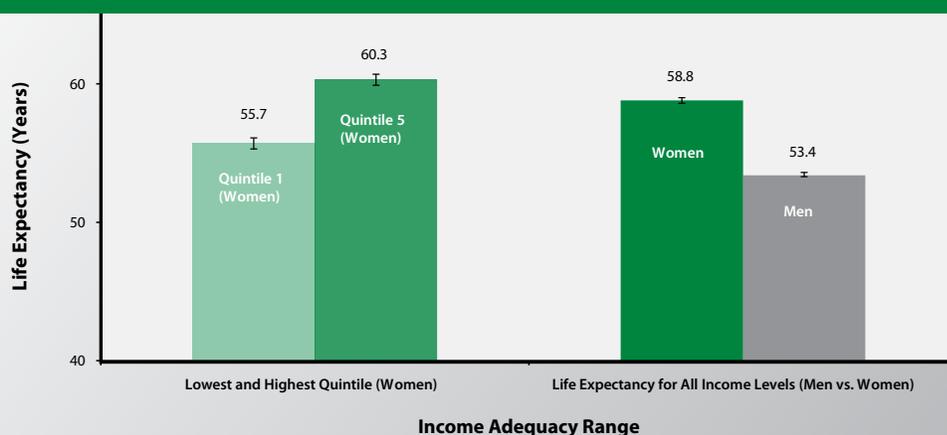
Physiology and genetics, lifestyle, socio-economic factors, and gender all interact to

impact women's vulnerability to developing chronic conditions. As mentioned in Chapter 2 and reported in a recent worldwide study, a key contributing factor to chronic disease is the dramatic increase in rates of overweight and obesity that have occurred worldwide, including Canada and British Columbia.³ Individuals with a body mass index of 25 or greater generally have a higher risk of metabolic syndrome, diabetes, coronary heart disease, stroke, cancer, gallbladder disease, arthritis and other health problems.

Figure 7.1 shows the impact of socio-economic status on life expectancy. There is a statistically significant difference in life

Figure 7.1

Life Expectancy at Age 25, Non-institutionalized Population, by Sex and Income Adequacy Quintile, BC, 1991-2001



Note: The total pre-tax, post-transfer income from all sources was pooled across all family members, for each economic family or unattached individual, and the ratio of total income to the Statistics Canada low-income cut-off (LICO) for the applicable family size and community size group was calculated. All members of a given family were assigned the same LICO ratio, which was calculated for all non-institutionalized persons (the in-scope population), including people living on Indian reserves. The non-institutional population was then ranked according to the LICO ratio. Quintiles of population were constructed within each CMA/CA or rural and small-town area, and then pooled across areas. The purpose of constructing the quintiles within each area was to take into account the regional differences in housing costs, which are not reflected in the LICOs, and to permit comparisons across areas to be based on comparable proportions of population in each quintile. For more details on the methods and materials, see Wilkins R, Tjepkema M, Mustard CM, Choinière R. The Canadian census mortality follow-up study, 1991 through 2001. Health Reports 2008;19(3):25-43. **Source:** Special tabulations from the 1991-2001 Canadian census mortality follow-up study, by the Health Analysis Division, Statistics Canada, Ottawa, May 2011; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

expectancy at age 25 of 4.6 years between the richest and poorest quintile of women in British Columbia. This gap is almost as large as the statistically significant difference between the life expectancy of women and men (5.4 years).

Lower socio-economic status is linked to higher rates of sickness and death, and women more often experience health problems due to poverty than do men.⁴ Lower socio-economic status can also lead to an increased tendency for individuals to see many life events as negative and uncontrollable, which impacts the likelihood of seeking help and support.⁵ As noted in Chapter 3, women are more likely than men to live on a low income, due to part-time or lower-paying jobs, as well as interruptions in earning power due to pregnancy and family caregiving.⁶ Lower paying and minimum wage jobs are less likely to include employment benefits such as additional health insurance coverage, which can reduce the likelihood that the individual will deal with health issues, as the costs must be born personally. Also, as reported previously, women still do most of the household chores as well as provide

the majority of child and elder care, which leaves little time for their own health concerns and prevention activities.

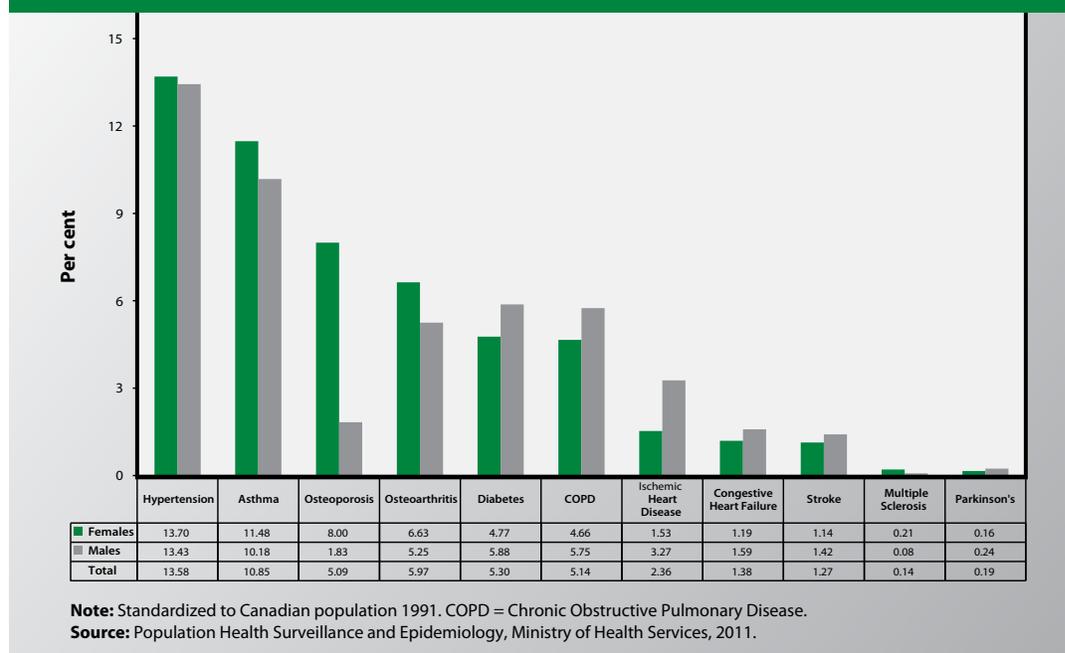
Analysis of Chronic Conditions

This section presents an overview of chronic illness among BC women. Eleven key chronic conditions are profiled in this report: hypertension, asthma, osteoporosis, osteoarthritis, diabetes, chronic obstructive pulmonary disease (COPD), ischemic heart disease, congestive heart failure, stroke, multiple sclerosis and Parkinson's disease.^a Not only are women directly impacted by the effects of chronic illness, but they also frequently fill caregiving roles for spouses or family members who are dealing with chronic illness. As women live longer, the duration of their own chronic illness, as well as the length of time they devote to caregiving, increases. For these reasons, the changes in rates of chronic disease among both women and men can affect women in multiple ways.

Figure 7.2 compares prevalence rates among the top 11 chronic conditions. For the four conditions with the highest overall prevalence

Figure 7.2

Age-Standardized Prevalence Rate for Select Chronic Conditions, by Sex, BC, 2008/2009



^a The complete source document on chronic conditions is available at <http://www.health.gov.bc.ca/pho/reports/>.

rates (hypertension, asthma, osteoporosis, and osteoarthritis), rates were significantly higher for women. The most commonly experienced chronic condition among both men and women was hypertension, with rates of 13.7 per cent for women and 13.4 per cent for men in 2008/2009. The high rates are particularly relevant, considering the high rates of specific co-morbidities that often present alongside hypertension, including heart disease, kidney disease, diabetes and stroke. The age-standardized prevalence rate for asthma was also considerably higher for women at 11.5 per cent. Osteoporosis was also more prevalent among women in older age groups. Overall, women were over four times as likely to be diagnosed with osteoporosis, with an age-standardized prevalence rate for women at 8.0 per cent, compared to 1.8 per cent for men. Osteoarthritis rounded out the top four prevalent conditions with an age-standardized rate of 6.6 per cent among women, again primarily in the older age groups.

Hypertension

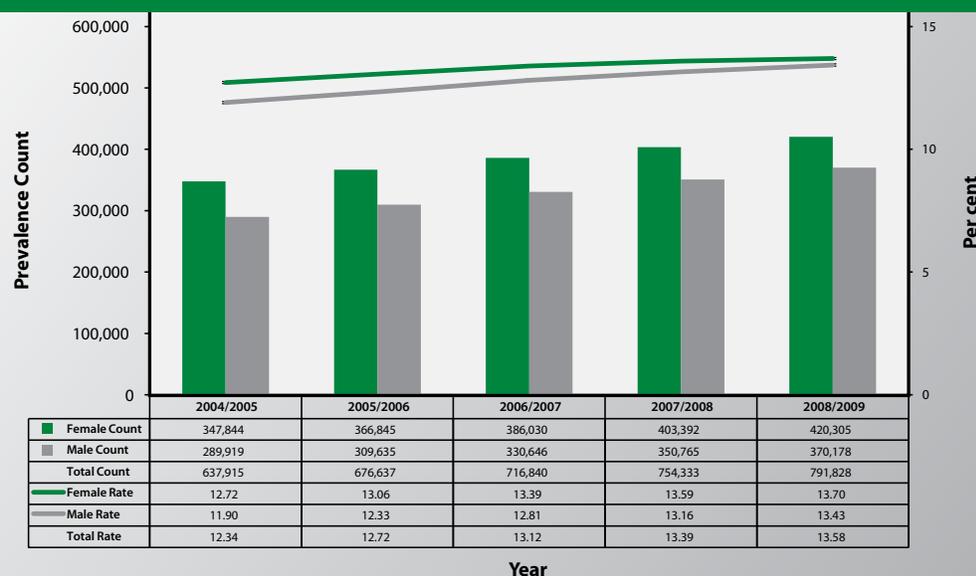
High blood pressure, or hypertension, is blood pressure that is consistently more than 140/90 mmHg. Hypertension generally has

no symptoms and can only be diagnosed by measuring one's blood pressure.⁷ Left untreated, hypertension increases a person's risk of stroke, heart attack, dementia, heart and kidney failure and other chronic diseases.⁷ Hypertension and diabetes often co-exist, along with other cardiovascular risk factors such as obesity and high levels of fats in the blood. The likelihood of developing hypertension can be reduced by engaging in regular physical activity, maintaining a healthy weight by eating a nutritious diet low in sodium, fat and simple sugars, and with sufficient fresh fruits and vegetables; managing stress; and limiting alcohol consumption.⁸ Inadequate control of high blood pressure continues to be the most important, and potentially treatable, cause of cardiovascular disease and stroke in women.⁹

Within British Columbia between 2004/2005 and 2008/2009, age-standardized prevalence rates for hypertension showed a steady increase for both women and men (Figure 7.3). For each of those years, prevalence was higher among women; however, the gap between women and men appears to be narrowing. In 2008/2009, the age-standardized prevalence rate was 13.7 per cent for women, compared to 13.4 per cent

Figure
7.3

Hypertension, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2004/2005 to 2008/2009



Note: Standardized to Canadian population 1991. Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

for men. This equates to 420,305 women and 370,178 men with hypertension in BC. In the past five years, the difference in the number of prevalent cases between women and men decreased from 57,925 more cases among women in 2004/2005 to 50,127 more cases in 2008/2009.

In 2008/2009, there were a total of 26,766 women newly diagnosed with hypertension, compared to 29,530 men. Among both women and men living with hypertension, hospitalization rates were highest for diabetes. Women with hypertension were 32 times more likely to be hospitalized with renal failure compared to women without the condition.



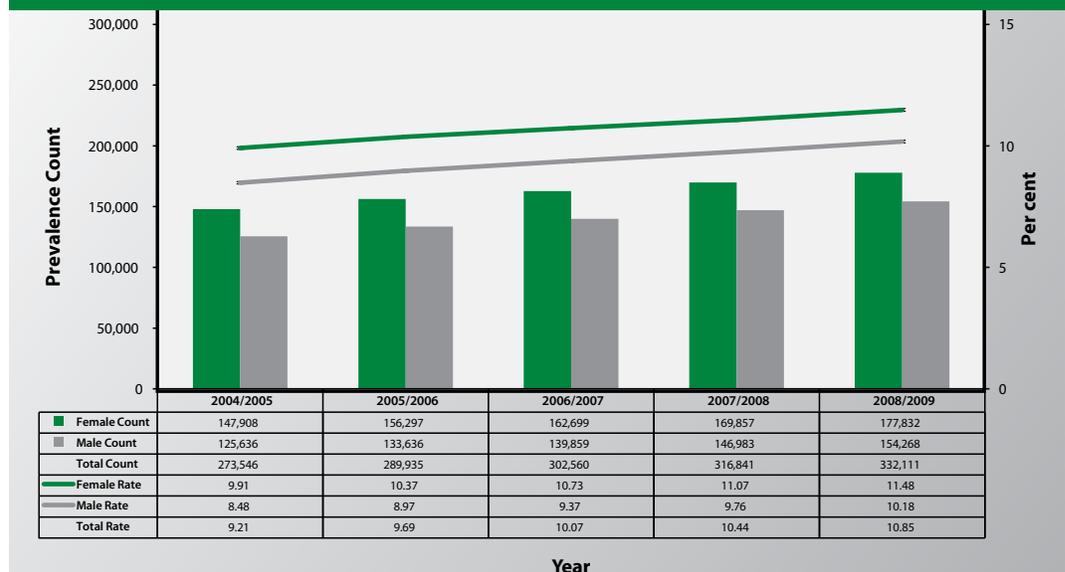
Asthma

Asthma is a chronic condition resulting from inflammation in the airways in the lungs. The most common symptoms of asthma include shortness of breath, coughing and wheezing.¹⁰ Since 1994/1995, the prevalence of physician-diagnosed asthma has been consistently higher among young boys than girls; however, among adults, more women have asthma than men.¹⁰ Results from the 2003 Canadian Community Health Survey

show that the prevalence of asthma in individuals over the age of 12 in BC (7.3 per cent) is statistically lower than the Canadian average (8.3 per cent).¹¹ Research in Canada has shown a high body mass index is a significant predictor of asthma incidence in women but not in men.

Figure 7.4

Asthma, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2004/2005 to 2008/2009



Note: Standardized to Canadian population 1991. Based on population aged 5 to 54 years only. Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.
Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

For women, biologically based risks include smaller lung capacity compared to men and consequent greater loss of lung function due to respiratory disease. Cyclical changes in hormones also cause changes in airway hyper-responsiveness, exacerbating symptoms of respiratory diseases such as asthma.

Estrogen increases the damaging effects of smoking and second-hand smoke exposure through its influence on the metabolism of cigarette smoke. Women also experience a greater decline in lung function with lower levels of smoke exposure.¹²

For this analysis, asthma rates and counts are based only on individuals between 5 and 54 years of age. The age-standardized prevalence rate^b was higher for women compared to men and there has been a steady increase in prevalence over the past five years, with the rate for women rising from 9.9 per cent in 2004/2005 to 11.5 per cent in 2008/2009 (Figure 7.4). There has been a comparable increase in prevalence among men, from 8.5 per cent in 2004/2005 to 10.2 per cent in 2008/2009. By 2008/2009, there were a total of 177,832 women living in British Columbia who had received a previous diagnosis of asthma, compared to 154,268 men.

Age-specific prevalence rates for 2008/2009 show interesting differences by sex. The prevalence rate was higher for males than females between the ages of 5 and 19 years; however, after the age of 20 this pattern is reversed, with the gap in prevalence rates between men and women increasing with each subsequent age group.

Osteoporosis

Osteoporosis is a skeletal disorder characterized by low bone density, which contributes to an increased risk of fracture.¹³ Because of the seriousness of fractures that can result from thin or brittle bones caused by osteoporosis, the condition is associated with increased levels of chronic

pain, disability, mortality, and health care utilization and costs.¹⁴ However, the primary cause of disability and premature mortality is associated with the increased likelihood of a significant fracture, such as a fracture of the spine or hip, than with osteoporosis itself—and fractures are largely preventable.¹³ New clinical practice guidelines were released in 2010 that focus on preventing fragility fractures and their negative consequences, rather than on treating low bone mineral density, which is now considered only one of several risk factors for fracture.¹⁴

Osteoporosis affects women more than men. According to the Canadian Community Health Survey, 1.5 million Canadians aged 40 or older reported a diagnosis of osteoporosis, and women were four times more likely to report the condition than men.¹³ Women's increased risk of developing osteoporosis is, in part, due to the rapid decline in bone mass associated with hormonal changes during menopause; the hormonal effects mean that women generally lose more bone density than men as they age.¹⁵ The risk of osteoporosis also increases with age. Other risk factors include heavy alcohol consumption, cigarette smoking and having a low body weight. Prolonged use of certain medications that are known to deplete bone density has also been associated with osteoporosis.¹³ A bone density test can indicate whether someone has osteoporosis or is likely to develop the condition in the future. Fewer than half of Canadians over the age of 65 reported having had a bone density test, so osteoporosis may be going undiagnosed in the population.¹³

To help prevent osteoporosis, doctors encourage the use of calcium and vitamin D supplements, as well as regular exercise. Bone density screening forms part of secondary prevention efforts to reduce the impact of the disease. Papaioannou et al.¹⁴ report that despite the fact that the incidence of a first fracture is a significant predictor of future fractures, less than 20 per cent of women and

^b Interpreting prevalence rates for asthma is complicated by the fact that asthma can be chronic and/or episodic. Individuals diagnosed as a result of one or more acute episodes of asthma will be considered a prevalent case. A prior bout of asthma may make them more susceptible to future occurrences.

10 per cent of men who have experienced a fracture receive therapies designed to prevent a future occurrence.

Among British Columbia women over 50 years of age, the age-standardized prevalence rate for osteoporosis has been steadily increasing over the five-year period from 2004/2005 to 2008/2009 (Figure 7.5). The rate among women was 6.3 per cent in 2004/2005, climbing to 8.0 per cent in 2008/2009. In 2008/2009, this meant a total of 65,122 women were diagnosed with the disease. The age-standardized rate for men was considerably lower and remained relatively consistent between 2004/2005 and 2008/2009. By 2008/2009, the age-standardized prevalence rate of osteoporosis for men was 1.8 per cent, with a total of 12,712 British Columbia men diagnosed with the disease. In 2008/2009, there were a total of 7,344 newly diagnosed cases among women in BC, compared to 1,305 cases among men. This corresponded to an age-standardized incidence rate of 9.9 per 1,000 among women and 1.9 per 1,000 among men.

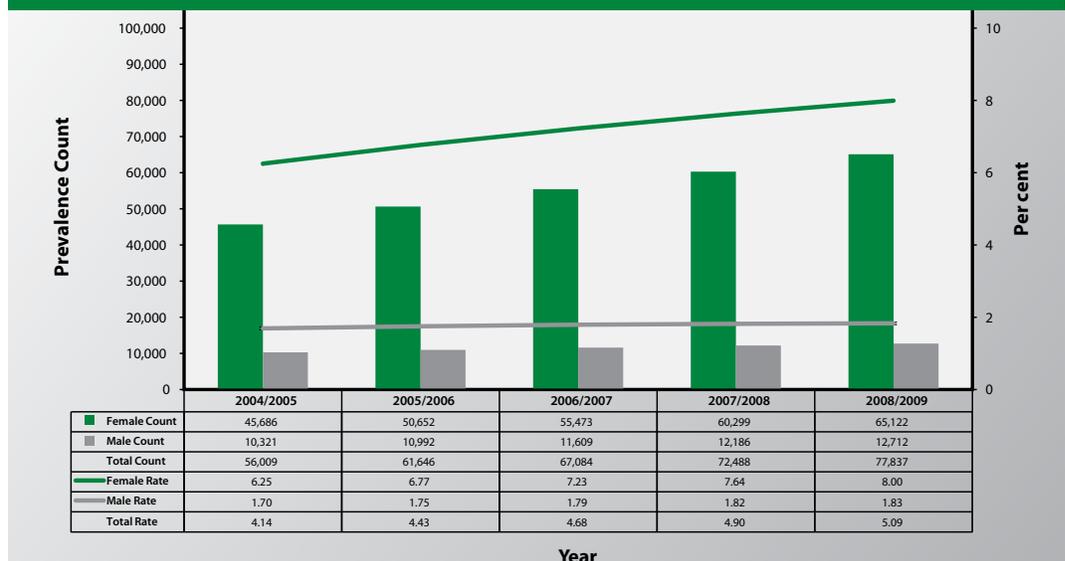
There are many possible reasons for the increase in prevalence among women, in particular

increases in the proportion of women in post-menopausal years, increasing awareness of the condition, and changing treatment options. Research into trends in American physician visits related to osteoporosis revealed a five-fold increase in visits between 1988 and 2003 as a result of improved treatment and medications.¹⁶ The authors of this study noted that between 91 and 96 per cent of the patients seen were women.

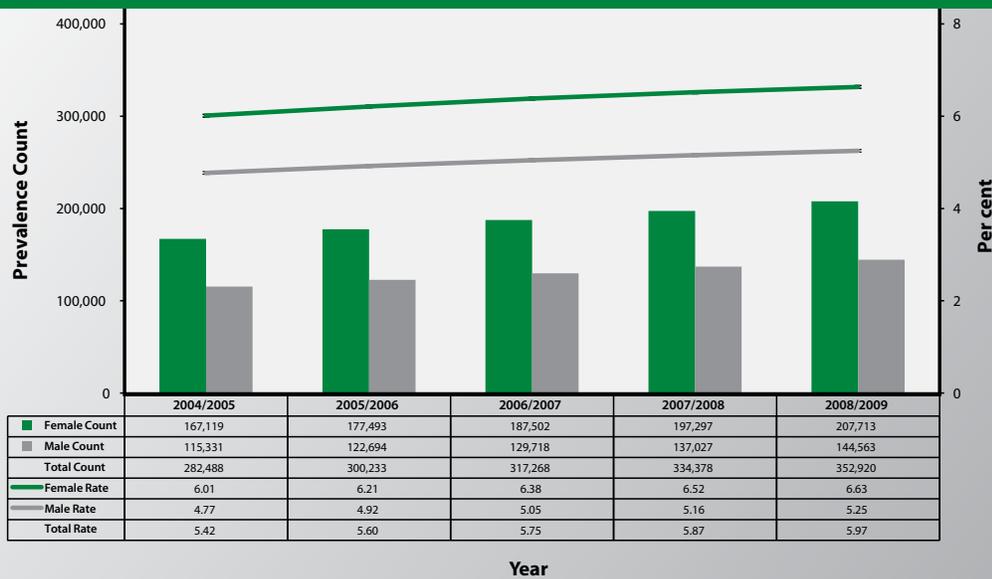
Age-specific prevalence rates show an increase in the prevalence of osteoporosis with age. This was particularly true for women, although rates of osteoporosis also rose with age among men. Both women and men with osteoporosis were most often hospitalized for hypertension and diabetes. As mentioned earlier, falls represent a significant co-morbidity given that these episodes are often associated with fractures, which may lead to long-term or permanent disability and chronic pain. Women with osteoporosis are 2.5 times as likely to be hospitalized as a result of a fall, as compared to women without osteoporosis. For more information on women and falls, please see the falls and fall-related injury section later in this chapter.

Figure 7.5

Osteoporosis, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2004/2005 to 2008/2009



Note: Standardized to Canadian population 1991. Based on population aged 50 and over only. Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.
Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Figure
7.6Osteoarthritis, Age-Standardized Prevalence Rate and Count, by Sex, BC,
2004/2005 to 2008/2009

Note: Standardized to Canadian population 1991. Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Osteoarthritis

Osteoarthritis is a degenerative disease that causes the cartilage between joints to become thin and rough, decreasing the protective spaces between the bones.¹⁷ Symptoms of osteoarthritis include joint pain, stiffness, limited range of motion, and muscle weakness around the joints, particularly affecting weight-bearing joints such as hips, knees and feet. The causes of osteoarthritis are not completely known, although risk increases if there is a family history or previous injury, or another medical condition has weakened or strained the joint. The risk of developing osteoarthritis is also higher among people who are overweight¹⁷ and increases with age. It is estimated that osteoarthritis affects about 10 per cent of Canada's population.¹⁷

Rates of osteoarthritis are higher among women after age 55,^{17,18} but it is unclear why this is the case. Verbrugge¹⁸ notes that whatever the reason, it appears that women also experience greater levels of activity limitation due to osteoarthritis, and that the difference between men and women in terms of disability increases with age. However, the author also notes that women

were more likely to have multiple co-morbid conditions, making it difficult to determine what was attributable to osteoarthritis. Treatment generally focuses on decreasing pain and improving joint movement through exercise.¹⁷ Medications are available to reduce stiffness and swelling, and in some cases, joint replacement surgery is required.¹⁷

In British Columbia, the age-standardized prevalence rate for osteoarthritis has been consistently higher for women than men. Between 2004/2005 and 2008/2009, the rates have been relatively stable for both women and men: from 6.0 per cent in 2004/2005 to 6.6 per cent in 2008/2009 for women, and from 4.8 per cent in 2004/2005 to 5.3 per cent in 2008/2009 for men (Figure 7.6). In 2008/2009, this represented



The risk of developing osteoarthritis is higher among people who are overweight.

207,713 women across the province diagnosed with the disease, compared to 144,563 men.

The gap in the prevalence of osteoarthritis between women and men persists throughout the lifespan and increases steadily over time, particularly among women in the post-menopausal years after age 50. In 2008/2009, among women age 50–54, 9.0 per cent had received a diagnosis of osteoarthritis, and this percentage increased to 42.9 per cent by age 85 and older. Men were considerably less likely to have received a diagnosis of osteoarthritis, at 7.6 per cent of those age 50–54 and 34.4 per cent of those age 85 and over.

Diabetes

Diabetes is a chronic condition caused by the body's inability to produce and/or use insulin and is an important risk factor for many other conditions that affect women, including high blood pressure, heart disease, stroke and renal failure. If left untreated or poorly managed over long periods of time, the condition can lead to damage of various organs such as the kidneys, eyes, nerves, heart and blood vessels.² A 2004 World Health Organization report projected that the global rate of diabetes would rise by 39 per cent between 2000 and 2030;¹⁹ however, rates of diabetes have already surpassed this level in many countries, including Canada.²⁰

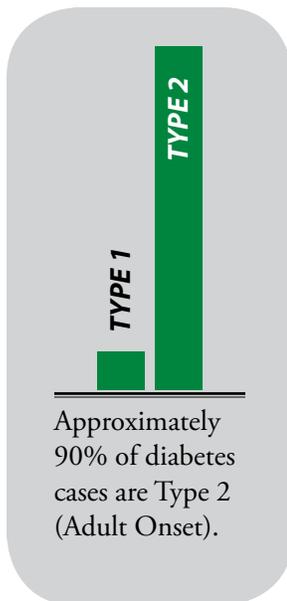
There are two main forms of diabetes. The less common form, Type 1 diabetes, which has been known as juvenile diabetes, is most often detected in childhood and is an autoimmune disorder resulting in the destruction of insulin-producing cells in the pancreas. The more common form, Type 2 diabetes, also referred to as adult-onset diabetes, is more likely to develop after childhood as a result of insulin resistance and insulin deficiency. In the figures that follow it is not possible to distinguish between Type 1 and Type 2 diabetes, but the majority (approximately 90 per cent) of cases in the

population are Type 2. Gestational diabetes, diabetes that develops temporarily during pregnancy, has been excluded from this analysis.

Diabetes is more common among men than women in almost every age group, with the exception of women's childbearing years. These higher rates among younger women may be the result of more frequent physician visits, which increases the likelihood of being diagnosed.²¹ Rates of diabetes are more prevalent among women of certain population groups, including Aboriginal Canadians, South or West Asians, African Canadians and Hispanic populations.²¹ Middle-aged women with diabetes have lower levels of income and education, and are less likely to have a job than women without diabetes.²² Women with diabetes have reported experiencing higher levels of depression and lower quality of life than men with diabetes.²³ The risk of morbidity and mortality from cardiovascular disease, the most common complication of diabetes, is significantly higher in women than in men.²⁴

The prevalence of diabetes in Canada has increased by 21 per cent from 2002/2003 to 2006/2007, and the age-standardized incidence has increased 9 per cent over the same time period.²⁵ In BC, the age-standardized prevalence rate in 2006 was slightly lower for both men and women than the Canadian rate (4.4 per cent versus 4.7 per cent for women and 5.4 per cent versus 5.8 per cent for men).^{c,25} The number of existing diabetics is increasing faster than one would expect considering the number of new cases each year, and this reflects increased survival among people living with diabetes.

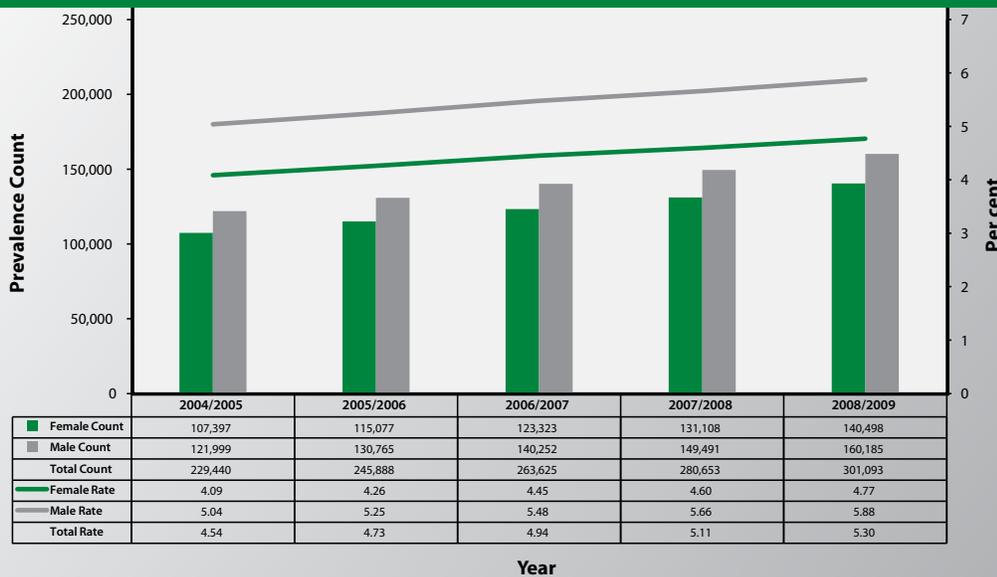
There has been a steady increase in the prevalence of diabetes among the British Columbia population over time. The age-standardized prevalence rate for 2008/2009 was 4.8 per cent for women, compared to 5.9 per cent for men (Figure 7.7). Overall, this represents a total of 140,498 women, compared to 160,185 men, diagnosed with the disease. The gap between the number



^c Rates presented in this report are slightly different than those presented in the Public Health Agency of Canada report²⁵ due to differences in the ways cases have been identified.

Figure 7.7

Diabetes, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2004/2005 to 2008/2009



Note: Standardized to Canadian population 1991. Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.

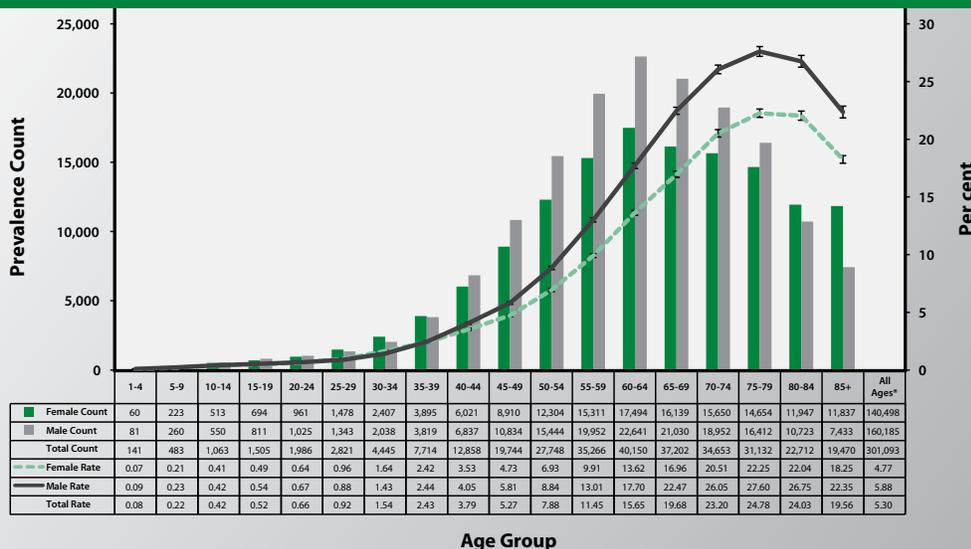
Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

of men and women living with diabetes has been growing steadily. In 2004/2005, there were 14,602 more men than women living with diabetes, but by 2008/2009 this difference had grown to 19,687.

As shown in Figure 7.8, age-specific prevalence rates for diabetes for 2008/2009 were approximately even for women and men until around age 39. After this point, the prevalence rate for men was consistently

Figure 7.8

Diabetes, Age-Specific Prevalence Rate and Count, by Sex and Age, BC, 2008/2009



* Rates in 'All Ages' column are standardized to Canadian population 1991.

Note: Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

higher than the rate for women in every age group until age 80. Prevalence rates for both women and men peaked between 75 and 79 years of age (22.3 per cent for women, and 27.6 per cent for men).

Age-standardized incidence rates once again show marked differences between women and men. The rate of newly diagnosed cases among men has been consistently higher than the rate for women in each year between 2004/2005 and 2008/2009. In 2008/2009, this represented 12,807 newly diagnosed female cases and 15,687 newly diagnosed male cases. Both men and women with diabetes were most likely to have a hospitalization record that also indicated hypertension, with an age-standardized aggregate rate of 13.7 per 1,000 women and 14.8 per 1,000 men.

Figure 7.9 shows that women with diabetes are consistently more likely to be hospitalized with each of a select group of co-morbidities compared to women without diabetes. The rate ratio was highest for amputation: women with diabetes were 11.3 times more likely to be hospitalized with amputation compared to women without diabetes. Rate ratios were also high for hypertension (3.8) and ischemic heart disease (3.7). Women

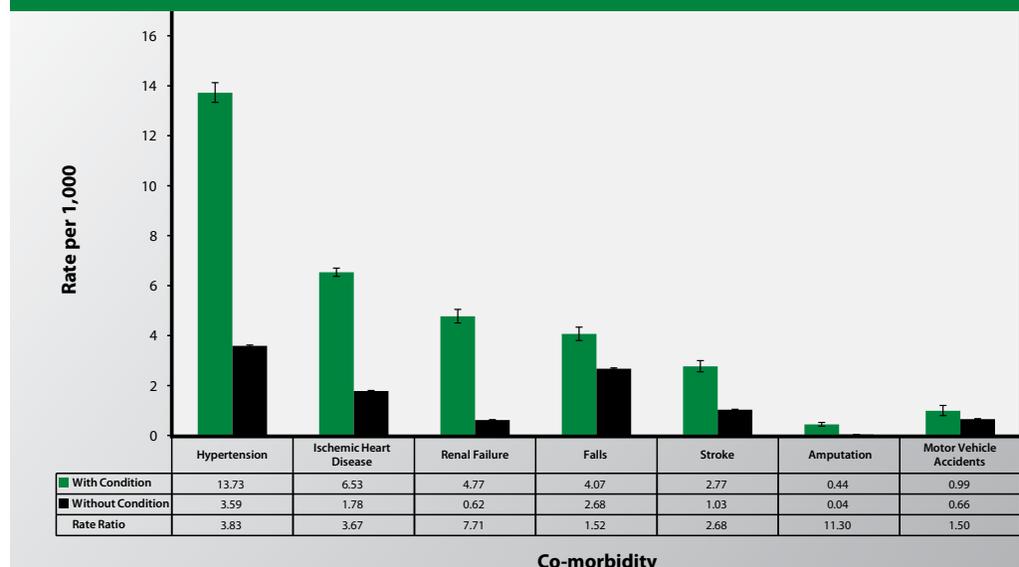
with diabetes have an increased risk of heart disease because diabetes cancels out the protective effects of hormones such as estrogen. Also, the combination of high blood glucose levels and high blood pressure, if it extends over time, can damage the kidneys and prevent them from functioning properly, possibly leading to kidney failure.²⁶ Hypertension was the most common reason for hospitalization for women with and without diabetes, although the rate was higher for women with diabetes: 13.7 per 1,000 for women with diabetes compared to 3.6 per 1,000 for women without the condition.

Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) is a respiratory disease that causes the airways of the lungs to become inflamed and/or obstructed. The two major forms of the disease include chronic bronchitis and emphysema.²⁷ The 2005 Canadian Community Health Survey found that 4.4 per cent of men and 4.8 per cent of women over the age of 34 reported being diagnosed with COPD.¹⁰ Rates in BC are lower than in other regions of Canada, possibly due to lower smoking rates,²⁸ which is one of the most important risk factors for

Figure 7.9

Diabetes, Age-Standardized Hospital Co-Morbidity Rate and Rate Ratio, Females with and without Condition, BC, 2004/2005-2008/2009



Note: Standardized to Canadian population 1991.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

COPD. Women with COPD suffer more than men do with a similar severity of COPD. This may be due to women's smaller lung capacity and smaller airways.²⁷

As reported in Chapter 3, women often live on lower incomes than men. Cigarette smoking is the top risk factor of COPD, but having lower socio-economic status is also a risk factor.^{29,30} A study by Bakke et al.³¹ that examined the relationship between socio-economic status (by education level) and airflow obstruction found that socio-economic status is an independent risk factor for COPD. Low socio-economic status also was associated with worse COPD patient outcomes, including increased mortality³² and increased hospitalization.³³ Factors associated with lower socio-economic status that affect lung function include prenatal exposure and intrauterine growth restriction, childhood respiratory tract infections, housing conditions, heating and cooking with biomass fuels, tobacco smoke exposure, poor nutrition, occupational exposures and air pollution.³⁰

As mentioned previously, sex-based differences can enhance the impact of tobacco smoke and air pollution on women's

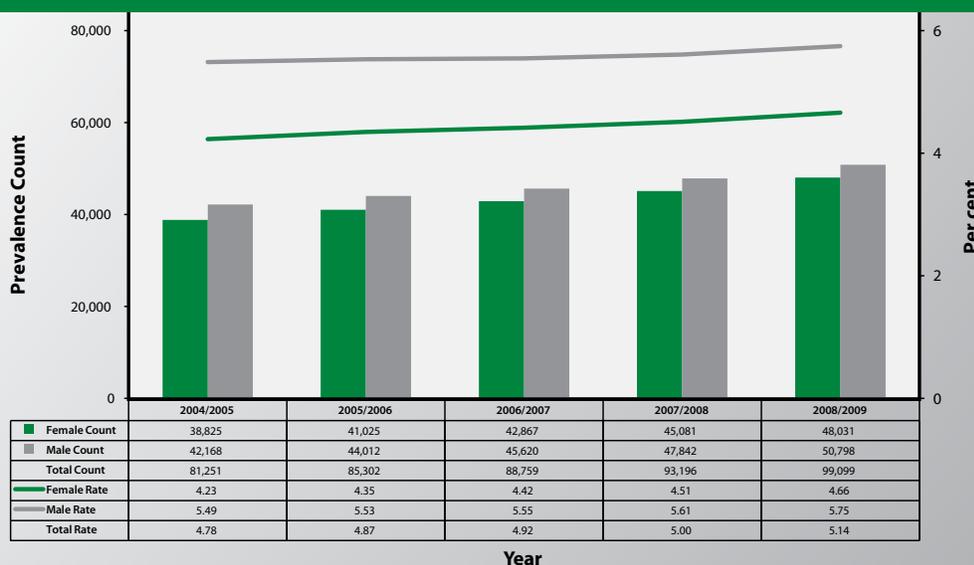
health. However, gender can also affect their diagnosis and treatment. Women and men often experience different symptoms and may report them differently to their physicians. Multiple studies point to problems with misdiagnosis. For example, women with lung cancer may have undiagnosed COPD, and women with COPD are sometimes diagnosed as having asthma.¹²

Age-standardized prevalence rates for COPD among both women and men have shown only minimal changes in the five-year period between 2004/2005 and 2008/2009 (Figure 7.10). The rate was consistently higher for men than for women, with a total prevalence among men over age 45 of 5.8 per cent in 2008/2009, compared to 4.7 per cent among women. In 2008/2009, there were a total of 48,031 women in British Columbia living with COPD compared to 50,798 men.

Age-specific prevalence rates for 2008/2009 showed an increase in the prevalence of COPD with age. The rate remained consistently lower for women at each age group compared to men, and the gap between women and men increased steadily with age. Among those people age 85 and

Figure
7.10

Chronic Obstructive Pulmonary Disease, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2004/2005 to 2008/2009



Note: Standardized to the Canadian population 1991. Based on population aged 45 years and over only. Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

older, the prevalence rate for women was 12.6 per cent compared to 18.4 per cent for men.

In 2008/2009, there were a total of 5,714 newly diagnosed cases among women compared to 6,388 newly diagnosed cases among men. Hospital co-morbidity rates among women with COPD were highest for diabetes, at a rate of 46.2 per 1,000, and for hypertension at 45.3 per 1,000.

Cardiovascular Disease

Cardiovascular disease (CVD) refers to diseases of the circulatory system including the heart and blood vessels, whether the blood vessels are affecting the lungs, the brain, kidneys or other parts of the body.³⁴ Heart disease is the number one cause of death in Canada for women over the age of 55.³⁵ Among women with multiple risk factors, prevalence rates tend to increase with age and decrease with higher education, income and employment.³⁶ In Canada, studies of the Aboriginal³⁷ and South Asian populations show a higher prevalence of CVD, as well as glucose intolerance, and total LDL^d cholesterol. Studies have also found that non-white women report less knowledge and understanding of risks of CVD, and report challenges and barriers in patient-health care provider relationships.³⁸ An analysis of national survey data showed

women consistently experience higher levels of pain, discomfort, activity restriction and disability associated with CVD than men.³⁹

Although most cardiovascular events occur in adulthood, the precursors of CVD manifest during childhood and adolescence.^{40,41} CVD is partly attributable to modifiable lifestyle behaviours, and childhood is a critical developmental period when these habits are established.⁴² Further, risk factors such as smoking, sedentary behaviour and poor diet in children and adolescents persist through young adulthood and are important predictors of subsequent risks of CVD.^{43,44,45}

Ischemic Heart Disease

Ischemic heart disease is one of the three most common types of heart disease^e and is caused by the build-up of deposits inside the coronary arteries, which results in a lack of oxygenated blood. This can cause symptoms such as chest pain and shortness of breath. A complete blockage of an artery causes a heart attack.⁸ Both hospitalization rates and death rates have been decreasing for ischemic heart disease;⁴⁶ however, compared to women from the healthiest countries of the world, BC women have higher mortality rates for ischemic heart disease.⁴⁷ Women tend to be affected by heart disease later in life than men, with rates of hospitalization for ischemic heart disease and heart attack

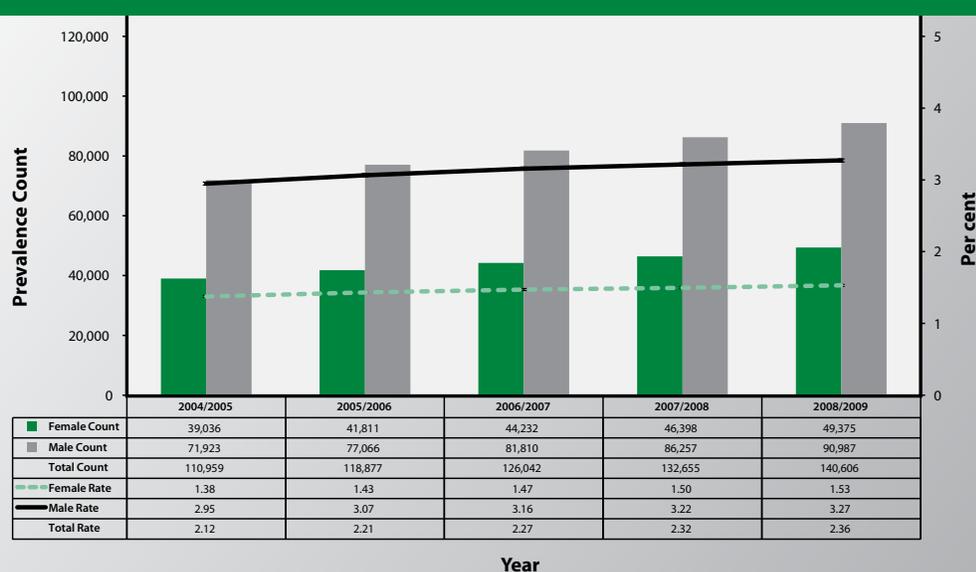


^d Low density lipoprotein

^e The other common types of heart disease are acute myocardial infarction and congestive heart failure.

Figure
7.11

Ischemic Heart Disease, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2004/2005 to 2008/2009



Note: Standardized to Canadian population 1991. Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

increasing noticeably around 55 years of age, compared to 45 years of age for men.⁸

As shown in Figure 7.11, age-standardized prevalence rates for ischemic heart disease in British Columbia have remained relatively consistent for both women and men over the past five years. The rate was higher for men than women, and has risen gradually from 3.0 per cent in 2004/2005 to 3.3 per cent in 2008/2009. The rate for women has seen a smaller increase over the same time period, from 1.4 per cent to 1.5 per cent. In 2008/2009, a total of 49,375 women had received a diagnosis of ischemic heart disease, compared to 90,987 men.

Age-specific prevalence rates for 2008/2009 showed that among all age groups, there were considerably more men living with ischemic heart disease compared to women, with the peak in the highest age group. In 2008/2009, there were a total of 5,107 newly diagnosed cases among BC women, compared to 8,501 newly diagnosed cases among BC men. Interestingly, five-year aggregate hospitalization rates for a select group of co-morbidities showed very different patterns among men and women.

Women with ischemic heart disease had higher hospitalization rates than men for hypertension, diabetes, heart failure, renal failure and stroke, but most of these differences were not statistically significant. It is possible that the differences are related to a higher survival rate among women with ischemic heart disease and an increasing incidence among women in older age groups.

Congestive Heart Failure

Congestive heart failure (CHF) is another common type of heart disease in which the heart is not able to pump the blood well enough, resulting in a build-up of fluid in the lungs or legs, often referred to as edema.⁸ Hospitalization rates for CHF have been greater for men than for women, although the difference is less than that seen for ischemic heart disease and acute myocardial infarction.⁴⁶ The rates have been decreasing since 1994 and this trend is believed to be due to more timely and appropriate treatment and better management of hypertension, high cholesterol and ischemic heart disease.⁴⁶ Hospitalization records often record CHF as an associated condition, rather than the primary diagnosis, so analysis



of hospitalization data by primary diagnosis likely under-represents CHF.⁴⁶

Age-standardized prevalence rates for CHF were stable over time for both women and men. In 2008/2009, the age-standardized prevalence rate for women was 1.2 per cent, compared to 1.6 per cent for men (Figure 7.12). In the same year, the actual number of prevalent cases was only slightly higher for women, at 44,519 cases, compared to 44,256 cases for men. This is due to the fact that the disease is most common in older age groups, and since women have a higher average life expectancy, the same number of cases is divided among a larger population base, resulting in a lower age-standardized rate.

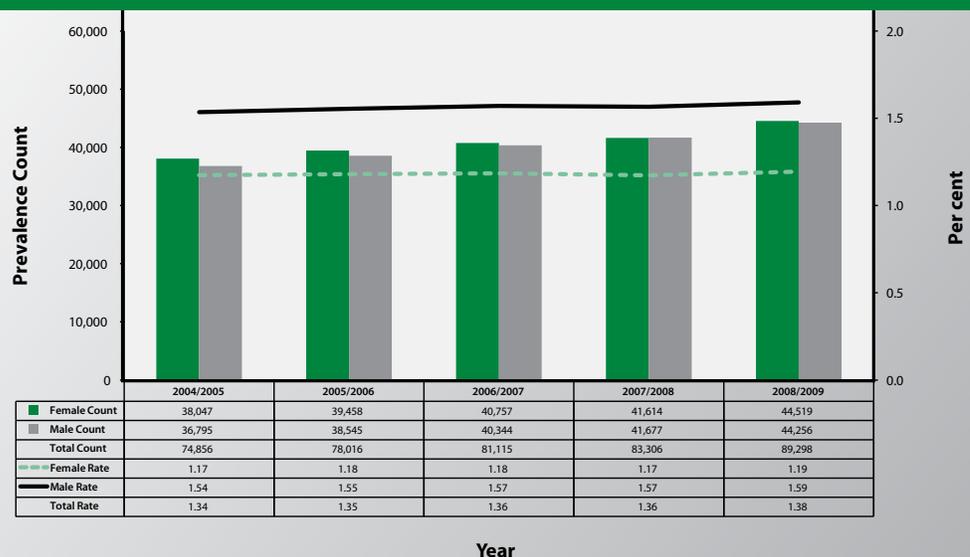
Age-specific prevalence rates for CHF among both women and men increase steadily with age, starting at around 50 years of

age and increasing exponentially with each subsequent age group. The peak prevalence for both sexes is in the highest age group of 85 years or older. In this age group, prevalence rates indicate that 26.1 per cent of women and 27.9 per cent of men in BC have received a prior diagnosis of CHF.

Age-standardized incidence rates were higher for men, with a rate of 2.8 per 1,000 in 2008/2009, compared to 2.0 per 1,000 for women. This represents 6,537 newly diagnosed cases among women in the province compared to 6,947 among men. Women with CHF were much more likely to be hospitalized for diabetes and hypertension than women without CHF. The greatest difference was seen in hospitalizations for renal failure, which was over 56 times higher for women with CHF than for women without CHF.

Figure 7.12

Congestive Heart Failure, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2004/2005 to 2008/2009



Note: Standardized to Canadian population 1991. Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Stroke

Stroke results from disruption of the supply of blood and oxygen to portions of the brain. This causes brain cells to die, leading to a loss of function in the body.⁴⁶ The breaking of a blood vessel in the brain and the resulting bleeding can also cause a stroke. Rates of hospitalization for stroke increase over the age of 60 for both men and women but the rate is higher among men.⁴⁶ Hospitalization records may not reveal the true number of individuals affected by stroke because approximately one-third of all individuals seen in an emergency department for stroke are never admitted to hospital. In addition, for every symptomatic stroke, up to ten individuals with less apparent effects go unrecognized.⁸ Plans to create a BC Stroke Registry will make it easier to get a more complete and consistent picture of the incidence and prevalence of stroke in the province.⁴⁸

British Columbia data show that there have been minimal decreases in age-standardized prevalence rates for stroke among both women and men from 2004/2005 to 2008/2009 (Figure 7.13). Among women, the rate has decreased from 1.2 per cent to

1.1 per cent within this time period. The rate for men was considerably higher than the rate for women, and had a similar slight decrease within the time period, from 1.5 per cent to 1.4 per cent. In 2008/2009, there were 39,360 women living in the province who had previously been diagnosed with a stroke, compared to 39,109 men. Similar to congestive heart failure, differences in age-standardized rates between women and men with minimal differences in observed counts are due to women living longer than men and the increase in rates of stroke with age.

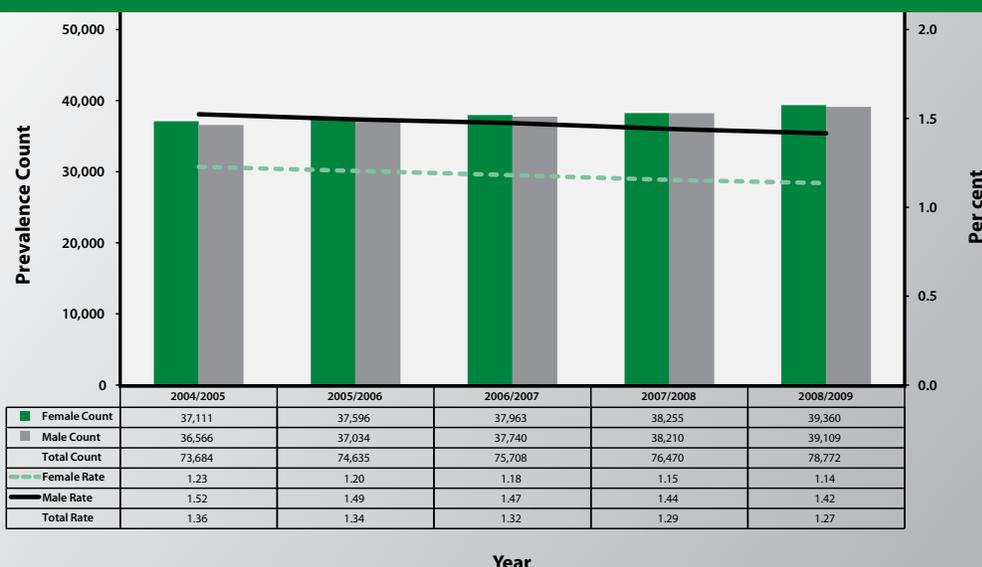
Age-specific prevalence rates for 2008/2009 showed a higher rate for men in every age group over age 45, with prevalence for both women and men peaking in the oldest age group. Hypertension was the most likely reason for hospitalization among both women with and without a stroke diagnosis, with rates of 28.8 per 1,000 among women and 36.7 per 1,000 among men.

Multiple Sclerosis

Multiple sclerosis (MS) is a disease of the central nervous system that is thought to attack the protective covering (myelin sheath) of the nerves, as well as causing

Figure
7.13

Stroke, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2004/2005 to 2008/2009



Note: Standardized to Canadian population 1991. Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

damage affecting both grey and white brain matter. Unlike other chronic diseases, onset of MS is primarily between ages 20 and 45.⁴⁹ Although MS is not usually fatal, it results in disability and decreased quality of life. Rates are higher in countries of more northerly or southerly latitude, with lower prevalence nearer the equator. Canada has the fifth highest MS rate in the world among nations surveyed between 2004 and 2007. Only the United States, Germany, Norway and Hungary had higher prevalence rates.⁵⁰

There has been no comprehensive prevalence study of MS conducted in BC since 1986. However, using data from the Canadian Community Health Survey for 2000/2001, an estimate of MS prevalence was derived with an aim to explore regional variation in MS across Canada.⁵¹ British Columbia had an estimated prevalence of 240 per 100,000, which was equal to the rate for Canada as a whole. This study also found that females were at higher risk of MS (with an odds ratio of 2:1). There has been a suggestion that the number of women affected by MS relative to men has been increasing over the past 50 years and now exceeds 3.2:1 in Canada.⁵² However, there are methodological challenges with studies that look at changes

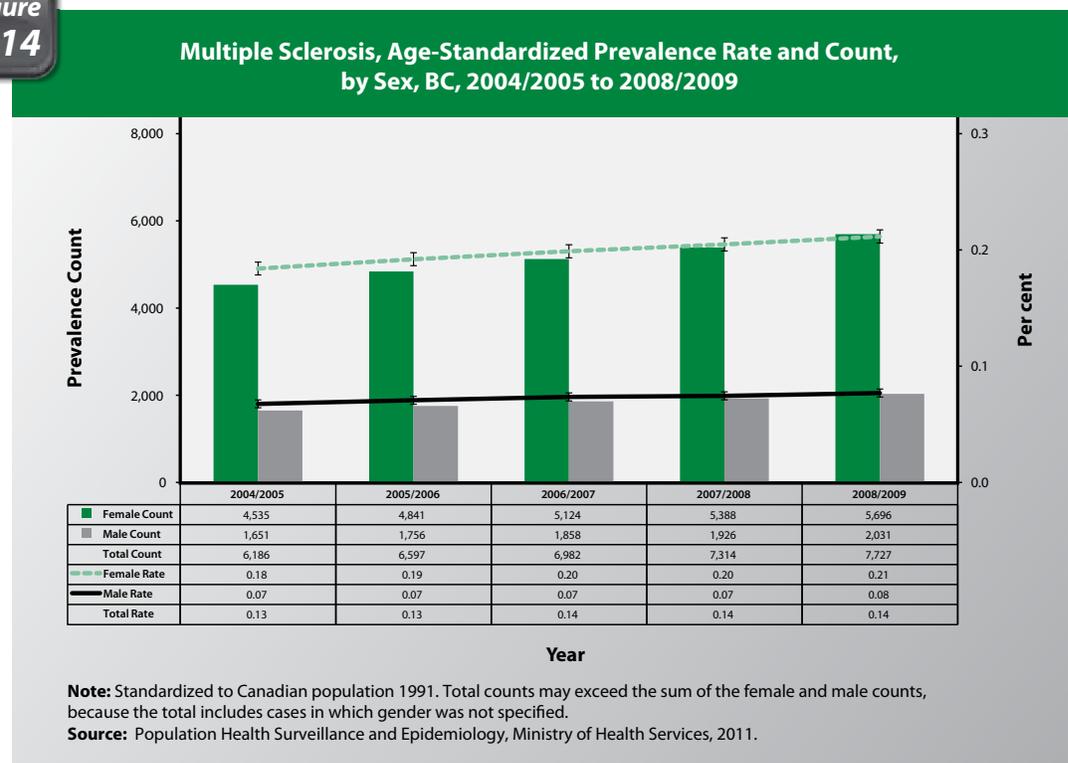
over time, which can make it difficult to interpret results.

Age-standardized prevalence rates for MS among women and men showed slight increases over the five-year period from 2004/2005 to 2008/2009, and the rate for women was considerably and consistently higher than men over this entire time period (Figure 7.14). In 2008/2009, the prevalence rate for women was 0.21 per cent, compared to 0.08 per cent for men. This represents 5,696 women currently living in the province with MS, compared to 2,031 men.

Age-specific prevalence rates for 2008/2009 clearly illustrate differences between women and men (Figure 7.15). Peak prevalence among women was between 50 and 59 years of age, with a total of 0.53 per cent of women in this age group living with MS. The peak prevalence for men was similar at 55 to 59 years of age; however, the rate was considerably lower (0.22 per cent). The pattern of age-specific prevalence is different for MS than for other chronic diseases such as diabetes because life expectancy among persons with MS is slightly shorter than among those without MS (approximately five to six years). Some of the differences in

Figure 7.14

Multiple Sclerosis, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2004/2005 to 2008/2009

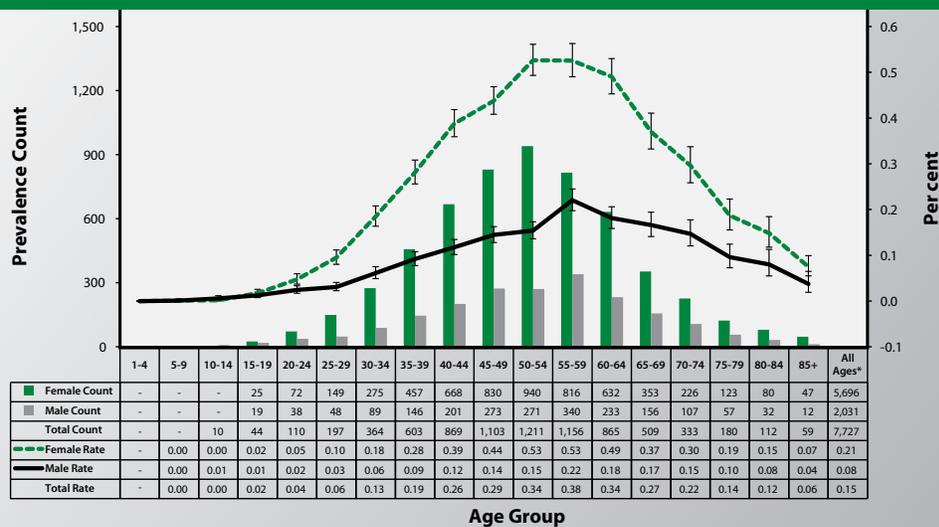


Note: Standardized to Canadian population 1991. Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Figure
7.15

Multiple Sclerosis, Age-Specific Prevalence Rate and Count, by Sex and Age, BC, 2008/2009



* Rates in 'All Ages' column are standardized to Canadian population 1991.

Note: Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified. Data is suppressed in the younger age groups due to low numbers.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

age-specific prevalence rates may also be due to changes in diagnostic patterns; however, this has not yet been thoroughly studied.⁵³ Age-standardized incidence rates have remained consistent for 2008/2009, with 406 newly diagnosed cases among women and 147 newly diagnosed cases among men. Women with MS were more likely to be hospitalized with a range of select co-morbidities compared to women without MS. The highest rate ratio was seen with hospitalizations for intentional self-harm: women with MS were 3.4 times as likely to be hospitalized with this condition compared to women without MS. Women with MS

were also more likely to be hospitalized for injuries related to a fall (7.2 per 1,000, compared to 3.3 per 1,000 among women without MS), as well as for stroke.

Controversial Treatment for Multiple Sclerosis

The unpredictability, diverse nature and varying severity of the symptoms caused by multiple sclerosis can make it challenging to treat, and sometimes patients may be attracted by the promise of a potential treatment that has not been scientifically proven to be effective. Since the placebo response in people who have MS may be as high as 70 per cent, in order to be considered effective, a treatment for MS must have produced statistically significant results in patients who received it beyond the benefit experienced by patients who received a placebo.⁵⁴

Questions have arisen about the efficacy of a new treatment for MS, dubbed the "Liberation Treatment" by its discoverer, Italian vascular surgeon, Dr. Paolo Zamboni. Dr. Zamboni's initial study pinpointed blocked veins that drain blood from the brain and spinal cord of MS patients as the reason behind MS, a condition

Rate per 1,000

no MS 3.3

with MS 7.2

Women with MS are more likely to be hospitalized for injuries related to a fall than women without MS.

which he named Chronic Cerebrospinal Venous Insufficiency (CCSVI).⁵⁵ Zamboni postulated that this blockage may cause congestion of blood in the brain and trigger bouts of inflammation, possibly due to iron deposits.⁵⁶ The Liberation Treatment corrects the obstruction of the veins by inserting a catheter with a balloon into the narrowed vein and then inflating it to open the vein. Some surgeons have used stents (metal tubes) for the same purpose; however, although stents work well for narrowed arteries that have strong walls, veins fluctuate in size depending on one's activity level.⁵⁶ Since the discovery of the Liberation Treatment, MS patients have flocked to clinics in countries where the treatment is legal, in the hopes of escaping the pain, fatigue and reduction in activity brought on by this debilitating disease.

Dr. Zamboni's study⁵⁵ asserted that CCSVI perfectly matches a diagnosis of MS, and his study results showed that 100 per cent of MS patients have internal venous abnormalities, while 0 per cent of normal healthy controls show CCSVI. As North American experts wryly note, "It is rare, in clinical research for any test, especially for a single test such as ultrasound, to be perfectly diagnostic of

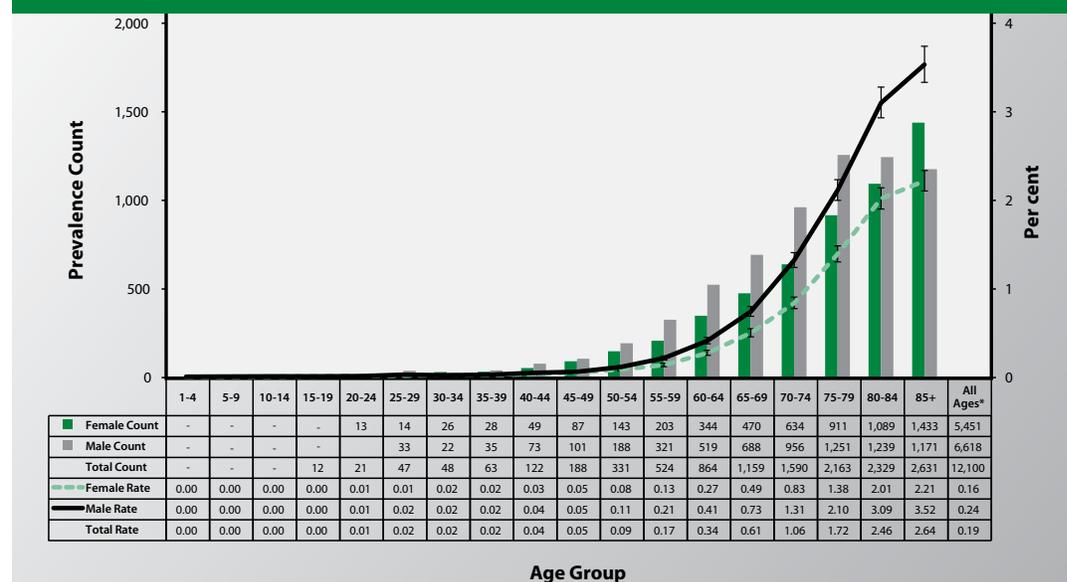
any condition."⁵⁷ There have since been contradictory studies in Germany and Sweden that found no evidence of difference between MS patients and healthy controls for brain drainage (CCSVI), and a study in Buffalo that reported a wide variation in the incidence of venous abnormalities among normal healthy subjects as well as among MS patients. The unblinded aspect of the study and its lack of a control group are serious problems with the trial design, and compromise Zamboni's results. To date, the published evidence that venous abnormalities (i.e., CCSVI) play a role in the development of MS is contradictory and should be treated with caution.⁵⁷

Parkinson's Disease

Parkinson's disease is a progressive degenerative disease of the nervous system resulting from the loss of dopamine-generating cells. Dopamine facilitates the smooth transfer of nerve impulses from one nerve cell to another, helping send messages to muscles of the body to begin voluntary movement. As dopamine levels decline, muscle movements become slower and more difficult and tremors can

Figure 7.16

Parkinson's Disease, Age-Specific Prevalence Rate and Count, by Sex and Age, BC, 2008/2009



*Rates in 'All Ages' column are standardized to Canadian population 1991.

Note: Total counts may exceed the sum of the female and male counts, because the total includes cases in which gender was not specified. Data is suppressed in the younger age groups due to low numbers.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

develop, contributing to a loss of balance.⁵⁸ Parkinson's disease is a major cause of mortality among seniors over the age of 80. Individuals with the condition are at greater risk for falls and depression.⁵⁹ While studies have found different patterns of Parkinson's incidence for men and women, most often there is a higher incidence among men.⁶⁰

Age-standardized prevalence rates for Parkinson's disease for women and men were consistent over the five-year period from 2004/2005 to 2008/2009 (Figure 7.16). In 2008/2009, the rate for men was higher than the rate for women: 0.24 per cent compared to 0.16 per cent. This represents 5,451 women in the province who were living with Parkinson's disease, compared to 6,618 men.

In 2008/2009, the age-specific prevalence rate for Parkinson's disease showed a steady increase among both women and men beginning in the 40–44 age group, with the peak prevalence for both women and men in the oldest age group (85+). At age 85 and over, Parkinson's affected 2.2 per cent of women and 3.5 per cent of men. In 2008/2009 in BC, there were a total of 666 newly diagnosed cases of Parkinson's disease among women and 906 new cases among men.

External Causes

External causes of hospitalization include injuries related to falls, motor vehicle crashes and attempted suicide.^f As seen in Figure 7.17, falls were the largest external cause of hospitalization for women, with a rate of 37.7 per 10,000, over 25 per cent higher than the rate for men (30.1 per 10,000). Post-operative complications had the second highest rate at about 25 per 10,000.

Falls and Fall-related Injuries

Falls are a major cause of hospitalization and loss of independence. It is well documented that the risk of falling increases with age and approximately one in three seniors over



the age of 65 experiences one or more falls each year.^{61,62,63,64} Based on this estimate, it is projected that approximately 225,000 seniors in British Columbia will experience a fall in the coming year. With the increasing number of individuals aged 65 years and older in British Columbia, this number could rise to 450,000 by 2031 if concerted prevention efforts are not put in place.⁶⁵

It is also well established that a disproportionate number of women experience a fall compared to men.⁶⁶ While males tend to experience a higher degree of hospitalization for falls in their younger years, likely the result of high-risk activities and sports, women tend to experience far more hospitalization for falls in their later years. Research on factors known to contribute to falls and fall-related injury has pointed to the existence of certain gender-related factors that may contribute to women being at a higher risk for a fall than men.⁶⁷ The following is an overview of the factors known to contribute to falls and fall-related injuries, with an emphasis on those factors of particular relevance to women.

^f Information on suicide, also categorized as an external cause of hospitalization, can be found in Chapter 8, in the section on mental health and behavioural disorders.

Factors Affecting Falls

Falls are caused by a loss of balance or the inability to regain balance. The factors that contribute to falls are complex, and risks compound, with the presence of four or more factors leading to an almost 80 per cent risk of an older person experiencing a fall.⁶⁸ The factors that contribute to a loss of balance can be grouped into four categories: biological, behavioural, social/economic and environmental.⁶⁹

Biological Factors

Biological or intrinsic risk factors include those pertaining to the human body and are related to the natural aging process, as well as the effects of chronic, acute or palliative health conditions. Some conditions cannot be changed, such as gender or age, while others may be prevented or compensated for, such as muscle weakness or poor vision. The main risk factor for sustaining a fracture due to a fall is osteoporosis.⁷⁰ Osteoporosis is characterized by a deterioration of bone strength due to reduced bone density and bone quality, and is a condition found among approximately one in four women over the age of 65.^{71,72} Women are

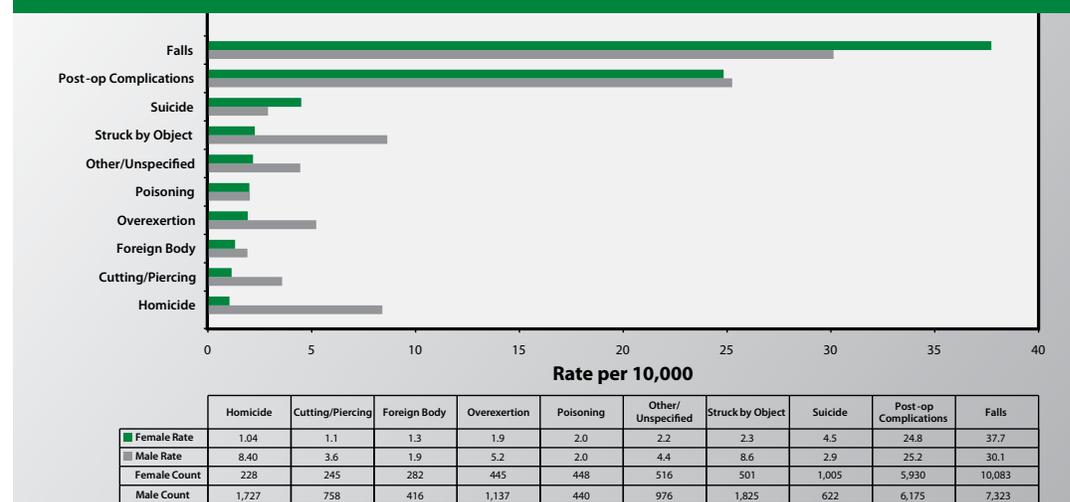
particularly prone to osteoporosis due to the effect that the hormone estrogen plays in keeping bones healthy. After menopause, estrogen levels fall dramatically, with an accompanying accelerated rate of bone loss among many women.

Behavioural Factors

Behavioural risk factors for falling include actions, emotions or choices of the individual. Behavioural risk factors include a history of falls, fear of falling, poor nutrition and/or hydration, lack of physical activity, inappropriate footwear and clothing, and taking multiple medications, particularly psychoactive medications such as tranquilizers or antidepressants.⁶⁹ Gender differences have been recognized in the literature on medication and substance use,^{73,74,75,76,77} and research has demonstrated that women are more likely to receive psychotropic drugs than men.^{78,79} Research has also shown that the incidence of fear of falling and associated activity restriction is greater among women than men,^{80,81} and even without an injury, falls among women are often associated with a decrease in mobility and subsequent physical decline due to an ongoing fear of falling.

Figure 7.17

Selected External Causes, Age-Standardized Hospitalization Rate, by Sex, BC, 2008/2009



Note: Hospitalization for suicide includes attempted suicide and is determined by the receiving doctor in the emergency intake and/or ambulance personnel (paramedics). Age-standardized rate per 10,000 standard population (Canada Census 1991).
Source: Hospital Discharge Abstract Database (Ministry of Health Services); prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

Social and Economic Factors

Research on the social determinants of health has repeatedly shown that one's income, education, housing and social connectedness all bear a strong relationship to one's health, level of disability, longevity and cognitive function.^{62,82,83} Individuals with low income, low education, inadequate housing, a lack of support networks and limited access to appropriate health or social services are all at increased risk of having chronic health conditions that are highly associated with an increased risk of falling or being injured from a fall.⁶² In Canada, women are more likely than men to live alone,⁸⁴ due in part to the longer life expectancy among women and the greater proportion of widowed women in the population. In a study investigating the relationship between living alone and fall-related factors among community-dwelling adults over the age of 70,⁸⁵ the percentage of individuals reporting a fall was noticeably higher for those living alone than for those living with others.

Environmental Factors

Although current research is limited regarding gender and the location of a fall,

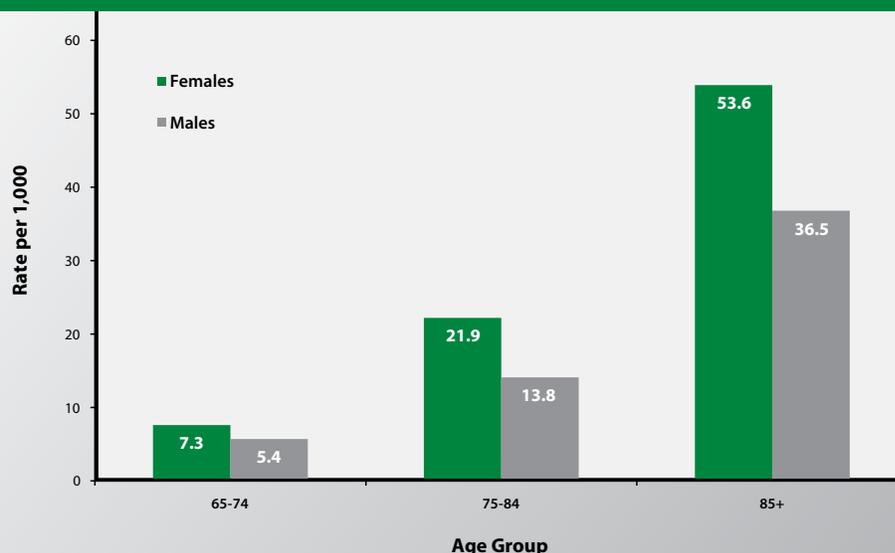
studies have shown that on average, 50 to 60 per cent of falls occur within the home,^{66,86} and women are more likely to sustain an indoor fall-related injury.⁸⁷ Environmental factors include home hazards such as clutter, lack of stair railings, loose rugs or other tripping hazards, lack of grab bars in the bathroom, and poor lighting, especially on stairs.

Falls among Elderly Women

Falls and their related injuries are a significant health problem among older women. Consequences of a fall include loss of independence, permanent disability and, in some cases, premature death. There is also a substantial impact on health care resources and associated economic costs. More than 95 per cent of hip fractures among adults over age 65 are caused by falls.⁸⁸ At least 25 per cent of older adults who live independently prior to a hip fracture may need to live in a facility for a period of time following a fall-related fracture,⁸⁹ and 20 per cent of seniors die within a year of a hip fracture.⁶² According to the American Centers for Disease Control and Prevention,⁹⁰ women sustain 76 per cent of fall-related hip fractures and women over

Figure 7.18

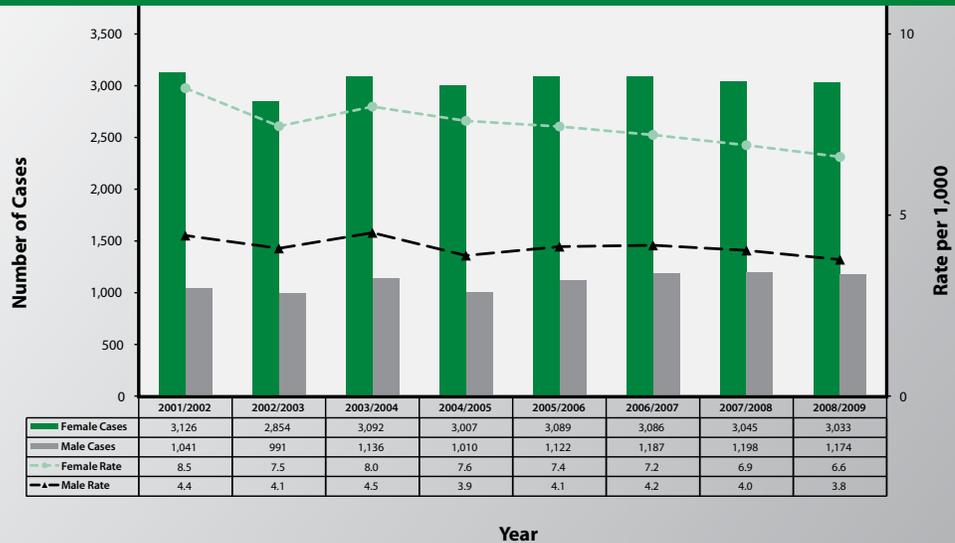
Fall-related Hospitalizations, by Sex and Age, Canada, 2008/2009



Source: Scott V, Wagar L, Elliott S. falls & related injuries among older Canadians: fall-related hospitalizations & intervention initiatives. Prepared on behalf of the Public Health Agency of Canada, Division of Aging and Seniors. Victoria, BC: Victoria Scott Consulting.

Figure 7.19

Fall-related Hip Fractures, Hospital Cases and Rates, Age 65+, by Sex, BC, 2001/2002 to 2008/2009



Note: Standardized to the BC 1991 population.

Source: Acute/rehab. separations from the 2001/2002 to 2008/2009 Canadian Institute of Health Information Discharge Abstract Dataset; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, November 2009.

85 are nearly eight times more likely to be hospitalized for a hip fracture than women between the ages of 65 and 74.⁹¹

Research on sex differences related to injuries from falls shows that women take longer to recover after a fall-related injury⁶⁶ and

have more visits to the hospital emergency department.⁹² Women are also more likely to experience a non-fatal fall-related injury⁹⁰ and sustain more fall-related fractures,^{61,66,81,90} while men are more likely to die from a fall.⁹⁰ A recent report⁸⁸ on fall-related hospitalizations across Canada revealed

Figure 7.20

Fall-related Hip Fractures, Hospital Days and Rates, Age 65+, by Sex, BC, 2001/2002 to 2008/2009



Note: Standardized to the BC 1991 population.

Source: Acute/rehab. separations from the 2001/2002 to 2008/2009 Canadian Institute of Health Information Discharge Abstract Dataset; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, November 2009.



that although both males and females have increasing rates of hospitalization by age, females are hospitalized for a fall at a higher rate than males in comparable age groups, and especially over the age of 85 (Figure 7.18).

Figures 7.19 and 7.20 show that women experience more hospitalizations for fall-related hip fractures than men, and spend more time in hospital. In 2008/2009, over 3,000 hospitalizations for fall-related hip fractures were reported for BC women, compared to less than 1,200 for men. The greater number of falls among women is influenced by the fact that there are more senior women than men in the BC population; however, the hospitalization rate was actually 1.7 times higher for women than men. This means that for every 1,000 women over the age of 65 in BC, 6.6 would be hospitalized for a fall-related hip fracture, compared to 3.8 per 1,000 men. The number of days spent in hospital due to fall-related hip fractures in 2008/2009 was 2.4 times higher in women than men (44,438 days for women versus 18,449 for men).

The trend in the rates over the years for both hospitalizations and hospital days also

point to differences by sex. While the rates for women and men both declined over the years, the decline was only statistically significant for women.

Overall, more women than men over the age of 65 die, either directly or indirectly, from a fall.⁸ In 2007, 470 senior women died from a fall compared to 366 men. However, when the rate of falls as a proportion of the population by sex is considered, more direct deaths from fall-related injuries actually occur among men than women.^{62,93} There has been no statistically significant change over the years in the rates for either gender, except for seniors not living in residential care, where the direct and indirect rates of fall-related deaths decreased significantly for both males and females between 2000 and 2007.

Falls Prevention

Falls among older persons are no longer considered to be an inevitable consequence of aging, or simply unforeseen “accidents.” Rather, they are regarded as predictable and preventable events that have identifiable risk factors and effective solutions for prevention. Because 95 per cent of hip fractures result

⁹ Direct Cause of Death: the underlying cause of death or what the person died of; Indirect Cause of Death: contributing, associated, or antecedent causes to the underlying cause of death. For example, an indirect death from a fall occurs when the fall itself is not deadly, but the injuries that are sustained undermine the individual's health so much that other diseases and illnesses prove fatal.⁶²

from falls,⁸⁸ minimizing fall risk is a practical approach to reducing these serious injuries. Falls are often a marker for underlying health, behavioural, environmental or social and economic issues that can be identified and modified. Research has established that effective fall intervention programs use multi-faceted approaches that address identified risk factors such as physical activity, environmental modifications, vitamin D and calcium intake, clothing and footwear, health management—including poor vision and medication use—and social connectedness and social support.

Transport-related Hospitalizations

There were 5,495 transport-related hospitalizations in BC in 2008/2009. The

rate was dramatically higher for males than females in all transport-related causes, except for motor vehicle/pedestrian accidents, where the rate was only moderately higher for males (Figure 7.21). For both females and males, the main reason for hospitalizations was being an occupant in the vehicle (rates of 38.1 per 100,000 for women and 56.7 per 100,000 for men). The largest gap was for motorcycle accidents, where the rate for males was more than seven times the rate for females.

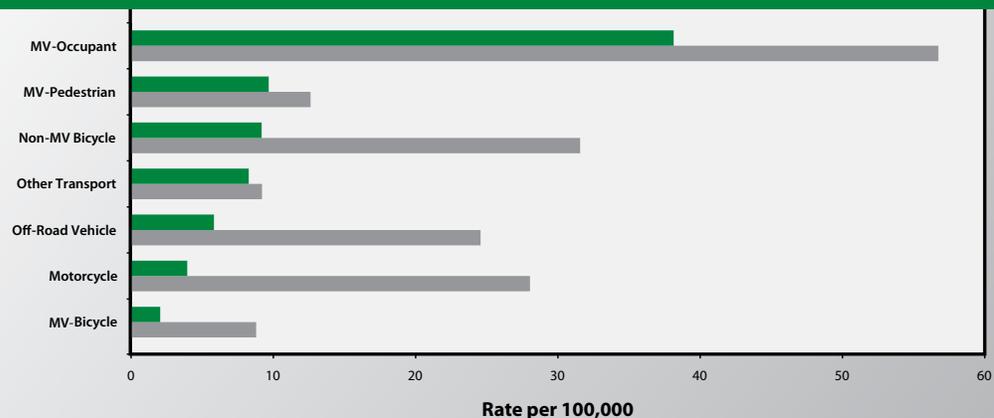
Motor Vehicle Crashes and Pregnancy

During pregnancy, a mother and her fetus are at increased risk of injury in the event of a motor vehicle crash (MVC).⁹⁴ Furthermore, in Canada, MVC-related injury is the leading cause of incidental



Figure 7.21

Transport-related Causes, Age-Standardized Hospitalization Rate, by Sex, BC, 2008/2009



	MV-Bicycle	Motorcycle	Off-Road Vehicle	Other Transport	Non-MV Bicycle	MV-Pedestrian	MV-Occupant
Female Rate	2.0	3.9	5.82	8.3	9.2	9.7	38.1
Male Rate	8.8	28.0	24.56	9.2	31.6	12.6	56.7
Female Count	45	91	130	190	200	228	875
Male Count	196	611	515	212	667	285	1,249

Note: Age-standardized rate per 100,000 standard population (Canada Census 1991). MV = Motor Vehicle.
Source: Hospital Discharge Abstract Database (Ministry of Health Services); prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

death during pregnancy.^{h,95} Even MVCs at slow speeds may cause injury or death.^{94,96,97}

Factors that predispose a pregnant woman and her fetus to injury or death during an MVC are lack of use of a three-point seatbelt restraint (consisting of a shoulder harness and lap belt); improper use of the seatbelt; and proximity of the pregnant woman to the vehicle air bag systems.^{96,98} Approximately half of all fetal deaths due to MVCs could be prevented if all pregnant women wore their seat belts properly.⁹⁹

Air bag technology, when combined with the proper use of seat belts, provides considerable protection for pregnant women in the event of a MVC. However, for women drivers or passengers in their second and third trimester, the proximity of the uterus to the air bag system can hinder the proper and timely deployment of the vehicle's air bag.¹⁰⁰ It is recommended that a pregnant woman be seated 25 centimetres away from the dashboard or steering wheel, and the seat should be adjusted back as the woman's pregnancy progresses.⁹⁶

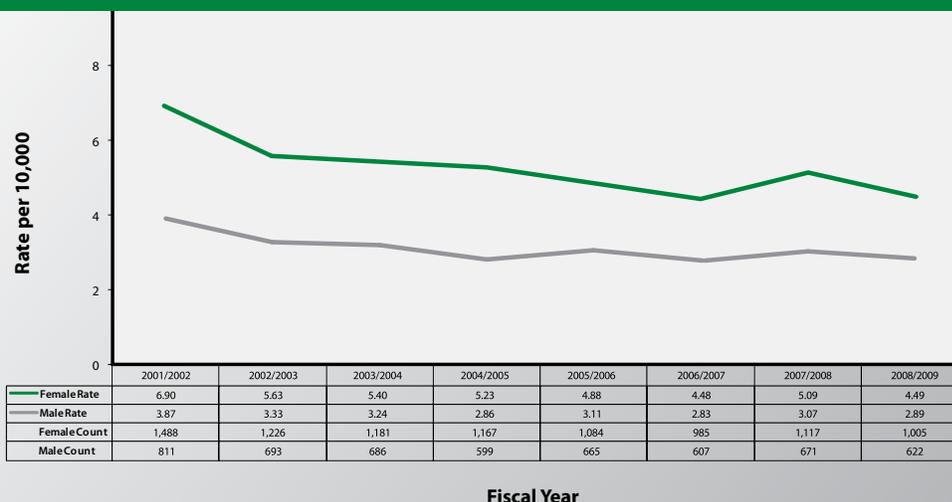
Suicide

While suicide-related hospitalization represents a smaller proportion of overall admissions, it is still important, considering that these types of admissions could be prevented with the appropriate community services and outreach programs. The hospitalization rate for women (4.5 per 10,000) is significantly higher than that for men (2.9 per 10,000), and this gender gap has been consistent over the years (Figure 7.22). In 2008, 102 women committed suicide, a provincial rate of 0.4 per 10,000, a significant drop from 0.6 per 10,000 in 1994.



Figure
7.22

Suicide-related Age-Standardized Hospitalization Rate,
by Sex, BC, 2001/2002 to 2008/2009



Note: Hospitalization for suicide includes attempted suicide and is determined by the receiving doctor in the emergency intake and/or ambulance personnel (paramedics). Age-standardized rate per 10,000 standard population (Canada Census 1991).

Source: Hospital Discharge Abstract Database (Ministry of Health Services); prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

^h Incidental deaths are due to conditions that occur during pregnancy or shortly after, but where the pregnancy is not the primary cause of the death.⁹⁵

Deaths Due to Major Causes

Cancer (Malignant Neoplasms)

As documented earlier in this report, cancer is the leading cause of death in BC for both men and women, ahead of cardiovascular disease and stroke. Canada-wide, lung cancer remains the most common cause of cancer death for both sexes. In females, the lung cancer mortality rate has not yet begun to decline. The differences between male and female trends reflect past differences in the patterns of tobacco consumption, particularly the drop that began for males in the mid-1960s and much later—in the mid-1980s—for females.¹²

Screening programs for breast and cervical cancer have helped to reduce the risk of death from these cancers in women by improving detection in the early stages when the prognosis for survival is much better. Lung cancer, however, is much harder to detect until its later stages, when treatment is not as successful. Lung cancer incidence rates in females have been climbing due to higher smoking rates in females during the 1970s and 1980s. Figure 7.23 shows the incidence

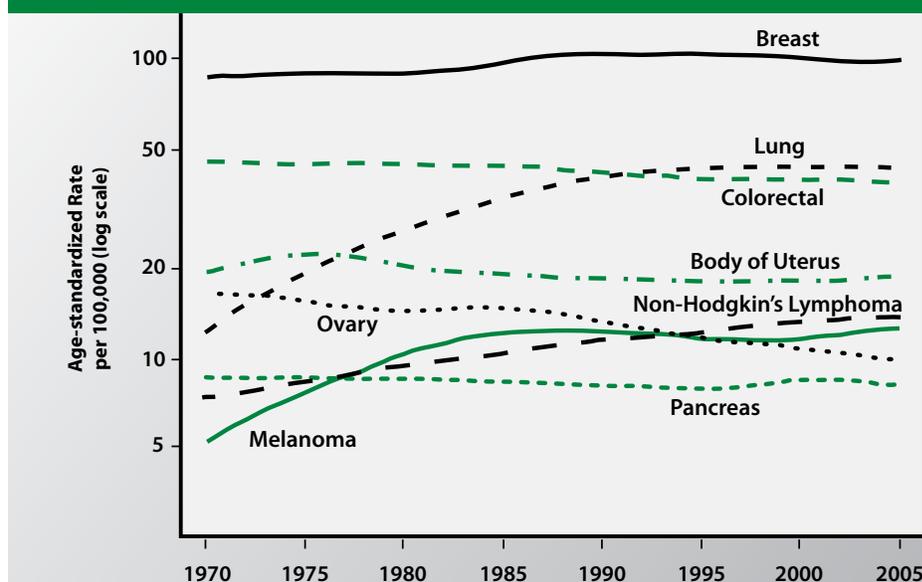


of select cancers over time. Breast cancer has the highest incidence rate, followed by lung cancer, which surpassed the colorectal cancer rate around 1990.

It should be noted that age-standardized cervical cancer incidence rates have dropped in all age categories since 1980 due to the success of and high levels of participation in the cervical cancer screening program. As mentioned in Chapter 2, there is a lower uptake of screening in certain groups such as

Figure 7.23

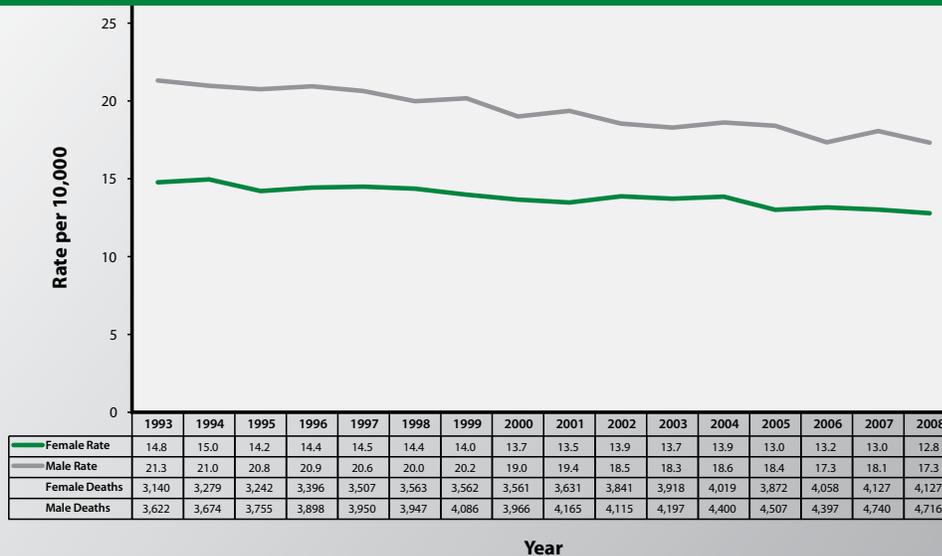
Selected Cancer Incidence, Females, BC, 1970 to 2005



Source: BC Cancer Agency, 2010 (date retrieved 2007); prepared by Population Oncology, based on population estimates from BC Stats (P.E.O.P.L.E. 32)

Figure
7.24

Malignant Neoplasms, Age-Standardized Mortality Rate, by Sex, BC, 1993 to 2008



Year

Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

Aboriginal and immigrant women, and targeted programs should be considered to enhance participation in these groups. Figure 7.24 shows that between 1993 and 2008, the age-standardized mortality rates for cancer dropped from 14.8 to 12.8 per 10,000 among females and 21.3 to 17.3 per

10,000 among males. Between 2004 and 2008, a total of 20,203 women and 22,760 men died of cancer.

Figure 7.25 shows the differences between health regions in mortality rates for all cancers. Northern Health Authority had the

Figure
7.25

Malignant Neoplasms, Age-Standardized Mortality Rate, by Sex and Health Authority, BC, 2004-2008



Health Authority

Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

highest age-standardized mortality rate for both females and males (15.5 per 10,000 for females and 21.9 per 10,000 for males), while Vancouver Coastal Health Authority had the lowest (11.5 per 10,000 for females and 16.1 per 10,000 for males). The difference between health authorities may be due in part to differences in socio-economic status and access to health services.

rates in Canada have been declining since the mid-1980s and are the lowest since 1950. Similar declines have also occurred in the United States, United Kingdom and Australia.¹² Breast cancer survival rates, of patients referred to the BC Cancer Agency, were 99 per cent for one year, 95 per cent for three years and 91 per cent for five years.¹⁰³

Figure 7.26 shows that for females, the highest mortality rate from cancer between 1993 and 2008 was from trachea and lung cancer, with a rate of 3.37 per 10,000 in 2008. Women are twice as likely to develop lung cancer as men, with similar levels of smoking,¹⁰¹ and will develop it at an earlier age than men. Women's enhanced susceptibility to the effects of cigarettes may be due to a greater deposition of toxic substances in the lung, impaired clearance of toxins, and/or heightened biological responses to these toxins.¹⁰²

While more women get breast cancer than any other type of cancer, survival rates have improved significantly, and the rate for breast cancer death in BC has dropped from 2.43 per 10,000 in 1993 to 1.83 per 10,000 in 2008. Female breast cancer mortality

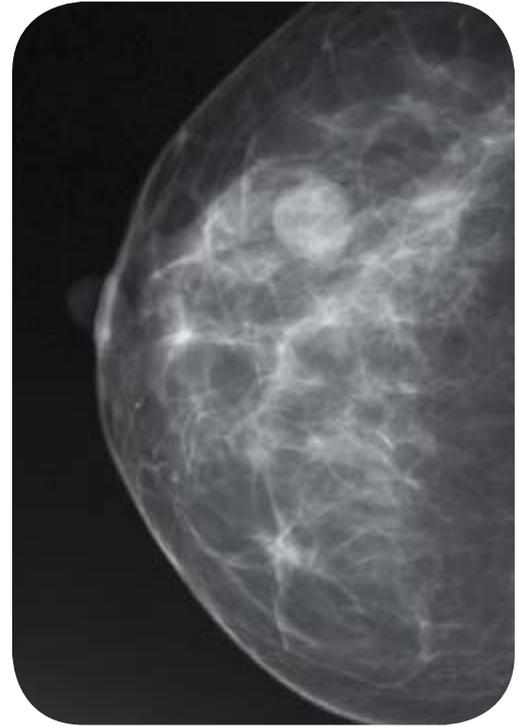
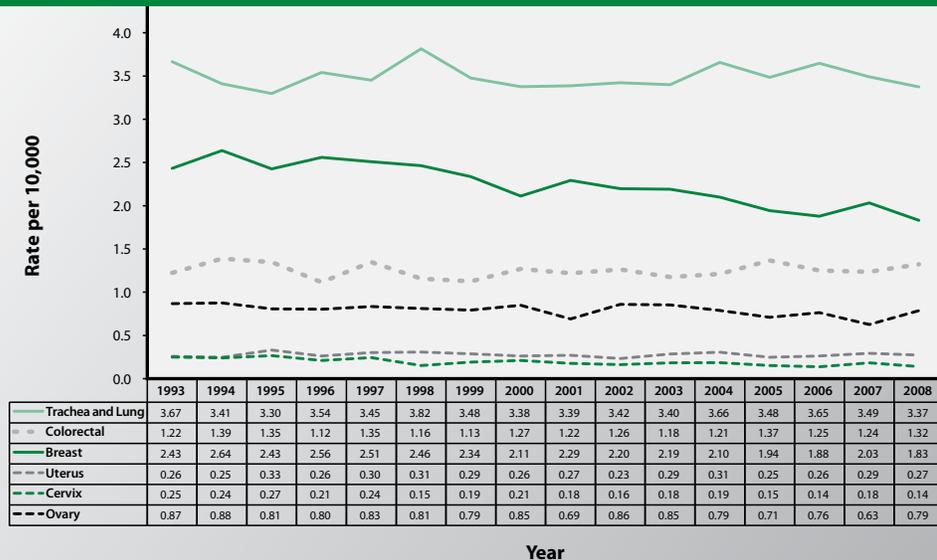


Figure 7.26

Selected Malignant Neoplasms, Age-Standardized Mortality Rate, Females, BC, 1993 to 2008



Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

Figure 7.27 documents the change that occurred in death rates for a select group of cancers among women between 1970 and 2005. In the mid-1980s, lung cancer overtook breast cancer as the leading cause of cancer death in women.

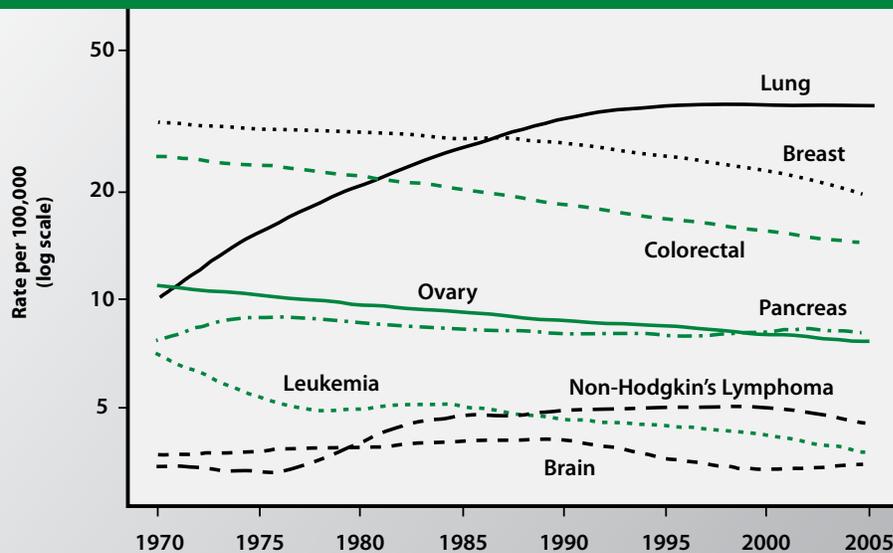
Given the success of the Pink Ribbonⁱ campaign in raising awareness and focusing research and treatment on breast cancer, one might wonder how the campaigners would react if they discovered a product that caused breast cancer as reliably as cigarettes cause lung cancer, and how long they would tolerate the marketing of such a product to women.

Figure 7.28 reveals that between 2004 and 2008, 5,231 women and 5,978 men died of trachea and lung cancer in BC. Northern Health Authority had the highest age-standardized mortality rates for trachea and lung cancer for both females and males, which may be partly due to differences in socio-economic status and access to health services, and higher smoking rates.



**Figure
7.27**

**Selected Cancers, Age-Standardized Mortality Rate,
Females, BC, 1970 to 2005**

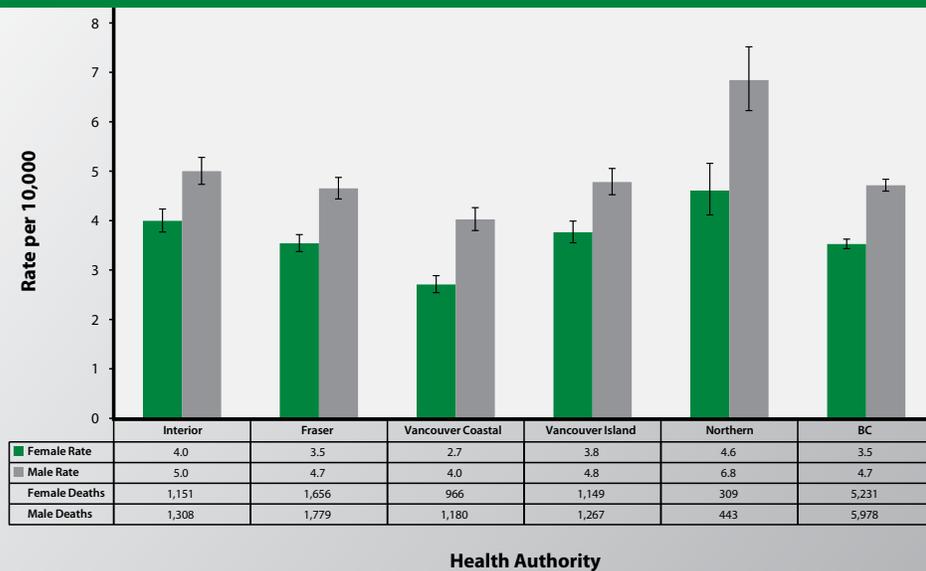


Source: BC Cancer Agency, 2010 (date retrieved 2007); prepared by Population Oncology, based on population estimates from BC Stats P.E.O.P.L.E. 32.

ⁱ For additional information on the impacts of the Pink Ribbon campaign please visit <http://www.cwhn.ca/en/node/42682>.

Figure 7.28

Malignant Neoplasms of Trachea and Lung, Age-Standardized Mortality Rate, by Sex and Health Authority, BC, 2004-2008



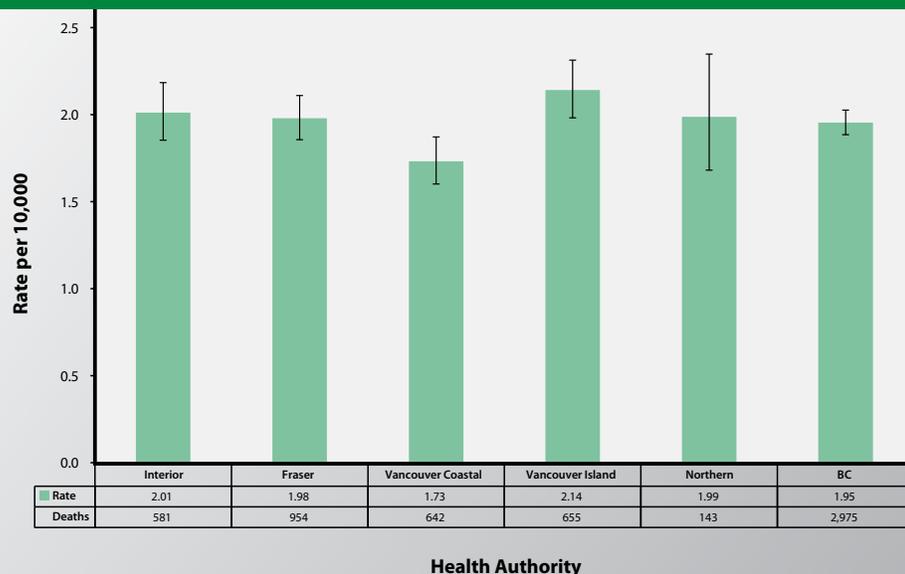
Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

Figure 7.29 shows that between 2004 and 2008, 2,975 women died of breast cancer in BC. The age-standardized mortality rate for female breast cancer was highest in Vancouver Island Health Authority, at

2.14 per 10,000 (or 655 deaths). The differences between Vancouver Island and the next two highest health authorities, Interior and Northern Health, were not statistically significant.

Figure 7.29

Malignant Neoplasms of Female Breast, Age-Standardized Mortality Rate, by Health Authority, BC, 2004-2008



Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

A recent study that looked at cancer incidence data by neighbourhood quintile in Canada showed that the risk of being diagnosed with breast cancer was greatest in the highest income neighbourhoods. While differences between lower income neighbourhoods were not always statistically significant, differences between the fourth and fifth quintile always were. Lower parity and a higher screening mammography rate may be related to the higher breast cancer incidence rates among women in the highest income neighbourhoods, but these variables did not fully account for the differences across income categories.¹⁰⁴



“Poorer neighbourhoods generally have more fast-food outlets, fewer grocery stores, and fewer recreational facilities and parks.”

Cardiovascular Disease

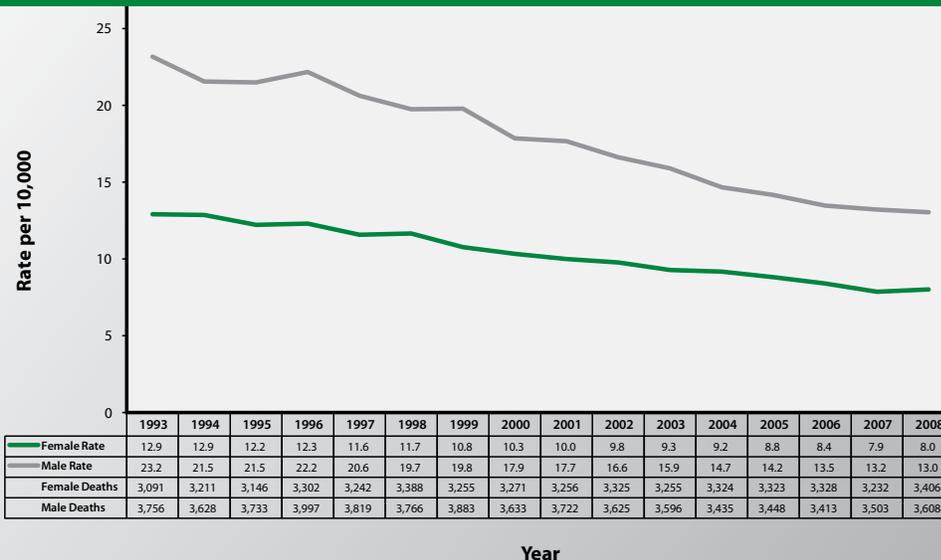
Heart disease risk varies among women based on genetic, cultural and socio-economic differences. Visible minority, Aboriginal and low-income women may have a greater risk of heart disease and also experience difficulties accessing care. In addition, poorer neighbourhoods generally have more fast-food outlets, fewer grocery stores, and fewer recreational facilities and parks, which may restrict physical activity. Social and environmental factors that produce chronic stress, including poverty and insecure

housing and unsafe neighbourhoods, may also contribute to unhealthy behaviours or prevent women from attending to their health.¹⁰⁵

Age-standardized mortality rates for cardiovascular disease have been declining since 1993 for both males and females, although the rate for males has dropped by close to 44 per cent as opposed to only 38 per cent for females (Figure 7.30). In 2008, 3,406 females died of cardiovascular disease compared to 3,608 males.

Figure
7.30

Cardiovascular Disease, Age-Standardized Mortality Rate, by Sex, BC, 1993 to 2008



Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

Figure 7.31

Cerebrovascular Disease, Age-Standardized Mortality Rate, by Sex, BC, 1993 to 2008



Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

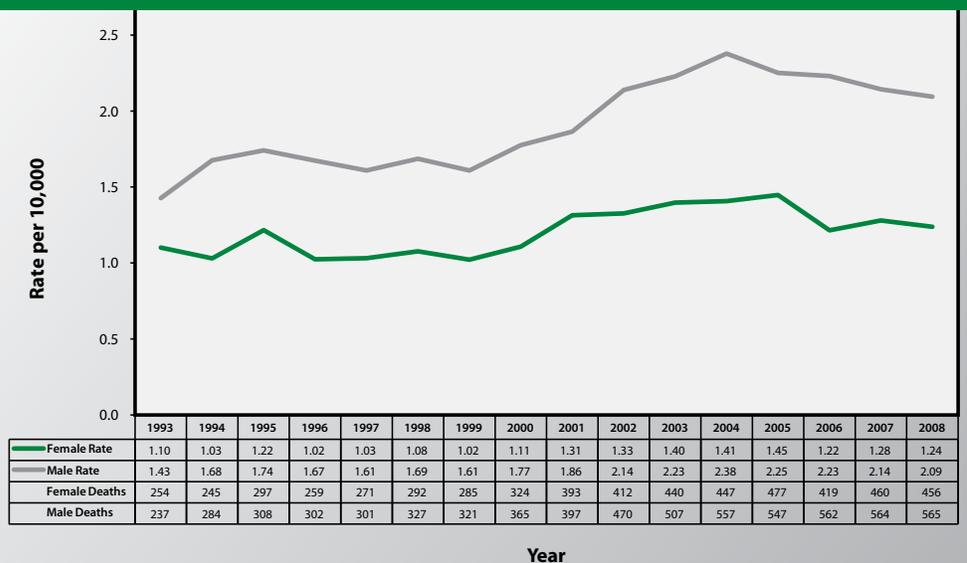
Stroke

Age-standardized mortality rates from cerebrovascular disease or stroke have been declining for both females and males since 1993 (Figure 7.31). The rates for both sexes

are now virtually identical: 3.4 per 10,000 for females and 3.5 per 10,000 for males in 2008, a drop of approximately 35 per cent since 1993. Overall, more women than men die of stroke (1,456 and 953 respectively in 2008), which is due to the female population living longer.

Figure 7.32

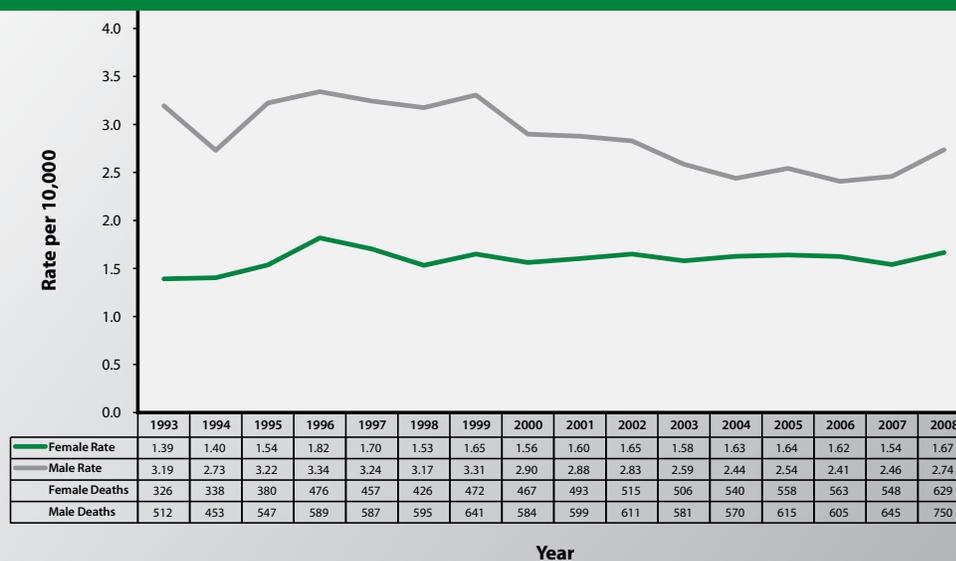
Diabetes, Age-Standardized Mortality Rate, by Sex, BC, 1993 to 2008



Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

Figure
7.33

Chronic Obstructive Pulmonary Disease, Age-Standardized Mortality Rate, by Sex, BC, 1993 to 2008



Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

Diabetes

Figure 7.32 shows that the age-standardized mortality rate for diabetes for females increased slightly between 1993 and 2005 (from 1.10 per 10,000 in 1993 to 1.45 per 10,000 in 2005), while the rate for males increased more rapidly in the same time period (from 1.43 to 2.25 per 10,000). Since 2005, there has been a slight decrease for females and males, an encouraging trend that may be due in part to improved diabetes management.

Chronic Obstructive Pulmonary Disease

Trends in age-standardized mortality rates for chronic obstructive pulmonary disease (COPD) differ according to sex. As shown in Figure 7.33, the mortality rate for females with COPD has increased, from 1.39 per 10,000 in 1993 to 1.67 per 10,000 in 2008, although the difference is not statistically significant. In contrast, the rate for males

has dropped significantly in the same time period, from 3.19 per 10,000 to 2.74 per 10,000. The gap between the sexes has narrowed since 1993.

Smoking-attributable Deaths

Since 1993, the age-standardized mortality rates for smoking-attributable deaths have dropped significantly for both females and males, although the male rate has fallen more dramatically (Figure 7.34). The current rates are 7.0 per 10,000 for females and 13.9 per 10,000 for males. Women are more likely to smoke to help cope with stress¹⁰⁶ and have more difficulty quitting smoking than men. Smoking interferes with estrogen production, a natural protective factor against cardiovascular disease, which makes women smokers more vulnerable than men to heart disease. In addition, smoking can more often lead to heart attacks in women than in men.¹⁰⁷

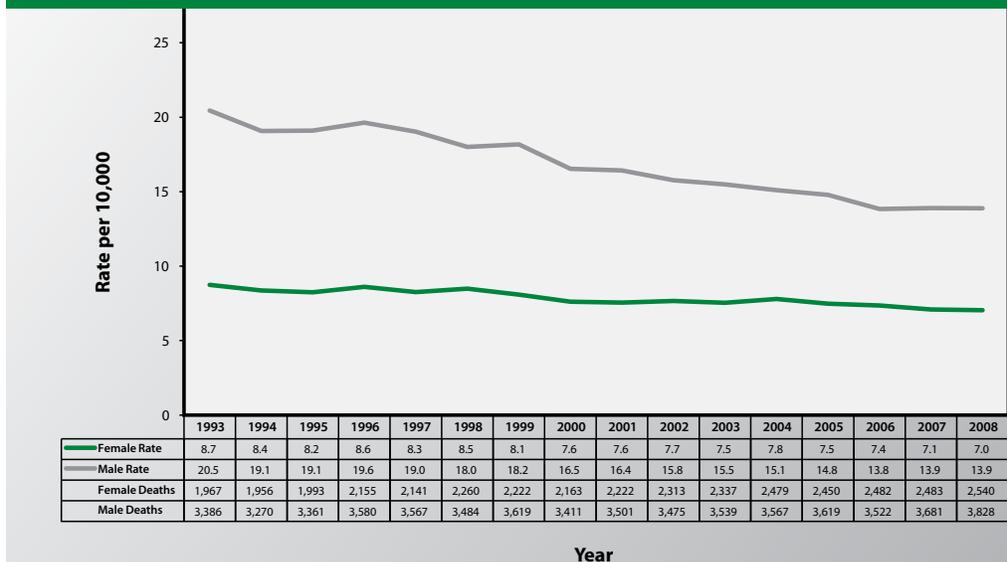
WOMEN 7.0

Smoking-attributable Deaths
(per 10,000)

MEN 13.9

Figure 7.34

Smoking-attributable Deaths, Age-Standardized Mortality Rate, by Sex, BC, 1993 to 2008



Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

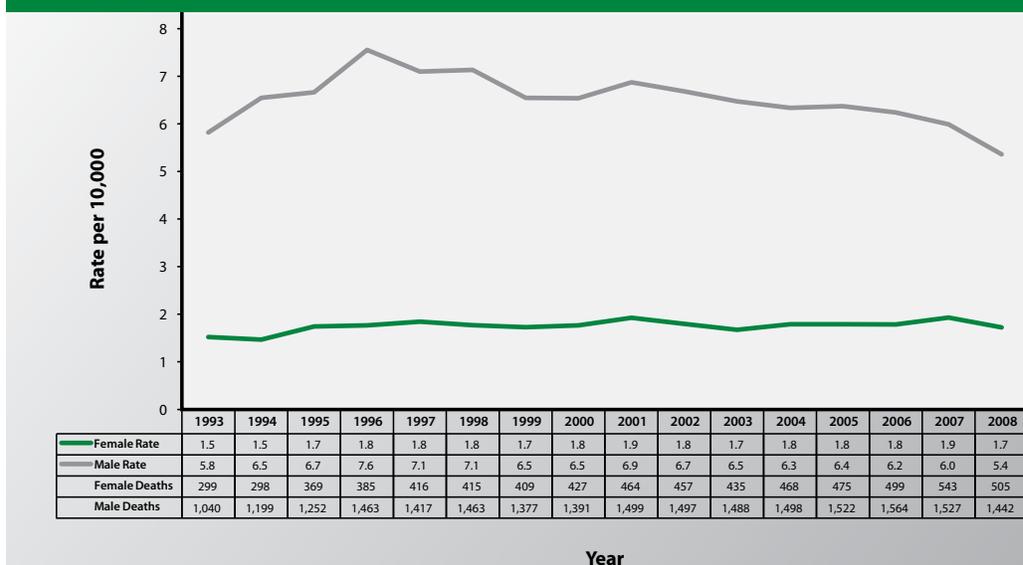
Alcohol-related Deaths

As seen in Figure 7.35, rates for alcohol-related mortality have remained relatively stable for both women and men since 1993.

Current rates are 1.7 per 10,000 for women and 5.4 per 10,000 for men, which translate to 505 deaths for women and 1,442 deaths for men.

Figure 7.35

Alcohol-related Deaths, Age-Standardized Mortality Rate, by Sex, BC, 1993 to 2008



Source: BC Vital Statistics Agency. Vital Statistics data produced by Health Sector IM/IT Informatics Group, 2009; prepared by Population Health Surveillance and Epidemiology, Ministry of Healthy Living and Sport, 2009.

Summary of What We Know

- The top five most commonly occurring chronic conditions for women are hypertension (13.7 per cent), asthma (11.48 per cent), osteoporosis (8 per cent), osteoarthritis (6.63 per cent) and diabetes (4.77 per cent).
- Within BC between 2004/2005 and 2008/2009, age-standardized prevalence rates for hypertension showed a steady increase for both women and men. In 2008/2009, the rates were 13.7 per cent for women and 13.4 per cent for men. The gap between women and men appears to be narrowing.
- Age-specific prevalence rates for asthma for 2008/2009 showed interesting differences by sex. The prevalence rate was higher for males between the ages of 5 and 19 years; however, after the age of 20 this pattern is reversed, with the gap in prevalence rates between men and women increasing with each subsequent age group. The age-standardized prevalence rate for women rose to 11.5 per cent in 2008/2009 (for men, the rate rose to 10.2 per cent in 2008/2009).
- The age-standardized prevalence rate for osteoporosis for women has been steadily increasing over the five-year period from 2004/2005 to 2008/2009, and is currently over four times the rate for men. The rate among women was 8.0 per cent in 2008/2009, for a total of 65,122 women diagnosed with the disease. The age-standardized rate for men remained relatively consistent over the same time period and in 2008/2009, the rate was 1.8 per cent, for a total of 12,712 BC men diagnosed with the disease.
- In British Columbia, the age-standardized prevalence rate for osteoarthritis has been consistently higher for women than men. In 2008/2009, the female rate was 6.6 per cent, while the male rate was 5.3 per cent.
- There has been a steady increase in the prevalence of diabetes among the British Columbia population. The age-standardized prevalence rate for 2008/2009 was 4.8 per cent for women, compared to 5.9 per cent for men. Overall, this represents a total of 140,498 women, compared to 160,185 men, diagnosed with the disease. The gap between the number of men and women living with diabetes has been growing steadily.
- Age-specific prevalence rates for diabetes for 2008/2009 were approximately even for women and men until around age 39. After this point, the prevalence rate for men was consistently higher than the rate for women in every age group. Prevalence rates for both women and men peaked between 75 and 79 years of age (22.3 per cent for women, and 27.6 per cent for men).
- Age-standardized prevalence rates for COPD among both women and men have shown only minimal changes in the five-year period between 2004/2005 and 2008/2009. The rate was consistently higher for men than for women, with a total prevalence among men over age 45 of 5.8 per cent in 2008/2009, compared to 4.7 per cent among women. In 2008/2009, there were a total of 48,031 women in British Columbia living with COPD compared to 50,798 men.
- Age-standardized prevalence rates for ischemic heart disease in BC have remained relatively consistent for both women and men over the past five years. The rate was higher for men than women, and has risen gradually from 3.0 per cent in 2004/2005 to 3.3 per cent in 2008/2009. The rate for women has seen a smaller increase over the same time period, from 1.4 per cent to 1.5 per cent. In 2008/2009, a total of 49,375 women had ischemic heart disease, compared to 90,987 men.
- In 2008/2009, the age-standardized prevalence rate for women for congestive heart failure was 1.2 per cent, compared to 1.6 per cent for men. In the same year, the actual number of prevalent cases was only slightly higher for women, at 44,519 cases, compared to 44,256 cases for men.
- Among women, the age-standardized prevalence rate for stroke has decreased from 1.2 per cent in 2004/2005 to

1.1 per cent in 2008/2009. The rate for men was considerably higher than the rate for women, and had a similar slight decrease in the same time period, from 1.5 per cent to 1.4 per cent.

- The age-standardized prevalence rate for multiple sclerosis for women in 2008/2009 was 0.21 per cent, almost triple the rate for men (0.08 per cent). This represents 5,696 women currently living in the province with multiple sclerosis, compared to 2,031 men.
- In 2008/2009, over 3,000 hospitalizations for fall-related hip fractures were reported for BC women, compared to less than 1,200 for men. The greater number of falls among women is influenced by the fact that there are more senior women than men in the BC population; however, the hospitalization rate for 2008/2009 was actually 1.7 times higher for women than men. This means that for every 1,000 women over the age of 65 in BC, 6.6 would be hospitalized for a fall-related hip fracture, compared to 3.8 per 1,000 men.
- The number of days spent in hospital due to fall-related hip fractures in 2008/2009 was 2.4 times higher in women than men (44,438 days for women versus 18,449 for men). While the rates for hospitalizations and hospital days for hip fracture have declined for both women and men over the years, the decline was only statistically significant for women.
- Cancer is the leading cause of death in British Columbia for both men and women. The age-standardized mortality rates for cancer (malignant neoplasms) have dropped from 14.8 to 12.8 per 10,000 among females and 21.3 to 17.3 per 10,000 among males.
- Between 2004 and 2008, a total of 20,203 women and 22,760 men died of cancer. Northern Health Authority had the highest age-standardized mortality rate for both females and males (15.5 per 10,000 for females and 21.9 per 10,000 for males), while Vancouver Coastal Health Authority had the lowest (11.5 per 10,000 for females and 16.1 per 10,000 for males). The difference between health authorities may be due in part to differences in socio-economic status and access to health services.
- For females, the highest mortality rate from cancer between 1993 and 2008 was from trachea and lung cancer, with a rate of 3.37 per 10,000 in 2008. In the mid-1980s, lung cancer overtook breast cancer as the leading cause of cancer death in women. While more women get breast cancer than any other type of cancer, survival rates have improved significantly, and the age-standardized mortality rate for breast cancer in BC has dropped from 2.43 per 10,000 in 1993 to 1.83 per 10,000 in 2008.
- Age-standardized mortality rates from stroke have been declining and are now virtually identical for both sexes: 3.4 per 10,000 for females and 3.5 per 10,000 for males in 2008, a drop of approximately 35 per cent since 1993. Overall, more women than men die of stroke (1,456 and 953 respectively in 2008), which is due to the female population living longer.
- The age-standardized mortality rate for diabetes for females increased slightly between 1993 and 2005 (from 1.10 per 10,000 in 1993 to 1.45 per 10,000 in 2005), while the rate for males increased more rapidly in the same time period (from 1.43 per 10,000 to 2.38 per 10,000). Since 2004, there has been a slight decrease for both males and females, an encouraging trend that may be due in part to improved diabetes management.
- The age-standardized mortality rate for females with COPD has increased, from 1.39 per 10,000 in 1993 to 1.67 per 10,000 in 2008, although the difference is not statistically significant. In contrast, the rate for males has dropped significantly in the same time period, from 3.19 per 10,000 to 2.74 per 10,000. The gap between the sexes has been narrowing since 1993.

Chapter 8

Health Services

Health services need to be available, accessible and acceptable. This chapter looks at how health services in British Columbia are utilized by women and the appropriateness of these services. Administrative data provide evidence of health system and physician service use, while survey data highlight reasons why individuals do not access health care services. Administrative data are provided on health services access and hospitalization, including physician services, preventable admissions, surgical interventions such as hysterectomy and breast-conserving surgery, problematic substance use, mental health follow-up services and prescription drug use. Studies have shown that women are more likely to receive inappropriate treatment, including over-medication and over-treatment in some cases and under-medication and under-treatment in others, and are more likely to be dissatisfied with their experience with the health care system.

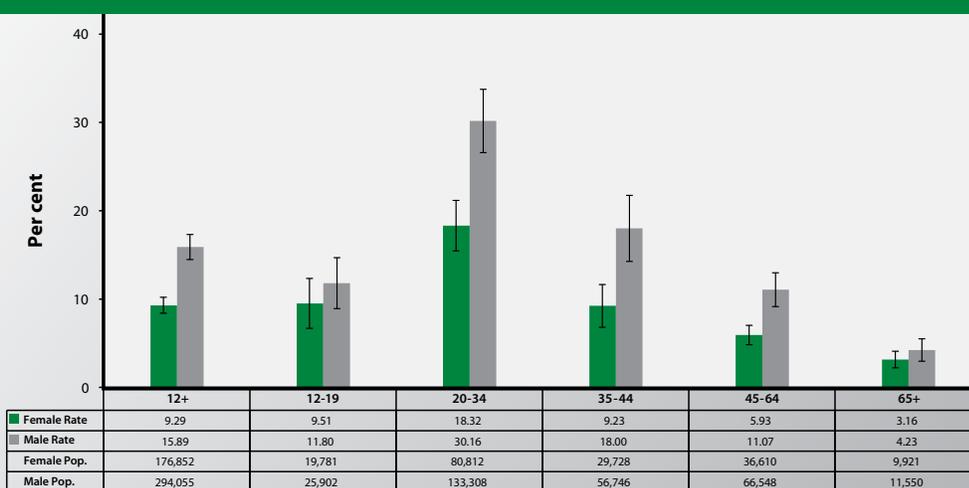
Accessibility of Health Care Services

Accessibility is one of the fundamental principles of Canada's health care system. Unfortunately, accessibility can be difficult to define and measure with available data. Canadian Community Health Survey data and national service benchmarking studies can help provide a picture of how well BC is doing in providing services to women.

BC women and men in the 20–34 age category were most likely to report having no regular medical doctor, with rates of 18 per cent and 30 per cent respectively (Figure 8.1). It is of concern that close to 20 per cent of women in prime childbearing years do not have a regular medical doctor. Rates are below 10 per cent for women in all other age categories.

Figure 8.1

No Regular Medical Doctor, Age 12+, by Sex and Age, BC, 2007/2008



Note: Non-responses have been excluded.

Source: Statistics Canada, Canadian Community Health Survey Share File, 2007/2008; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

“ Close to 20 per cent of women in prime childbearing years do not have a regular medical doctor. ”



Figure 8.2 shows that the reason most often given by women for not having a doctor is that they did not try to contact one (47.4 per cent), followed by doctor left or retired (19.8 per cent) and doctor not taking new patients (16.5 per cent).

The 2008 McCreary Centre Society’s Adolescent Health Survey (AHS) looked at the reasons why students in grades 7 to 12 did not access medical care. The reasons seemed to focus more on psychological concerns such as hope that the problem

Figure 8.2

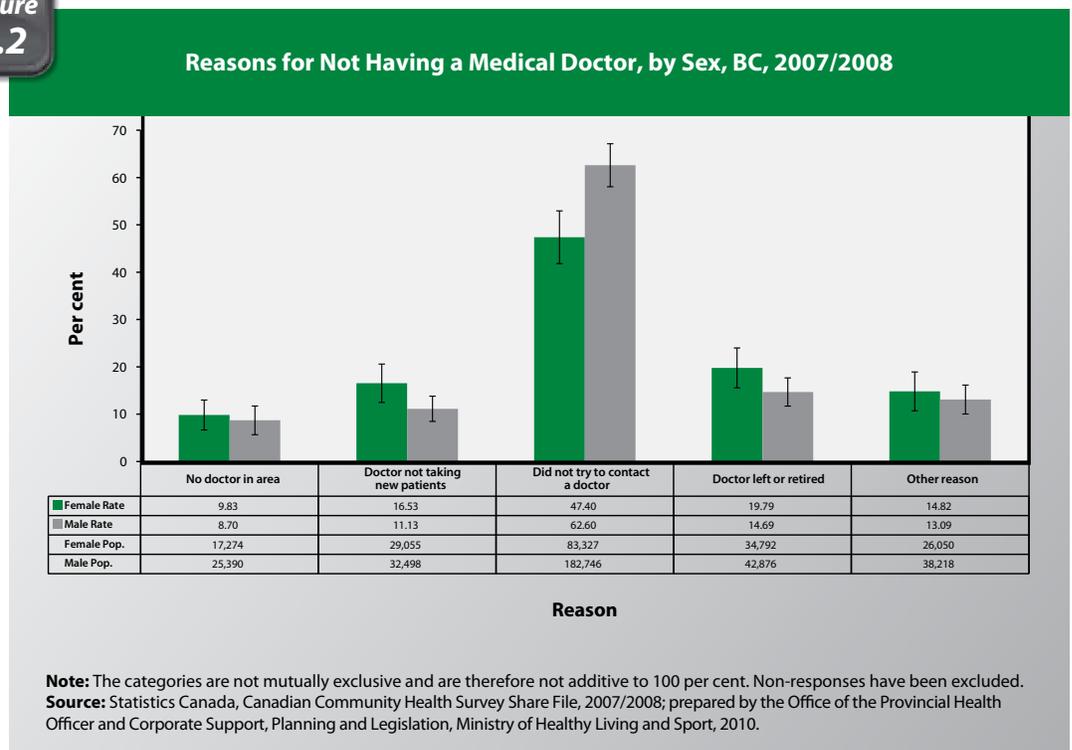
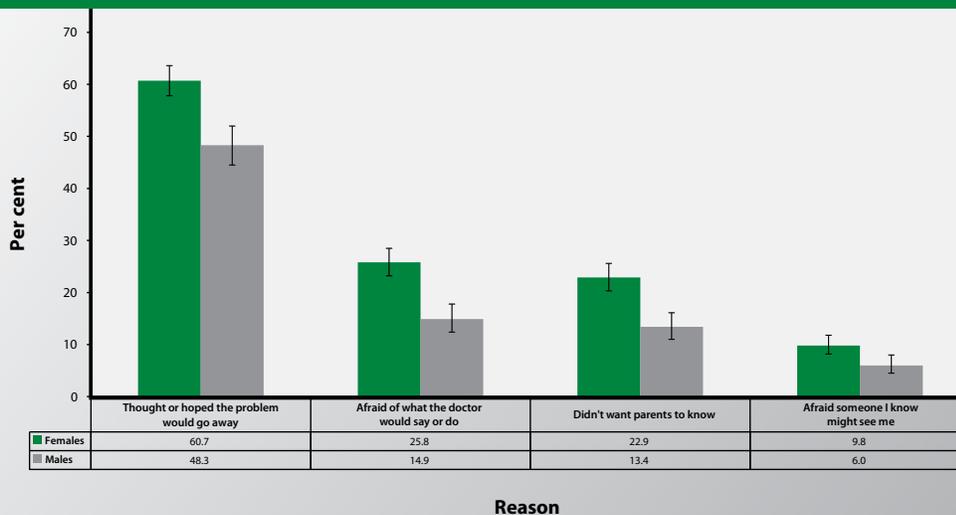


Figure 8.3

Reasons for Not Accessing Medical Care in the Past Year, Public School Students, Grades 7 to 12, by Sex, BC, 2008



Note: 99 per cent confidence intervals have been applied.

Source: McCreary Centre Society, British Columbia Adolescent Health Survey, 2008; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

would just go away, fear of what the doctor would do and fear of the issue being discovered by peers and/or family (Figure 8.3). Females were significantly more likely than males to experience each of these barriers.

The AHS also looked at reasons for youth not accessing mental health services. Again, most of the reasons were more prevalent for female students than males. As with accessing medical care, the reasons for not accessing mental health services focused on psychological concerns such as hope that the problem would go away, fear of the issue being discovered by peers and/or family, and fear of what the doctor would do. Accessibility barriers were also cited, such as cost and transportation.

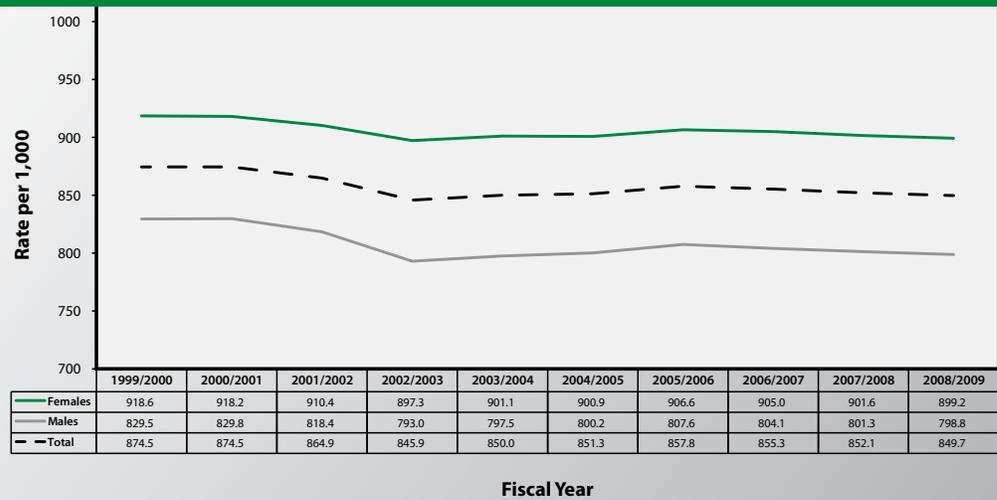
Medical Services Plan Utilization

Utilization rates—the proportion of the population who use specific services—provide another way of measuring accessibility. Figure 8.4 shows that Medical Services Plan (MSP) utilization rates have remained fairly consistent over the past decade.



Figure 8.4

Medical Services Plan Utilization, Age-Standardized Rate, by Sex, BC, 1999/2000 to 2008/2009



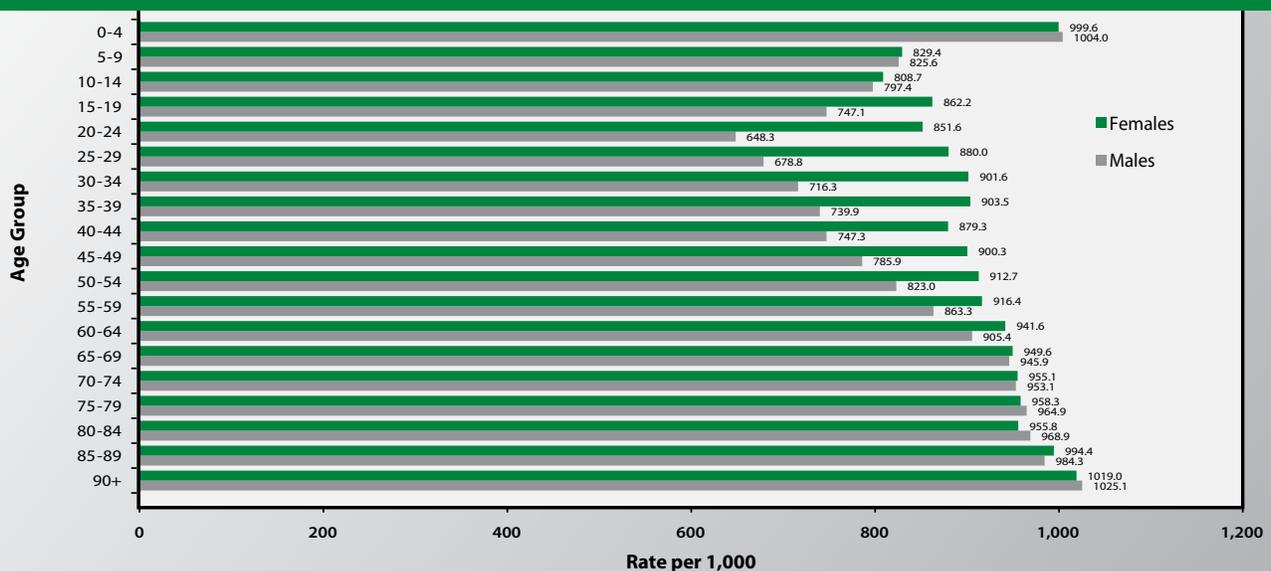
Note: The data include all services for which payment is claimed from Medical Services Plan (MSP) (patients who have received at least one MSP fee-for-service medical and/or paramedical service in a given fiscal year) but exclude third-party agencies such as the Insurance Corporation of British Columbia or the Workers' Compensation Board of BC, form fees and incentives, payments for services under the Reciprocal Agreement, claims in progress, services provided to non-BC residents, and services by out-of-province doctors to BC residents. Age-standardized rate per 1,000 standard population (Canada Census 1991).
Source: Ministry of Health Services, MSP Claims Database; prepared by Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

It has been a common trope that women engage in more help-seeking behaviour than men and thus have higher health system

usage than men. Figure 8.5 clearly shows the difference in Medical Services Plan usage between women and men across their

Figure 8.5

Medical Services Plan Utilization, by Sex and Age, BC, 2008/2009



Note: The data include all services for which payment is claimed from Medical Services Plan (MSP) (patients who have received at least one MSP fee-for-service medical and/or paramedical service in a given fiscal year) but exclude third party agencies such as the Insurance Corporation of British Columbia or the Workers' Compensation Board of BC, form fees and incentives, payments for services under the Reciprocal Agreement, claims in progress, services provided to non-BC residents, and services by out-of-province doctors to BC residents. Age-standardized rate per 1,000 standard population (Canada Census 1991). It should be mentioned that one doctor's visit can potentially result in multiple fee-for-service items, making it possible to have a rate per 1,000 greater than 1,000. Those that did not have the geography identified were excluded.
Source: Ministry of Health Services, MSP Claims Database; prepared by Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.



life span. From this analysis, it is clear that women have higher rates than men during their main reproductive years and into the post-menopausal stage. At either end of the age spectrum, the usage rates of the two sexes are very similar. This conclusion is supported by a study done in Manitoba, which found that after the costs of sex-specific conditions were removed, the cost of insured health care services for women was about the same as for men.^{1,2} It is important that the unique needs of women be considered in the reform of primary care services.

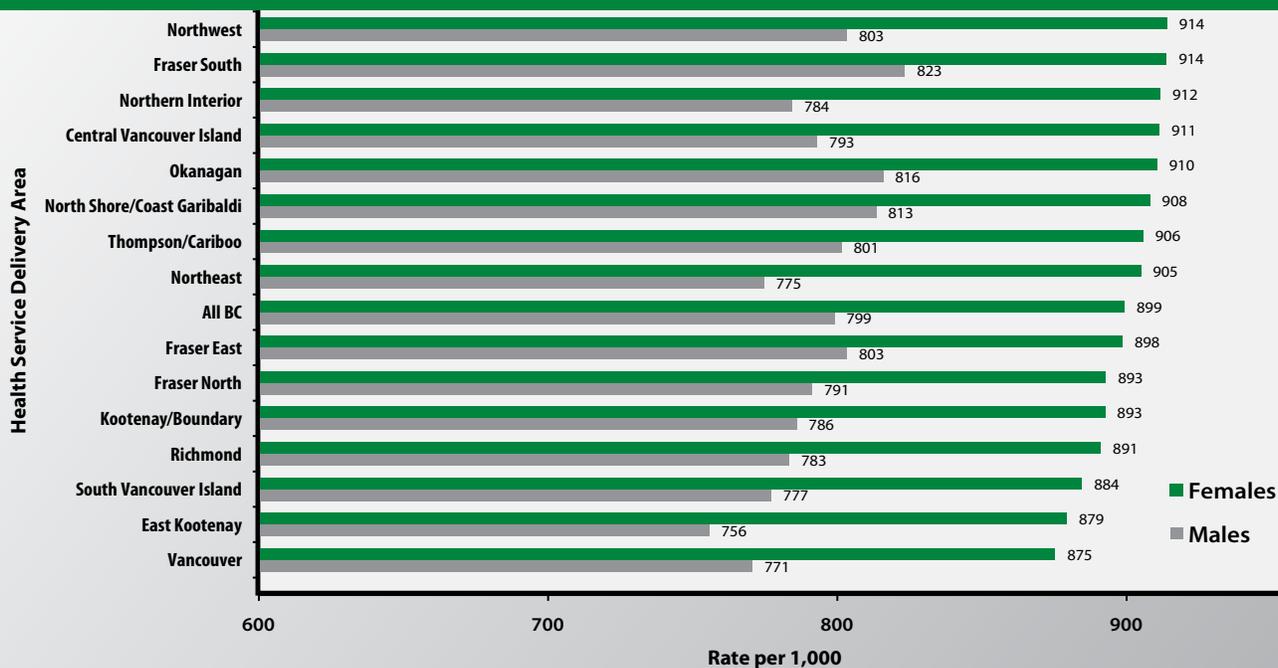
Figure 8.6 shows that the age-standardized MSP usage by health service delivery area (HSDA) varies by region. Usage was highest in the Northwest, Fraser South, Northern Interior and Central Vancouver Island, and lowest in Vancouver, the East Kootenays, South Vancouver Island and Richmond. It is interesting to note there is considerable variation between HSDAs within the same health authority; for example, there is a gap in usage between Fraser South and Fraser North and East.

Unmet Health Care Needs

Unmet health care needs can be divided into three categories: availability, accessibility and acceptability of services. Unmet need due to availability includes too-lengthy wait times, services not available when required and services not available in the area. Unmet need due to accessibility relates to costs and transportation, and acceptability of services relates to the personal preferences of individuals.³

Figure
8.6

Medical Services Plan Utilization, Age-Standardized Rate, by Sex and Health Service Delivery Area, 2008/2009



Note: The data include all services for which payment is claimed from Medical Services Plan (MSP) (patients who have received at least one MSP fee-for-service medical and/or paramedical service in a given fiscal year) but exclude third party agencies such as the Insurance Corporation of British Columbia or the Workers' Compensation Board of BC, form fees and incentives, payments for services under the Reciprocal Agreement, claims in progress, services provided to non-BC residents, and services by out-of-province doctors to BC residents. Age-standardized rate per 1,000 standard population (Canada Census 1991). Those that did not have the geography identified were excluded.

Source: Ministry of Health Services, MSP Claims Database; prepared by Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2009.

According to the 2005 Canadian Community Health Survey (CCHS), women in BC were more likely than men to indicate that they had unmet health care needs (Figure 8.7). This finding was consistent across most age groups, with the largest gender difference in the 18–34 age group. Overall, 12.7 per cent of women felt their health care needs were not addressed, compared to 10.0 per cent of men.

An analysis of 2003 data by Sibley and Glazier³ found that unmet need was more common among women and younger people, those with higher educational attainment and those with lower household income. Most of the unmet need in BC was in the acceptability and availability categories. On a national level, in 2005, British Columbia ranked eighth among Canadian provinces and territories, only 0.2 per cent below the national average of 12.9 per cent for unmet health care needs for women.

A Conference Board of Canada benchmarking study of provincial health care services⁴ found that although BC was a top performer among the provinces for health status ranking and health care outcome indicators, its poorest result (second lowest in the country) was in the health care utilization

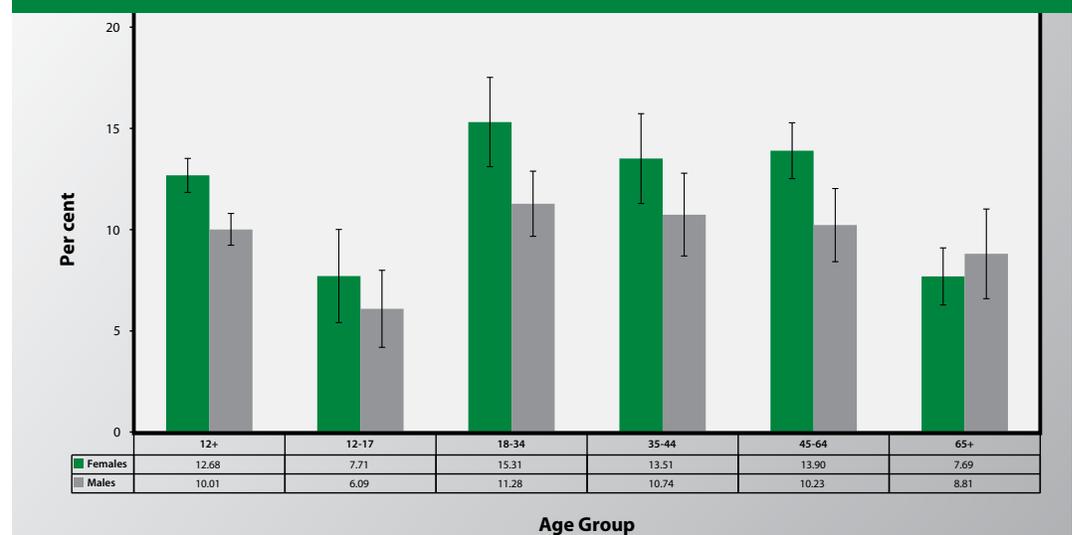
and performance indicators category. This poor rating was mainly due to low ratings by system users: BC had the lowest female patient satisfaction scores for overall health care services, hospital care and physician care.⁴

Wait Times for Specialists

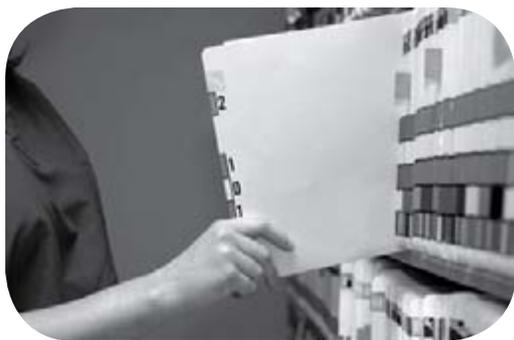
Waiting for health care can increase worry, stress and pain.⁵ When wait times for surgery and other procedures exceed standard limits, they can indicate a barrier to care;⁶ however, waits also occur earlier in the delivery of women’s health care, including waiting for specialist consultations, which can account for as much as 30 per cent of the entire wait time.⁶ A recent analysis of CCHS data estimated that three million patients in Canada had consulted a specialist, and almost 60 per cent of these patients were female. The top reason for seeing a specialist was gynaecological conditions (21 per cent for women) and women with these conditions had lower odds than men of seeing a specialist within a month.⁶ The analysis also found that over 51 per cent of men with a new condition saw a specialist within a month, compared to only 42 per cent of women. The authors speculate that some of the gender difference in specialist wait times may also arise from higher

Figure 8.7

Self-Perceived Unmet Health Care Needs, by Sex and Age, BC, 2005



Source: Statistics Canada, Canadian Community Health Survey Share File, 2005; prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.



Pap Smears

A Pap smear is a simple procedure done to look for changes in the cells of the cervix that can lead to cervical cancer.⁹ Risk factors for cervical cancer include being of younger age at first intercourse, having a greater number of sexual partners, increasing age, infection with human papillomavirus (HPV), smoking and low socio-economic status.¹⁰

priority being given to men with more severe conditions due to the fact that these men may not regularly visit their doctor. There is a possibility that gender bias is affecting wait times, as previous studies have found gender bias in access to primary care for treatment of heart disease.^{7,8}

Reproductive Cancer Screening

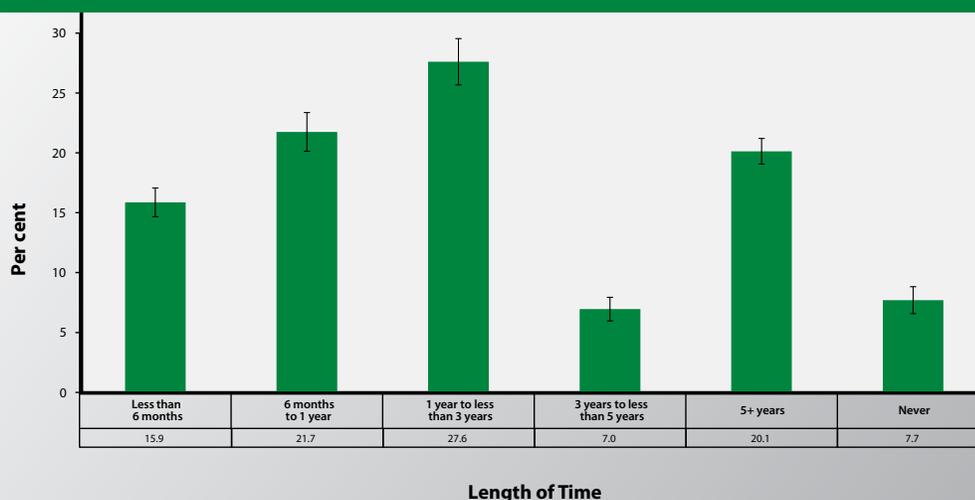
As reported in Chapter 7, mortality rates from breast and cervical cancer have decreased significantly in the past 20 years. Effective screening programs have improved survival rates, as cancers are caught at an early stage when treatment is more likely to be successful.

According to the 2008 CCHS, the vast majority of women over the age of 35 (92.3 per cent) have had a Pap smear at some point in time. According to Figure 8.8, approximately two-thirds of women (65.2 per cent) have had a test within the last three years. It is concerning that close to 28 per cent of women have not had a test in over five years or had never been tested.

The Cervical Cancer Screening Program at the BC Cancer Agency processed a total of 549,482 Pap smears from BC women in 2009.¹¹ The adjusted participation rate^a for the BC female population age 20–69 is 79 per cent, an increase of 1 per cent over the previous year, which exceeds the Canadian target of 70 per cent. Participation

Figure 8.8

Length of Time Since Last Pap Smear, Age 35+, BC, 2008



Note: Excludes non-responses.

Source: Statistics Canada, Canadian Community Health Survey Share File, 2008 (half-sample); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

^a Adjusted participation rate means hysterectomy corrected. The hysterectomy adjustment is based on the estimated age-specific hysterectomy rates for BC to exclude women without a cervix.



rates in the 20–29 age group have exceeded the national benchmark of 70 per cent in three of the five health regions (Interior, Vancouver Island and Northern Health Authorities). However, participation rates are persistently lower among young women in the Lower Mainland, especially in Richmond, Vancouver and the Fraser Valley. Participation rates for older women are lower in some areas of the province, including the Northeast, Northwest, Thompson Cariboo and Fraser East.¹¹

Age-specific recruitment initiatives are needed in many regions of the province and for marginalized Aboriginal women. A study by Pakula showed that experiences of discrimination or insensitive treatment by health care professionals, a history of abuse, feelings of being forced, presence of male health care providers and time considerations are all factors that can inhibit access to Pap smear testing for marginalized Aboriginal women.¹² Attention should also be given to the needs of disabled women to facilitate their access to preventive services.

Mammography

A mammogram is an x-ray of the breast used to screen for breast cancer. While mammograms are not 100 per cent effective in detecting all cancers, increased participation in the screening program will result in a higher cancer detection rate among women that do have cancer. Preventing cancer spread and relapse is critically important, since the five-year survival rate for a woman diagnosed with metastatic breast cancer is only 27 per cent.¹⁴

Since the late 1990s, the rate of new breast cancer cases has levelled off, and the death rate has steadily declined. The BC Cancer Agency recommends that women aged 40 to 79 with no signs of a breast problem (such as lumps or nipple discharge) have a screening mammogram at least every two years. Early detection of breast cancer allows for more treatment options and a better chance for recovery. Regular participation in the screening mammography program by BC women has helped to reduce breast cancer deaths in BC by 25 per cent.¹⁵

The Screening Mammography Program (SMP) was established in 1988 through the BC Cancer Agency to reduce breast cancer mortality through early detection. The program provides standard two-view bilateral mammography to eligible women in BC age 40–79 without a doctor's referral.^{b,15} In 2009, the SMP performed 299,436 screening mammograms; of that total, 1,283 cancers were detected (Table 8.1). In 2008 and 2009,

**Table
8.1**

Screening Mammography Indicators by 10-Year Age Group, 2009

Outcome Indicators	Age at Exam						Total
	<40	40 - 49	50 - 59	60 - 69	70 - 79	80+	
Number of Exams	328	99,245	95,409	69,394	33,697	1,363	299,436
Number of Cancers	-	215	373	426	250	19	1,283
Overall Cancer Detection Rate	-	2.2	3.9	6.1	7.4	13.9	4.3

Source: BC Cancer Agency, Screening Mammography Program, 2010 Annual Report.¹⁶

^b Women are not considered eligible for the program if they (1) have new breast problems (e.g., lumps, thickening, nipple discharge, etc.); (2) have breast implants; (3) have had breast cancer; (4) are pregnant/breastfeeding; or (5) have had a mammogram of both breasts within the last 12 months.

491,869 women age 40 and over participated in the biennial screening program. The participation rate in the 50–69 age group was 51 per cent, well below the target rate of 70 per cent. By HDSA, Northeast had the lowest participation rate at 39 per cent and Richmond was highest at 55 per cent.¹⁶

Results from the 2008 CCHS showed that over 90 per cent of BC women age 60–69 reported having had a mammogram. The lowest rate was in the 40–49 age category, at 64.7 per cent. According to the 2008 CCHS, the main factors linked to non-use of screening mammography are low socio-economic status, not having a regular medical doctor, not having contacted a general practitioner or family doctor in the past year and being a smoker. Screening rates vary across the province. Women living in rural and remote communities have lower rates of screening than women in urban centres. Lower usage rates are found among Aboriginal women, recent immigrants and women born in Asia.^{17,18}

In BC, participation by First Nations women was lowest in the Northeast (31.7 per cent) and in North Shore/Coast Garibaldi (34 per cent). Participation by East/South-East Asian women was lowest in the Northeast (12 per cent) and in the Northwest (26.4 per cent). Participation by South Asian women

Breast Cancer

The risk of getting breast cancer goes up as women age. According to current estimates, the following number of women will develop breast cancer:

13	out of 1,000 women in their 40s
23	out of 1,000 women in their 50s
29	out of 1,000 women in their 60s
31	out of 1,000 women in their 70s

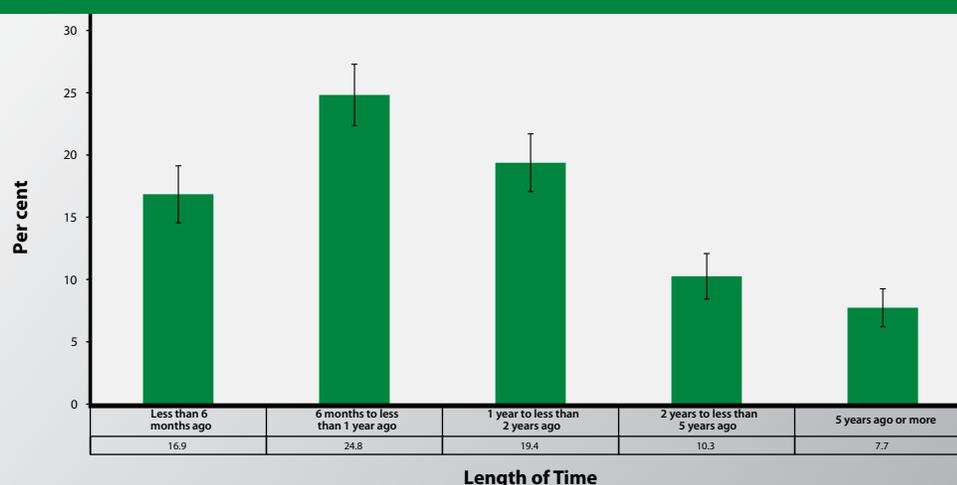
— Public Health Agency of Canada, 2009.¹³

was lowest in Fraser South (37.7 per cent) and in Central Vancouver Island (41.2 per cent).¹⁶ In addition, women with disabilities may have difficulties accessing preventive screening.¹⁹ Barriers to care can also be experienced by lesbian, bisexual and transgendered populations due to fear of discrimination and previous negative experiences with health care professionals.

With regard to frequency of testing, Figure 8.9 shows that about 61 per cent of women between the ages of 40 and 75 reported receiving a mammogram within two years, while 10.3 per cent had received a mammogram two to five years ago, and almost 8 per cent had not received one in five or more years.

Figure
8.9

Length of Time Since Last Mammogram, Age 40-75, BC, 2008



Source: Statistics Canada, Canadian Community Health Survey Share File, 2008 (half-sample); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

Breast Self-Examination

Breast self-examination involves checking the breasts for lumps or changes while standing and lying in different positions and while looking at them in a mirror to note any changes in their appearance. Most breast problems or changes are not due to cancer.²⁰ While there is no evidence that breast self-examination will prevent a woman from dying of cancer, the BC Cancer Agency encourages women to perform regular breast self-examination, because it allows women to become familiar with normal changes in their breasts. Many breast cancers are found by women examining their own breasts, especially if they are not having regular screening mammograms.²¹

Hospitalization

Preventable Admissions

In order to determine how well the health system is managing care it is useful to look at the rate that patients are admitted to hospital with conditions that could be treated in another manner. Preventable admissions are

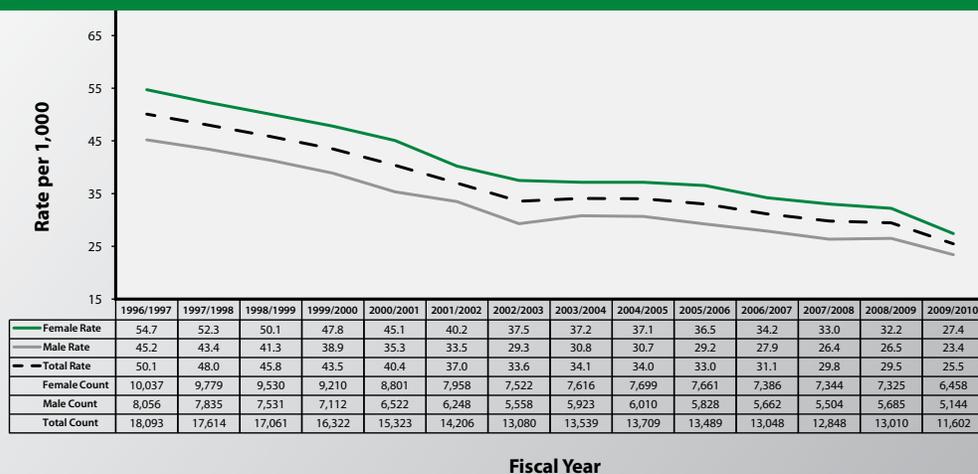
conditions that can usually be managed at home or with a physician's advice without the need for hospital admission (e.g., diabetes, asthma, hypertension, depression and misuse of alcohol and other drugs). The rate of preventable admissions for women in 2009/2010 was 27.4 per 1,000, half of what it was in 1996/1997 (Figure 8.10). The rate for men is lower but it dropped in tandem with the rate for women, to a low of 23.4 per 1,000. The decline may be due in part to better management of chronic disease.

Integrated Health Networks

Integrated health networks are an important component of the Primary Health Care Charter, which brings together physicians with community agencies and health authority services to create a more integrated and community-based approach to the management and treatment of chronic disease.²² The initial focus of integrated health networks is to improve care for priority populations: those with specific chronic conditions or co-morbidities; the frail elderly and seniors at risk; those experiencing mental health and addiction issues; and/or marginalized populations.

Figure 8.10

Preventable Admissions, Age-Standardized Rate, Age 0-74, by Sex, BC, 1996/1997 to 2009/2010



Note: Preventable admissions are long-term health conditions that can often be managed with timely and effective treatment in the community, without hospitalization. Data include acute care level (including newborns). Residents of BC treated out-of-province are included and non-BC residents are excluded. Riverview Hospital cases with length of stay greater than 180 days are excluded. Data for 2001/2002 and onwards are based on ICD-10-CA, while previous years are based on ICD-9. Differences between these two systems may have impacted this analysis. Age-standardized rate per 1,000 standard population (Canada Census 1991).

Source: Ministry of Health Services, Discharge Abstract Database; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2010.

Research has shown that people in the lowest socio-economic group were more than twice as likely to be hospitalized for chronic conditions that could be treated in the community.²³ If patients in these priority groups are given the appropriate care, there are corresponding reductions in emergency department and hospital usage, along with improvements in health status. The Canadian Mental Health Association has partnered with integrated health networks to provide telephone coaching support to those people living with chronic conditions who are suffering from depression and anxiety. There are currently 31 integrated health networks across British Columbia, serving approximately 50,000 patients.



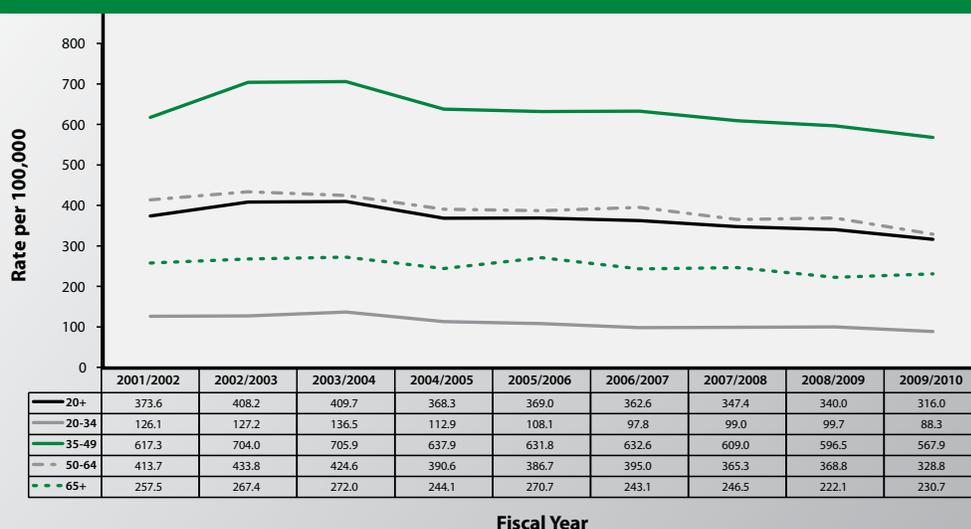
aged 20 years and over in Canada has declined steadily since the early 1980s.²⁴ Rates for hysterectomy vary widely both around the world and across Canada. Rural rates are generally higher than the rate among urban women.

As shown in Figure 8.11, in 2009/2010, the hysterectomy crude rate for females aged 20 and over was 316 per 100,000. This is a decrease from the peak years of 2002/2003 and 2003/2004 when rates were 408 and 410 per 100,000 respectively. The rate for women aged 35–49 remains highest of all age groups, but dropped to below 600 per 100,000 in 2008/2009 and currently sits at 567.9.

In 2009/2010, the age-standardized rate for hysterectomy in BC was 302 per 100,000.

Figure
8.11

Age-Specific Hysterectomy Rate, Females, Age 20+, by Age,
BC, 2001/2002 to 2009/2010

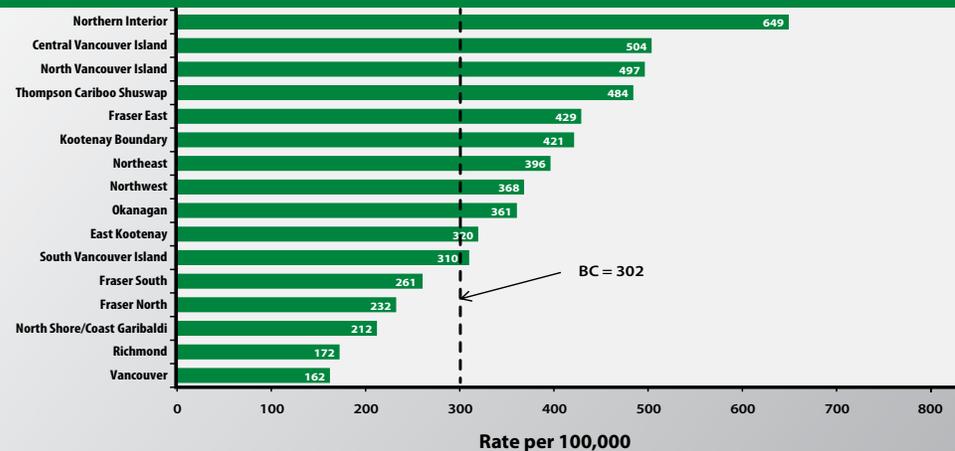


Note: Includes acute, rehabilitation and day surgery levels of care. Non-BC residents are excluded. BC residents treated out-of-province are included. Riverview Hospital cases with length of stay greater than 180 days are excluded. Includes all hysterectomy surgeries: 1.RM.89^^, 1.RM.91^^ or 1.RM.87.BA-GX, 1.RM.87.CA-GX, 1.RM.87.DA-GX, 1.RM.87.LA-GX with extent attribute coded as "SU" Code may be recorded in any position. Procedures coded as cancelled, out-of-hospital, and "abandoned after onset" are excluded.

Source: Ministry of Health, Hospital Discharge Abstract Database, 2011; prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

Figure
8.12

Hysterectomies, Age-Standardized Rate, Females, Age 20+, by Health Service Delivery Area, 2009/2010



Note: Includes acute, rehabilitation, and day surgery levels of care. Non-BC residents are excluded. BC residents treated out-of-province are included. Riverview Hospital cases with length of stay greater than 180 days are excluded. Includes all hysterectomy surgeries: 1.RM.89^^, 1.RM.91^^ or 1.RM.87.BA-GX, 1.RM.87.CA-GX, 1.RM.87.DA-GX, 1.RM.87.LA-GX with extent attribute coded as "SU" Code may be recorded in any position. Procedures coded as cancelled, out-of-hospital, and "abandoned after onset" are excluded. There were 6 additional surgeries performed in 2009/2010 with an unknown sub-provincial geography which have been excluded. Age standardized rates are calculated using direct method based on PEOPLE 35 population estimates.

Source: Ministry of Health; Hospital Discharge Abstract Database, 2011; Prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

Regional data show that the Northern Interior HSDA had a much higher rate, at 649 per 100,000, than any other region of the province (Figure 8.12). The next highest rate was in Central Vancouver Island at 504, followed closely by North Vancouver Island at 497 per 100,000. The three lowest age-standardized hysterectomy rates were all in the Vancouver Coastal Health Authority.

Breast Cancer

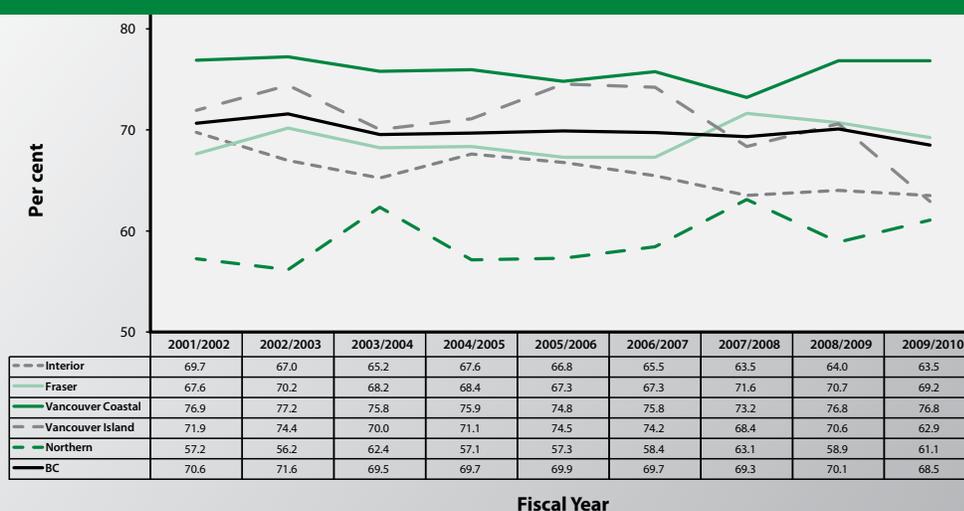
BC women have the lowest overall mortality rate for all cancers combined in Canada.²⁵ *Canadian Cancer Statistics 2007*,²⁶ published by the Canadian Cancer Society and the National Cancer Institute of Canada, reports that the breast cancer death rate is declining significantly and more women are surviving longer. The declining death rate is due to more and better screening as well as more effective treatments. In a review of wait times for diagnosis and treatment of breast cancer by the Canadian Breast Cancer Network, BC had a "consistently strong performance."²⁷ The British Columbia Cancer Agency's "Fast

Track" screening and diagnosis program was deemed a best practice. Fast Track was implemented in 2002 to reduce the stress associated with the waiting period for diagnosis. The finding that BC offers the fastest access to treatment is consistent with a number of other studies that have found that BC has the best cancer outcomes and lowest overall cancer mortality in Canada.²⁷ More information on trends in female cancer incidence and mortality is provided in Chapter 7.

Breast-conserving Surgery

Breast-conserving surgery^c with radiotherapy is a well-established treatment for early stage breast cancer.²⁸ In breast-conserving surgery, the tumour and some of the tissue around it are removed, so that a woman may retain as much of her breast as possible. This option is used in cases where the tumour is small enough in relation to the size of the breast to safely remove all the cancer and a margin of healthy tissue. Most often, breast-conserving surgery is followed by radiation therapy.²⁹ Breast-conserving surgery rates in many

^c Also known as lumpectomy.

**Figure
8.13**
Breast-Conserving Surgeries as a Percentage of All Breast Surgeries, Females, Age 20+, by Health Authority, BC, 2001/2001 to 2009/2010


Note: Data represent the proportion of breast surgeries (for cancer) that were breast-conserving surgeries. Includes acute, rehabilitation and day surgery levels of care. Non-BC residents are excluded. BC residents treated out-of-province are included. Riverview Hospital cases with length of stay greater than 180 days are excluded. All breast surgeries: ICD-10 diagnosis code C.50. (diagnosis type is not 4 and 9) and CCI breast surgery codes, 1.YM.87.^, 1.YM.88.^, 1.YM.89.^, 1.YM.90.^, 1.YM.91.^, 1.YM.92.^ All breast conserving surgeries CCI codes: 1.YM.87.^, 1.YM.88.^, 1.YM.90.^, 1.YM.92.^ Population estimates based on P.E.O.P.L.E. 35.

Source: Ministry of Health; Hospital Discharge Abstract Database, 2011; Prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

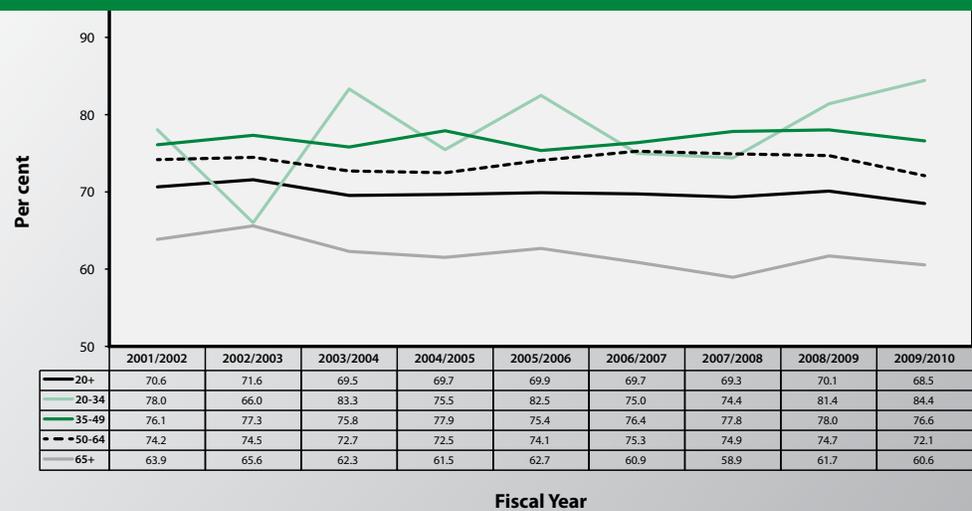
According to a review by the Canadian Breast Cancer Network, BC had a consistently strong performance in breast cancer detection and treatment, and the British Columbia Cancer Agency's "Fast Track" screening and diagnosis program was deemed a best practice.

jurisdictions vary by region, age and socio-economic status. Access to radiotherapy may contribute to regional variations.³⁰

In BC, breast-conserving surgeries have comprised about 70 per cent of all breast cancer surgeries annually since 2001/2002. In 2009/2010, the overall breast-conserving surgery rate for BC was approximately 69 per cent (Figure 8.13). The highest rate was in Vancouver Coastal Health Authority (76.8 per cent), while the lowest rates were found in Northern Health Authority (61.1 per cent) and Vancouver Island Health Authority (62.9 per cent).

About 70 per cent of all breast cancer surgeries in BC are breast-conserving.



Figure 8.14**Age-Specific Breast-Conserving Surgery Rate, Females, Age 20+, by Age, BC, 2001/2002 to 2009/2010**

Note: Data represent the proportion of breast surgeries (for cancer) that were breast-conserving surgeries. Includes acute, rehabilitation and day surgery levels of care. Non-BC residents are excluded. BC residents treated out-of-province are included. Riverview Hospital cases with length of stay greater than 180 days are excluded. All breast surgeries: ICD-10 diagnosis code C.50.^ (diagnosis type is not 4 and 9) and CCI breast surgery codes, 1.YM.87.^, 1.YM.88.^, 1.YM.89.^, 1.YM.90.^, 1.YM.91.^, 1.YM.92.^ All breast conserving surgeries CCI codes: 1.YM.87.^, 1.YM.88.^, 1.YM.90.^, 1.YM.92.^ Population estimates based on P.E.O.P.L.E. 35.

Source: Ministry of Health; Hospital Discharge Abstract Database, 2011; Prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health Services, 2011.

When analyzed by age category, the breast-conserving surgery rate in the 20–34 age group showed the most fluctuation (Figure 8.14). The rate for this group appears to be trending upward, with a current rate of 84.4 per cent, the highest of all age groups. The lowest rate is seen in the 65 and older age group with a rate of 60.6 per cent in 2009/2010.

Problematic Substance Use

Problematic substance use is a term used to cover use of illegal drugs, non-medical use of prescription drugs, or use of alcohol, in which harmful effects are evident. Such effects may occur at the individual or societal level and entail health, social and economic consequences, including dependence. The data in this report represent only those problematic substance use cases that resulted in adverse health outcomes, based on administrative hospital and Medical Services Plan (MSP) data, in which a specified alcohol or drug-related diagnosis was warranted during one hospitalization or at least two physician visits in one year.

Trends in Problematic Substance Use

Trends in substance use and related harms vary across regions and are ever changing, influenced by the economy, traditions, culture, history, social policies and access to substances.³¹ Alcohol is the most commonly used substance, with 77 per cent of British Columbians aged 15 years or older reportedly having had a drink in 2008. In addition, almost 14 per cent reported using illegal drugs.³²

The social acceptance of alcohol consumption and its easy availability have contributed to the rise in problem drinking in BC. Research on substance-related costs using data from 2002 found that the annual health and enforcement costs directly associated with alcohol misuse greatly exceeded revenue generated by sales.^{33,34} The overall costs associated with alcohol use far exceeded costs associated with all illegal drug use for that same year.³³

Many efforts are being made by governments and organizations to better gauge the severity of problematic substance use,

while implementing policies, initiatives and programs that address prevention, harm reduction and treatment, and provide support both to individuals who experience a substance use problem and to those who are directly affected. However, in order to address the burden of problematic substance use on society and curb subsequent economic losses, a better understanding of the situation is required.

Because the use of administrative data to estimate problematic substance use is relatively new, it is difficult to compare rates from other sources due to differences in methodology, case definitions and how rates were reported. For example, prevalence rates noted in the sections that follow are based on cumulative prevalence, meaning once a person has been diagnosed as an incident case, they are carried forward each year thereafter. This measure becomes an issue when a disorder might be episodic in nature (such as alcohol or illegal drug dependence). Another issue is that rates of problematic substance use are under-reported for a variety of reasons, and therefore do not provide a true indication of the situation; however, they do signify gaps in treatment access and physician coding practices. For all these reasons, the results given in the sections that follow must be interpreted with caution.

Problematic Alcohol Use

Based on official sales records, reported alcohol consumption in BC has risen substantially over the past decade, from 7.5 litres per capita in 1998 to 8.4 litres per capita in 2007.³⁵ The Centre for Addictions Research of BC³⁶ has generated even more accurate ways to measure consumption of alcohol, and their estimates indicate that alcohol consumption has increased over the years to 9.18 litres in 2008—an amount equivalent to having approximately 525 drinks (cans of beers, glasses of wine or cocktails) per person that year for everyone age 15 and older.³⁶ The increase in alcohol consumption likely relates to the major changes concerning alcohol retailing, distribution and promotion, all of which make products more accessible.³⁴

Rates among studies vary, but overall, alcohol use is consistently higher among men than women. However, women actually have a greater risk of developing alcohol-related health problems with a shorter duration of problem drinking, including liver disease, hypertension, brain shrinkage and impairment, and certain cancers.³⁷ Alcohol use among women, even at lower levels, may also disrupt normal menstrual cycles and is associated with sexual/reproductive problems.³⁸ Drinking while pregnant may result in having a child affected by fetal alcohol spectrum disorder.³⁹

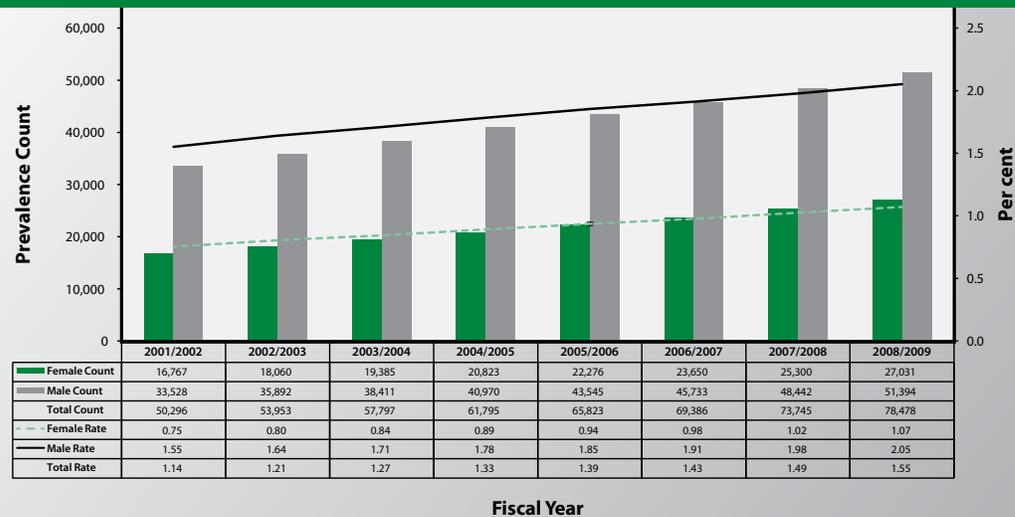
As of 2008/2009, there were 27,031 BC women who had at some point met the criteria for having an alcohol use disorder (dependent or non-dependent) out of 78,478 total cases, with men accounting for almost twice as many cases as women



Due to physiological differences, women are at greater risk than men of developing alcohol-related health problems, even if the problem drinking is of a short duration.

Figure 8.15

Alcohol Use Disorders, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2001/2002 to 2008/2009



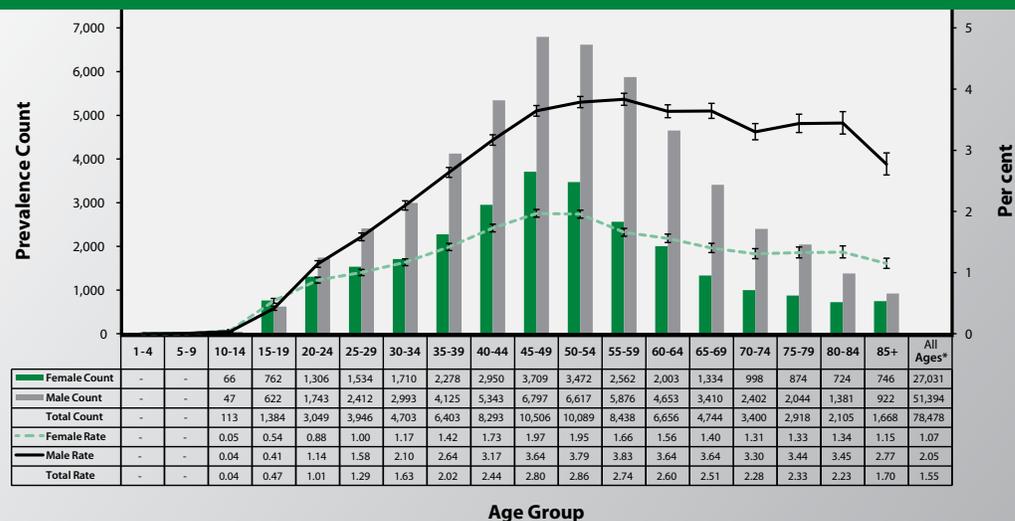
Note: Alcohol use disorder cases that resulted in adverse health outcomes, based on administrative hospital and Medical Services Plan (MSP) data, in which a specified alcohol- or drug-related diagnosis was warranted during one hospitalization or at least two physician visits in one year. Data based on cumulative prevalence. Total count may exceed the sum of the female and male count, because the total includes cases in which sex was not specified. Standardized to Canadian population 1991.
Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

(51,394 to 27,031, respectively) (Figure 8.15). In comparison, the 2002 CCHS, which relied on self-reported information about drinking frequencies, patterns and

amounts to estimate dependency, found BC to have the second highest prevalence of alcohol “dependence” in Canada, at a rate of 3.6 per cent or approximately 122,400 people.³⁴

Figure 8.16

Alcohol Use Disorders, Age-Specific Prevalence Rate and Count, by Sex and Age, BC, 2008/2009



* All Ages columns lists age-standardized rates (to Canadian population 1991).
Note: Alcohol use disorder cases that resulted in adverse health outcomes, based on administrative hospital and Medical Services Plan (MSP) data, in which a specified alcohol- or drug-related diagnosis was warranted during one hospitalization or at least two physician visits in one year. Data based on cumulative prevalence. Total count may exceed the sum of the female and male count, because the total includes cases in which sex was not specified. Standardized to Canadian population 1991. Data is suppressed in the younger age groups due to low numbers.
Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

Figure
8.17

Drug Use Disorders, Age-Standardized Prevalence Rate and Count, by Sex, BC, 2001/2002 to 2008/2009



Note: Drug use disorder cases that resulted in adverse health outcomes, based on administrative hospital and Medical Services Plan (MSP) data, in which a specified alcohol- or drug-related diagnosis was warranted during one hospitalization or at least two physician visits in one year. Data based on cumulative prevalence. Total count may exceed the sum of the female and male count, because the total includes cases in which sex was not specified. Standardized to Canadian population 1991.

Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

The significant difference between the CCHS figure for dependence and the 2002/2003 prevalence of 53,953 cases for any alcohol-related condition (Figure 8.16) could indicate a significant gap between those who are living with an alcohol use disorder and those who have accessed treatment, or the discrepancy may be accounted for by physician coding practices. Reasons for not accessing treatment may relate to the social acceptance of alcohol, where use is so common in society that people may not realize, or may even deny, that they have an alcohol use problem. Other reasons for not accessing treatment may relate to physical barriers, concern about the social or financial implications if a formal diagnosis of an alcohol use disorder is made, or belief in one's ability to handle the problem on his/her own. It is also possible that physicians neglect to record an alcohol-related diagnostic code when submitting MSP claims.

As Figure 8.16 illustrates, women have received fewer alcohol-related diagnoses in most age groups than men, except for those aged 10–19 years. Given that binge drinking is common during adolescence and that females are more likely to experience the

negative effects of alcohol after having fewer drinks,⁴⁰ the rates might be a reflection that more females accessed medical treatment where alcohol was deemed to be a factor for their visit. Physicians may also see teen female intoxication as outside the realm of normal behaviour as compared to teen males, where intoxication may be viewed as normal. Figure 8.16 also shows an increase in the rates among women in the younger years to a high of 1.97 per cent in the 45–49 age group; for men the peak prevalence for alcohol use disorders is among those aged 55–59 years at 3.83 per cent.

Problematic Drug Use

As of 2008/2009, there were 34,662 BC women who at some point had received a diagnostic code for a drug use disorder (dependent or non-dependent) out of 89,495 total cases, with men accounting for 54,819 cases (Figure 8.17). This trend is in line with various surveys,^{32,41} which all report greater levels of drug use among men. Although drug use is lower among women, drugs might have more negative effects, as they are more likely to take longer to metabolize and to excrete due to



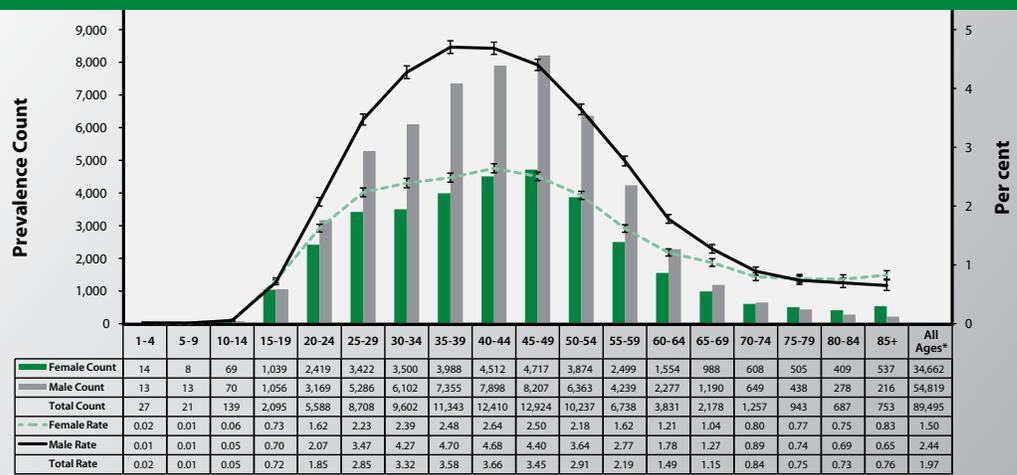
Physical and sexual abuse are predisposing factors to illegal drug use, including injection drug use, among women.⁴⁴ Drug use also increases a woman's vulnerability to further victimization,³⁹ creating a vicious cycle. Mode of drug use is also a factor, with women being more likely than men to experience physical health complications associated with injection drug use,⁴⁵ including risks of contracting blood-borne pathogens (e.g., HIV or hepatitis B and C).³⁹ These findings might relate to physical and sexual abuse, which makes it difficult for women (especially younger women or those without social support) to resist pressure from male partners to share needles or engage in high-risk sexual activity.⁴⁴ Risks are further increased if there is involvement in the sex trade, which is also associated with injection drug use.⁴⁶

female physiology.⁴² As a result, the effects of some drugs (such as ecstasy)^d may be intensified, causing increased hallucinogen-like perceptual changes,⁴³ which can severely limit a woman's ability to make decisions; even long-term effects can be experienced, such as depression, anxiety and paranoia.³⁹ The rate of illicit drug deaths for women has dropped from 0.29 per 10,000 in 2000 to 0.22 per 10,000, or 57 deaths in 2008.

It is important to mention that use of administrative data reveals a higher prevalence of drug use disorders (Figure 8.17) in BC than alcohol use disorders (Figure 8.15), when in fact all other indicators point to the opposite.³³

Figure 8.18

Drug Use Disorders, Age-Specific Prevalence Rate and Count, by Sex and Age, BC, 2008/2009



* All Ages column lists age-standardized rates (to Canadian population 1991).
Note: Drug use disorder cases that resulted in adverse health outcomes, based on administrative hospital and Medical Services Plan (MSP) data, in which a specified alcohol- or drug-related diagnosis was warranted during one hospitalization or at least two physician visits in one year. Data based on cumulative prevalence. Total count may exceed the sum of the female and male count, because the total includes cases in which sex was not specified. Standardized to Canadian population 1991.
Source: Population Health Surveillance and Epidemiology, Ministry of Health Services, 2011.

^d Ecstasy is a term coined by drug dealers, and it may or may not contain MDMA (3,4-methylenedioxymethamphetamine).

While reasons for this discrepancy are unknown, it may be that any use of an illicit drug is labelled as a disorder. Other reasons could relate to the social acceptability of alcohol use versus drug use; an inability to differentiate when alcohol “use” becomes “problematic use” (especially when patients may not even realize they have a problem and downplay their use or concerns); or whether patients are presenting with signs and symptoms that make drug use disorders easier to identify. Whatever the reasons, diagnostic codes for drug use disorders are more often recorded than codes for alcohol use disorders.

The 2008 Canadian Alcohol and Drug Use Monitoring Survey,³² which is based on self-reported drug use, revealed that men had higher usage rates than women for all illicit drugs. However, women had significantly higher rates of pharmaceutical drug use, including non-medical use, although such use was not significantly different from males.³² The survey also found the rate of lifetime marijuana use in Canada to be 43.9 per cent (38.8 per cent for women and 49.3 per cent for men), and use in the past year was 11.4 per cent (8.6 per cent for women and 14.4 per cent for men). Age of initiation was around the same for both men at women at 18 years. Out of all provinces, BC had the highest rate of lifetime marijuana use at 49.6 per cent, and the second highest rate

of reported marijuana use in the past year at 13.1 per cent.³²

Figure 8.18 illustrates age-specific prevalence rates for drug use disorders in 2008/2009. Males have higher rates than females for almost all age groups; however, the gap decreases in the very young and older age groups, with females 75 years and older having slightly higher rates than males. The highest rates for females are seen among those aged 40–44 years (2.64 per cent), and for males aged 35–39 years (4.70 per cent).

Combined Alcohol and Drug Use Disorders

Combined (dual) alcohol and drug use disorders represent individuals who have at some point met criteria for having both an alcohol use disorder and a drug use disorder, although not necessarily at the same time. In 2008/2009 females accounted for 9,649 of 26,925 cases of those who had a diagnosis for both an alcohol and drug use disorder, while males accounted for 17,273 cases. People who have combined (dual) alcohol and drug use disorders are at a greater risk of experiencing health problems and social consequences, and many are also living with a mental illness. Multiple factors often influence their condition, such as co-existing diseases; poverty; food insecurity and poor nutrition; and lack of employment, acceptable housing and connection to community.



“ People who have combined (dual) alcohol and drug use disorders are at a greater risk of experiencing health problems and social consequences, and many are also living with a mental illness. ”



Mental Health Patient Follow-up

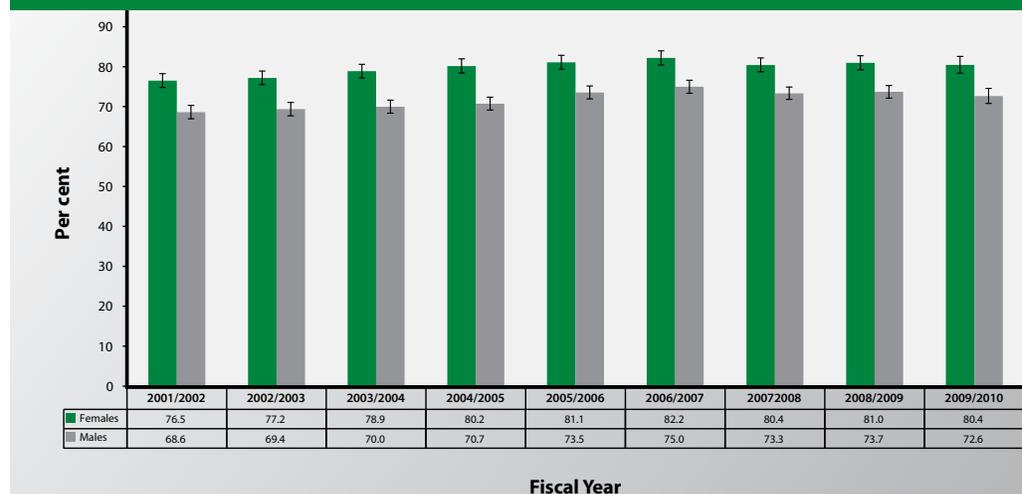
Early follow-up services are important for the recovery, stability and continuing care of mental health patients who are discharged from hospital. Physicians and community health centres provide these services. Figure 8.19 shows that women had a significantly higher percentage of mental health follow-up after hospital discharge than men between 2001/2002 and 2009/2010. The rate for women increased

slightly from 76.5 per cent in 2001/2002 to 80.4 per cent in 2009/2010.

Figure 8.20 provides a breakdown of where discharged mental health clients are being served. The highest proportion of both women and men are seen by their general practitioner (shown in Figure 8.20 as MSP follow-up). More women than men are seen by both mental health centres and physicians, with less than 10 per cent of women using a mental health centre only.

Figure 8.19

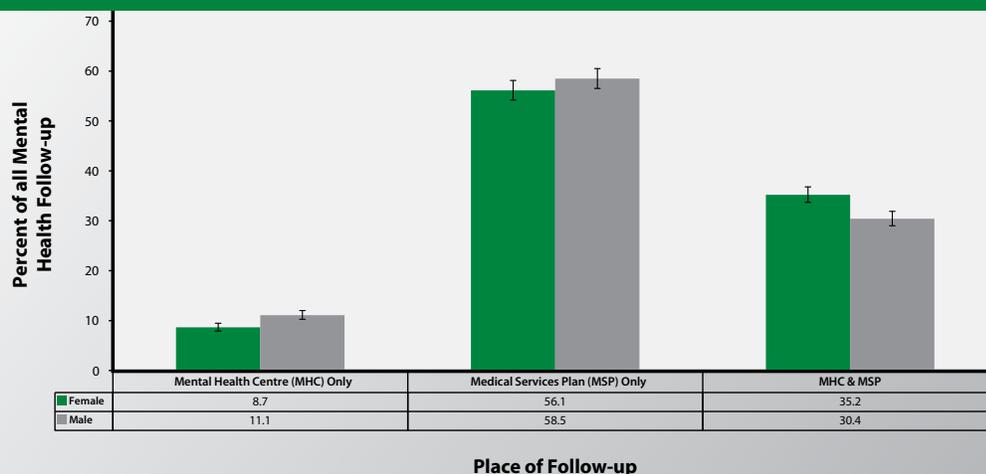
Mental Health Clients with General Practitioner or Psychiatrist Follow-up within 30 Days of Hospital Discharge, Age 15-64, by Sex, BC, 2001/2002 to 2009/2010



Note: Due to different report programs setup for 15-64 and 65+ age groups, 15-64 age group reports show only mental health client count, while 65+ reports contain counts for both mental health and/or substance use clients.
Source: Ministry of Health Services, Health System Planning Division, Management Information Branch, Discharge Abstract Database - updated January 2009; Client Registry: Individual Vital Information File; FFS Physician Services (Data Source: GENESIS); Community Mental Health (Source: MH-MRR); PHCO & APP Physician Services (Data Source: GENESIS); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Figure
8.20

Mental Health Clients with General Practitioner/Psychiatrist Follow-up within 30 Days of Hospital Discharge, Age 15-64, by Sex and Place of Follow-up, BC, 2009/2010



Note: Due to different report programs setup for 15-64 and 65+ age groups, 15-64 age group reports show only mental health client count, while 65+ reports contain counts for both mental health and/or substance use clients. Follow-up was received through Mental Health Centres, through the Medical Services Plan (MSP), or through a combination of Mental Health Centres and MSP.

Source: Ministry of Health Services, Health System Planning Division, Management Information Branch, Discharge Abstract Database - updated January 2009; Client Registry: Individual Vital Information File; FFS Physician Services (Data Source: GENESIS); Community Mental Health (Source: MH-MRR); PHCO & APP Physician Services (Data Source: GENESIS); prepared by the Office of the Provincial Health Officer and Business Operations and Surveillance, Ministry of Health, 2011.

Prescription Drug Use

On the whole, women in BC are prescribed drugs much more often than men, particularly anxiolytics (used to relieve anxiety) and antidepressants. There are many reasons that women may be heavier users of prescription drugs. Women tend to live longer than men, use more health care services, have more contact with health care professionals and are often the targets for direct-to-consumer marketing. Increased contact with the health care system could result in more prescriptions being issued and physicians may be more likely to diagnose mood disorders in women and to prescribe for them. As well, women are more prone to chronic disease, and may experience increased stress due to their caregiving role in the family/society. This section will look at the gender differences in the use of certain prescription drugs.

Anxiolytics

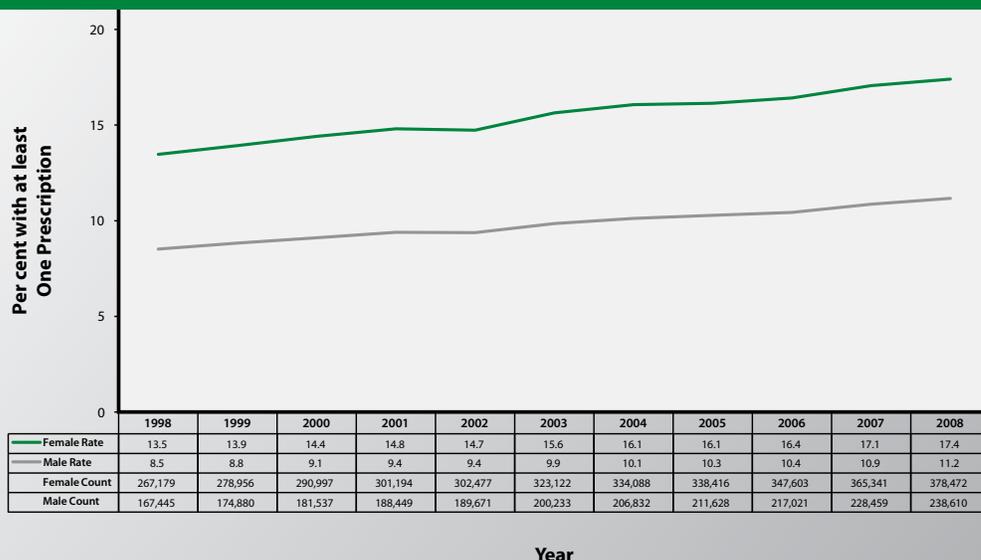
Anxiolytics are used to relieve anxiety, and can generally be divided into two groups: benzodiazepines (e.g., Ativan, Xanax, Valium) and non-benzodiazepines. According to research by the BC Centre of Excellence for Women's Health,⁴⁷ benzodiazepines are among the most widely prescribed drugs in Canada and the world, and over-prescription to women has been identified as a health care issue in Canada since the 1970s. Women are more likely to be prescribed benzodiazepines for non-medical reasons, such as to cope with stress and grief, or for adjustment to natural life processes, such as childbirth and menopause.^{47,48} Furthermore, women often take these drugs for a longer period of time than men, which could increase their risk of developing drug dependence.⁴⁷ Use of these drugs by elderly women can also be a concern, as the drugs may cause confusion, drowsiness or lack of coordination, which could increase the risk of falls in users.⁴⁹

“ On the whole, women in BC are prescribed drugs much more often than men. ”



Figure 8.21

Anxiolytic Prescriptions, by Sex, BC, 1998 to 2008



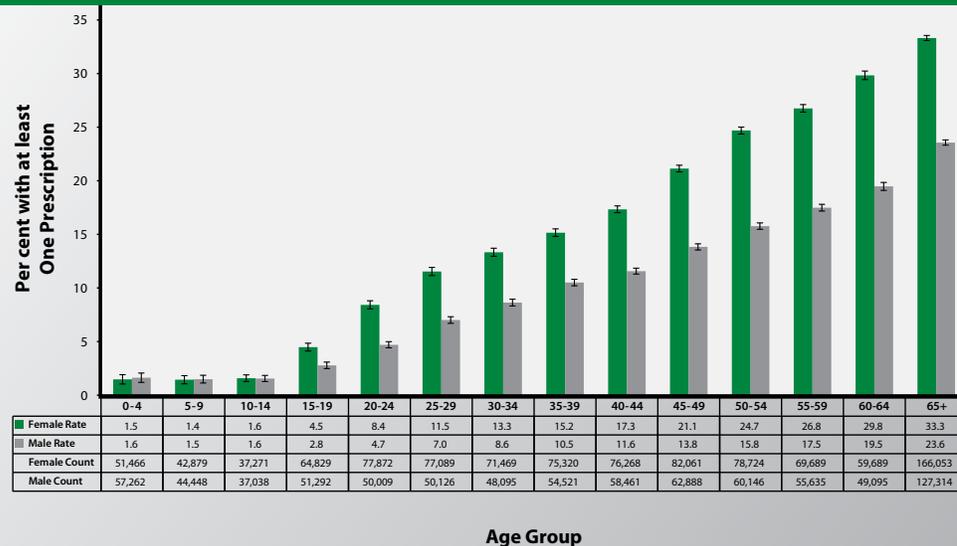
Source: BC PharmaNet Data (provided by the BC College of Pharmacists); prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

As shown in Figure 8.21, women are prescribed anxiolytics at a consistently higher rate than men, and the rate has increased in the last decade (from 13.5 per cent in 1998 to 17.4 per cent in 2008). The highest rate of

anxiolytic use is in women over the age of 65 at 33.3 per cent (Figure 8.22), which raises the question of continued over-prescription to women generally and particularly to elderly women.

Figure 8.22

Anxiolytic Prescriptions, by Sex and Age, BC, 2008



Source: BC PharmaNet Data (provided by the BC College of Pharmacists); prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.



antidepressants increases significantly with age, particularly for women (Figure 8.23).

As with other prescription drugs, there are many reasons that women may be prescribed antidepressants more often than men. Aside from factors related to women's increased contact with the health care system, socio-economic factors may also be important. Women may be more vulnerable to emotional distress as a result of socio-economic circumstances (e.g., poverty, violence, lack of good housing, etc.), and may be prescribed antidepressants or anxiolytics to deal with that distress.⁵⁰ Regionally, Interior, Vancouver Island, and Northern Health Authorities exhibit the greatest use of these drugs, with generally twice as many women as men receiving antidepressant prescriptions.

Antidepressants

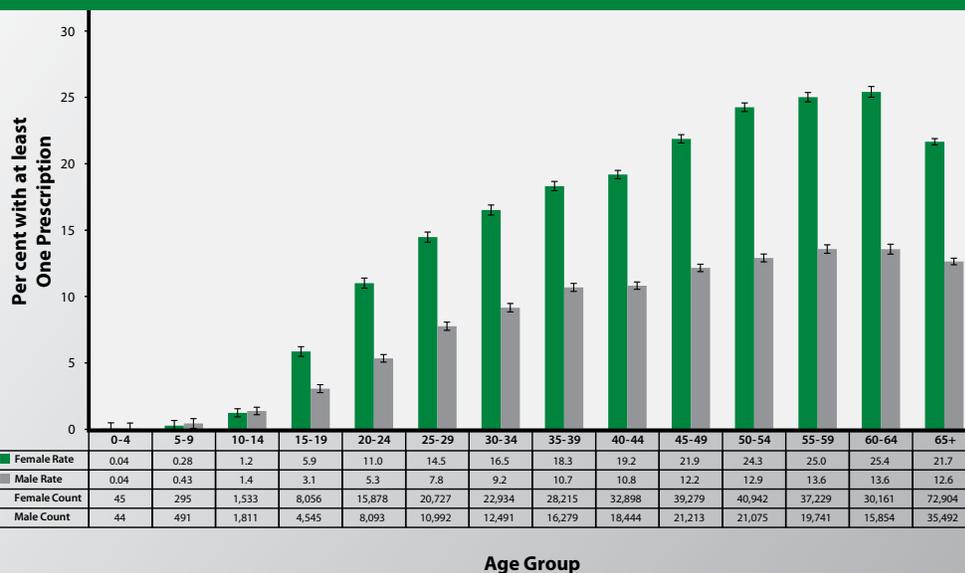
Antidepressants are used for alleviating depression, and have become one of the most frequently prescribed classes of drugs in Canada.^{50,51} Between 1981 and 2000, total prescriptions for all antidepressants in Canada increased 353 per cent, from 3.2 million to 14.5 million.⁵² While antidepressant use in BC increased in the late 1990s, the trend has levelled out since 2003. Similar to anxiolytic use, use of

Other Prescription Drug Use

Women are also more frequent users of other prescription drugs, including antimanic agents (used to treat mood disorders) and anti-infectives (used to treat infections), although the gender differences are not as large for these classes of drugs as with anxiolytics and antidepressants.

Figure
8.23

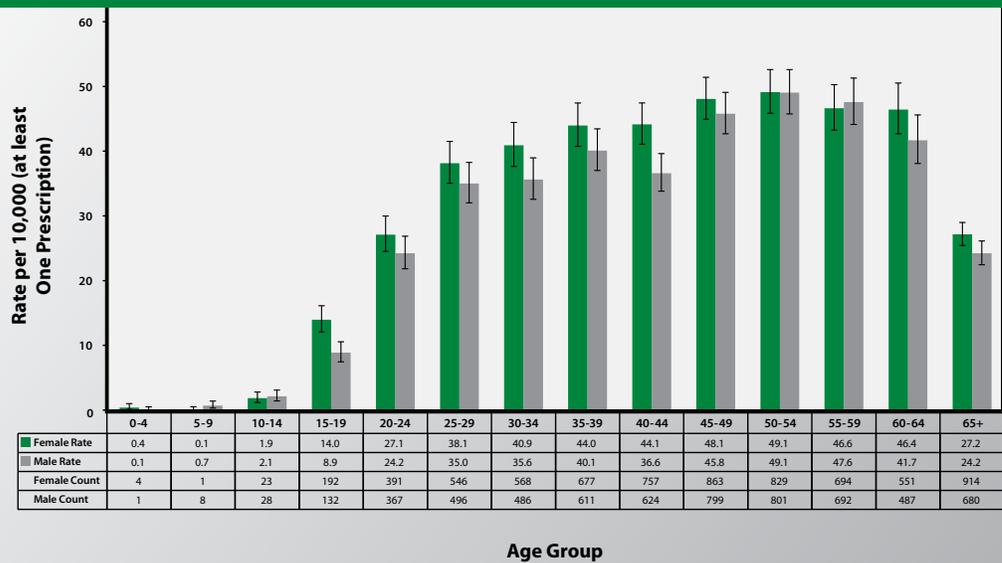
Antidepressant Prescriptions, by Sex and Age, BC, 2008



Source: BC PharmaNet Data (provided by the BC College of Pharmacists); prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

Figure 8.24

Antimanic Agent Prescriptions, by Sex and Age, BC, 2008



Source: BC PharmaNet Data (provided by the BC College of Pharmacists); prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

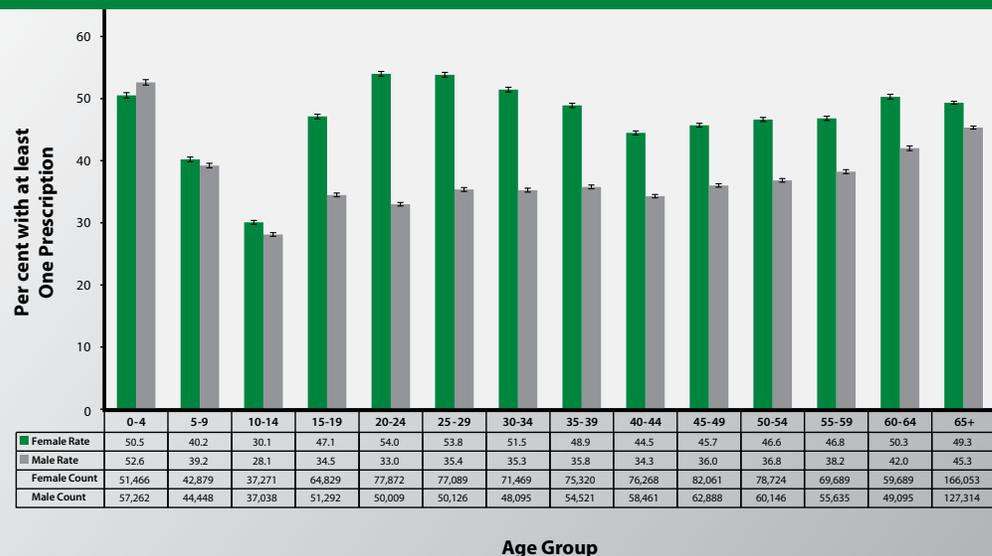
Antimanic Agents

Over time, the percentage of people with at least one prescription for antimanic agents has increased gradually for both women and men in BC since 2001 (from 27.5 per cent

in 2001 to 32.3 per cent in 2008 for women and from 24.4 per cent to 29.1 per cent for men). Generally, more women than men are prescribed these drugs at all ages but the differences were not statistically significant (Figure 8.24).

Figure 8.25

Anti-infective Prescriptions, by Sex and Age, BC, 2008



Source: BC PharmaNet Data (provided by the BC College of Pharmacists); prepared by the Office of the Provincial Health Officer and Corporate Support, Planning and Legislation, Ministry of Healthy Living and Sport, 2010.

Anti-Infectives

As shown in Figure 8.25, anti-infective use is higher for women than men in almost all age groups, and jumps significantly between the ages of 15 and 19. This may be a result of the increased contact women have with the health care system during their reproductive years.

Direct-to-Consumer Advertising

The analysis of pharmaceutical utilization would not be complete without looking at the question of what drives drug use patterns. The Internet and expansion of media access have enhanced the ability of pharmaceutical companies to influence the preferences of an entire generation of consumers. Direct-to-consumer advertising (DTCA) of prescription drugs includes product claim advertisements, which name the product and state what it is used for; reminder advertisements, which provide the name of a product without stating its use; and help-seeking advertisements, which give information on new but unspecified treatment options for diseases and conditions.⁵⁰

All DTCA is illegal in Canada; however, due to lax enforcement, easy access to the web, and the proximity of American media sources, Canadians are exposed to it. An analysis by Clow et al.⁵³ raised the issue of DTCA as a particular concern for women, because advertisers target them based on the assumption (most often correct) that women are the caretakers for ill family members and more often visit their doctors, seek health information and buy medications. For example, direct-to-consumer advertisements for prescription drugs in women's magazines jumped dramatically once the US Food and Drug

Administration lifted its restrictions on DTCA, while the volume of advertisements in other magazines oriented to a more general audience saw little change.⁵⁴

Advertisers use DTCA because it works. Studies show that patients exposed to DTCA are more likely to ask their doctor for the advertised drug than patients with more general health issues.⁵³ Drug advertising campaigns are expensive and contribute to higher drug costs and, often, drugs that women are encouraged to buy have never been tested on women.⁵⁵

Of particular concern is the fact that drug advertisements further contribute to stereotypes of women without considering the underlying causes for conditions such as depression.⁵⁶ Women are often targeted for antidepressant medications, particularly selective serotonin reuptake inhibitors (SSRIs), and many are not aware that there are non-drug approaches to dealing with mild to moderate depression, including counselling, group or peer support, regular physical activity and nutritional changes.^{50,55,57,58,59} In addition, focusing on the narrow, bio-chemical causes of depression puts the matter into the personal sphere, leaving women to blame themselves because, apparently, something is wrong with them. However, women's emotional distress can often be linked to societal causes such as poverty, violence and past trauma, poor housing, job and time pressures, demanding and unpaid caregiving and a lack of child care options—all of which can be addressed through public policy and broader social change. The medicalization of depression and the promotion and over-prescription of antidepressants such as SSRIs to women may ultimately disempower women, by masking some of the disease's root causes.⁵⁰



“ The Internet and expansion of media access have enhanced the ability of pharmaceutical companies to influence the preferences of an entire generation of consumers. ”

Summary of What We Know

- BC women and men in the 20–34 age category were more likely to report having no regular medical doctor, with rates of 18 per cent and 30 per cent respectively. It is of concern that close to 20 per cent of women in prime childbearing years do not have a regular medical doctor. Rates are below 10 per cent for women in all other age categories. The reason most often given by women for not having a doctor is that they did not try to contact one (47.4 per cent), followed by doctor left or retired (19.8 per cent) and doctor not taking new patients (16.5 per cent).
- Medical Services Plan (MSP) utilization rates have remained fairly consistent over the past decade. Generally, women are heavier users of the health care system than men. In a 2006 national benchmarking study of provincial health care services, BC had the lowest female patient satisfaction scores for overall health care services, hospital care and physician care.
- Women have higher MSP usage during their main reproductive years and into the post-menopausal stage. At either end of the age spectrum, the usage rates of the two sexes are very similar. This contradicts the generally accepted trope that women more often engage in help-seeking behaviour than men.
- Risk factors for cervical cancer include being of younger age at first intercourse, having a greater number of sexual partners, increasing age, infection with human papillomavirus (HPV), smoking and low socio-economic status.
- Experiences of discrimination or insensitive treatment by health care professionals, a history of abuse, feelings of being forced, presence of male health care providers and time considerations are all factors that can inhibit access to Pap smear testing for marginalized Aboriginal women.
- According to the 2008 Canadian Community Health Survey, the vast majority of women over the age of 35 (92.3 per cent) have had a Pap smear at some point in time. Approximately two-thirds of women (65.2 per cent) have had a test within the last three years. The Cervical Cancer Screening Program at the BC Cancer Agency processed a total of 549,482 Pap smears from BC women in 2009. The adjusted participation rate for the BC female population age 20–69 is 79 per cent, an increase of 1 per cent over the previous year.
- In 2009, the Screening Mammography Program performed 299,436 screening mammograms; of that total, 1,283 cancers were discovered. The highest rates of cancers found were in the 80+ age group, followed by the 70–79 age group. The participation rate in the 50–69 age group was 51 per cent, well below the target rate of 70 per cent.
- In BC, screening mammography participation by First Nations women was lowest in the Northeast HSDA (31.7 per cent) and in North Shore/Coast Garibaldi (34 per cent). Participation by East/South-East Asian women was lowest in the Northeast (12 per cent) and in the Northwest (26.4 per cent). Participation by South Asian women was lowest in Fraser South (37.7 per cent) and in Central Vancouver Island (41.2 per cent).
- The rate of preventable admissions (where patients are admitted to hospital with conditions, such as diabetes, hypertension or depression, which could be treated in another manner) for women in 2009/2010 was 27.4 per 1,000, half of what it was in 1996/1997. The rate for men is lower but it dropped in tandem with the rate for women, to a low of 23.4 per 1,000. This decline may be due in part to better management of chronic disease.
- In 2009/2010, the hysterectomy crude rate for females aged 20 and over was 316 per 100,000. This is a decrease from the peak years of 2002/2003 and 2003/2004 when rates were 408 and 410 per 100,000 respectively. The rate for women aged 35–49 remains highest of all age groups, but dropped to below 600 per

100,000 in 2008/2009 and currently sits at 568. The Northern Interior HSDA had the highest age-standardized hysterectomy rate at 624 per 100,000 among women aged 20 and over.

- According to a review by the Canadian Breast Cancer Network, BC had a consistently strong performance in breast cancer detection and treatment, and the British Columbia Cancer Agency's "Fast Track" screening and diagnosis program was deemed a best practice.
- In BC, breast-conserving surgeries have comprised about 70 per cent of all breast cancer surgeries annually since 2001/2002. In 2009/2010, the overall breast-conserving surgery rate for BC was approximately 69 per cent. The highest rate was in Vancouver Coastal Health Authority (76.8 per cent), while the lowest rates were found in Northern Health Authority (61.1 per cent) and Vancouver Island Health Authority (62.9 per cent).
- As of 2008/2009, there were 78,478 BC residents who at some point had been diagnosed with an alcohol use disorder, with men accounting for almost twice as many cases as women (51,394 to 27,031, respectively). Women have received fewer alcohol-related diagnoses than men, except for those aged 10–19 years. This reflects an increasing trend toward binge drinking in the teen years and the fact that females are more likely to experience the negative effects of alcohol after having fewer drinks.
- As of 2008/2009, there were 89,495 BC residents who at some point had been diagnosed with a drug use disorder, with men accounting for many more cases than women (54,819 compared to 34,662, respectively). Physical and sexual abuse are predisposing factors to illegal drug use, while drug use increases a woman's vulnerability to further victimization, creating a vicious cycle.
- Early follow-up services are important for the recovery, stability and continuing care of mental health patients who are discharged from hospital. Females

had a significantly higher percentage of mental health follow-up after hospital discharge than males between 2001/2002 and 2009/2010. The rate for females increased from 76.5 per cent in 2001/2002 to 80.4 per cent in 2009/2010.

- Overall, women in BC are prescribed drugs much more often than men, particularly anxiolytics (used to relieve anxiety) and antidepressants. A higher rate of prescription drug use is a consequence of women tending to live longer than men, using more health care services, being the target of direct-to-consumer marketing campaigns, having more contact with health care professionals, and experiencing increased stress due to their caregiving role in society.

Recommendations

Key Findings

The purpose of this report has been to review the current status of the health and well-being of women in British Columbia, to assess progress against results from the 1995 Provincial Health Officer's Annual Report and to recommend further action to improve women's health and well-being. Of the 31 indicators that are directly comparable, 20 show improvement, 9 show a worsening trend, one is the same and for one the interpretation is unclear.^a In this chapter, specific recommendations are offered following summaries of key topics.

Key areas that show improvement include overall life expectancy, as well as rates for screening mammography and Pap smears. The Pap smear rate exceeds the Canadian target rate of 70 per cent. The teen pregnancy rate has dropped to about half the 1995 rate, and the smoking rate for teens age 15–19 has also dropped significantly since 1995 based on the latest survey data. Mortality rates due to illicit drugs and suicide have also declined. The labour force participation rate for women has increased and women are more likely to attend university than men. Fewer female lone parents are living below Statistics Canada's Low Income Cut-offs (LICO). Women are also reporting being afraid less often of walking alone and using public transit after dark and are more often accessing services after incidents involving violence.

While overall life expectancy and life expectancy in good health has increased for women in BC, it has increased at a slower

31 indicators of health and well-being

20 show improvement

9 show a worsening trend

1 is the same

1 is unclear

rate than in the past. The gains have been less than those of men, and BC women compare unfavourably when life expectancy rates of increase are compared with the experiences of other countries in the Organisation for Economic Co-operation and Development. BC women are also less likely to report being in good or excellent health than the Canadian average. This pattern reflects rising rates of cardiovascular and respiratory disease, cancers, osteoarthritis, osteoporosis and falls. Moreover, as the average age of women in the province increases with the aging of the post-World War II “baby boom” generation, further increases in chronic conditions and aging-related health problems can be expected.

Although many women in the province live long and healthy lives, the evidence presented in this report shows that there are definite health challenges facing women in BC. Gaps in women's life expectancy persist between regional health authorities, as does the gradient in life expectancy between the lowest and highest income quintiles. Underlying this gap is the increased prevalence of chronic health conditions such as cancer, respiratory diseases, cardiovascular diseases and diabetes for those with lower socio-economic status.

^a For further details please see Table 9.1 at the end of this chapter.

Recommendations

A Renewed BC Women's Health Strategy

Improving the health of women in BC is not the sole responsibility of individual women; nor can the health care system provide all the ingredients for health. Rather, concerted attention needs to be directed to the social determinants of women's health: early childhood development; education of girls in schools and the post-secondary system; prevention of violence and abuse; and ensuring that living conditions, workplaces and the physical environment are as health-enhancing as possible.

In 2004, BC Women's Hospital & Health Centre and the British Columbia Centre of Excellence for Women's Health released the province's first-ever Women's Health Strategy; however, that strategy has not reached its full potential. The evidence contained in this report suggests the need for a broad-based, comprehensive approach and strategy that identifies priority actions, and opportunities to support and improve women's health and well-being in BC. Effective strategies bring a cross-ministry effort to bear on addressing the broader determinants of health in order to improve outcomes for women.

This renewed strategy requires leadership and action across government to signal to all sectors, both inside and outside the health system, the intention of government to enhance the health of girls and women in BC. The World Health Organization evaluation of the ActNow BC program found that a cross-government approach, led by the Premier and supported by a Minister of State and a coordinating secretariat, was effective in bringing about positive change in behaviours at the population level.

Based on this evidence, the central recommendation of this report is the development of a comprehensive women's health and wellness strategy to identify key areas for priority actions, and opportunities to support and improve women's health and well-being in BC. The strategy would need to be accompanied by improvements in the monitoring and surveillance of women's health status, as well as by increased capacity for sex- and gender-based analyses of programs and services. The recommendations that follow on key topic areas make up the essential elements of the proposed strategy.

Recommended Action:

1. Develop a comprehensive women's health and wellness strategy that identifies priority actions, and opportunities to support and improve women's health and well-being in BC.

Characteristics of Healthy Jurisdictions

1. A guiding health imperative must drive overall health strategies.
2. The best strategies for improving population health and health-related behaviours arise during the tenure of strong political leaders.
3. Government must pay attention to societal attitudes about health and make efforts to understand the prevailing political and social structures.
4. To solve broad-based problems, one must seek solutions that can be applied across governments with the participation of the larger civil society.
5. Leading jurisdictions act promptly. They do not necessarily wait for conclusive scientific evidence and are often the first to implement innovative interventions.

—Institute for Clinical Evaluative Sciences, 2009.¹

Living and Working Conditions

The most important influences on women's health are the conditions they experience in their day-to-day lives. Research has shown that the social determinants, including income, education and social status, are the most important factors in determining health. While BC women on average earn more today than in 1995, and their earnings as a proportion of male earnings have improved, there are many ways in which women's status in society remains below that of men. It is of concern that gaps persist, especially for lone-parent women, immigrant and Aboriginal women, the elderly and women with disabilities, who often work for low wages or are on welfare and pensions, and who live below Statistics Canada's LICO. This poverty contributes to their experience of unstable and unacceptable housing, of higher exposures to airborne contaminants, lack of proper nutrition, barriers to education and lack of social connectedness, all of which leads to a decreased sense of well-being and poorer health. Lack of resources for child care and the demands of all types of caregiving and housework, which are still predominantly done by women, can increase stress and also have a significant impact on personal health and well-being and income. While more women are entering professions that have been traditionally male-dominated, there has been only a modest increase in their inclusion in decision-making positions in government and in corporate boardrooms. The recommendations below address the root causes of gender disparities in health in British Columbia.

Recommended Actions:

1. Develop a "Made in BC" multi-sectoral anti-poverty strategy as recommended in the report *Investing in Prevention: Improving Health and Creating Sustainability*.² This strategy is based on the understanding that the solutions to poverty do not lie in just providing financial assistance, but in a more comprehensive approach involving child care, training opportunities, the extension of social

support networks, housing and job opportunities.

2. Identify strategies that have worked to reduce the gender wage gap in other jurisdictions and see how they can be applied in BC.
3. Look at ways to enhance immigrant women's participation and opportunities in the workforce.
4. Enhance child care resources and supports.
5. Address the core housing need of female lone parents, elderly women and women leaving violence through further development of partnerships with the private and non-profit sectors to create new, affordable units.

The Impacts of Violence

Violence affects women and men, but women are more vulnerable because they generally have less access to social, economic and political resources. Although data are limited and often incomplete, due in part to the stigma attached to being a victim of violence, the evidence suggests that women are still the vast majority of victims of intimate partner violence and sexual assault in all age categories. Those most vulnerable to sexual assault include female children and adolescents, women who are Aboriginal, immigrant or disabled, and sex workers. Women also account for the overwhelming majority of maltreatment cases, including neglect, abandonment and abuse. A greater percentage of women are making use of social support agencies and reporting violent incidents to police than in the past. However, more can be done to augment and coordinate social supports to women and girls experiencing physical and sexual assault and maltreatment.

Violence is a significant factor in women's lives that needs to be recognized in the design and delivery of health care. Physical and sexual abuse are predisposing factors for alcohol and illicit drug use, including injection drug use, among women. Drug

use also increases a woman's vulnerability to further victimization, creating a vicious cycle. The recommendations below call for greater attention to the impact of trauma in all aspects of women's lives and to the development of a comprehensive, coordinated approach across government for the prevention and reduction of violence against women.

Recommended Actions:

1. Implement recommendations from the following reports: *Report to the Chief Coroner of British Columbia: Findings and Recommendations of the Domestic Violence Death Review Panel* (Coroners Service of British Columbia)³ and *Honouring Christian Lee. No Private Matter: Protecting Children Living with Domestic Violence* (Representative for Children and Youth).⁴
2. Provide educational opportunities for health care providers to learn effective approaches to screening for violence and abuse and increase awareness of substance use and other health impacts of violence against women.
3. Implement a coordinated provincial initiative to prevent elder abuse so that seniors will be less vulnerable to emotional, psychological, financial and physical abuse.⁵
4. Coordinate cross-ministry responses to violence against women.
5. Collaborate with workplace health and human resources organizations, including Worksafe BC, to apply a gender lens when addressing violence in the workplace.
6. Advocate for legislation to reduce vulnerability and violence for sex workers.
7. Reinstate the Office to Combat Trafficking in Persons.

Mental Health and Problematic Substance Use

From early childhood on, positive mental health is the springboard for thinking,

learning, emotional growth, resilience and self-esteem—ingredients that combine to support healthy choices across the lifespan. Evidence shows that compared to men, women more often suffer from depression and dementia, and prevalence rates for both conditions continue to increase as the population ages. Women with a mental illness such as bipolar disorder, depression or schizophrenia, are significantly more likely than women without these mental health conditions to suffer from, be hospitalized for, or die from, self-harm or a range of diseases, including alcohol- or drug-related disorders (e.g., HIV and hepatitis B and C), as well as other conditions related to poor access to care (e.g., cardiovascular disease and cancers). The highest morbidity and mortality is experienced by women with schizophrenia.

Trends in problematic use of alcohol and/or drugs and related harms are increasing for women in BC. While rates of problematic substance use are lower for women, they have a greater risk of developing alcohol, tobacco and other drug-related health problems with shorter histories of use. Alcohol is the most commonly used substance, with 72 per cent of women in British Columbia aged 15 years or older reportedly having a drink in 2007/2008. Particularly troublesome are data indicating the increase in heavy drinking and binge drinking by adolescent girls. The consequences of problematic drinking, even if short term, include liver disease, hypertension, brain shrinkage and impairment, and certain cancers. Drinking while pregnant may result in a woman having a child affected by fetal alcohol spectrum disorder. As mentioned previously, physical and sexual abuse are predisposing factors for alcohol and illicit drug use, including injection drug use, among women.

In addition, women have significantly higher rates of pharmaceutical drug use than men, including non-medical use. The over-prescription of drugs to women has been identified as a health care issue in Canada since the 1970s, yet prescription rates for anxiolytics and antidepressants, particularly to women over age 65, continue to increase.

Based on this evidence it is clear that a gendered approach to mental health

and substance use issues is required. The following recommendations highlight a range of actions that can be taken to support better mental health and wellness for women.

Recommended Actions:

1. Build awareness of the gendered nature of mental health and illness. Take a gender-specific approach to the recommendations in *Healthy Minds, Healthy People: A Ten-year Plan to Address Mental Health and Substance Use in British Columbia*.⁵
2. Develop community-based mental health promotion initiatives that incorporate women's experiences in their multiple roles as workers, mothers, caregivers, partners and community members. These campaigns would include health literacy and anti-stigma campaigns addressing the lack of specific information for women and girls.
3. Put in place strategies to reduce and prevent depression in women and girls. Emphasize a public health approach that targets the root causes of women's anxiety and depression. Provide resources to support exercise, healthy eating, social support and psychotherapy in the treatment of depression rather than relying solely on medical approaches (i.e., antidepressants).
4. Promote awareness of low-risk drinking guidelines for women, including the risks of drinking during pregnancy. Provide information and support to health care providers to support their capacity to provide effective, non-judgmental, brief intervention on alcohol and tobacco issues for their female patients.
5. Collect and publish data on the use of services and costs of trauma/violence, mental illness and addictions within the public health system.
6. Make visible and welcoming the range of supports and treatment available to

girls and women with substance use and mental health problems in BC, assess the need for improved access at each tier,^{b,6} and increase access to addiction treatment for women with concurrent disorders.

7. Provide mental health resources that are flexible and appropriate for important sub-populations of women, particularly refugee and immigrant women, women of colour, Aboriginal women, women with disabilities, lesbian and bisexual women and transgendered women.
8. Develop and disseminate best practices for the prescription of psychoactive drugs to women, especially older women.
9. Increase opportunities, both online and in-person, for girls age 10–15 to learn about the risks of early alcohol and other substance use and the interconnected health issues such as vulnerability to violence.

Reproductive Health

Unequal power dynamics in personal relationships, gendered distribution of financial resources and educational opportunities, lack of access to health services, and the threat of physical violence can impair a woman's ability to enjoy good reproductive health. In BC, rates for chlamydia and gonorrhoea are increasing for both sexes. Use of contraception varies by age, with McCreary Centre Society data showing that 23 per cent of sexually active youth reportedly used withdrawal to prevent pregnancy the last time they had sex, an increase from 16 per cent in 2003. The abortion rate in Canada has been declining, but in BC it has remained relatively stable and is the second highest among all the provinces. In addition, access to therapeutic abortion services appears to be decreasing in many areas of BC. The data show regional disparities in teen pregnancies and births, as well as an increasing trend in premature births for all women of reproductive age. Births are becoming more medicalized, with

^b As per five tiers of treatment identified in *A System's Approach to Substance Use in Canada*.

an increasing number of women giving birth by Caesarean section (C-section).

It is clear from these trends that more needs to be done to provide information to the public on healthy and safe sexual practices; to improve access to related services to reduce the incidence of sexually transmitted infections and unintended pregnancy; to ensure access to a range of pregnancy and delivery options; and to provide better information to physicians and pregnant women on the risks of C-section births as compared to vaginal births for uncomplicated deliveries.

Recommended Actions:

1. Develop a provincial sexual health framework to identify strategic goals and priorities for health authorities and to encourage inter-agency collaboration, in order to ensure a continuum of sexual health services delivery is supported across health regions.
2. Improve access to high quality data on maternal and infant health and reproductive care to inform planning and evaluation.
3. Improve access to contraception, especially long-acting reversible contraception.
4. Improve access to and coverage of sex education services, the principles of which should include the following:
 - Programs geared not to prevent sex, but to stop unwanted consequences.
 - Access to contraception is unimpeded or even free.
 - Prevention programs focus on safety, pleasure and responsibility.
 - Political or religious groups have little influence on public health policy.⁷
5. Ensure equitable and timely access to abortion services.
6. Enhance education and support for healthy choices during pregnancy, in

the areas of alcohol use, healthy food and physical activity.

7. Work to understand why C-section rates are increasing and, in partnership with women and health care practitioners, work to reduce the frequency of C-sections that are not medically necessary.
8. Identify and address gaps in perinatal care with the goal of establishing a consistent standard of primary care for maternity health across the province. Implement the Provincial Primary Maternity Health Care Action Plan.
9. Support the Nurse-Family Partnership program and early childhood development initiatives.
10. Support breastfeeding by increasing the number of hospitals in the province having the WHO Baby-friendly Hospital designation.

Chronic Disease and Injury

Physiology and genetics, lifestyle, socio-economic factors, and gender all interact to impact women's vulnerability to developing chronic conditions. While personal choice does play a role in the development of chronic disease, these choices are strongly influenced by social context. As expected with an aging population, rates for all chronic conditions are increasing for women. Of the top 11 chronic conditions, the four with the highest prevalence rates (hypertension, asthma, osteoporosis and osteoarthritis) are more common in women than in men.

The most commonly experienced chronic condition among women is hypertension, which is often associated with other conditions such as heart disease, kidney disease, diabetes and stroke. Diabetes is more prevalent among women of certain population groups, including Aboriginal Canadians, South or West Asians, African Canadians and Hispanic populations. Women with diabetes have reported experiencing higher levels of depression and lower quality of life than men with diabetes.

The risk of morbidity and mortality from cardiovascular disease, the most common complication of diabetes, is significantly higher in women than in men.

Cancer continues to be the leading cause of death for women in British Columbia, ahead of heart disease and stroke. Although the incidence of breast cancer is higher, lung cancer has the highest mortality rate of all the cancers in BC women. Screening programs for breast and cervical cancer have helped to reduce the risk of death from these cancers in women by improving detection in the early stages, when the prognosis for survival is much better. The human papillomavirus immunization program for grade 6 girls has the potential to further reduce the incidence of cervical cancer.

Falls and their related injuries are a significant health problem among older women and represent the largest external cause of hospitalization for women; in fact, the rate for women is over 25 per cent higher than the rate for men. Consequences of a fall include loss of independence, permanent disability and, in some cases, premature death. Falls among older persons are no longer considered to be an inevitable consequence of aging, or simply unforeseen “accidents”. Rather, they are regarded as predictable and preventable events that have identifiable risk factors and effective solutions for prevention. In order for women to live longer in good health, more gender-specific approaches need to be adopted to prevent or delay the onset of chronic disease and falls.

Recommended Actions:

1. Support the collection and review of data on trends in chronic disease among women across cultural groups and on the consequences of chronic illness in women.
2. Broaden the scope and increase the dose of BC’s Chronic Disease Prevention and Control initiative (HealthyFamiliesBC) and support the ability of the primary care sector to better target and manage chronic disease in women.
3. Provide multi-faceted education to female seniors and their families concerning lifestyle issues, chronic disease management options, and available community resources.
4. Encourage all female seniors to engage in regular physical activity tailored to their individual needs. Emphasize fall prevention programs with a focus on strength, agility and balance.
5. At the provincial level, work across sectors to develop comprehensive, integrated and accessible options for seniors of all abilities to access community-based physical activity programs. This effort should include appropriate provincial ministries, the Union of British Columbia Municipalities, the British Columbia Recreation and Parks Association, and other interested parties.

Physical Environment

Many components of the physical environment directly influence the health and well-being of women across their lifespan, including food safety, industrial contaminants and environmental hazards, drinking water, indoor and outdoor air quality, and ultraviolet radiation. Difficulties arise in understanding the relationship between environmental exposures and health outcomes because across the lifespan, multiple exposures can occur through multiple media that change over time and by location.

The built environment is a key focus because of the ability of urban design to affect the quality of the air we breathe and the amount of physical activity we engage in. The impact of the built environment can be seen in the fact that over the past 30 years, the unintentional outcome of urban planning and design has been to contribute to epidemics of obesity and diabetes and increasing rates of asthma in the general population. The age-standardized rate for asthma is higher for women than men and prevalence rates for chronic obstructive pulmonary disease are rising. A well-designed urban environment

can help make walking and cycling the easiest transportation choices. Feelings of personal safety and easy physical accessibility are important for women to achieve optimal health and to encourage their pursuit of educational, work and recreational opportunities after dark.

Prolonged exposure to ultraviolet (UV) A and B radiation can cause sunburns, premature skin aging, skin cancers, cataracts and other eye and skin diseases. Because UV radiation damage accumulates over a lifetime, and childhood UV radiation exposure is known to contribute significantly to the risk of developing skin cancers, the World Health Organization recommended a ban on the use of artificial tanning beds by youth under 18 in 2003. Women and girls are more often targeted by advertising for tanning salons, increasing their potential for skin cancer later in life. The Capital Regional District is the first jurisdiction in Canada to adopt a ban on the use of tanning beds by youth under the age of 18.

Recommended Actions:

1. Improve the knowledge of the etiological fraction of environmental impact on health status in British Columbia through better data on environmental exposures and analysis of the inter-relationship of social/ environmental exposures.
2. Create safe, walkable neighbourhoods to reduce injury and obesity, with a focus on retrofitting high-need and high-use areas.
3. Implement a provincial tanning law that bans use by people under the age of 18.

Health Services

Accessibility is one of the fundamental principles of Canada's health care system. It is of concern that close to 20 per cent of BC women in prime childbearing years do not have a regular medical doctor. In addition, in a national benchmarking study, BC had the lowest female patient satisfaction scores for overall health care services, hospital care and

physician care in Canada. The rate for Pap smears is well above the national target level, but the rate for screening mammography is well below it. Hysterectomy rates have declined but show considerable regional variation.

Research also demonstrates that health care services are not equally available across British Columbia and that some women face disproportionate barriers to care. Even when care is available, it may not be easily accessible to women with disabilities, for women whose first language is not English, or for women who are not familiar with the health care system and how it works. Ensuring that care is safe, responsive to women's needs, and recognizes the context of women's lives is critical in making health services accessible and acceptable to women.

The translation of evidence into practice can be enhanced with greater use of sex- and gender-based analysis in the review of evidence, better practice guidelines and program evaluation. Specific attention to populations at risk of acute and chronic disease will help to ensure the optimal use of scarce resources and increase the effectiveness of existing services.

Recommended Actions:

1. Support and facilitate women's participation in disease prevention and screening, including screening mammography, and HPV immunization and cervical cytology (Pap testing). Increase the participation of senior women, Aboriginal and South and West Asian women and others who have not routinely participated.
2. Provide at least one accessible exam table and trained personnel in each health service delivery area to give women with disabilities access to preventive health care (e.g., cervical cancer screening).
3. Ensure women with disabilities or those living with severe and chronic illnesses have access to supportive counselling and/or therapy and appropriate community supports and residential care.

4. Address regional differences in surgical interventions such as hysterectomy rates.

Strategic Focus

Recognizing that government may not be ready or able to move comprehensively in all areas, the following recommendations are highlighted.

1. **Poverty** - Develop a “Made in BC” multi-sectoral anti-poverty strategy, with a focus on the needs of female lone parents, older women and immigrant women.
2. **Violence** - Implement recommendations from the following reports: *Report to the Chief Coroner of British Columbia: Findings and Recommendations of the Domestic Violence Death Review Panel* (Coroners Service of British Columbia)³ and *Honouring Christian Lee. No Private Matter: Protecting Children Living with Domestic Violence* (Representative for Children and Youth).⁴

3. **Mental Health and Problematic Substance Use** - Build awareness of the gendered nature of mental health and illness. Take a gender-specific approach to the recommendations contained in *Healthy Minds, Healthy People: A Ten-year Plan to Address Mental Health and Substance Use in British Columbia*.⁵

4. **Chronic Disease and Injury** - Broaden the scope and increase the dose of BC’s Chronic Disease Prevention and Control initiative (HealthyFamiliesBC) and support the ability of the primary care sector to better target and manage chronic disease in women.

Indicator Comparison

Table 9.1 compares indicators used in the 1995 Annual Report with those available to us in the 2008 report. Of the 31 indicators that are directly comparable, 20 show improvement, 9 show a worsening trend, one is the same and for one the interpretation is unclear. Due to potential differences in methodology, caution is advised when comparing rates between the two reports.

Table 9.1

Comparison of Women’s Key Health Indicators: Provincial Health Officer’s Annual Reports 1995 and 2008

Indicator	Status		Change ^c
	1995 Report	2008 Report	
HEALTH STATUS			
Life expectancy, all women	81.6 years	84.3 years	↑
Gap in life expectancy between health regions	4.3 years	4 years	↑
Life expectancy at age 25			
Women in lowest income quintile	N/A	55.7 years	
Women in highest income quintile	N/A	60.3 years	
Male/Female gap in life expectancy	5.7 years	4.4 years	↓
Reporting excellent or very good health	61.0%	56.5%	↓
Women in lowest category	52.0%	40.7%	↓
Women in highest category	81.0%	61.4%	↓
LIVING AND WORKING CONDITIONS			
Female lone-parent below Statistics Canada’s Low Income Cut-offs (LICO)	44.0%	16.4%	↑
Women age 65 and older below LICO	22.0%	22.0%	
Percentage women earn compared to men	70.0%	71.3% annual salary 83.3% hourly wage	↑
Labour force participation rate	60.0%	80.2%	↑
Licensed child care spaces, under age 6	15.0%	N/A	
Licensed child care spaces, age 0–12	N/A	15.4%	
Lone-parent households in core housing need		43.1%	↓
Women in positions of influence			
MLAs	25.0%	28.0%	↑
Mayors	24.0%	20.0%	↓
Faculty, BC universities	20.0%	39.0%	↑

^c ↑ = improving trend ↓ = worsening trend

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Table
9.1

Comparison of Women's Key Health Indicators: Provincial Health Officer's Annual Reports 1995 and 2008 (cont.)

Indicator	Status		Change ^c
	1995 Report	2008 Report	
THE IMPACTS OF VIOLENCE			
Women who have experienced physical or sexual violence	59.0%	N/A	
Sexual assault reports	173 per 100,000 (adult) N/A (all ages)	77 per 100,000 (adult) 931 per 100,000 (all ages)	
Violence-related hospitalization	N/A	0.13 per 1,000	↑
Violent incidents in which women			
used a social service agency	16.0%	47.0%	↑
reported to police	34.0%	36.0%	↑
MENTAL HEALTH and PROBLEMATIC SUBSTANCE USE			
Prevalence of depression, women, age 15+	7.8%	10.9%	↓
Prevalence of dementia	N/A	4.3% (age 60+)	↓
Suicide mortality rates for women	6.0 per 100,000 ^d	4.0 per 100,000	↑
Women with eating disorders/eating disorder-related hospitalization	1-5%	14.8 per 100,000	
All causes mortality ratios, females with:			
schizophrenia	N/A	2.93:1	
depression	N/A	1.66:1	
bipolar disorder	N/A	1.83:1	
Hospitalizations for schizophrenia	24.8 per 10,000	11.5 per 10,000	↑
Deaths due to illicit drugs	47.0	57.0 or 0.22 per 1,000	↑
Use of tranquilizers or sleeping pills, women, age 65+	24.0%	33.0%	↓
Rate of binge drinking, females, age 12-19	N/A	24.8%	↓
REPRODUCTIVE HEALTH			
Teen pregnancy rate	50 per 1,000 (ages 15-19)	18.3 per 1,000 (ages 12-19)	↑
Induced abortions	17.6 per 1,000	15.9 per 1,000	↑
Caesarean births	20.0%	30.0%	↓
Infant mortality rate	6.2 per 1,000 live births	3.7 per 1,000 live births	↑
Chlamydia cases	228.0 per 100,000	324.9 per 100,000	↓
CHRONIC DISEASE AND INJURY			
Women who are current smokers	N/A	13.8% (all ages)	↑
Age 15-19	25.0%	10.1%	↑
Hospitalizations due to falls	23.0 per 1,000 (women 65+)	37.7 per 10,000 (all ages)	
Hospitalizations due to fall related hip fracture, age 65+	N/A	6.6 per 1,000	↑
Prevalence of chronic health conditions:			
Diabetes	N/A	4.8%	↓
Osteoporosis	N/A	8.0%	↓
Asthma	N/A	11.48%	↓
Hypertension	N/A	13.70%	↓
Osteoarthritis	N/A	6.63%	↓
Chronic obstructive pulmonary disease	N/A	4.66%	↓
Ischemic Heart Disease	N/A	1.53%	↓
Congestive Heart Failure	N/A	1.19%	↓
Stroke	N/A	1.14%	↓
Multiple Sclerosis	N/A	0.21%	↓
Parkinson's	N/A	0.16%	↓
PHYSICAL ENVIRONMENT			
Exposure to Environmental Tobacco Smoke	N/A	7.1%	
regional variation, high/low	N/A	NHA 12.5% VCHA 5.3%	
Percentage of women worried about their personal safety			
walking alone after dark	62.0%	17.0%	↑
using public transportation after dark	79.0%	63.5%	↑
HEALTH SERVICES			
Preventable Admissions	N/A	27.4 per 1,000	↑
No regular medical doctor, age 12+	N/A	9.3%	
Hysterectomies (age-standardized rate)	491.0 per 100,000	302.0 per 100,000	↑
Women who received mammograms, age 50+	30.0%	51.0%	↑
Women who received Pap smear	N/A	79.0%	↑

^d Based on data prepared for the 2008 report.

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Chapter 6

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Chapter 9

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Appendix A - Technical Terms

Age Standardization

Age standardization is a method of calculation that adjusts a statistical measure for differences in the age/gender structures between populations. With standardized measures, more meaningful comparisons can be made between genders, different time periods or geographic areas, because the age-standardized statistic is calculated as if all populations had the same age/gender population distribution.

Age-Standardized Mortality Rate (ASMR)

A summary of age-adjusted death rates by age and gender, which have been standardized to a 'standard' population (1991 Canada Census) for the purpose of rate comparisons between genders, different time periods or different geographic locations. The ASMR is the theoretical number of deaths that would occur per 10,000 population, if the specific population had the same age structure as the standard population.

Incidence

Incidence is the number or the rate of new cases occurring each year in the population.

Prevalence

Prevalence is the number or the rate of cases existing within a population during the fiscal year (April 1 – March 31).

Potential Years of Life Lost (PYLL)

The number of years of life lost when a person dies before a specified age (75 years).

Standard Population

A reference population of known age distribution used in the calculation of standardized indicators to adjust for variations in population age structures in different geographic areas or time periods. For Standardized Mortality Ratios and Potential Years of Life Lost calculations the standard population is the British Columbia population for the year(s) concerned. The 1991 Canadian Census is used as the standard population in the calculation of ASMR and PYLL Standardized Rate.

Appendix B – Chronic Disease Prevalence by Health Service Delivery Area

Health Authority	Health Service Delivery Area	Hypertension					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		13.441	74,056	17.6%	12.869	65,399	17.7%
	East Kootenay	13.079	7,199	1.7%	12.374	6,514	1.8%
	Kootenay Boundary	13.420	8,034	1.9%	12.492	7,103	1.9%
	Okanagan	13.056	37,262	8.9%	12.948	32,337	8.7%
	Thompson Cariboo Shuswap	14.183	21,561	5.1%	13.008	19,445	5.3%
Fraser		14.439	139,392	33.2%	14.407	123,569	33.4%
	Fraser East	14.451	25,695	6.1%	14.112	22,375	6.0%
	Fraser North	13.857	50,270	12.0%	13.978	44,558	12.0%
	Fraser South	14.962	63,427	15.1%	14.903	56,636	15.3%
Vancouver Coastal		12.757	96,708	23.0%	12.917	84,839	22.9%
	Richmond	13.426	18,120	4.3%	14.249	16,423	4.4%
	Vancouver	12.922	53,786	12.8%	12.875	46,674	12.6%
	North Shore/Coast Garibaldi	12.034	24,802	5.9%	12.144	21,742	5.9%
Vancouver Island		13.657	80,792	19.2%	13.110	68,405	18.5%
	South Vancouver Island	13.618	39,625	9.4%	13.008	31,248	8.4%
	Central Vancouver Island	13.490	28,788	6.8%	13.183	26,002	7.0%
	North Vancouver Island	14.060	12,379	2.9%	13.179	11,155	3.0%
Northern		15.578	23,698	5.6%	14.258	22,612	6.1%
	Northwest	15.876	6,546	1.6%	14.329	6,248	1.7%
	Northern Interior	15.684	12,523	3.0%	14.517	12,023	3.2%
	Northeast	14.987	4,629	1.1%	13.539	4,341	1.2%
Prov		13.696	420,305	100.0%	13.433	370,178	100.0%

Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate

Significantly lower than provincial rate

Totals do not sum due to unknown values for HA and HSDA.

Health Authority	Health Service Delivery Area	Asthma					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		12.353	27,673	15.6%	10.060	22,291	14.4%
	East Kootenay	9.520	2,400	1.3%	8.146	2,040	1.3%
	Kootenay Boundary	11.097	2,661	1.5%	8.958	2,107	1.4%
	Okanagan	12.567	13,137	7.4%	10.329	10,609	6.9%
	Thompson Cariboo Shuswap	13.496	9,475	5.3%	10.725	7,535	4.9%
Fraser		11.806	64,846	36.5%	11.052	59,790	38.8%
	Fraser East	14.179	12,984	7.3%	12.595	11,784	7.6%
	Fraser North	10.229	22,002	12.4%	9.335	19,334	12.5%
	Fraser South	12.299	29,860	16.8%	11.923	28,672	18.6%
Vancouver Coastal		9.660	38,320	21.5%	9.293	34,608	22.4%
	Richmond	8.320	6,034	3.4%	8.635	5,736	3.7%
	Vancouver	9.983	22,604	12.7%	9.780	20,785	13.5%
	North Shore/Coast Garibaldi	10.189	9,682	5.4%	8.860	8,087	5.2%
Vancouver Island		13.084	30,499	17.2%	10.884	23,935	15.5%
	South Vancouver Island	12.474	14,511	8.2%	10.342	11,150	7.2%
	Central Vancouver Island	13.434	10,590	6.0%	11.442	8,666	5.6%
	North Vancouver Island	14.323	5,398	3.0%	11.447	4,119	2.7%
Northern		12.787	12,971	7.3%	9.979	10,525	6.8%
	Northwest	12.723	3,360	1.9%	9.458	2,632	1.7%
	Northern Interior	13.524	6,807	3.8%	10.540	5,456	3.5%
	Northeast	11.396	2,804	1.6%	9.400	2,437	1.6%
Provincial		11.479	177,832	100.0%	10.178	154,268	100.0%

Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate

Significantly lower than provincial rate

Totals may not sum due to unknown values for HA and HSDA.

Health Authority	Health Service Delivery Area	Osteoporosis					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		7.134	11,378	17.5%	1.672	2,365	18.6%
	East Kootenay	6.598	1,007	1.5%	2.079	292	2.3%
	Kootenay Boundary	8.920	1,505	2.3%	2.939	449	3.5%
	Okanagan	6.512	5,502	8.4%	1.362	988	7.8%
	Thompson Cariboo Shuswap	7.851	3,364	5.2%	1.580	636	5.0%
Fraser		7.367	18,488	28.4%	1.835	3,836	30.2%
	Fraser East	5.747	2,823	4.3%	1.372	565	4.4%
	Fraser North	8.412	7,647	11.7%	1.865	1,397	11.0%
	Fraser South	7.213	8,018	12.3%	2.017	1,874	14.7%
Vancouver Coastal		9.383	18,522	28.4%	1.845	3,017	23.7%
	Richmond	8.282	2,823	4.3%	1.363	384	3.0%
	Vancouver	10.431	11,324	17.4%	2.100	1,877	14.8%
	North Shore/Coast Garibaldi	8.001	4,375	6.7%	1.639	756	5.9%
Vancouver Island		8.029	13,598	20.9%	1.862	2,669	21.0%
	South Vancouver Island	8.195	6,969	10.7%	1.941	1,293	10.2%
	Central Vancouver Island	7.996	4,844	7.4%	1.719	941	7.4%
	North Vancouver Island	7.534	1,785	2.7%	1.969	435	3.4%
Northern		8.318	3,077	4.7%	2.220	815	6.4%
	Northwest	6.506	659	1.0%	1.561	159	1.3%
	Northern Interior	8.656	1,718	2.6%	2.047	403	3.2%
	Northeast	9.912	700	1.1%	3.647	253	2.0%
Provincial		7.995	65,122	100.0%	1.832	12,712	100.0%

Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate

Significantly lower than provincial rate

Totals may not sum due to unknown values for HA and HSDA.

Health Authority	Health Service Delivery Area	Osteoarthritis					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		7.268	41,188	19.8%	6.118	30,967	21.4%
	East Kootenay	6.250	3,524	1.7%	5.521	2,930	2.0%
	Kootenay Boundary	6.213	3,832	1.8%	5.191	2,924	2.0%
	Okanagan	7.420	21,762	10.5%	6.258	15,651	10.8%
	Thompson Cariboo Shuswap	7.743	12,070	5.8%	6.408	9,462	6.5%
Fraser		6.965	68,129	32.8%	5.370	45,781	31.7%
	Fraser East	7.049	12,854	6.2%	5.741	9,157	6.3%
	Fraser North	6.140	22,424	10.8%	4.642	14,650	10.1%
	Fraser South	7.654	32,851	15.8%	5.848	21,974	15.2%
Vancouver Coastal		5.400	41,717	20.1%	4.084	26,779	18.5%
	Richmond	4.214	5,790	2.8%	3.026	3,427	2.4%
	Vancouver	5.652	23,959	11.5%	4.088	14,812	10.2%
	North Shore/Coast Garibaldi	5.678	11,968	5.8%	4.775	8,540	5.9%
Vancouver Island		6.798	41,503	20.0%	5.674	29,388	20.3%
	South Vancouver Island	6.518	19,689	9.5%	5.298	12,648	8.7%
	Central Vancouver Island	7.083	15,499	7.5%	6.060	11,934	8.3%
	North Vancouver Island	6.986	6,315	3.0%	5.822	4,806	3.3%
Northern		7.962	12,223	5.9%	6.089	9,576	6.6%
	Northwest	9.876	4,115	2.0%	7.621	3,331	2.3%
	Northern Interior	7.772	6,281	3.0%	5.917	4,817	3.3%
	Northeast	5.905	1,827	0.9%	4.496	1,428	1.0%
Provincial		6.635	207,713	100.0%	5.251	144,563	100.0%

Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate

Significantly lower than provincial rate

Totals may not sum due to unknown values for HA and HSDA.

Health Authority	Health Service Delivery Area	Dialysis					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		4.230	21,920	15.6%	5.130	25,462	15.9%
	East Kootenay	4.103	2,165	1.5%	4.852	2,523	1.6%
	Kootenay Boundary	3.849	2,238	1.6%	4.528	2,514	1.6%
	Okanagan	4.032	10,621	7.6%	5.156	12,533	7.8%
	Thompson Cariboo Shuswap	4.758	6,896	4.9%	5.392	7,892	4.9%
Fraser		5.556	51,790	36.9%	7.002	59,800	37.3%
	Fraser East	5.624	9,605	6.8%	7.022	10,998	6.9%
	Fraser North	5.257	18,478	13.2%	6.657	21,162	13.2%
	Fraser South	5.806	23,707	16.9%	7.306	27,640	17.3%
Vancouver Coastal		4.533	33,180	23.6%	5.575	36,408	22.7%
	Richmond	4.923	6,481	4.6%	6.382	7,399	4.6%
	Vancouver	4.920	19,788	14.1%	5.803	20,907	13.1%
	North Shore/Coast Garibaldi	3.527	6,911	4.9%	4.598	8,102	5.1%
Vancouver Island		4.133	23,176	16.5%	5.222	26,645	16.6%
	South Vancouver Island	4.019	11,012	7.8%	4.953	11,588	7.2%
	Central Vancouver Island	4.254	8,570	6.1%	5.471	10,544	6.6%
	North Vancouver Island	4.235	3,594	2.6%	5.387	4,513	2.8%
Northern		5.655	8,505	6.1%	5.988	9,433	5.9%
	Northwest	5.774	2,345	1.7%	5.974	2,582	1.6%
	Northern Interior	5.692	4,498	3.2%	6.081	5,009	3.1%
	Northeast	5.394	1,662	1.2%	5.721	1,842	1.1%
Provincial		4.771	140,498	100.0%	5.875	160,185	100.0%

Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate
 Significantly lower than provincial rate

Totals may not sum due to unknown values for HA and HSDA.

Health Authority	Health Service Delivery Area	Chronic Obstructive Pulmonary Disease					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		6.058	11,497	23.9%	7.315	12,478	24.6%
	East Kootenay	5.859	1,069	2.2%	6.969	1,185	2.3%
	Kootenay Boundary	5.889	1,191	2.5%	7.620	1,411	2.8%
	Okanagan	5.976	5,977	12.4%	7.104	6,187	12.2%
	Thompson Cariboo Shuswap	6.352	3,260	6.8%	7.636	3,695	7.3%
Fraser		4.525	14,470	30.1%	5.365	14,403	28.4%
	Fraser East	4.665	2,803	5.8%	5.539	2,874	5.7%
	Fraser North	4.592	5,431	11.3%	5.566	5,391	10.6%
	Fraser South	4.427	6,236	13.0%	5.135	6,138	12.1%
Vancouver Coastal		3.629	9,287	19.3%	4.974	10,392	20.5%
	Richmond	3.227	1,464	3.0%	3.919	1,441	2.8%
	Vancouver	3.831	5,351	11.1%	5.720	6,540	12.9%
	North Shore/Coast Garibaldi	3.491	2,472	5.1%	4.169	2,411	4.7%
Vancouver Island		4.378	9,062	18.9%	5.347	9,400	18.5%
	South Vancouver Island	3.639	3,815	7.9%	4.567	3,747	7.4%
	Central Vancouver Island	5.030	3,714	7.7%	6.045	4,041	8.0%
	North Vancouver Island	5.170	1,533	3.2%	5.891	1,612	3.2%
Northern		6.329	2,972	6.2%	7.323	3,313	6.5%
	Northwest	5.552	711	1.5%	7.026	880	1.7%
	Northern Interior	6.462	1,604	3.3%	7.264	1,735	3.4%
	Northeast	7.058	657	1.4%	7.891	698	1.4%
Prov		4.661	48,031	100.0%	5.746	50,798	100.0%

Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate
 Significantly lower than provincial rate

Totals may not sum due to unknown values for HA and HSDA.

Health Authority	Health Service Delivery Area	Ischemic Heart Disease					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		1.581	9,374	19.0%	3.213	16,999	18.7%
	East Kootenay	1.068	634	1.3%	2.387	1,304	1.4%
	Kootenay Boundary	1.768	1,121	2.3%	3.313	1,935	2.1%
	Okanagan	1.625	5,039	10.2%	3.359	8,826	9.7%
	Thompson Cariboo Shuswap	1.612	2,580	5.2%	3.207	4,934	5.4%
Fraser		1.702	17,014	34.5%	3.630	30,809	33.9%
	Fraser East	1.881	3,578	7.2%	3.762	6,114	6.7%
	Fraser North	1.581	5,823	11.8%	3.411	10,517	11.6%
	Fraser South	1.731	7,613	15.4%	3.761	14,178	15.6%
Vancouver Coastal		1.206	9,646	19.5%	2.753	17,938	19.7%
	Richmond	1.151	1,590	3.2%	2.637	2,991	3.3%
	Vancouver	1.108	4,886	9.9%	2.530	8,988	9.9%
	North Shore/Coast Garibaldi	1.438	3,170	6.4%	3.279	5,959	6.5%
Vancouver Island		1.557	10,101	20.5%	3.425	18,686	20.5%
	South Vancouver Island	1.450	4,725	9.6%	3.251	8,128	8.9%
	Central Vancouver Island	1.650	3,850	7.8%	3.653	7,616	8.4%
	North Vancouver Island	1.663	1,526	3.1%	3.395	2,942	3.2%
Northern		1.754	2,608	5.3%	3.440	5,319	5.8%
	Northwest	1.985	795	1.6%	3.788	1,605	1.8%
	Northern Interior	1.840	1,453	2.9%	3.521	2,867	3.2%
	Northeast	1.207	360	0.7%	2.727	847	0.9%
Provincial		1.530	49,375	100.0%	3.271	90,987	100.0%

Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate

Significantly lower than provincial rate

Totals may not sum due to unknown values for HA and HSDA.

Health Authority	Health Service Delivery Area	Stroke					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		1.162	7,333	18.6%	1.407	7,488	19.1%
	East Kootenay	1.108	672	1.7%	1.268	664	1.7%
	Kootenay Boundary	1.223	848	2.2%	1.454	832	2.1%
	Okanagan	1.101	3,724	9.5%	1.398	3,838	9.8%
	Thompson Cariboo Shuswap	1.277	2,089	5.3%	1.451	2,154	5.5%
Fraser		1.142	12,125	30.8%	1.436	12,034	30.8%
	Fraser East	1.124	2,281	5.8%	1.432	2,344	6.0%
	Fraser North	1.089	4,252	10.8%	1.376	4,125	10.5%
	Fraser South	1.195	5,592	14.2%	1.492	5,565	14.2%
Vancouver Coastal		1.073	9,242	23.5%	1.332	8,671	22.2%
	Richmond	0.867	1,266	3.2%	1.106	1,219	3.1%
	Vancouver	1.082	5,188	13.2%	1.361	4,896	12.5%
	North Shore/Coast Garibaldi	1.191	2,788	7.1%	1.419	2,556	6.5%
Vancouver Island		1.144	8,110	20.6%	1.471	8,121	20.8%
	South Vancouver Island	1.080	4,003	10.2%	1.409	3,675	9.4%
	Central Vancouver Island	1.189	2,933	7.5%	1.491	3,114	8.0%
	North Vancouver Island	1.246	1,174	3.0%	1.608	1,332	3.4%
Northern		1.310	1,970	5.0%	1.535	2,220	5.7%
	Northwest	1.495	614	1.6%	1.750	694	1.8%
	Northern Interior	1.241	976	2.5%	1.426	1,089	2.8%
	Northeast	1.248	380	1.0%	1.525	437	1.1%
Provincial		1.136	39,360	100.0%	1.415	39,109	100.0%

Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate

Significantly lower than provincial rate

Totals may not sum due to unknown values for HA and HSDA.

Health Authority	Health Service Delivery Area	Con estive Heart Failure					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		1.327	9,049	20.3%	1.737	9,383	21.2%
	East Kootenay	1.388	896	2.0%	1.626	858	1.9%
	Kootenay Boundary	1.576	1,144	2.6%	1.863	1,067	2.4%
	Okanagan	1.179	4,424	9.9%	1.643	4,637	10.5%
	Thompson Cariboo Shuswap	1.516	2,585	5.8%	1.904	2,821	6.4%
Fraser		1.249	14,119	31.7%	1.644	13,740	31.0%
	Fraser East	1.416	3,061	6.9%	1.854	3,082	7.0%
	Fraser North	1.120	4,713	10.6%	1.496	4,447	10.0%
	Fraser South	1.286	6,345	14.3%	1.675	6,211	14.0%
Vancouver Coastal		1.063	10,085	22.7%	1.447	9,523	21.5%
	Richmond	0.886	1,377	3.1%	1.180	1,315	3.0%
	Vancouver	1.088	5,805	13.0%	1.452	5,279	11.9%
	North Shore/Coast Garibaldi	1.118	2,903	6.5%	1.602	2,929	6.6%
Vancouver Island		1.016	7,969	17.9%	1.395	7,881	17.8%
	South Vancouver Island	0.889	3,776	8.5%	1.210	3,294	7.4%
	Central Vancouver Island	1.103	2,962	6.7%	1.492	3,175	7.2%
	North Vancouver Island	1.233	1,231	2.8%	1.708	1,412	3.2%
Northern		1.745	2,591	5.8%	2.185	3,050	6.9%
	Northwest	1.896	757	1.7%	2.406	927	2.1%
	Northern Interior	1.694	1,343	3.0%	2.092	1,548	3.5%
	Northeast	1.673	491	1.1%	2.118	575	1.3%
Provincial		1.194	44,519	100.0%	1.590	44,256	100.0%

Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate

Significantly lower than provincial rate

Totals may not sum due to unknown values for HA and HSDA.

Health Authority	Health Service Delivery Area	Multiple Sclerosis					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		0.251	1,114	19.6%	0.094	415	20.4%
	East Kootenay	0.260	130	2.3%	0.109	53	2.6%
	Kootenay Boundary	0.280	131	2.3%	0.099	51	2.5%
	Okanagan	0.247	517	9.1%	0.080	167	8.2%
	Thompson Cariboo Shuswap	0.246	336	5.9%	0.105	144	7.1%
Fraser		0.204	1,825	32.0%	0.070	598	29.4%
	Fraser East	0.231	350	6.1%	0.074	111	5.5%
	Fraser North	0.186	650	11.4%	0.065	215	10.6%
	Fraser South	0.212	825	14.5%	0.072	272	13.4%
Vancouver Coastal		0.166	1,156	20.3%	0.065	436	21.5%
	Richmond	0.111	146	2.6%	0.044	50	2.5%
	Vancouver	0.154	599	10.5%	0.059	228	11.2%
	North Shore/Coast Garibaldi	0.235	411	7.2%	0.095	158	7.8%
Vancouver Island		0.242	1,157	20.3%	0.085	398	19.6%
	South Vancouver Island	0.249	582	10.2%	0.090	197	9.7%
	Central Vancouver Island	0.239	400	7.0%	0.082	141	6.9%
	North Vancouver Island	0.232	175	3.1%	0.074	60	3.0%
Northern		0.268	433	7.6%	0.112	184	9.1%
	Northwest	0.186	84	1.5%	0.096	42	2.1%
	Northern Interior	0.264	224	3.9%	0.104	88	4.3%
	Northeast	0.358	125	2.2%	0.144	54	2.7%
Provincial		0.213	5,696	100.0%	0.078	2,031	100.0%

Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate

Significantly lower than provincial rate

Totals may not sum due to unknown values for HA and HSDA.

Health Authority	Health Service Delivery Area	Parinson's Disease					
		Females			Males		
		Prevalence Rate per 100	Prevalence Count	% of Provincial	Prevalence Rate per 100	Prevalence Count	% of Provincial
Interior		0.147	956	17.5%	0.219	1,185	17.9%
	East Kootenay	0.168	101	1.9%	0.197	104	1.6%
	Kootenay Boundary	0.159	111	2.0%	0.195	110	1.7%
	Okanagan	0.139	489	9.0%	0.234	654	9.9%
	Thompson Cariboo Shuswap	0.151	255	4.7%	0.212	317	4.8%
Fraser		0.162	1,700	31.2%	0.241	1,978	29.9%
	Fraser East	0.156	317	5.8%	0.220	359	5.4%
	Fraser North	0.157	592	10.9%	0.250	729	11.0%
	Fraser South	0.169	791	14.5%	0.244	890	13.4%
Vancouver Coastal		0.162	1,395	25.6%	0.250	1,637	24.7%
	Richmond	0.138	199	3.7%	0.207	230	3.5%
	Vancouver	0.176	848	15.6%	0.266	962	14.5%
	North Shore/Coast Garibaldi	0.150	348	6.4%	0.246	445	6.7%
Vancouver Island		0.153	1,082	19.8%	0.247	1,389	21.0%
	South Vancouver Island	0.164	595	10.9%	0.269	719	10.9%
	Central Vancouver Island	0.142	354	6.5%	0.223	478	7.2%
	North Vancouver Island	0.138	133	2.4%	0.237	192	2.9%
Northern		0.155	224	4.1%	0.244	324	4.9%
	Northwest	0.147	58	1.1%	0.241	88	1.3%
	Northern Interior	0.155	119	2.2%	0.241	169	2.6%
	Northeast	0.168	47	0.9%	0.257	67	1.0%
Provincial		0.157	5,451	100.0%	0.240	6,618	100.0%

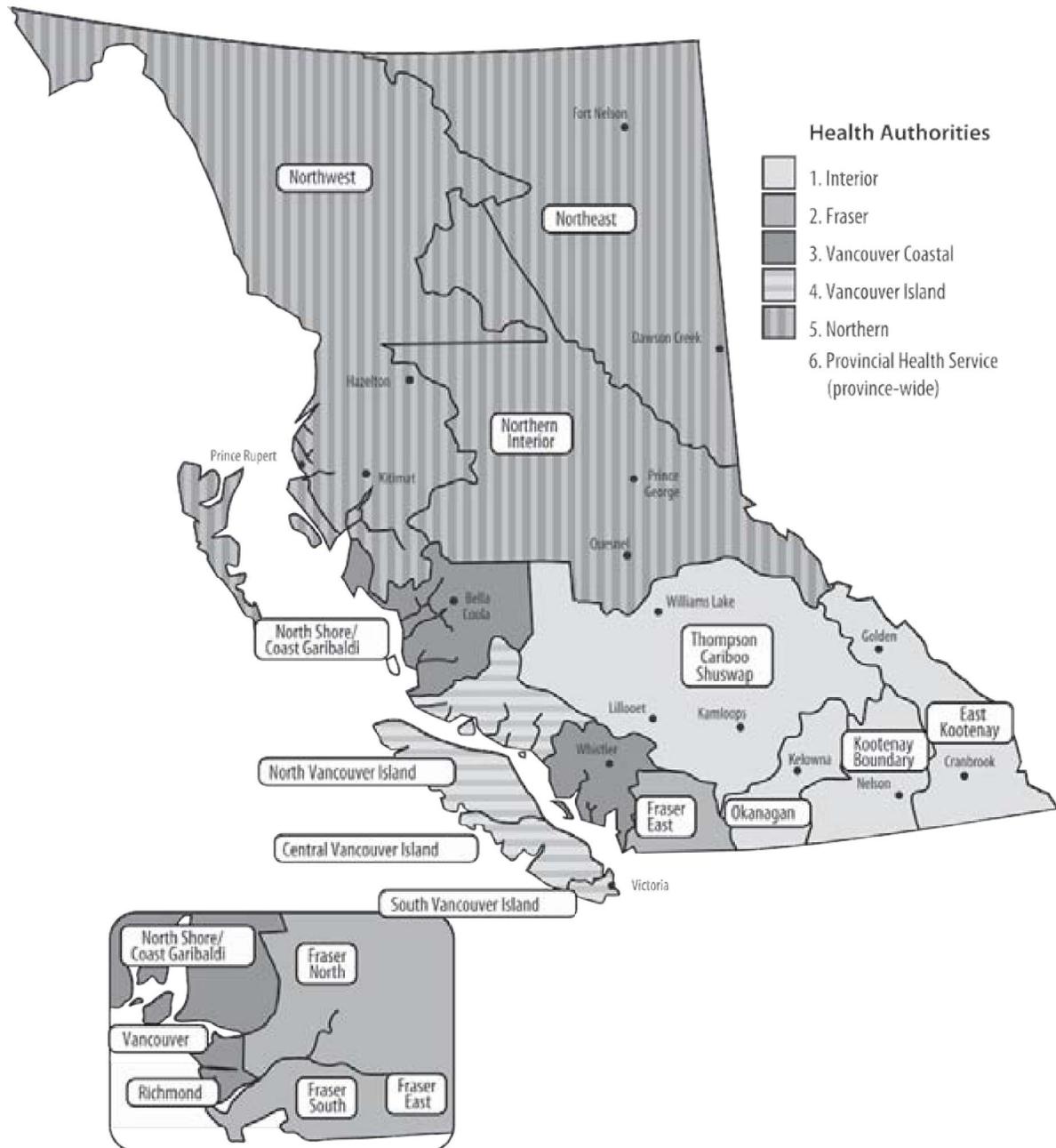
Prevalence rate represents age-standardized prevalence rate per 100 for 2008/09. Standardized to Canadian population 1991.

Significantly higher than provincial rate

Significantly lower than provincial rate

Totals may not sum due to unknown values for HA and HSDA.

Appendix C – British Columbia Health Authorities and Health Service Delivery Areas



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