

**Improving Health Care System Responses to
Chronic Disease among British Columbia's
Immigrant, Refugee, and Corrections Population:**

A Review of Current Findings and Opportunities for Change

Prepared for the
*Reducing Health Inequities:
A Health System Approach to Chronic
Disease Prevention*
Project Steering Committee

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Executive Summary

The purpose of this report is to provide an overview of current research and available reports describing the health status and health care service utilization of three underserved populations of interest in British Columbia—immigrants, refugees, and the corrections population—particularly as they relate to chronic conditions. An exploration of some of the ways in which the health care system responds to the health needs of these populations is also included. This literature review is intended to serve as the starting point for further dialogue and collaboration, and to inform the process of developing a strategy for the equitable prevention and management of chronic diseases within the provincial health service delivery system.

The body of this report examines research related to the health status and chronic conditions particular to each population of interest and highlights opportunities where the health system could improve delivery of health care. Unfortunately, there is a general paucity of studies examining the specific health concerns and status of immigrant, refugee, and corrections populations in British Columbia. Therefore, the findings highlighted in this report are based largely upon literature that covers the three populations across Canada and in other provinces, although studies specific to the province are included whenever they are available.

Key Findings

Immigrants

Immigration is an increasingly important component of new population growth in British Columbia. As of 2006, over one-quarter of the provincial population were immigrants, the vast majority of whom had settled in the Lower Mainland region of the province. Although overall the immigrant population in Canada appears to be healthy in terms of total disease risk, some subgroups may be at higher risk of adverse health outcomes, particularly relating to chronic conditions. Canadian and British Columbian immigrants are remarkably diverse in terms of personal characteristics, place and culture of origin, migration experience, length of residence in Canada, and predispositions to disease. Immigrants' experiences of the socioeconomic and community-level determinants of post-migration health also vary widely. The overall picture of health for immigrants hides important health disparities existing among some subgroups. Those subgroups presenting higher health service needs and poorer health outcomes include

immigrants who have been in the country for many years, groups with lower socioeconomic status, and certain demographic and ethnic groups (e.g., South Asians have increased risk for developing insulin resistance and therefore diabetes; immigrant women have a higher prevalence of mental illness than male immigrants; South Asian women's risk of heart disease increases with length of stay in Canada, etc.).

In general, immigrants often have higher health status upon arrival in Canada than the general Canadian population, but tend to lose their health advantage over time. This *healthy immigrant effect* may occur within five to ten years after arrival, and has important implications for health care systems, particularly if the superior health with which immigrants arrive in the province is to be preserved.

While overall utilization of physician services and hospitals appears to be lower among newly arrived immigrants than among the general population of BC, for various specific conditions and procedures immigrants do have higher rates. Utilization of medical services has been found to vary substantially according to demographic and socioeconomic characteristics and existing medical conditions, as seen in the case of immigrants on a Refugee or Family visa utilizing physicians and hospitals the most, and those on an Economic-Business visa using them the least. Disparities in utilization rates raise concern that there may be inequities in access to health services for immigrants in BC, occurring through several channels (i.e., geographic, sociocultural, and economic barriers to access).

Refugees

In many ways, the health status of refugees in Canada is similar to that of the broader population of newly arrived and more established immigrants across the country. However, refugee health concerns and experiences with the health care system do vary in crucial and significant ways, and this variation has important repercussions on chronic conditions and long-term well-being. Forced migration has increased worldwide, and in recent years Canada has received the second largest proportion of refugees resettled in industrialized countries. In British Columbia, refugees comprise 4.8% of all newcomers to the province.

The healthy immigrant effect is not as evident among refugees as among the broader immigrant population. Indeed, refugees often arrive with health problems due to pre-migration circumstances, such as refugee camp living conditions and endemic infectious diseases and

may require special care and protections, particularly in the early stages of resettlement. Moreover, ethnic, religious, socioeconomic, and cultural differences between and within groups of refugees arriving from distinct regions can result in community fragmentation. In order to adequately and appropriately serve this population with unique needs, health care and social support systems must take the particular health needs, social circumstances (i.e., isolation and exclusion), and community fragmentation of refugees into account in the development and implementation of programming.

Among refugees in Canada, there are significant variations in chronic disease prevalence and trends according to gender, region of origin, length of residency, migration experience, and sociocultural and socioeconomic characteristics. Pre- and post-migration, refugees frequently encounter trauma that may directly undermine their physical and psychological health. Such traumatic experiences may also act indirectly to diminish individuals' and communities' capacity to cope with acculturation stressors, thereby rendering refugees more susceptible to stress-related disorders and psychological disturbances. Additionally, refugee morbidity and mortality attributable to infectious diseases and parasites is elevated, particularly in comparison with rates seen among non-refugee immigrants and the broader Canadian population. HIV/AIDS and chronic hepatitis infection are considered chronic conditions and prevalence has been found to be elevated among refugee populations throughout the country.

Upon arrival in the province, refugees initially have low health care utilization patterns, for primary and tertiary care services alike. Rates of physician visits increase shortly after the three-month waiting period for provincial insurance coverage passes, and until regular care is established refugees tend to rely on walk-in clinics and emergency room services.

Corrections Population

Prison and penitentiary inmates experience disproportionately high levels of chronic and acute physical and mental health problems, resulting in increased utilization of health services within correctional institutions and once released from custody. The provision of health care in correctional facilities differs from care for the non-prison population in community settings in numerous ways. These include the need for greater control of medications, heightened security and escort services necessary when inmates require health services beyond what is offered within the correctional facility, and some tension between the goals of inmates seeking care and the staff providing health services.

There are several demographic features of the inmate population that distinguish it from the Canadian population. On average, inmates are much younger, they are predominantly male, and Aboriginal people are substantially overrepresented. In recent years the demographic profile of the incarcerated population has been shifting, as the number and proportion of female, Aboriginal, and older prisoners entering custody has increased. Such shifts have important implications for correctional services in terms of the types of rehabilitative and health programming needed and the infrastructure required to house this changing population.

From a health determinants perspective, several critical factors influence the health of inmates, including: low rates of education completion and literacy; poor employment histories and financial instability; unstable accommodation; poor social networks and attachments; and extensive criminal histories. Additionally, the three subgroups seen in higher numbers and proportions of the corrections population in recent years—Aboriginals, women, and older offenders—have a higher risk of poor health outcomes, when compared with the general inmate population.

Mental health and infectious diseases are of particular concern among the corrections population. Substantial proportions of offenders are identified as having mental and substance abuse disorders at intake and concurrent disorders are extremely common. The correctional environment can challenge mental health, and may lead to the development of new disorders as well as the exacerbation of those that are pre-existing. Offenders are at increased risk of having acquired several types of infectious diseases prior to incarceration, including HIV and hepatitis. Furthermore, transmission of communicable diseases within corrections facilities is considerable, and is influenced by the extent of risky behaviour initiated and continued throughout incarceration. Inmates in custody have substantially higher mortality rates than comparably aged members of the general population. Violent deaths, cardiovascular disease, cancer, liver disease, and HIV/AIDS are among the most significant causes of death for this population, and reflect the diseases and risk behaviours that are highly prevalent (e.g., hepatitis infection and lung cancer, smoking and injection drug use).

Institutionalized offenders have substantially higher utilization rates of health care services than similarly aged individuals in the community. Penitentiary and prison health services make extensive use of nurses, which reflects the institutional setting of correctional facilities as well as specific inmate health issues.

Opportunities for Health Systems Change

Based on this review of the literature, the following opportunities for change have been identified. All suggestions are intended to stimulate and inform further dialogue and development of a strategy that could be adopted by the health care system in British Columbia, aimed at ensuring equal access to health services, reducing health inequities observed, and maximizing the health of the three underserved populations considered. Many different actions could be taken within each of these areas, and some are explained in depth within the sections of the report specific to each population. Directions for future research, though not listed here, are highlighted in the population sections.

Common Themes

- Improved information support, to include:
 - Tailored information tools
 - Clear explanations of health system organization
 - Sharing of health care strategies with patients
 - Assurance of continuity of care through communication between health care delivery systems and among health care providers
- Enhanced assistance from community agencies and expansion of services at the community level
- Implementation and expansion of interventions to enhance coping skills
- Enhancement of prevention efforts

Immigrants and Refugees

- Modification of existing services to respond to accessibility barriers
- Increased translation and interpretation services
 - Initiatives to promote awareness of the importance and appropriate use of interpretation services within the health professions
 - Strategies for health interpreter training, accreditation, and standards of service provision

- Re-examination of waiting periods for provincial health coverage
- Measures to address physician shortages
- Disease surveillance and follow up on Immigrant Medical Examination results
- Increased acceptance and ease of use of Interim Federal Health Program
- Expanded and enriched education and training of health care professionals

Corrections Population

- Adaptation of health care services to reflect shifting population demographics
- Improvement of continuity of care between correctional health facilities and health authorities
- Modification of existing services to respond to specific mental health concerns of inmates
- Expansion and enhancement of harm reduction interventions
- Expansion of culturally appropriate services
- Revision of policies on smoking within corrections institutions

Introduction

Chronic health conditions have been identified as a key challenge for health care in Canada and around the world, and there is growing awareness of the increase in prevalence of chronic health conditions and the impact of these conditions on health status and health care utilization. Chronic health conditions afflict approximately 34% of British Columbians and account for nearly 67% of provincial health care costs.¹ There is also mounting evidence that deteriorations in chronic health can be prevented, and that chronic illness care can be improved to reduce the health impacts of such conditions.¹⁻³ In the past, many chronic disease prevention and management strategies have focused on interventions aimed at modifying individual behaviour and lifestyle factors associated with increased risk, such as smoking, unhealthy diet, substance use, and low physical activity. However, evidence is mounting that community- and systems-level approaches targeting the social and economic root and environmental causes of health problems may be more effective.⁴⁻⁶

Although British Columbians in general rank among the healthiest people in the world, there are a large number who do not enjoy the same level of health, including people with lower incomes, addictions or mental illnesses, the homeless, and refugees.⁵ Members of these groups have higher rates of certain chronic diseases and associated risk factors. Unequal distributions of health have complex causes—ranging from the broader socioeconomic and political determinants of health to the ways in which the health care system understands and responds to their needs. Until now, there has not been an examination of issues within the health system that may give rise to health inequities, specifically as they relate to the inequitable distribution of chronic diseases among certain populations in British Columbia. To address this gap, the Provincial Health Services Authority's (PHSA) Centre for Chronic Disease Prevention has implemented a project to develop a strategy on how the health system can reduce health inequities, thereby reducing the incidence and severity of chronic diseases in underserved populations in BC. The project's steering committee has requested a literature review and summary on the current landscape of health status and use of the health care system by three underserved populations in the province.

Purpose and Scope of Report

The purpose of this report is to provide an overview of current research and available information describing the health status and health care service utilization of three underserved populations of interest in British Columbia—immigrants, refugees, and individuals involved with the corrections system—particularly as they relate to chronic conditions. The body of this report also highlights opportunities where the health system could improve its health care delivery for the populations of interest. The report is intended to serve as the starting point for further dialogue and collaboration, and to inform the process of developing a strategy for the equitable prevention and management of chronic diseases within the provincial health service delivery system.

Several collaborative and multi-sectoral initiatives and responses to address the links between social determinants and health inequities are currently underway in BC and Canada, and PHSA is involved in many of these efforts. The health care delivery sector certainly has a role to play, and the current review attempts to contribute to an understanding of issues relevant to the health system. As such, there are several key definitions that have informed the scope of this review. Based on expert knowledge and feedback, the project has defined *health system* to include health care delivery services under the mandate of PHSA agencies and the Regional Health Authorities in BC, including chronic disease prevention and management services or programs, Primary Health Care, Public Health, Home and Community Care, Mental Health and Addictions Services, and Hospitals. The project will complement work already done in this area around the province; including Ministry led chronic disease prevention and management initiatives. However, anything in the health system that does not fall under the mandate of the Health Authorities (e.g., non-profit or community organizations involved in chronic disease prevention and management) falls outside the scope of the project and are not included in this report. *Chronic disease* is understood here to include cancer, hypertension, diabetes, cardiovascular disease, stroke, renal failure, blindness, mental health conditions, long-term disability resulting from injury, certain communicable diseases such as HIV/AIDS and hepatitis, and non-life threatening conditions such as arthritis.

Methodology

The primary basis for this report was a review of current literature. In February 2010, a search was conducted for published literature within the PubMed and Web of Science databases, using the search criteria and terms outlined in Appendix 2: Literature Search Criteria and Terms. This resulted in a preliminary list of 753 entries, after redundancies were removed. Since the focus of the current review is on the province of British Columbia, the list was reduced to only those sources from the Canadian context. This final list was supplemented by manual searches for relevant reports, websites, and articles from grey literature, along with articles that had emerged from a previous search for studies on the three populations of interest. Abstracts were reviewed by the author to determine if sources met pre-determined inclusion and exclusion criteria (detailed below). In the end, a total of 160 sources were reviewed and their findings included in this report.

Studies and reviews examining provincial trends in chronic disease prevalence and factors increasing the risk of being underserved by the health system were included in this review. In particular, attention was focused on three populations of interest: immigrants, refugees, and the corrections population. The literature included here is relevant to the Canadian context, and preference has been given to information and analysis specific to the province whenever it is available. Studies outside of the Canadian context were excluded, unless they contributed crucial or unique understandings of chronic disease inequities among the underserved populations of interest. Additionally, only English-language publications were included.

Populations of Interest

A number of factors converge to increase the risk that some British Columbians will be underserved by the health care system and may be excluded from existing chronic disease prevention and management strategies. Certain groups in the province face a greater likelihood of exposure to such factors, and a correspondingly higher risk of mortality and morbidity associated with chronic disease. In 2003, an International Think Tank hosted by the Canadian Institutes of Health Research (CIHR) identified nine groups who face a disproportionately high risk of being underserved, including: Aboriginal people, immigrants and refugees, certain ethno-cultural communities, people with disabilities, single parents, children and youth in disadvantaged circumstances, women in marginalized or

compromised situations, the elderly and their unpaid caregivers, and gays, lesbians, bisexuals and transgendered people.⁷ Additionally, the Public Health Association of BC (PHABC), Health Canada for the Atlantic provinces, and the United Nations have identified additional groups at risk, including people with low incomes (particularly families), residents of remote, rural or Northern communities, recent immigrants, unattached elderly women, women and children fleeing abuse, single mothers, and people with mental illnesses and/or substance use issues.^{4,8,9} A detailed examination of all these groups is beyond the scope of the current report. Therefore, the following discussion will focus on three groups that have recently been identified as priority underserved populations in BC: immigrants, refugees, and the corrections population.*

Immigrants and Refugees

Immigrants and refugees accepted into Canada can be classified into three main groups: Economic Class, Family Class, and Refugees (Table 1). Economic Class includes provincial nominees, skilled workers, business immigrants and live-in caregivers. Family Class is composed of relatives sponsored by family members already established in Canada. Refugees encompass convention refugees and others in situations that require protection under international law. Article 1 of the 1951 Refugee Convention of the United Nations defines a refugee as “a person who is outside his or her country of nationality or habitual residence; has a well-founded fear of persecution because of his or her race, religion, nationality, membership of a particular social group or political opinion; and is unable or unwilling to avail himself or herself of the protection of that country, or to return there, for fear of persecution.”¹⁰ Refugees generally fall into one of four categories: Government Assisted Refugees (GARs), Privately Sponsored Refugees (PSRs), Asylum Refugees, and Refugee Dependants (i.e., dependants of refugees landed in Canada, including spouses, partners, or children living abroad or in Canada). Other immigrants, which do not fit into any of these categories, include post-determination refugee claimants, deferred removal orders, temporary resident permit holders, foreign students, humanitarian

* PHSA recently received a request from a Regional Health Authority for assistance with underserved immigrant and refugee groups, and from BC Corrections (via the BC Centre for Disease Control) for assistance in developing a plan to normalize continuity of care to the corrections population.⁴⁰

and compassionate cases,[†] and people granted permanent resident status based on public policy considerations.¹¹⁻¹³

Table 1: Common Immigrant Entry Categories in Canada^{12,13}

1. Economic Class

Largest entry category
Selected for their skills and ability to contribute to Canada's economy
Includes skilled workers, business immigrants, provincial nominees, and live-in caregivers
Also includes spouses and dependants of applicants in this category

2. Family Class

Sponsored by a family member who is a Canadian citizen or permanent resident age 18 or over
Family member is financially responsible for 10 years

3. Refugees

Government Assisted Refugees (GARs)

Usually from overseas camps
Typically aided by international organizations

Privately Sponsored Refugees (PSRs)

Selected overseas

Asylum Refugees (Landed-in-Canada Refugee [LCR])

Apply for asylum after arriving in Canada
Must be approved by the Immigrant and Refugee Board (IRB)

Refugee Dependants

Dependants of refugees landed in Canada
Includes family members residing abroad or in Canada

As suggested by the definitions above, some immigrant categories have shared backgrounds and experiences, and it is entirely possible that both voluntary immigrants and refugees seeking asylum may arrive from the same country. For example, once a refugee to Canada has received citizenship, he or she may apply to sponsor other family members under a family class application. Even though all members of the family may have experienced similar trauma and/or hardship pre-migration, they are accepted under different criteria.

The distinction between refugees accepted as landed immigrants before arrival in Canada (i.e., GARs, PSRs, and their dependants) and refugee claimants is an important one, as the

[†] Granted the right to remain in Canada on compassionate grounds, these individuals are not required to pass through the same determination system as other refugees and immigrants.¹³

migration and immigration processes that these two groups experience vary, especially legally and in terms of services accessible to them in Canada. Indeed, one author has noted that “convention refugees, who arrive sponsored by the resettlement programme have far better support from government services than asylum seekers, who appear in Canada with status beyond their statements of claim.”^{14(p293)}

Refugees applying from outside Canada to become refugees (GARs, PSRs, and dependants) are typically identified by the Office of the United Nations High Commissioner for Refugees (UNHCR) and private sponsoring groups. Most refugees receive sponsorship from within refugee camps. Individuals applying from outside Canada to become refugees must pass a medical examination, and criminal and security screening procedures to prove that they are of no risk to Canadian security and public health. In addition, they must demonstrate the ability to become self-sufficient within three to five years after landing, and they must receive financial sponsorship from the government, a recognized group or private organization. Upon their arrival in Canada, resettled refugees are eligible to receive certain services to aid in their settlement. They are provided with temporary accommodation, assistance to secure permanent housing, and a supply of basic household items. They also receive financial orientation, assistance in locating employment, and some receive an income supplement for up to one year. Convention refugees may apply to the Immigration Loans Program to cover costs accrued in the settlement process. These loans must be repaid, and interest may apply after a period of one to three years. Finally, they are eligible for provincial medical services upon landing.¹⁴

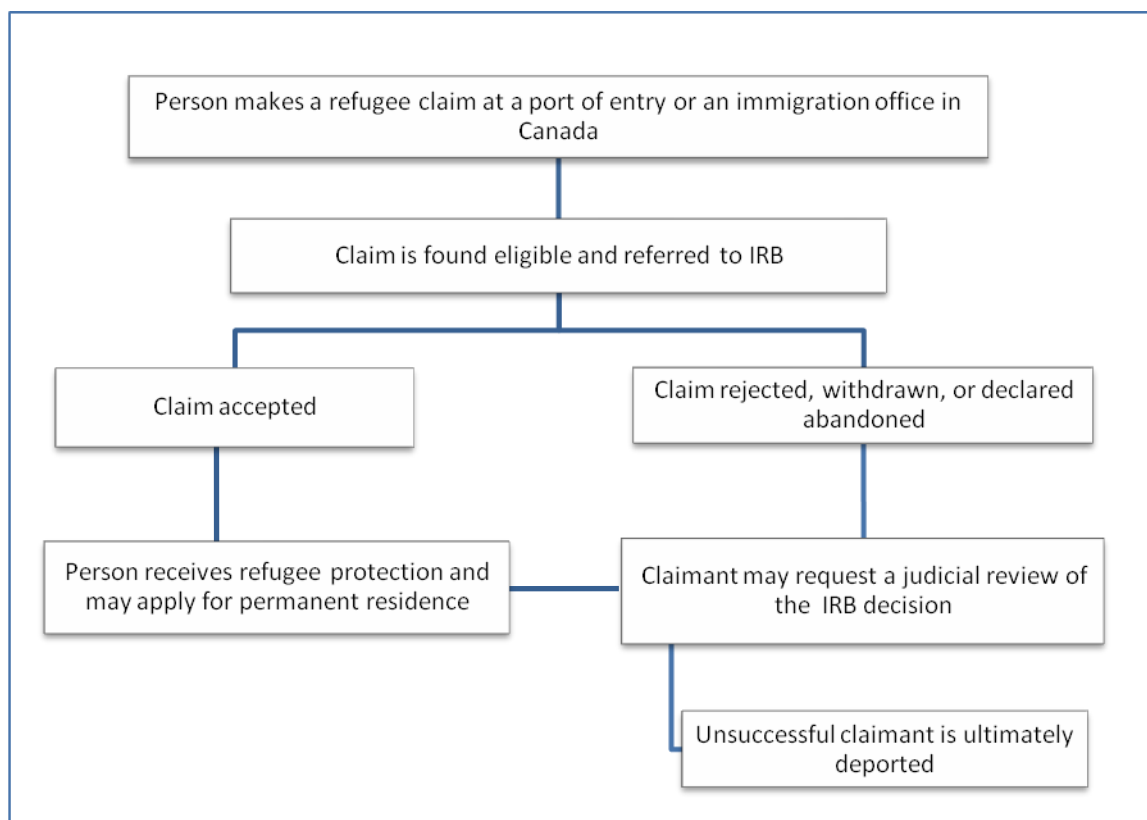
Individuals who arrive in Canada and then claim asylum must apply to become refugees through a different process (Figure 1) from the one described above for those applying abroad. Asylum seekers are expected to make a claim for protection as soon as they arrive within Canadian territory. After a claim for protection has been made, the eligibility of the claim to receive further evaluation should be determined within three days.[‡] Once such a claim is deemed eligible, the Immigration and Refugee Board (IRB)—an independent tribunal—will determine if the person meets the criteria of the UN Convention on Refugees and qualifies for protection.¹⁵ It is estimated that just under half of refugee claimants are determined to be genuine refugees, and as “protected persons” are subsequently eligible to

[‡] This determination is made by the Refugee Protection Division (RPD) of the Immigration and Refugee Board of Canada (IRB).

apply for permanent residency. Those asylum seekers whose claims are denied may appeal the decision, but are deported if their claim is not ultimately found to be legitimate.¹⁵

Upon arrival, asylum seekers must find their own accommodation. They are eligible to receive minimal financial aid, and there are some non-governmental organizations and religious groups that offer services for asylum seekers, though they are often non-profit and limited in resources. Refugee claimants are only eligible to apply for a one-year work authorization, which requires that they prove that no other form of public assistance is available to them and undergo a medical examination.^{14,15}

Figure 1: Process for Making a Claim for Refugee Protection within Canada^{14,15}



Corrections Population

Within the corrections population, there are many groups of people that the literature has identified as potentially underserved by the health care system. Indeed, members of several of the underserved groups highlighted are disproportionately represented in correctional institutions in BC (i.e., Aboriginal men and women, people with low incomes, and individuals

with mental illnesses and substance use issues). In Canada, the federal and provincial/territorial government share responsibility for housing offenders sentenced to a term of incarceration. The Correctional Service of Canada (CSC) administers sentences of a term of two years or more. In British Columbia the Corrections Branch of the Ministry of Public Safety and Solicitor General is responsible for administration of sentences of less than two years. Additionally, the provincial government is exclusively responsible for housing all young offenders, as well as adults charged with offences who have been remanded to custody while awaiting trial, and those offenders sentenced to probation.^{16,17}

Throughout the literature, several terms are used interchangeably to refer to those individuals who come into contact with the justice system (i.e., *offenders*, *inmates*, *incarcerated individuals*, *corrections population*, etc.). For the purposes of this report, the term *corrections population* is preferred as it encompasses offenders who are awaiting trial, those who are incarcerated, as well as those who have been paroled. However, a combination of the above terms is employed throughout the body of the report, and particularly when any statistics or information refers uniquely to a specific subgroup. Thus, *incarcerated individuals* may be used to describe those inmates currently in custody, whereas *offenders* refers to the broader group of people who have been charged with a crime whether they are in custody or not.

How this Report is Organized

The body of this report examines research related to the health status and chronic conditions particular to each population of interest. Unfortunately, there is a general paucity of studies examining the specific health concerns and status of immigrant, refugee, and corrections populations in British Columbia. Therefore, the findings highlighted in this report are based largely upon literature that considers each of the three populations across Canada and in other provinces, although studies specific to the province are included whenever they are available.

Each population is considered within a separate section, which consists of several subsections. The report begins with a look at immigrants, then moves on to consider what makes refugees unique from all other immigrants, and concludes with an exploration of the corrections population in the province. Each population section begins with an exploration of demographic characteristics and trends that are relevant to health. Overall mortality and

health status of the population group come next, followed by a discussion of specific chronic disease concerns, including prevalence and trends of conditions that are particularly relevant for each group. Then, what is known about the population's interactions with the health care system, including service utilization rates and factors affecting individuals' ability to access and appropriately utilize services, are examined. Finally, each population section concludes with highlights of key issues emerging from the literature and proposes several opportunities to enhance the health care system and related policy, as well as future research directions.

Immigrant Population

Immigration is an increasingly important component of new population growth in Canada. Immigrants account for nearly 20% of the total population and each year approximately 250,000 new immigrants arrive in the country, contributing to more than two-thirds of overall population growth.¹⁸ Recent literature has demonstrated that the health status of Canada's foreign-born population differs from that of the native-born population in terms of morbidity and mortality. Health status of the immigrant population is influenced by multiple factors, including age and gender, existing health status at arrival, knowledge and use of health care facilities and services, and changes in health status and utilization behaviour as individuals adjust to Canadian society and lifestyle. Immigrants are in a unique position post-migration and often face considerable barriers not experienced by the broader population. As such, the determinants of health for all Canadians may be particularly influential on immigrant health. Such barriers may include those associated with language, racism, discrimination, gender roles, unfamiliarity with, and mistrust of, the Canadian medical system, practices, and medical procedures, and lack of knowledge of the available services. Access may be especially limited if the health care system is inadequately structured or unprepared to respond appropriately and promptly to the distinct health needs of newcomers to Canada.

In general, immigrants often have higher health status on arrival in Canada than the general Canadian population, but tend to lose their health advantage over time. Known as the *healthy immigrant effect*, the superior health status seemingly enjoyed by new immigrants appears to deteriorate and converge toward the native-born population's health status with increasing duration of residency in the host country, and may occur within five to ten years after arrival.^{11,19-24} The healthy immigrant effect is generally explained in two ways. First, a self-selection process wherein individuals in good health with the stamina and motivation to migrate do so, while those who are sick, disabled, and institutionalized do not. The relative health advantage of Canadian immigrants may also be due to immigration procedures and policies that select the "best" immigrants on the basis of education, language ability, and job skills while simultaneously excluding candidates with serious medical conditions.^{11,19} The second explanation posits that, after their arrival in Canada, immigrants' good health may decline due to environmental factors and the adoption of distinct lifestyle behaviours, which parallel those experienced by all Canadians.^{11,21,23,25} Recently, several alternative explanations for the general decline in immigrants' health observed after landing have also

been proposed. For instance, the observed change in health status after several years of residency in Canada may actually reflect underutilization of physician, preventive, and diagnostic services, with access to care being limited by multiple factors. Once immigrants are able to access regular health care, they may be diagnosed with chronic conditions that had been there all along had merely gone unrecognized or undiagnosed. Factors limiting access to care may relate to structural or policy-related barriers, language or cultural barriers, preferences for use of traditional or alternative health care providers by some immigrants, and a potential lack of awareness of services.^{20,25-30} Research identifying lower participation of some immigrants in screening programs and delayed diagnoses of cancer and other chronic diseases support such theories.^{11,31-35} Additionally, the effects of stress (e.g. derived from the migration process, adaptation, status incongruity, social exclusion, discrimination and racism, etc.) may acutely and disproportionately affect the health status of immigrants.^{11,21,36}

Finally, poor access and/or underutilization of health services may have the effect of improving the *apparent* good health of immigrants, as health problems may fail to be detected or diagnosed initially, thereby lowering the measured prevalence rates of chronic conditions and resulting in falsely inflated subjective assessments of health by health care providers and immigrants themselves. Thus, a portion of the increase in reported problems associated with increasing length of stay may actually be an artefactual result of improved access and acculturation or familiarization with the health care system: as immigrants become more experienced and comfortable negotiating the Canadian health care system, they may be more likely to interact with health care practitioners and to receive a diagnosis.^{20,23,24} Understandings of Canadian immigrants' health are multifaceted and complex, and the apparent decline in health described by the healthy immigrant effect is far from simple. More recent arrivals generally conform to the healthy immigrant profile—reporting better health than Canadian-born residents—but those who have lived in Canada for at least five years are less healthy than non-immigrants and report higher prevalence of chronic conditions, including diabetes, heart disease, and arthritis.^{20,21,24,36} Furthermore, socioeconomic and sociodemographic factors affect the health of immigrants and non-immigrants differently. For example, there are relative age differences between immigrants and the native-born Canadian population, and immigrant groups that have been in Canada longer are substantially older than the non-immigrant population. Many of the health disparities observed between newly arrived immigrants and those who have lived in Canada

for more than five years may in fact be explained by such age differentials. The implications of these disparities remain significant, however, including a potentially greater need for the health care system to respond in manners that ensure that immigrants continue to enjoy the positive health with which they arrive in the country.

Demographics

Newcomers to British Columbia are remarkably heterogeneous. They come from a wide range of countries, have entered Canada under distinct admission programs (e.g., refugees versus business class immigrants—see Table 1), speak different languages, adhere to diverse cultural and religious practices, and have differing education and skill levels. While it would be difficult to describe a “typical immigrant”, an overview of demographic statistics on immigrants to the province aids in understanding the characteristics and needs unique to this population.

In 2006, over one-quarter (27.2%) of the British Columbian population were immigrants.³⁷ This figure had grown steadily over the previous two decades (up from 22.0% in 1986). Thus, immigration is a significant component of population growth in the province, with nearly 40,000 new immigrants arriving each year.³⁷

The majority of immigrants arrive in British Columbia under Economic Class visas, as seen in Figure 2. The amount of immigrants arriving in this class has increased in recent years and in 2008, it was up by 22.6% over 2007 levels.³⁸ In contrast, the number of new immigrants arriving in the Family and Refugee classes decreased between 2007 and 2008 (down by 1.5% and 18.6%, respectively).³⁸

Between 2001 and 2008, the majority of recent immigrants[§] to BC arrived from Mainland China, India and the Philippines. Up to the 1990s, a majority of individuals had emigrated from Europe (Figure 3).^{12,38-40} Thus, the ethnic and cultural profile of immigrants to the province has changed dramatically over the past two decades. This shifting profile may have significant implications for the planning, programming, and delivery of health care services that adequately and appropriately meet the needs of the immigrant population in

[§] Recent immigrants are defined here and throughout this report as those who arrived in Canada between 2001 and 2008.

BC, as will be explored in subsequent sections on health status and health care service utilization.

Figure 2: Immigration Class of Newcomers to British Columbia, 2008³⁸

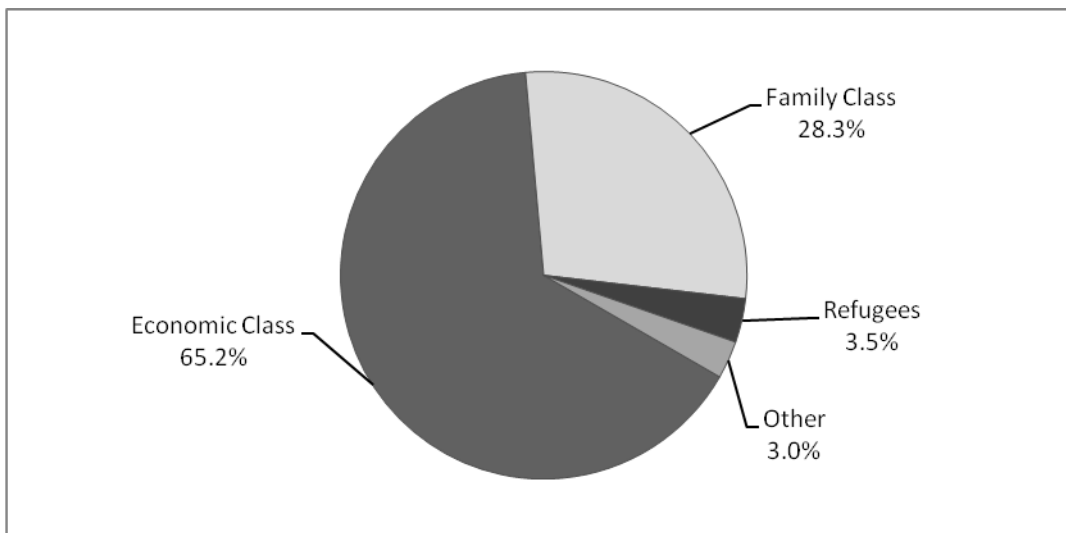
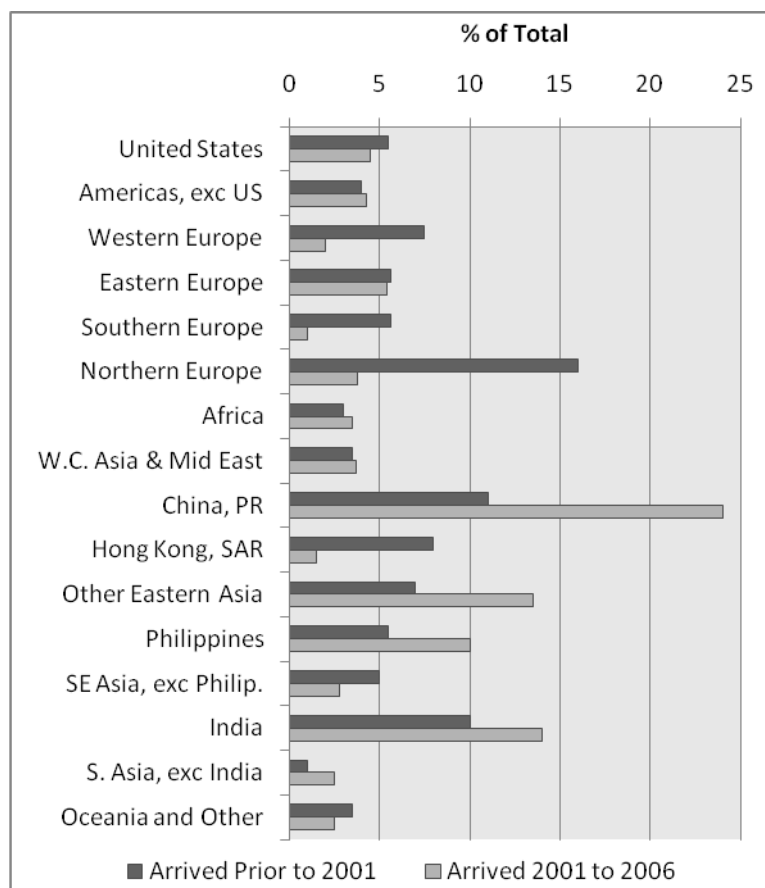


Figure 3: Birthplace of Immigrants to BC by Period of Arrival³⁹



In British Columbia, the majority of newly arrived immigrants (71.8%) report some knowledge of at least one of the official languages of Canada. However, English is not the first language of upwards of 70% of immigrants, and nearly half (48.8%) speak another language at home.^{38,39}

The recent immigrant population in British Columbia is relatively young. Only 3% of newcomers arriving to the province between 2002 and 2006 were older than 65 years of age at time of arrival. The vast majority (62%) are between 25 and 64 years of age.^{37,39} This statistic only reflects recently arrived immigrants, however, and does not present a comprehensive picture of the age profile of all immigrants residing in the province.

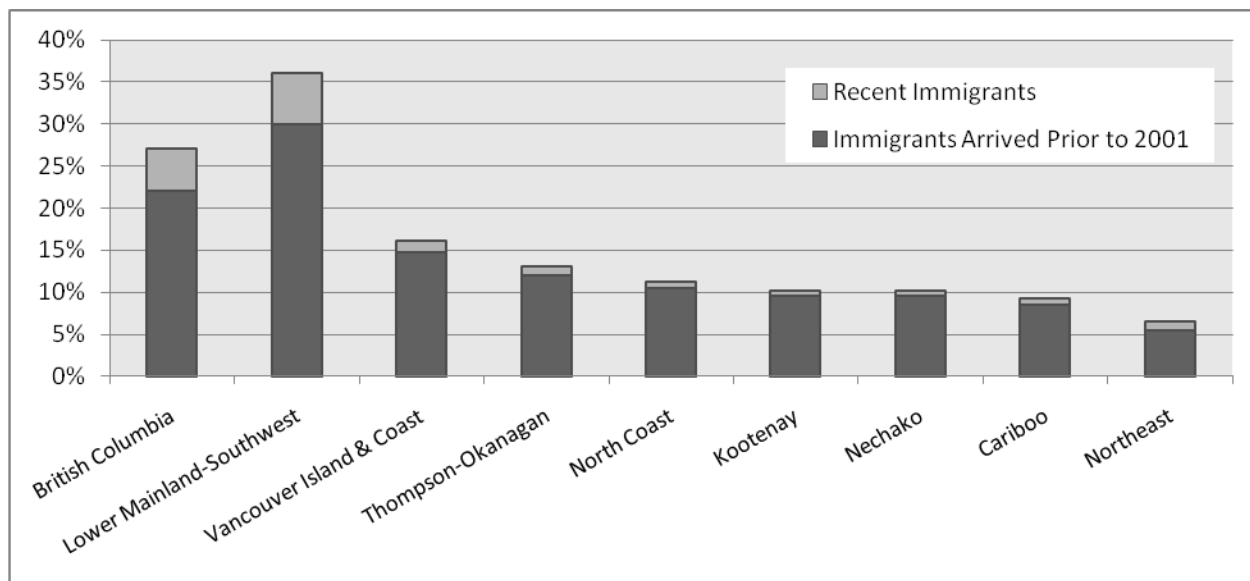
Overall, immigrant adults (25 to 64 years old) appear to be more highly educated than non-immigrants in the province. Between 2006 and 2008, 51.7% of adult immigrants arrived with university degrees or higher, and another 22% had other forms of post-secondary education or training. Rates of university education among newly arrived immigrants were much higher than among the broader population of all adults in BC (30.2%).^{38,39,41}

Among immigrants 15 years and over in the labour force, the unemployment rate appears to be comparable to that of the total population (6.1% and 6.0%, respectively). Disparities appear when examined by gender, however, wherein male immigrants experience the lowest unemployment rate at 5.4%, compared to 5.8% for all males, 7.0% for female immigrants, and 6.3% for all females in the province.³⁹ Additionally, a higher proportion of immigrants of both sexes appear to experience low income than the total population (23.4% before taxes and 17.8% after, versus 17.3% and 13.1%).³⁹

Regional Distribution of Immigrants

The regional distribution of this population is quite distinct from that of BC's total population. Immigrants, and especially recent immigrants, have not settled in the province in the same patterns as the total population and their geographical distribution remains uneven (Figure 4). While 59% of the province's total population lived in the Lower Mainland – Southwest Development Region in 2006, 90% of recent immigrants to BC settled there upon arrival and disproportionately few immigrants and recent immigrants settled in the other regions of BC.³⁷ Characteristics of immigrants living in the province vary by region as well, as will be addressed in the next section.

Figure 4: Percentage of the Population Consisting of Immigrants, by Development Region, 2006³⁷

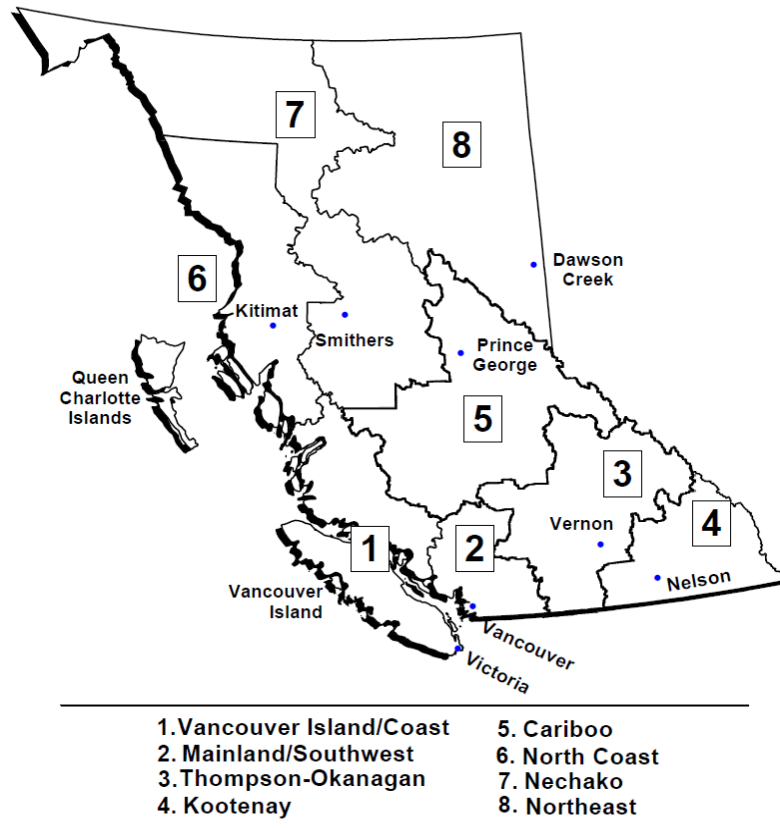


The following sections detail specific settlement patterns, and regional similarities and differences among immigrants residing in British Columbia's eight Development Regions (Figure 5), and are based on the most current releases available from 2006 Census data.^{12,37,39} Development Regions span the entire province, and are aggregations of Regional Districts. The Development Regions have the same boundaries as the Economic Regions observed by Statistics Canada, and while they do not correspond precisely to the provincial health authorities, the following approximations can be made:^{42,43}

- Vancouver Island/Coast Development Region – served by Vancouver Island Health Authority and Vancouver Coastal Health Authority
- Mainland/Southwest Development Region – served by Fraser Health Authority and Vancouver Coastal Health Authority
- Thompson-Okanagan Development Region – served by Interior Health Authority
- Kootenay Development Region – served by Interior Health Authority
- Cariboo Development Region – served by Interior Health Authority and Northern Health Authority

- North Coast Development Region – served by Northern Health Authority
- Nechako Development Region – served by Northern Health Authority
- Northeast Development Region – served by Northern Health Authority

Figure 5: Map of BC Development Regions^{37,42}



Vancouver Island – Coast

The Vancouver Island – Coast Development Region is home to 17.7% of British Columbia’s overall population, and 9.9% of all immigrants in the province. Between 2001 and 2006, the immigrant population increased by 6.6%, which is slightly faster than the growth of the total population (5.7%), and comprised 16.3% of the region’s population by the end of this period.³⁷

The cultural and national background of the immigrant population in this region is changing, as the most common places of birth among recent immigrants were very different from those

of the total immigrant population. For example, 61% of all immigrants in the region were born in Europe, compared to 26.9% of recent immigrants. The most common world region of birth among recent immigrants was Asia and the Middle East, with 41.6% of recent immigrants born there, compared to 19.3% of all immigrants in the Development Region.³⁷

In 2006, 66.5% of the total population of the Vancouver Island – Coast region resided in urban areas, compared to nearly 75% of all immigrants, who were concentrated in the Capital Regional District, and the greater Nanaimo area. Recent immigrants were even more highly concentrated in Victoria and Nanaimo, with 83.2% living in these districts.³⁷

Although the total immigrant population of the Vancouver Island – Coast Development Region is older than the general population, recent immigrants are notably younger, with high numbers of this group in the younger age categories.³⁷

Lower Mainland – Southwest

Much of the immigrant population in British Columbia is concentrated in the Lower Mainland – Southwest Region. Over half of the province's total population lives in this region, and it is home to about 80% of all immigrants and 90% of recent immigrants in BC. In 2006, immigrants represented 36.6% of the region's population, and 52.1% of those individuals had arrived between 1991 and 2006.³⁷

As in the Vancouver Island – Coast Region, immigrants in the Lower Mainland are highly concentrated in urban areas. Individuals born outside Canada represent a high proportion of the population in many municipalities, including Richmond (57.4%), Burnaby (50.8%), and Vancouver (45.6%).^{37,40} These figures are higher than many major cities within Canada (namely Toronto and Montreal), and worldwide, including New York, Los Angeles, Sydney, London, and Paris.¹²

Three major factors distinguish the Vancouver metropolitan area from other major Canadian cities with large immigrant populations.¹² First, most individuals have emigrated from nations in Asia and the Pacific. The 2006 Census data showed that 77.5% of recent immigrants living in the Lower Mainland Region were born in Asia and the Middle East, 10.1% in Europe, 3.3% in the United States, and 3.2% in Africa. Mainland China was the most common birthplace of recent immigrants (25.1%), followed by India (14.0%), and the Philippines (10.4%).³⁷ Second, a significant proportion of the immigrant population arrived in

the economic class, rather than holding humanitarian visas, and the proportion of refugee immigrants to Vancouver is quite low in comparison to other regions of the country. In 2006, only 3% of those holding humanitarian visas in Canada were in the Lower Mainland Region, which was substantially lower than in Toronto or Montreal. Finally, fewer immigrants in Vancouver receive social assistance (1.5%) compared to the averages across Canada (6.7%), in Toronto (7.1%), and in Montreal (11.7%).^{12,40} This has been attributed to a more stringent social assistance application process in BC and differences in the immigrant profile in the Vancouver area, with those settling in the province owning more assets upon arrival.^{12,40}

Thompson – Okanagan

In 2006, immigrants made up 12.9% of the total population in the Thompson – Okanagan Development Region, whereas residents of the Region comprise 5.7% for the total provincial population. This region was home to 5.6% of all immigrants residing in BC. Recent immigrants comprised 8.2% of all immigrants in the region, and 1.1% of the total population.³⁷

Most immigrants in this region arrived from Asia and the Middle East (34.4%) and Europe (32%), wherein 13.7% of recent immigrants were born in the United Kingdom and 13.6% in India.³⁷

Kootenay

The Kootenay Development Region was home to 1.3% of all immigrants in the province in 2006. Of these individuals, 5.9% arrived in Canada between 2001 and 2006. The immigrant population declined in this period, and the proportion of the total population made up of immigrants declined as well.³⁷

Unlike the previous Development Regions profiled, the Kootenay Region received a large share of immigrants from Europe (67.5% of all immigrants and 46.6% of recent immigrants) and the United States (19.7% and 25.8%, respectively) in 2006. Only 9.9% of immigrants and 18.5% of recent immigrants to this region are from countries outside the U.S., Europe, and Australia.³⁷

Cariboo

The population of the Cariboo region represented 3.8% of the provincial population in 2006, whereas immigrants in the region made up 1.3% of all those in BC. Both the overall and the immigrant population declined by 6.6% between 1996 and 2001, and 14.2% between 2001 and 2006. Approximately 6% of all immigrants had recently arrived in the region in 2006, and they made up less than 1% of the total population. Prince George, the largest city in the region, is home to 62% of recent immigrants to the region, while 53.8% of the total population resides there.³⁷

The composition of the recent immigrant population by place of birth varies substantially from that of total immigrants and established immigrants. In 2006, 72.9% of total immigrants to the region were born in Europe and the US. In contrast, just over half (53.1%) of recent immigrants emigrated from Asia, Africa, or Central and South America. The greatest number of recent immigrants were born in India (16.8%), followed by the United States (14.5%), the Philippines (10.1%), and China (7.8%).³⁷

North Coast

In 2006, the immigrant population of the North Coast Development Region represented 11.4% of the total population, and had declined by one-quarter from 1996. A considerable portion of recent immigrants (39.3%) were born in Asia, approximately one-third of whom were born in East Asia, one-third in South Asia, and one-third in Southeast Asia.³⁷

Nechako

The Nechako Region had the smallest population of all BC Development Regions in 2006, and immigrants represented 10.5% of the populace at that time. Recent immigrants comprised less than 5% of the total immigrant population, and had mostly emigrated from Europe (30.8%), Asia and the Middle East (23.1%), and the United States (12.8%).³⁷

Northeast

Although immigrants only made up 7% of the total population of the Northeast Region in 2006, this represented a 7.7% increase from 2001, and contributed to the overall population growth experienced by the region. Recent immigrants made up 14.5% of all immigrants and 1% of the total population. Among recent immigrants, 38% were born in Asia and the

Middle East, 35.7% in Europe, and 12.4% in Africa. India was the most common country of birth, with 15.5% born there, followed by South Africa (10.9%), and Mainland China (9.3%).³⁷

Mortality and Health Status

Current research suggests that age-adjusted mortality rates among immigrants are lower than the general population of Canada, but rates tend to converge with length of residence. Some variation is observed in disease specific mortality patterns, and ethnic and gender differences are particularly apparent for mortality related to heart disease.^{19,44} Mortality rates from heart disease, most cancers, and suicide have all been found to be lowest among non-European and non-American immigrants arriving from the early 1990s onwards, and highest among the Canadian-born population.^{45,46} Furthermore, mortality rates appear to increase with increasing length of stay for all immigrant subgroups.⁴⁷ Although most mortality ratios are lower for immigrants compared to the general population, there are a number of notable exceptions to these trends. These include nasopharyngeal cancer and liver cancer among immigrant males,⁴⁷ AIDS and liver cancer among immigrant females,^{45,47} and stomach cancer for all immigrants.⁴⁵ In general, studies examining the health status of Canadian immigrants provide evidence in support of a healthy immigrant effect, particularly as it relates to chronic conditions (i.e., immigrants report positive health status upon arrival, but both self-reported and measured health status decline over time). Such studies identify various susceptible subpopulations. For example, some findings suggest that seniors, aged 65 and over,^{48,49} and non-recent immigrant women^{20,50} experience a health disadvantage compared to their Canadian-born counterparts. New research on health transitions also suggests that immigrant women, low-income immigrants, and recent non-European immigrants are at an increased risk of transitioning to poor health.^{50,51}

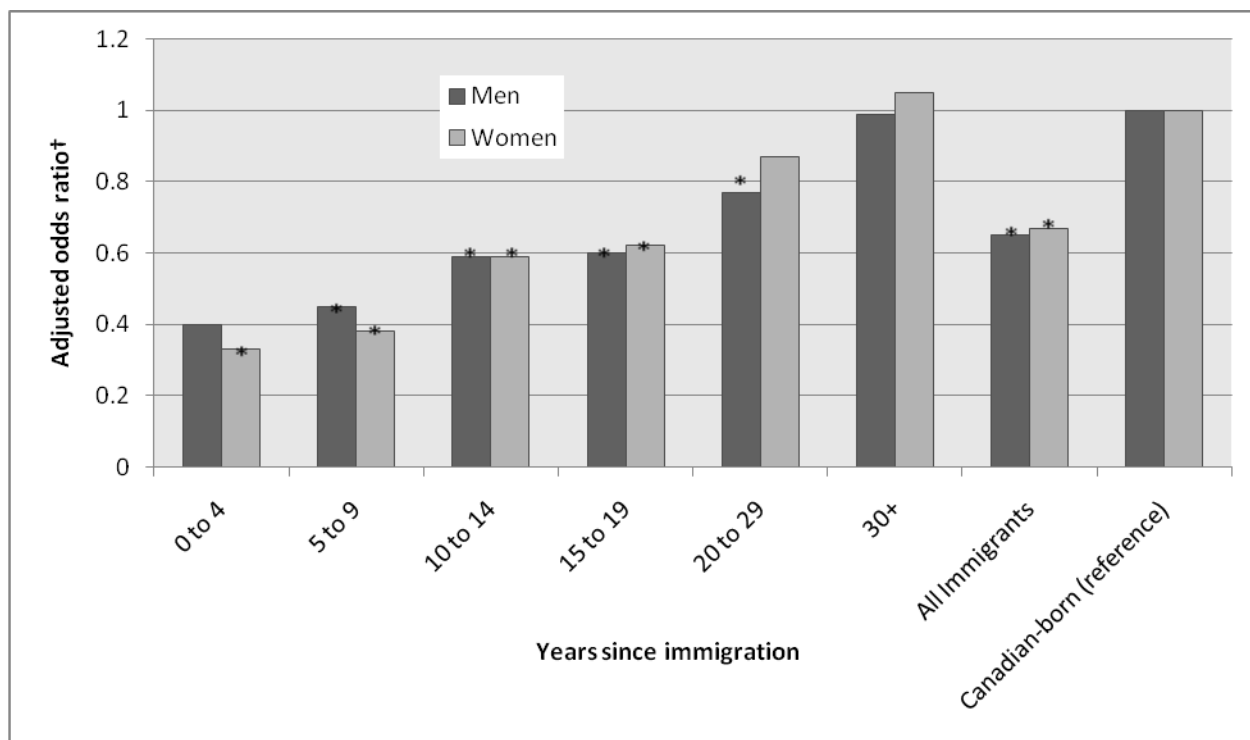
Disease Concerns

While the healthy immigrant effect appears to hold true for most chronic conditions (i.e., immigrants appear to have lower prevalence rate of chronic conditions upon arrival in Canada than the Canadian-born population), recent studies have found significant variations in chronic disease incidence and prevalence according to gender, ethnicity, country of origin, length of residency, and sociocultural and socioeconomic characteristics. Unfortunately, there is a general paucity of studies examining the specific health concerns

and status of immigrant populations in British Columbia. Therefore, the discussion that follows is based largely upon literature that covers all Canadian immigrants, and highlights those studies specific to the province whenever they are available.

In general, immigrants have been found to report fewer chronic conditions than do the Canadian-born, and this advantage appears to be greatest for most recent immigrants (Figure 6). In fact, among both men and women, after adjusting for age, education, and income, the odds ratios for reporting a chronic condition appear to climb steadily across groups. Thus, those immigrants who have resided in Canada the longest—30 years or more—become indistinguishable from their Canadian-born counterparts, meaning that they have the same odds of developing a chronic condition.^{22,52}

Figure 6: Odds Ratios for Chronic Conditions in General, by Sex and Years since Immigration^{22,52}



Data Source: 2000/01 Canadian Community Health Survey

* Significantly different from the Canadian-born population ($p < 0.05$)

† Adjusted for age, education, and income

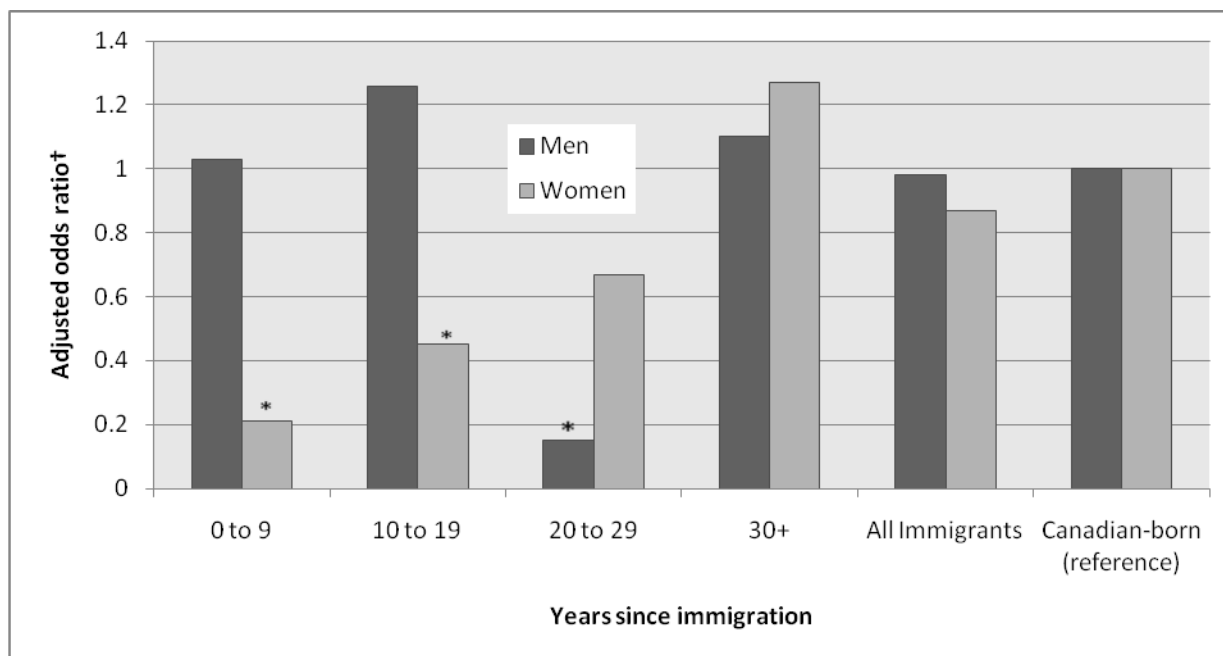
Specific Chronic Disease Concerns

Cancer

Over time, convergences in cancer rates of immigrants and the Canadian-born population have been noted in population-based studies, and are most evident in the case of migration from low-risk to high-risk countries.^{20-22,24} There is, however, some evidence of variation according to cancer site. As noted previously, overall cancer mortality appears to be lower for all immigrant groups, particularly groups arriving to Canada in recent years, as compared with their home and host countries' populations. This pattern also holds true for cancer prevalence, as seen in Figure 7. When adjusted for age, education, and income, cancer rates among immigrants are comparable to the broader Canadian population.²² Immigrant males and females both experience higher death rates from stomach cancer, a disparity that has been attributed to dietary changes.⁴⁵ Mortality ratios for nasopharyngeal cancer are considered higher among male immigrants, and those for liver cancer are higher among male and female immigrants alike, particularly those originating from North East Asia.^{19,47,53} Evidence from generational studies also suggests that immigrants' children born in Canada experience rates of cancer risk ranging between that of native-born populations and their immigrant parents, and that the risk continues to increase over several generations.^{19,44} The disparities that have been observed according to cancer site and region of origin may be attributable to delayed detection resulting from reduced access to, and low utilization of, screening and other preventive services.

Among specific ethnic groups, Chinese and South Asian cancer rates tend to be lower than among the Canadian-born population. However, for cancers that are relatively more common in China (e.g. nasopharyngeal, stomach, liver, esophageal, cervical), incidence is reported to be higher among Chinese immigrants than among the Canadian-born population. Conversely, for cancers that are relatively uncommon in China (e.g. prostate, breast), incidence rates among Chinese immigrants tend to be higher than the population of their home country yet lower than the Canadian-born population.¹⁹ Thus, cancer rates are subject to change following migration. Of particular concern are high rates of stomach, nasopharyngeal, and liver cancers that persist after migration, and increasing rates of prostate and breast cancer following migration.

Figure 7: Odds Ratios for Cancer, by Sex and Years Since Immigration^{22,52}



Data Source: 2000/01 Canadian Community Health Survey

* Significantly different from the Canadian-born population ($p < 0.05$)

† Adjusted for age, education, and income

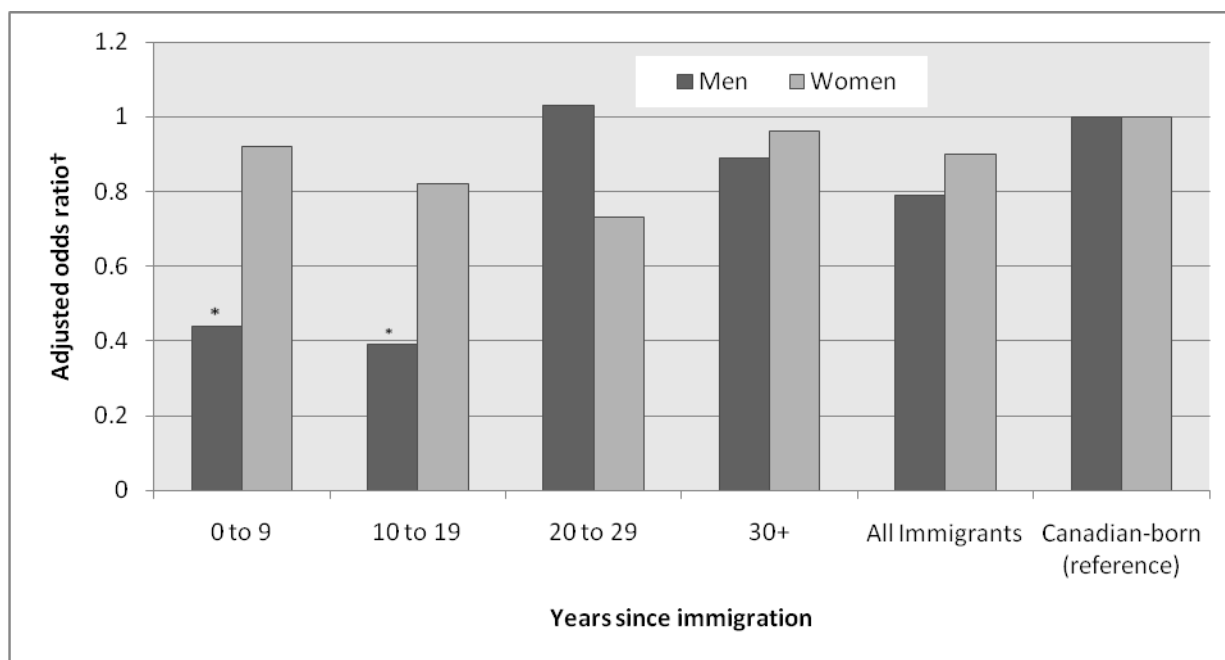
Studies show that some immigrant women have a higher incidence and mortality from cervical cancer, and present with more advanced stages compared to the general Canadian population. Although South Asian women generally have a high risk of developing invasive cervical cancer,⁵⁴ studies have shown that immigrant women in BC are up to seven times more likely not to have ever had a Papanicolaou (Pap) test as compared to non-immigrant women.⁵⁵ Studies have found that average knowledge level about cervical cancer risk factors is low among immigrant women, especially among those with less education and who receive their usual health care from a male doctor.^{56,57} In turn, knowledge of risk factors influences Pap screening behaviour, implying that culturally and linguistically appropriate education interventions addressing testing and risk factors are needed in the immigrant community and among their primary care givers.

Heart Disease

Although rates of heart disease appear to be initially lower among recent immigrants as a whole, there is little evidence to suggest that rates of hypertension or heart disease increase over time (Figure 8).^{22,24,36} Men who had immigrated in the past twenty years have been found to have lower rates of heart disease than Canadian-born men, but immigrant women

do not exhibit such an advantage.^{22,52} Research on Canadians of South Asian, Chinese, and European origins has suggested that South Asians, and females in particular, have demonstrated an increased risk of heart disease as well as hypertension with increasing length of stay in Canada.¹⁹ Unfortunately, available research does not enable the identification of other possible at-risk populations, as it has failed to include measures of gender, ethnicity, and migration patterns and status.

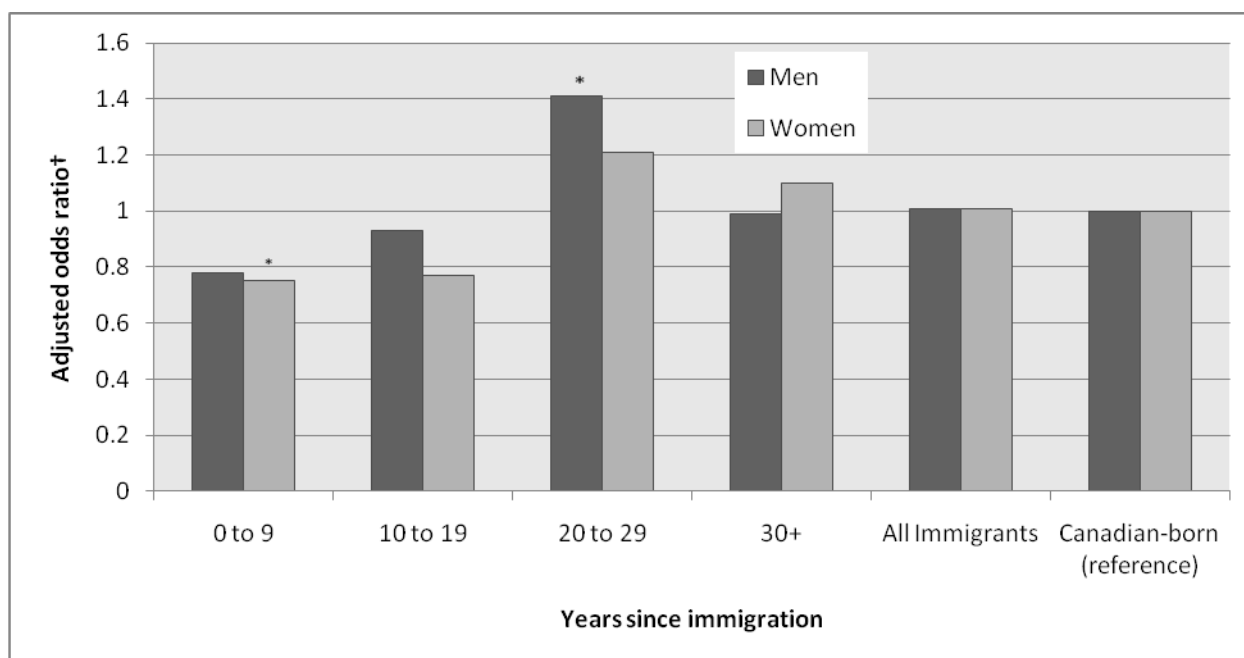
Figure 8: Odds Ratios for Heart Disease, by Sex and Years Since Immigration^{22,52}



Data Source: 2000/01 Canadian Community Health Survey
 * Significantly different from the Canadian-born population ($p < 0.05$)
 † Adjusted for age, education, and income

Data from the 2000/01 Canadian Community Health Survey (CCHS) also demonstrate that male and female immigrants generally have lower rates of high blood pressure than native-born Canadians, a contributing factor to morbidity and mortality related to heart disease (Figure 9).^{22,52}

Figure 9: Odds Ratios for High Blood Pressure, by Sex and Years Since Immigration^{22,52}



Data Source: 2000/01 Canadian Community Health Survey
 * Significantly different from the Canadian-born population ($p < 0.05$)
 † Adjusted for age, education, and income

Although lower rates of heart disease among immigrants may be attributed to the immigration selection process, immigrants who are underemployed and socioeconomically marginalized are at increased risk for developing heart disease. For instance, in a 2003 analysis of data from the National Population Health Survey,⁵⁸ researchers found that the prevalence of physical inactivity was high among women from Asia. A significant portion of immigrant women from Asia were in the lowest income quintile and may not have enjoyed the financial resources, nor the time, to engage in physical activities or leisure time.⁵⁸

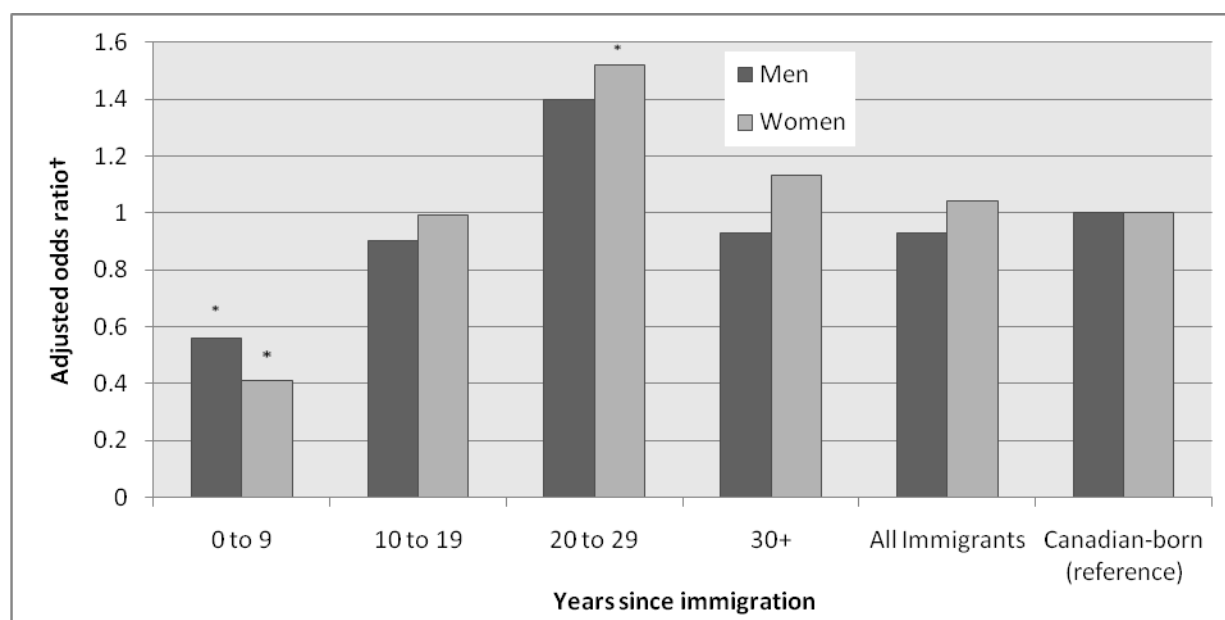
Diabetes

Although relatively limited, the available literature on diabetes prevalence among Canadian immigrants suggests three themes: rates of diabetes among non-recent immigrants may be surpassing those of the Canadian-born population, there are distinct ethnic disparities in the prevalence of diabetes, and rates of obesity are increasing among Canadian immigrants. Although China and Africa, two of Canada's leading source regions for immigration, boast the lowest rates of obesity in the world, reports based on data from the National Population Health Survey (NPHS) show that the prevalence of overweight (body mass index (BMI) > 25) seems to increase with longer length of stay for both men and women.²³ Similarly,

immigrant rates of diabetes do not merely converge with majority population norms; they overshoot them. For example, South Asian immigrants have significantly higher rates of type 2 diabetes than native-born Canadians, and have a one in three lifetime risk of developing diabetes.^{19,23,59,60} Lifestyle and dietary changes may play a role in this trend, but growing evidence also suggests that South Asians are more likely to suffer from excessive insulin resistance than Caucasians.⁵⁹

South Asian and Chinese immigrants have identified numerous factors characteristic of the migration experience as being significant factors in the onset of their diabetic conditions, including loss of social support, decline in social status, and increased work burden.¹⁹ Additionally, data from the 2000/01 cycle of the CCHS demonstrate a pattern of increasing incidence of diabetes with increased length of residence in Canada (Figure 10).^{22,52} Among newly arrived immigrants (0 to 9 years post-migration), males were 40% less likely to have received a diabetes diagnosis than Canadian-born males, while females were nearly 60% less likely to have a diabetes diagnosis than their Canadian counterparts. Among those immigrants living in Canada for 20 to 29 years, however, women were 52%, and men 40%, *more* likely to have diabetes than native-born Canadians.²²

Figure 10: Odds Ratios for Diabetes, by Sex and Years Since Immigration^{22,52}



Data Source: 2000/01 Canadian Community Health Survey

* Significantly different from the Canadian-born population ($p < 0.05$)

† Adjusted for age, education, and income

Disability

There has been very little research performed on immigration and disability in the Canadian context. Much of the focus in this area has been on ethnicity, rather than immigrant status. For example, researchers examining risk factors for osteoporosis among Asian and Caucasian girls have found that Asian girls may be at a disadvantage for bone health. Furthermore, some studies suggest that the prevalence of arthritis is lower for Asians compared to Europeans and all other ethnic groups.¹⁹

Mental Health

Findings from the available literature on immigrant mental health are complex and sometimes inconclusive. While some suggest that, after an initial risk period the mental health of new arrivals to Canada improves over time, others suggest that certain subgroups experience an increased mental health risk following migration.^{61,62} These subgroups include refugees, seniors, and women.^{19,23} Variations in rates, trends, symptoms and responses have led some researchers to speculate that common risk factors are not universal across ethnic groups and that more research is needed on how cultural factors such as ethnic identity, discrimination, and coping mechanisms may affect stress-reactivity.⁶²⁻⁶⁴

In general, immigrants are observed to have lower rates of both depression and alcohol dependence than the Canadian-born population, and this is particularly true among recently arrived individuals and immigrants from Africa and Asia.^{52,61} These two trends are related, as recent immigrants have tended to come in increasing numbers from Africa and Asia since the 1990s, while the majority of long-term immigrants came from Europe and have similar rates of depression as the Canadian-born.

Multiple studies focus specifically on the mental health of Chinese seniors and demonstrate concern that this group reports lower overall well-being and more depression than seniors in the general population. In these studies, seniors report significantly better physical health, but poorer mental health, than the Canadian-born population.^{61,64,65} Additionally, findings suggest that there is a risk of under-diagnosis or misdiagnosis of depression amongst foreign-born seniors in Canada due to substantial cultural differences between health care providers and patients in perceptions of aging, depression, and emotional distress.^{64,66}

Indeed, though recent immigrants and immigrant children experience better mental health than their Canadian-born counterparts, it is not clear if this health advantage persists over time given what is known about immigrant seniors' higher rates of depression.

Little research has been conducted on the mental health of immigrant children in Canada, although it is generally conceded that immigrant and refugee children are more likely to live in poverty and to suffer the adverse effects poverty may have on the mental health and well-being of their parents.⁶⁷

Immigrant and refugee women have been found to have more mental health needs than male immigrants. Such disparities may be attributed to various factors in the pre-migration and post-migration periods. Past trauma, including rape and other forms of abuse, are a significant contributor to psychiatric symptoms in many female immigrants and refugees.⁶⁸ Additionally, upon landing in Canada, women may encounter increased levels of unemployment due to lack of education, language barriers, and/or precarious legal status (e.g., those women sponsored by an abusive family member).²⁹ They are more prone to social isolation due to insufficient language skills, lack of familiarity with available services, and low socioeconomic status. All of these factors may be exacerbated by the stresses of family and household responsibilities, which may restrict their ability to engage in the new environment or to acquire the skills necessary to do so.⁶⁵

Long-term Communicable Diseases

HIV/AIDS

According to the Public Health Agency of Canada, individuals from HIV-endemic countries** (see Table 2) are overrepresented in Canada's HIV epidemic. Indeed, the proportion of new infections attributed to the heterosexual/endemic exposure category represented 16% of cases in 2008, representing a new infection rate among immigrants from endemic regions about 8.5 times higher than among other Canadians.⁶⁹ The proportion of positive tests attributed to the endemic category has risen significantly over the past decade (up from 3%

** An HIV-endemic country is defined as having an adult prevalence (ages 15-49) of HIV that is 1.0% or greater and one of the following:

- 50% or more of HIV cases attributed to heterosexual transmission;
- a male to female ratio of 2:1 or less; or
- HIV prevalence greater than or equal to 2% among women receiving prenatal care.⁷¹

in 1998),⁷⁰ and may be due to numerous factors, including increased testing, better provincial reporting, or an actual increase in cases within this category. Unfortunately, HIV surveillance data is incomplete as it only accounts for individuals who have been tested and diagnosed. Changes to policies at Citizenship and Immigration Canada (CIC) may likely explain some of the increase in the number of positive HIV tests reported after 2001. As of January 15, 2002, Citizenship and Immigration Canada (CIC) added routine HIV testing for all applicants aged 15 years and older, as part of the mandatory Immigrant Medical Examination^{††} (IME).⁷⁰

Table 2: List of HIV Endemic Countries⁶⁹

Region	Countries
Caribbean and Central/South America	Anguilla
	Antigua and Barbuda
	Bahamas
	Barbados
	Bermuda
	British Virgin Islands
	Cayman Islands
	Dominica
	Dominican Republic
	French Guiana
	Haiti
Asia	Grenada
	Guadeloupe
	Guyana
	Honduras
	Jamaica
	Martinique
	Montserrat
	Netherlands Antilles
	Cambodia
	Myanmar/Burma
	Thailand
Africa	Eritrea
	Ethiopia
	Gabon
	Gambia
	Ghana
	Guinea
	Guinea-Bissau
	Ivory Coast
	Kenya
	Lesotho
	Liberia
	Malawi
	Mali
	Mozambique
	Namibia
	Niger
	Nigeria
	Republic of the Congo
	Rwanda
	Senegal
Sierra Leone	
Somalia	
South Africa	
Sudan	
Swaziland	
Tanzania	
Togo	
Uganda	
Zambia	
Zimbabwe	

^{††} All immigrants to Canada undergo an IME as part of the immigrant process. The examination is designed to identify diseases that present a risk to the Canadian population or may place an excess burden on the health care system, and does not focus on treatment or clinical preventive services.¹¹³

There are some significant differences in positive test HIV rates by demographic and regional characteristics. Young people (under the age of 40) and women account for a substantial proportion of positive HIV tests among immigrants in Canada. Of individuals who tested positive in the HIV-endemic category in 2008, the vast majority (80%) were under the age of 40, and women represented 53.1%.⁷¹ Of the new cases of HIV diagnosed in 2008 among immigrants, 53.7% were born in Africa and the Middle East, 35.3% in the Americas, 8.6% in Asia, and 2.3% in Europe.⁷¹

Susceptibility to HIV may be augmented among immigrants due to poor working and living conditions and reduced access to health care shortly after arriving in Canada. The Public Health Agency of Canada asserts that people from HIV-endemic countries are “disproportionately affected by many social, economic, and behavioural factors that not only increase their vulnerability to HIV infection but also act as barriers to accessing prevention, screening and treatment programs.”^{72(p90)} Moreover, certain subgroups, such as refugees and women, may be at increased risk of being marginalized and so more likely to encounter such barriers. Other exacerbating factors include social exclusion, settlement concerns, racism and discrimination, linguistic and communication barriers, fear and stigma, and overall diminished access to medical services.^{19,72}

The higher risk of death from AIDS in immigrants as compared to the rates for Canada as a whole is likely to diminish in the future, with the recent introduction of new HIV testing policies in Canada. Under the current immigration policies, principal immigrant (non-refugee) applicants who test positive for HIV may not be able to immigrate to Canada. However, other strategies should also be considered, such as early diagnosis and improved access to proper care among HIV-positive immigrants currently living in Canada as well as HIV-positive refugees and HIV-positive spouses, common-law partners, and children of a Canadian citizen or permanent resident who are still allowed to come to Canada.⁴⁷

Hepatitis

Chronic Hepatitis B infection is considered to be the most common cause of liver cancer in Asian North Americans, and yet research suggests that a large proportion of adult Chinese immigrants in Vancouver have not been tested for (43%), or vaccinated against (62%), Hepatitis B. Additionally, among this population of immigrants knowledge level about transmission appears to be low.⁵³

Health Service Utilization

Health service utilization includes the use of medical, preventive health, mental health, and complementary and alternative services. Utilization of services outside the purview of the Regional Health Authorities in BC is not within the scope of this review, and so only literature related to use of chronic disease prevention and management services, primary health care, and hospitals was considered here. One recent study⁷³ describing health care utilization patterns in Canada between 1978 and 2003 found significant socioeconomic status inequities in utilization. In regards to immigrants, this report found that more recently arrived immigrants were less likely to have any health care utilization and also to have fewer physician visits than Canadian-born individuals.⁷³

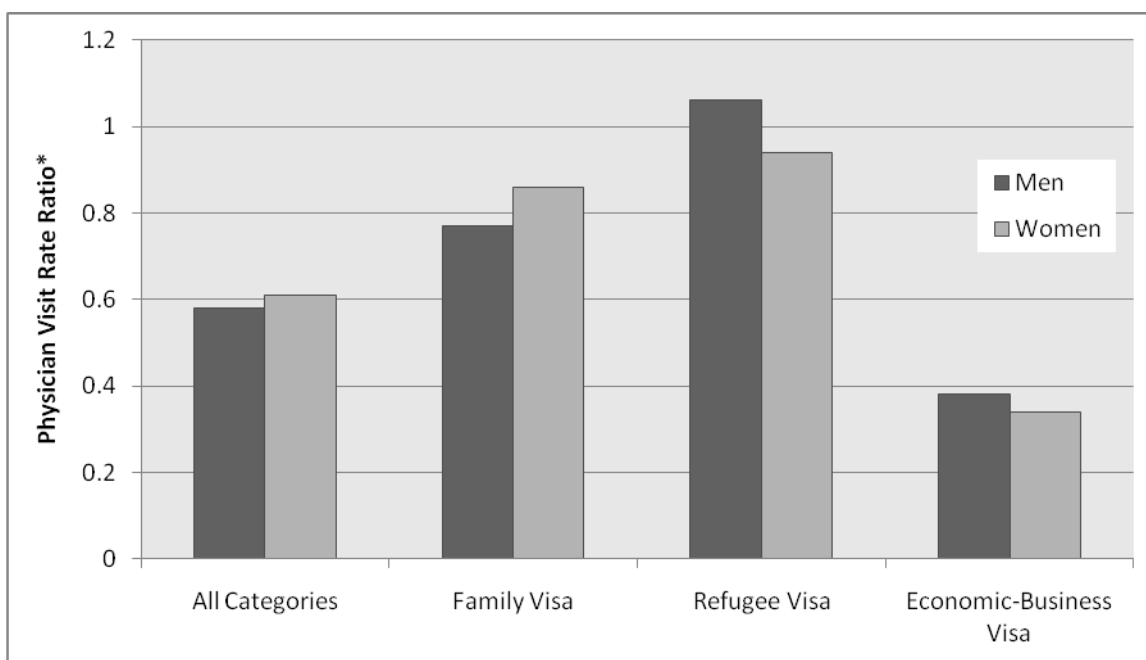
An analysis of data from the 2000/2001 cycle of the CCHS found that the use of screening services was significantly lower among visible minorities across Canada.²⁷ However, it is still not clear whether the underutilization of health services indicates that new immigrants are healthy and therefore require less care, or whether the lower rates reflect barriers in accessing the health care services that are available.^{21,27,74}

In an effort to describe health services utilization by recently arrived immigrants in Manitoba and British Columbia, Kliewer and Kazanjian⁷⁵ undertook a feasibility study that linked Citizenship and Immigration Canada (CIC) immigrant landing files to provincial health records. Although preliminary and limited to records from 1995 and 1996, this study has generated an overall picture of how immigrants interact with the health system in BC. While the data may be fifteen years old and there is no way of knowing if the situation is similar today, no other studies examining immigrant health services utilization in BC were found in this review.

Data from the Kliewer and Kazanjian study show that, during their first year of residence in Canada, immigrants appeared to have lower utilization rates of health services than the general population. Use of services was observed to rise with increasing length of residence for male and female immigrants of all ages. Physician visitation rates during immigrants' first year of residence in BC were 40% lower than rates observed among the general provincial population. Utilization rates appeared to vary by sex and condition for which treatment was sought. Overall, the utilization of medical services by immigrant women was found to be particularly high for pregnancy-related conditions, and these rates

peaked between six months and one year post-migration. Additionally, large variations in physician and hospital utilization were observed according to region of birth, immigrant class, and medical condition upon landing in Canada. Immigrants in the Refugee class had the highest number of visits per person, followed by those in the Family class (Figure 11). Finally, immigrants had more operations on the eyes and obstetrical procedures than the general BC population, and these procedures were generally concentrated in the period between six and twelve months after landing.⁷⁵

Figure 11: Age-adjusted Physician Visit Ratios* by Visa Category and Sex, British Columbia, 1995 – 1996^{74,75}



* Relative to total age-standardized rate for other residents of British Columbia.

Factors Affecting Health Service Utilization

Studies examining health care utilization among Canadian immigrants, including the study detailed above, have generally focused on quantitative statistics and profiles of use. Because this information is primarily drawn from linked databases on physician claims and hospital discharges, it provides a reliable snapshot of use but is limited in its ability to explain why rates may vary for certain subgroups and over time. For example, while we can see that immigrants tend to have lower health service utilization rates than the Canadian-born population in British Columbia, it remains unclear to what this may be attributed. For

example, are lower physician visit rates due to barriers to access (e.g., language and cultural differences, waiting periods for full coverage, etc.) or can they be attributed to better health status experienced by immigrants to Canada? What explains differences in utilization rates among immigrants from certain regions of origin, and are these differences due to outreach and response efforts on the part of the health care system or individual factors inherent to these subgroups? Are immigrants arriving on Refugee and Family class visas more engaged with the health care delivery system due to the unique characteristics of their immigration process, or do immigrants in the Economic-Business class actually have lower initial and long-term health needs?

Several qualitative studies have attempted to answer some of the questions posed above and to provide a more in-depth portrait of immigrant utilization of health care services. For example, Leduc and Proulx (2004)²⁸ followed a group of twenty families who had immigrated to Quebec less than eight years before the study, and had used primary health care services since their arrival. Through analysis of the ways in which these young, recently immigrated families interacted with the health care system over time, they observed a triphasic pattern of utilization. First, families made contact with one or more health services. This contact was followed by selection of specific services from those available and finally, families consolidated the range of choices most appropriate for their needs. Over time, utilization of primary health care services was found to evolve from the ad hoc use of walk-in services to the adoption of regular sources of care.

During the first phase—making contact—and particularly in the first years following arrival, families learned about services essentially by accident. The vast majority of medical consultations initiated by the families (76%) were visits to emergency rooms or walk-in clinics and were motivated by isolated health problems. The contact phase could be further divided into three scenarios influencing initial interaction with the health care system. First, the family's living environment appeared to be the most important determinant of families' use of services. Physical proximity of facilities and services was deemed essential. Furthermore, proximity of established communities of the same ethnic origin also influenced the choice of services, as immigrants based their decisions on the beliefs and perceptions of others within their community. The second scenario comprised factors related to the organization of health services. Thus, initial choice of a health service was found to be dependent upon decisions made external to the family, including decisions made by health

professionals (e.g. ambulance technicians) and referral networks. The third scenario in the contact phase involved the organization of the immigrant-orientation system. More rarely than in the previous scenarios, the utilization of health services was sometimes triggered by immigrant-orientation services. Although all immigrants had received a medical profile assessment^{‡‡} mandated by Citizenship and Immigration Canada (CIC) upon arriving, few of the families in the study reported utilizing designated physicians for their subsequent health needs. Apparently this initial experience was perceived as a utilitarian operation and was subsequently dissociated from future health care experiences.

After making initial contacts, families were observed to begin filtering health services and professionals. This selection process was based on evaluation of alternatives and retrospective evaluation of services received. In this second phase, geographic accessibility was most often cited by the families. Additionally, temporal accessibility—understood in terms of a service’s hours of operation or time spent by patients in waiting rooms—was the second most important attribute influencing selection. As length of residency increased, families began to consider additional attributes, including relational quality or health professionals’ approach to care and language considerations. Ultimately, over time, relational quality of care became more important than geographic or temporal accessibility. Moreover, families placed greater importance on health professionals’ ethnic affiliation and language of service over time.

The final phase, of consolidation and adoption, resulted from the knowledge acquisition, utilization, and evaluation occurring in the two preceding phases. Geographic and temporal accessibility remained important, and were generally followed in importance by technical and interpersonal skills of the provider, and language spoken by health professionals and staff.

In each of the phases observed by Leduc and Proulx,²⁸ immigrant families relied upon a variety of information sources. In general, families turned to family, friends, neighbours, and, to a lesser extent, health care and other professionals. During the contact phase, the

^{‡‡} Immigrants to Canada undergo medical screening, referred to as Immigrant Medical Examination (IME), as mandated by Citizenship and Immigration Canada. In June 2002, the Immigration and Refugee Protection Act (IRPA) was implemented. IRPA requires that applicants for legal immigration status in Canada be assessed for the health grounds of inadmissibility (i.e., danger to public health, danger to public safety, and excessive demands on health or social services). Nonetheless, the Act exempted certain groups of immigrants, including refugees, from excessive demand evaluation.¹⁵⁷

principal sources of information were internal, wherein newly arrived immigrants evaluated the available health services on the basis of their previous experience with analogous systems in their countries of origin. Eventually, external sources became increasingly important as knowledge and selection of health services was shaped by conversations with neighbours, acquaintances, and employers. Leduc and Proulx observe that families would benefit from better information support, and that health care establishments could be more attentive to immigrants' information needs.

Accessibility

Disparities in utilization rates such as those seen above raise concerns that there may be inequities in access to health services, especially in relation to recent immigrants. Health care access disparities between immigrants and non-immigrants may occur through several channels, including language problems (i.e., a lack of available services in their native language and/or interpretation services), differing socio-cultural concepts of health and illness, or biases among health care providers.^{27,35,76-78} Three categories of accessibility pertinent to immigrants can be defined: geographic, sociocultural, and economic. International research, as well as studies conducted in Canada, indicate that immigrants often face multiple barriers when attempting to access health care services including language,^{35,76,79,80} cost,^{30,81,82} location,⁸³ transportation,^{35,83} community awareness,⁷⁹ and cultural sensitivity.^{30,84,85} For instance, one Canadian study⁸⁶ reports that health services can be unresponsive toward minority ethnic groups, and demonstrates that language barriers prevent some Chinese immigrants from effectively articulating their symptoms to health care professionals. Moreover, health professionals and systems often fail to understand immigrants' medical concerns within the social context of their lives. Such failings may lead to unmet needs, understood here as either insufficient or untimely treatment of a medical problem. Using data from the 2000-2001 cycle of the Canadian Community Health Survey (CCHS), Wu et al. (2005)³⁵ examined unmet health needs among immigrants. While they found that immigrants had a lower level of unmet needs than non-immigrants in Canada, there were considerable differences in reasons for unmet needs, suggesting that some immigrant-specific health care access barriers may exist. Immigrants reported a higher occurrence of unmet needs due to perceptions that the care would be inadequate, not knowing where to access health care, transportation barriers, and language barriers³⁵

Geographic Accessibility

Geographic access refers to the physical location of a health care service and a person's ability to receive care at that location. Thus, this category also includes factors such as hours of operation and wait times. Qualitative studies have observed that Canadian immigrants often report geographic and temporal availability as insurmountable barriers to receiving care.^{28,30} In the absence of geographically accessible family physicians and since new patients may experience extended wait times to be seen, immigrants may rely on walk-in clinics and hospitals for primary care. Alternatively, they may be forced to seek care in more distant locations. Accessing primary care in other neighbourhoods may present additional barriers to access, particularly among recent and senior immigrants who tend to rely more heavily on public transportation, and express some apprehensions about appropriate use of the transportation system.³⁰ In a study of Chinese immigrants in the Greater Toronto Area, Wang (2007)⁸⁵ noted the importance of spatial proximity to culturally appropriate care. In particular, Chinese immigrants in the study were more likely to access health care when the services were ethnically and linguistically similar to the patient, and when located within close proximity to the patient.

Sociocultural Accessibility

The language in which health services are provided and the ethnic origin and gender of health care professionals are considered to be particularly important determinants of immigrants' initial selection of, and long-term fidelity to, services.^{26,28,35,87,88} Language and cultural barriers can have adverse effects on the accessibility of care, the quality of care received, patient satisfaction, and health outcomes. Indeed, studies have clearly demonstrated that lack of services available in immigrants' preferred languages and limited interpretation services are associated with poor access to health services and preventive services.^{26,30,89-93} Linguistic barriers to access are also problematic, as they contribute to the inability to book appointments or to follow advice on prescriptions, and contribute to overall poorer quality and outcomes of care. Fears of not having one's description of health concerns fully understood and of not fully understanding the recommendations and instructions given by health professionals in turn may lead not only to underutilization, but even overutilization in cases where repeat visits become necessary.²⁸ In the past, language barriers to health care have only been partially addressed through supplementing the message with foreign language handouts or use of interpreters. Karliner et al. (2007)

commented that “although professional interpreter use is associated with improvement in patients’ perceived knowledge of diagnosis and treatment, it did not alter actual knowledge.”⁹⁴ Several studies^{82,95,96} have found a preference by some health care workers for using family members over hospital/house staff for interpretation services because they perceived it to increase trust with the patient. These workers expressed concern about the reliability of house staff in terms of medical knowledge and maintenance of confidentiality within small communities, which was particularly relevant in refugee subgroups enduring cultural fragmentation and mistrust of others perceived to be associated with persecution or trauma experienced pre-migration. Reliance on family members puts a burden on the patient to provide the translator, can invert status relationships within many traditional families when children translate for their parents or elders, and makes privacy within the family impossible. This is not to mention the numerous other cultural and ethical reasons for avoiding the use of friends, family members, and other informal interpreters (i.e. compromises the discussion of difficult issues such as abortion, birth control, family violence, abuse, torture and assault, addiction, diagnosis of mortal illness, etc.) There are also financial and efficacy reasons to avoid using informal interpreters, mostly due to accuracy and effectiveness of interpretation.¹⁴

While there will always be a need for language interpretation services for some patients, it is generally agreed that the best communication is achieved where health care providers and patients speak the same language.⁸⁷ In their study of over 2000 Chinese-Canadian seniors, Lai and Chau (2007)⁶⁶ found that the most significant barriers to receiving care were language, long wait times for services, and a lack of awareness about available services. Other Canadian studies have shown language^{26,65,76,97} and cultural appropriateness/sensitivity of health care services^{82,97,98} to be influential for accessibility among immigrant populations.

In addition to language and cultural differences, some immigrants have identified the lack of female family physicians and specialists as a barrier to receiving appropriate care. Women from various ethnic backgrounds have expressed preferences for female health care providers, particularly in specialized care areas, such as gynecology and obstetrics.^{30,97}

Economic Accessibility

A third and final category of accessibility discussed in the literature on immigrants' utilization of health care relates to the direct costs of receiving services. Under the accessibility principle of the Canada Health Act (CHA), medically necessary services are free at the point of delivery.⁹⁹ Although the intent of the accessibility principle is to remove the direct costs associated with receiving care, several studies reveal that direct costs remain a significant barrier for immigrants seeking health care.^{30,78,81,82} Immigrants residing in British Columbia, as well as New Brunswick, Ontario, and Quebec, must complete a three-month waiting period before they are covered by the provincial health plan where they live,⁹⁹ and thus do not benefit from any health care insurance during their first three months in Canada. While private insurance is available, many newly arrived immigrants do not have the resources available to purchase such plans or to afford paying directly for care. Finally, the costs of prescription medications, eye and dental care as well as other extended health services may remain out of reach for those immigrants with limited resources and who lack full-time employment because they require access to either extended health benefits or private insurance coverage.

Population-Specific Conclusions and Opportunities

Although overall the immigrant population in Canada appears to be healthy in terms of total disease risk, there is general consensus in the literature that some subgroups may be at higher risk of adverse health outcomes, particularly relating to chronic conditions. Canadian and British Columbian immigrants are remarkably diverse in terms of personal characteristics, place and culture of origin, migration experience, length of residence in Canada, and predispositions to disease, as well as the socioeconomic and community-level determinants of post-migration health. The overall picture of health for immigrants hides important health disparities existing among some susceptible subgroups. Those subgroups presenting higher health service needs and poorer health outcomes include immigrants who have been in the country for many years, groups with lower socioeconomic status, and certain ethnic groups (e.g., South Asians at increased risk for developing insulin resistance and therefore diabetes).

While overall utilization of physician services and hospitals appears to be lower among newly arrived immigrants than among the general population of BC, for various specific

conditions and procedures immigrants do have higher rates. Utilization of medical services has been found to vary substantially according to demographic and socioeconomic characteristics and existing medical conditions, as seen in the case of immigrants on a Refugee or Family visa utilizing physicians and hospitals the most, while those on an Economic-Business visa used them the least.

Future Opportunities

Based on this review of the literature, the following opportunities for change are proposed. These opportunities are organized into two categories related to systems and policy changes and future research directions. They are all intended to inform further dialogue and development of a strategy that could be adopted by the health care system in BC, aimed at ensuring that immigrants continue to enjoy the positive health with which they arrive in the province.

System and Policy

- *Modification of existing services to respond to accessibility barriers for immigrants:* The primary attributes identified as essential to the evaluation, selection, and adoption of health services were related to geographical and temporal accessibility, interpersonal and technical quality of services, and language spoken by health professionals and staff. Thus, health services could be improved by considering the particular concerns of the populations they primarily serve and making appropriate modifications.
- *Increased translation and interpretation services:* Existing interpretation and translation services within all clinical settings should be enhanced and improved in accordance with the latest findings and recommendations on best practices from the literature. Enhancement of these services may require future assessment of regions where additional services may need to be implemented. The utilization of interpretation services would be further enriched by the following:
 - *Initiatives to promote awareness of the importance and appropriate use of interpretation services within the health professions:* Such initiatives should cover the importance of provider-patient communication and training on working with interpreters should become a required component of pre-service professional preparation.

- *Strategy for health interpreter training, accreditation, and standards of service provision:* Provincial and national strategies should include standards of practice and appropriate models of service for the Canadian and British Columbian context. Also, strategies should include official, Aboriginal, visual, and immigrant languages.
- *Improved information support:* All immigrants and Canadians in general would benefit from better information support. In this respect, health care establishments could be more attentive to immigrants' information needs. This could include information tools tailored for immigrant populations, as well as improved sharing of health care strategies and clear explanations of the organization of health services.
- *Enhanced assistance from community agencies:* At the local level, research findings suggest a need for community agencies to assist further in making physicians more accessible to immigrants. This may include providing a means of transportation, thereby reducing geographic barriers to care. Alternatively, bringing physicians to the patients via community health centres or community agencies could also help eliminate geographic barriers.
- *Re-examination of waiting periods:* Those provinces that impose a waiting period before newcomers can access the publicly funded health care system may need to re-examine such policies, as they appear to contradict the accessibility principle of the CHA.
- *Measures to address physician shortages:* Provincial regulatory bodies could play a role in reducing the current shortage of physicians in Canada. This could be accomplished through enhanced physician recruitment and training programs, as well as streamlining the process of assessing the qualifications of foreign-trained doctors. At the federal level, the overall shortage of physicians, and culturally and linguistically appropriate physicians in particular, could be re-examined. Some researchers have suggested that the *Skilled Worker Program* could be an effective means of increasing the number of internationally trained health care providers in Canada.³⁰
- *Reassessment of the Canada Health Act:* Some of the findings explored in this report suggest that the effects and reach of the Canada Health Act and its guiding principles

ought to be reassessed and possibly modified so that it better reflects the barriers that have arisen since its implementation, particularly as they relate to immigrants.

Research

- *Qualitative studies of health service utilization:* Future research should aim to elucidate some of the factors affecting immigrants' utilization of health care services. This could include qualitative studies examining the perceived need for care, health beliefs, and engagement with alternative resources, as well as immigrant perceptions and experiences of the Canadian health care system. Additionally, immigrants' views on gaps in the system as well as existing successes that they see as positive in terms of health services would contribute positively to the organization and implementation of health care services across the province.
- *Quantitative studies of health status indicators:* Further quantitative understandings of various chronic conditions among immigrants are needed. Little longitudinal data is available, which would help in elucidating trends in immigrant health status and service utilization over time. This is significant because much of the currently available data is cross-sectional in nature, thus comparing disparate groups of immigrants who have arrived in Canada in differing time periods and circumstances. Additionally, many studies consider immigrants as one group therefore little is known about the prevalence of chronic health problems among subpopulations of Canadian and British Columbian immigrants.
- *Consideration of the influence of culture and ethnicity in relation to systemic barriers to access:* Within the Canadian context, research has tended to focus on the effects of socioeconomic factors on health status and service utilization, and to a lesser extent on regional differences. Studies considering the influence of culture and ethnicity are limited to differences attributed to cultural beliefs and practices, and not on the effect of systemic barriers to access. Future research could contribute to understandings of cultural and ethnic differences in how the health care system exacerbates or ameliorates health inequities through the expansion of qualitative and quantitative studies to include immigrant subgroups.

- *Inclusion of immigrant subgroups:* Many of the studies reviewed considered the prevalence of health conditions and health care service utilization among immigrants as a whole. For example, the studies on utilization highlighted here were limited to newly-arrived immigrants. Further studies comparing utilization rates of immigrants over time and considering specific subgroups are certainly warranted. Such comparative studies would allow for a more thorough and nuanced understanding of what happens to immigrants' health as they settle in the province, and would allow for separation of the effects of length of residence and migration circumstances from actual worsening or improvement of health.

Refugee Population

In many ways, the health status of refugees in Canada is similar to that of the broader population of newly arrived and more established immigrants across the country. However, refugee health concerns and experiences with the healthcare system do vary in crucial and significant ways, and this variation has important repercussions on chronic conditions and long-term well-being. Forced migration has increased worldwide, and many individuals are must eventually leave their home countries or regions due to overlapping factors including ethnic conflict, inequitable access to natural resources, declining living conditions, and chronic and pervasive human rights abuses.¹⁰⁰ In recent years, Canada has received the second largest proportion of refugees to industrialized countries.¹⁰¹ The range of situations and experiences that contribute to the migration of refugees and their eventual resettlement in Canada may in some cases be central to an understanding of the unique circumstances and difficulties confronting them in their new surroundings.

Refugee^{§§} immigrants to Canada include individuals who require protection under international law and may be further classified into two categories: Government Assisted Refugees (GARs) or Privately Sponsored Refugees (PSRs); and Asylum Seekers or Refugee Claimants.^{11,13,40,41,102} Assisted refugees are sponsored for resettlement and are considered landed immigrants,^{***} but the government of Canada must first deem them in need of protection before they are allowed to enter the country. For a more complete discussion of the refugee arrival and settlement process, as well as the distinct categories of immigration under the Canadian system, see the section on populations of interest in the introduction to this report.

Access to services for refugees and refugee-claimants varies by province. Furthermore, refugee-claimants experience additional stress regarding their uncertain futures and have limited health service eligibility. Refugee Claimants arrive in Canada asking to be accepted as refugees and do not have the same legal rights as landed immigrants, though they are

^{§§} Article 1 of the 1951 Refugee Convention of the United Nations defines a refugee as “a person who is outside his or her country of nationality or habitual residence; has a well-founded fear of persecution because of his or her race, religion, nationality, membership of a particular social group or political opinion; and is unable or unwilling to avail himself or herself of the protection of that country, or to return there, for fear of persecution.”¹⁰

^{***} Landed immigrants are those who have attained Permanent Resident status, as opposed to those residing in Canada on temporary or student visas.¹³

eligible for health coverage for a limited number of services under the Interim Federal Health Program (IFHP).¹¹ The healthy immigrant effect is not as evident among refugees as among the broader immigrant population. Indeed, refugees often arrive in Canada with health deficits and have elevated prevalence rates of certain acute and chronic conditions. Many refugees have emigrated from regions with endemic infectious diseases that differ from the Canadian context, and substantial numbers have spent significant periods of time living in refugee camps, where living conditions are often far from ideal. Because of these pre-migration experiences, refugees may require special care and protections, particularly in the early stages of resettlement.^{103,104} Moreover, ethnic, religious, socioeconomic, and cultural divisions between and within groups of refugees arriving from distinct regions can often result in community fragmentation. Such fragmentation is often the result of trauma experienced at the hands of institutions and members of governments, militias, various ethnic groups, and even health care providers.^{95,105-107} In order to adequately and appropriately serve this population with unique needs, health care and social support systems must take the particular health needs, social circumstances (i.e., isolation and exclusion), and community fragmentation of refugees into account in the development and implementation of programming.

Relatively little is known about the specific chronic health prevalence and incumbent needs of refugees in British Columbia. Many available databases and studies consider the total immigrant population and do not focus on individual subgroups or categories of immigrants (i.e., Economic versus Refugee versus Family Class immigrants). Because refugees comprise a segment of the total immigrant population, many of the health concerns that refugees share with the larger immigrant population are reflected in the information presented in the preceding section on immigrants to BC. The discussion that follows highlights some of the particular areas of concern for refugees and ways in which their needs and interactions with health care delivery systems differ from those of the broader population of newcomers to the province.

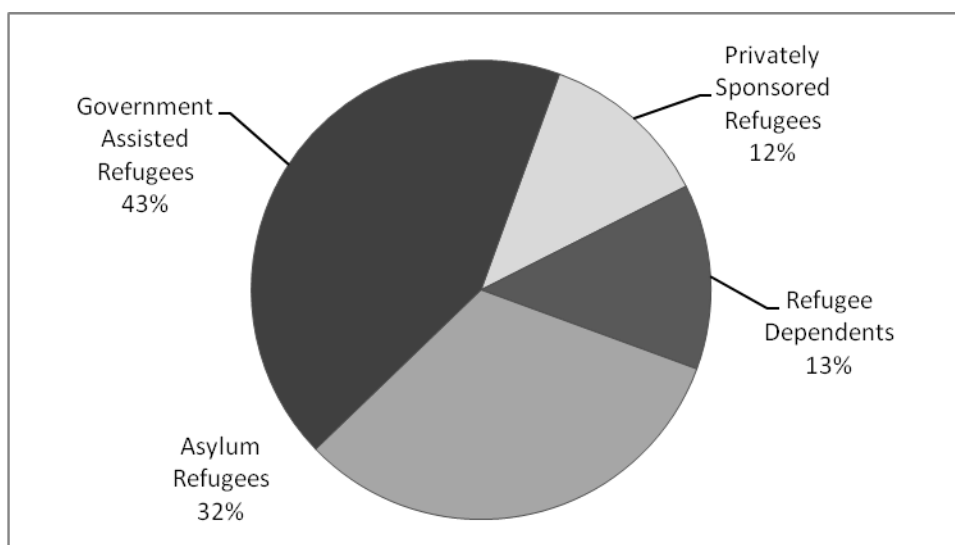
Demographics

As discussed previously, refugees comprise one of three general categories of immigrants (Table 1). However, the often dramatic differences in migration experiences, and the short- and long-term influences of these experiences on health, make it imperative to highlight

some of the ways in which the demographics of the refugee population in British Columbia differs from all other immigrants.

Between 2004 and 2008, an annual average of 1,966 refugees^{†††} settled in British Columbia. This represented 6.5% of all refugees arriving in Canada, which was much lower than the province's share of all immigrants to the country (16.7%) in the same time period.¹⁰⁸ Refugee immigrants account for a small share of all immigrants to BC, making up 4.8% of total immigrants between 2004 and 2008, which was the lowest of all Canadian provinces.^{38,108} GARs represent the largest portion of refugees settling in the province, followed by Refugee Claimants, then refugees' dependants and Privately Sponsored Refugees (Figure 12).^{41,108}

Figure 12: Refugee Arrivals to BC by Category, 2004 – 2008¹⁰⁸



As seen previously with the general immigrant population, there has been a notable shift in source countries^{†††} among refugees in British Columbia, with an increasing proportion arriving from East and Southern Asia, while larger numbers arrived from Europe in previous decades.¹² Source countries of refugees change from year to year as world events unfold,

^{†††} The term refugee in this section refers only to refugees who have been accepted as Permanent Residents of Canada. Refugees are those who have been granted permanent residency, whereas Refugee Claimants have temporary status until a final decision is made by the Immigrant and Refugee Board. Unless otherwise noted, statistics and figures in this section do not include Claimants who have not yet been granted Permanent Resident Status.

^{†††} Immigrants' last permanent residence is reported as source country. As such, it is possible that source country differs from home country because many refugees come to Canada directly from refugee camps located outside of their home countries.

and so tend to vary more from year to year than for total new immigrants to BC. During the five-year period from 2004 to 2008, the largest portion of all refugee immigrants arrived from Afghanistan, Myanmar, Iran, Mainland China, Iraq, Colombia, Sudan, Ethiopia, Sri Lanka, and Somalia.^{41,108} Thus, source country trends among refugees differed from those observed among non-refugee immigrants arriving during this period, who mostly emigrated from Mainland China, India, and the Philippines.^{37-39,41} Major source countries of refugees to the province vary substantially across distinct refugee categories, as seen in Table 3.

Table 3: Top Three Source Countries of Refugees to BC by Immigrant Category, 2002 - 2006⁴¹

Immigrant Category	Top 3 Source Countries	Proportion
Government Assisted Refugees	Afghanistan	20%
	Iran	13%
	Sudan	10%
Privately Sponsored Refugees	Pakistan	17%
	Afghanistan	14%
	Iraq	9%
Asylum Refugees	Mainland China	13%
	Iran	9%
	Fiji	9%
Dependants Abroad	Mainland China	36%
	India	10%
	Pakistan	8%

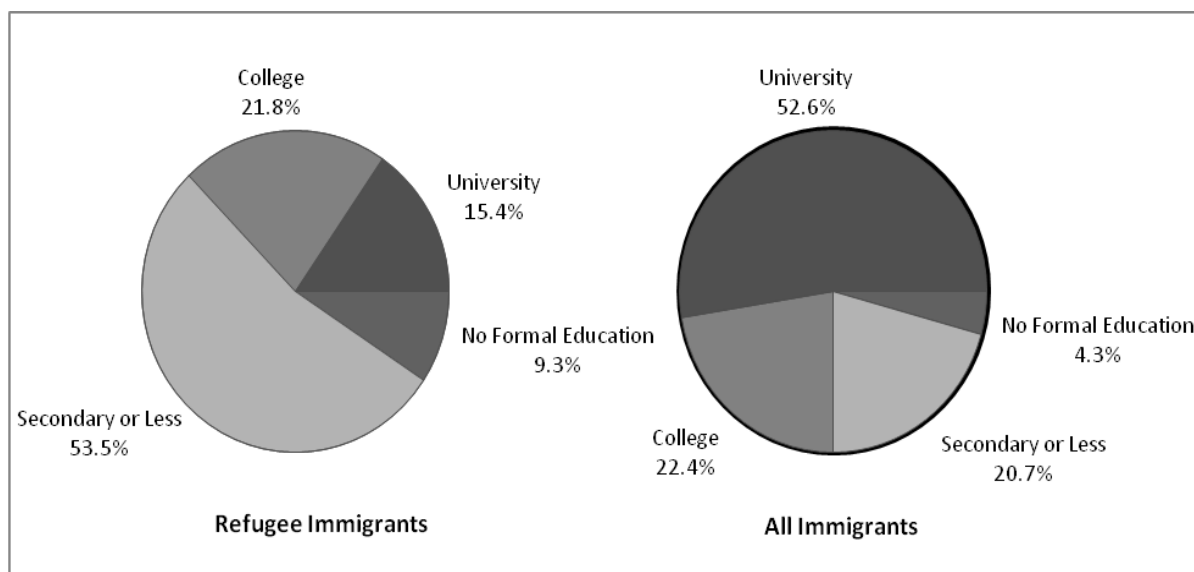
Data source: Landed Immigrant Database, Citizenship and Immigration Canada

Individuals seeking and receiving asylum in British Columbia are relatively young when they arrive in the province, compared both to the total immigrant population and to all residents of the province. Approximately half of all newly resettled refugee immigrants are between 25 and 64 years old, and a minor portion are over the age of 65 (2%).^{39,108} Between 2004 and 2008, only 10.3% of refugees to BC were between 45 and 64 years old, compared to 15.0% of total immigrants and 28.6% of BC's total population.¹⁰⁸ Children and youth (aged 18 or less) represent a large component of the refugee population in the province, and accounted for 35.4% of all refugee arrivals to BC between 2004 and 2008.^{41,108}

The gender distribution of refugee immigrants to the province also varies from that seen among newcomers from other immigration classes. A slight majority of refugees are males, while among the total immigrant population to BC, there are more females than males.¹⁰⁸

While immigrants in general appear to be more highly educated than individuals born in Canada,^{37,108} this does not appear to be so with refugees in the province. This may be attributed to the fact that refugees are selected based on humanitarian considerations rather than human capital or educational attainment, as in other immigration classes. From 2004 to 2008, most (62.8%) refugees had achieved the equivalent of primary or secondary school education or had no formal education upon arrival. Smaller portions of refugees arrived with university credentials compared to all immigrants and Canadian-born individuals (15.4%, 52.6%, and 23.3% respectively).^{39,41,108}

Figure 13: Education Level of Refugees and All Immigrants to BC, Aged 25+, 2004 - 2008^{38,108}



Official language ability at arrival appears to be lower among refugees than among all newcomers to BC, wherein 56.5% of refugees reported some ability in English or French, compared to 65% for all immigrants between 2004 and 2008. Ability in at least one of the official languages also varied widely by refugee category in this period. It was highest among Asylum Refugees (94.7%), followed by Privately Sponsored Refugees (41.6%), Refugee Dependents Abroad (36.3%) and Government Assisted Refugees (28.9%).¹⁰⁸ Elevated language ability among Asylum Refugees may be attributable to the fact that many

of them lived in Canada as temporary residents (generally Refugee Claimants) before acquiring Permanent Resident status.

Compared to immigrants in all classes, refugees in BC are more likely to settle in Greater Vancouver,^{§§§} at least initially. This is primarily attributable to the Citizenship and Immigration Canada policy that requires all GARs in the province be placed initially in this area in order to capitalize on concentrated settlement services and resources. Of all refugees to BC from 2004 to 2008, 95% initially made their homes in the metropolitan area, as compared to 86.7% of all newcomers.¹⁰⁸⁻¹¹¹

Specific data and analyses on the economic outcomes of refugees are limited, as many major sources of economic and labour force information (e.g., Census) do not distinguish between immigrants arriving through different entry classes. The Longitudinal Immigrant Database (IMDB) does report on the earnings and sources of income of refugees after arrival in Canada, however. Studies based on IMDB data have shown that economic outcomes for refugees improve in successive years after arrival, with those individuals arriving more than ten years ago having higher levels of income and lower reliance on social assistance payments than those refugees who have arrived more recently. This pattern is shown in Table 4, which shows data on GARs and Privately Sponsored Refugees. This data is limited because it does not consider the varying composition of each arrival cohort or the conditions under which they arrived. Overall, economic outcomes for refugees do improve with time in Canada. However, refugee income levels immediately after arrival are not only lower than those of immigrants in most other classes, they also remain relatively low many years after arrival. Additionally, economic outcomes for refugees from Africa and Southeast Asia have shown less improvement, or even some decline, over time as compared to all other refugees to the province.¹⁰⁸

^{§§§} The Greater Vancouver Regional District encompasses 22 municipalities, one electoral area, and one Treaty First Nation in the Lower Mainland region of BC. It includes the cities of Abbotsford, Burnaby, Richmond, Surrey, and Vancouver, which all receive substantial numbers of refugees yearly.¹⁵⁸

Table 4: Average Income and Social Assistance Rates of Refugee Tax-filers in BC, aged 18+¹⁰⁸

Period of Arrival	Average Total Income (2005)	Receiving Social Assistance Income (2005)
1991 – 1995	\$20,110	7.1%
1996 – 2000	\$19,103	10.8%
2001 – 2004	\$10,114	31.2%*

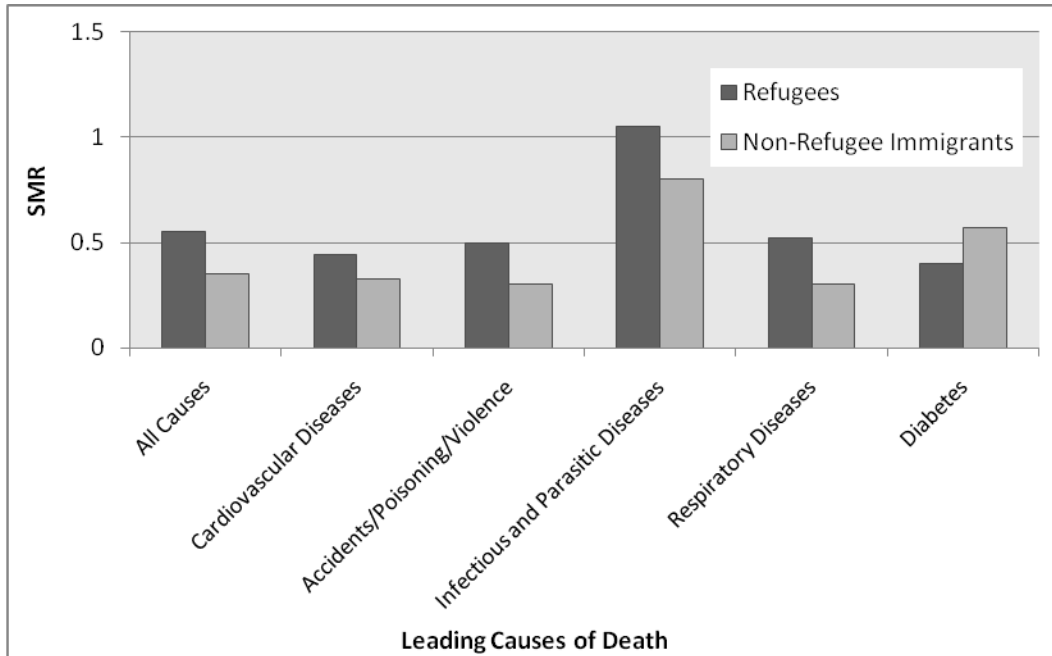
* The elevated proportion of the most recent refugee arrivals receiving social assistance income may be influenced by government programs that give income support to GARs for a minimum of one year after arrival.

Mortality and Health Status

Results from a pan-Canadian research initiative linking records from immigration and health databases indicate that, while all immigrants had mortality rates lower than those found in the general Canadian population, indirect standardized mortality ratio^{****} (SMR) estimates were higher among refugees than non-refugees (Figure 14).^{74,112} This finding is partially explained by the process of selection for immigration, which is clearly different among refugees and non-refugee immigrants. Non-refugee immigrants may self-select for migration, thereby increasing the proportion of individuals in this subgroup who enjoy better overall health, while refugees are often forced to migrate due to violence, civil unrest, and deteriorating living conditions. Moreover, some exemptions regarding medical testing may occur among refugees, especially since enactment of the Immigrant and Refugee Protection Act (IRPA) in 2002, in which the burden-of-illness barrier for convention refugees was waived.^{112,113}

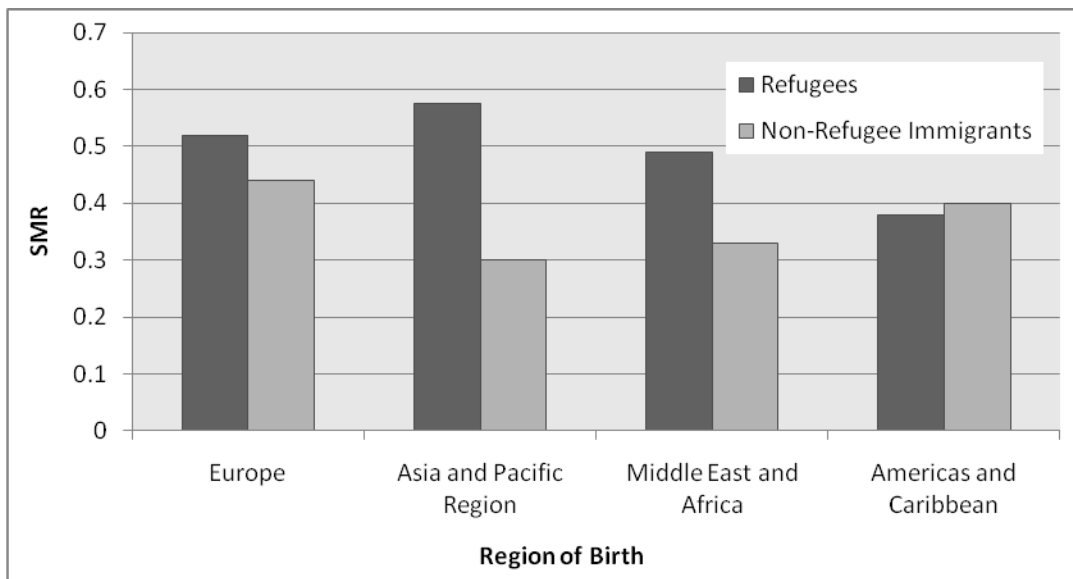
^{****} Standardized Mortality Ratios compare the mortality rates of refugees to those found among the general Canadian population. For example, the SMR for infectious and parasitic diseases among refugees is 1.05, indicating that refugees were 1.05 times more likely to die from infectious and parasitic diseases than all Canadians. Conversely, the SMR for diabetes is 0.35, denoting that mortality attributable to diabetes was more likely among the general Canadian population.

Figure 14: Standardized Mortality Ratios (SMR) for Leading Causes of Death in Canada, Refugees and Non-Refugee Immigrants Compared to the Canadian General Population, 1980 - 1998⁷⁴



Additionally, significant differences in mortality rates for refugees from distinct regions have been observed (Figure 15), wherein refugees from Asia and the Pacific, and the Middle East and Africa had significantly higher all-cause mortality than non-refugee immigrants from the same regions.^{74,112}

Figure 15: Standardized Mortality Ratios (SMR) for All Cause Mortality, Refugees and Non-Refugee Immigrants Compared to the Canadian General Population, by Region of Birth, 1980 - 1998⁷⁴



Specific Chronic Disease Concerns

Many of the same chronic health conditions experienced by all immigrants also affect refugees, but there are a few conditions and concerns unique to refugees, and these are explored below. In addition to the common characteristics or factors that influence one's health such as gender and socioeconomic status, there are other factors that strongly influence the health of refugees. Among refugees, there are significant variations in chronic disease prevalence and trends according to region of origin, length of residency, migration experience, and sociocultural characteristics. Refugees frequently encounter pre- and post-migration trauma experiences that may directly undermine their physical and psychological health. Given the general lack of studies pertaining specifically to British Columbia, the following discussion examines literature covering all Canadian refugees, and draws attention to those studies specific to the province when possible.

Mental Health

Trauma experienced by refugees before migration to Canada can have significant effects on their mental well-being, and can be classified into five clusters:

- Collective experiences, shared by a community of refugees, particularly those exposed to warfare, ethnic discrimination, refugee camp experiences, etc.;
- Personal traumas, including being in an accident involving serious injury or death of another, natural disasters, or life threatening illnesses;
- Threats to others, events in which others close to the refugee were threatened by illness or death;
- Physical or sexual assault by a stranger;
- Physical or sexual assault by a familiar other, including childhood physical or sexual abuse, and intimate partner violence.¹¹⁴

Such traumas may also act indirectly to diminish individuals' and communities' capacity to cope with acculturation stressors, thereby rendering refugees more susceptible to stress-related disorders and psychological disturbances, such as depression, anxiety disorders,

and posttraumatic stress disorder (PTSD).^{63,105,114-118} This is particularly true if refugees have been exposed to multiple traumas.

Furthermore, pre-migration trauma may be compounded by experiences during the settlement and post-migration adaptation process. After immigrating, many individuals encounter ongoing traumatic events owing to threats to family and friends left behind, incidents in Canada related to discrimination and ethnic or cultural fragmentation. Superimposed upon these traumatic experiences is the distress associated with adaptation to Canadian culture.¹¹⁴ Thus, intervention efforts that facilitate refugees' abilities to cope with ongoing acculturation stressors might be particularly beneficial in promoting overall mental health. It is important to note here that some research has shown that refugees can cope with suffering, adversity, and challenges that seriously threaten well-being and still maintain health.¹¹⁹ Indeed, coping ability appears to result from interactions between life events and cumulative personal, psychosocial, and cultural characteristics over time, including socioeconomic status, education level, affiliation with social networks, language skills, self-efficacy, etc.^{105,116,119-121}

Though few Canadian studies have explicitly examined refugee mental health, refugees of all ages who have experienced traumatic events are thought to suffer from elevated levels of mental health problems. Available literature highlights PTSD, chronic depression, and suicide as particularly prevalent and problematic among traumatized refugees.^{19,122} Studies from the 1990s report the prevalence of PTSD to reach up to 90% of some highly traumatized groups, such as Cambodian refugees to Canada.¹²³⁻¹²⁵

Long-term Communicable Diseases

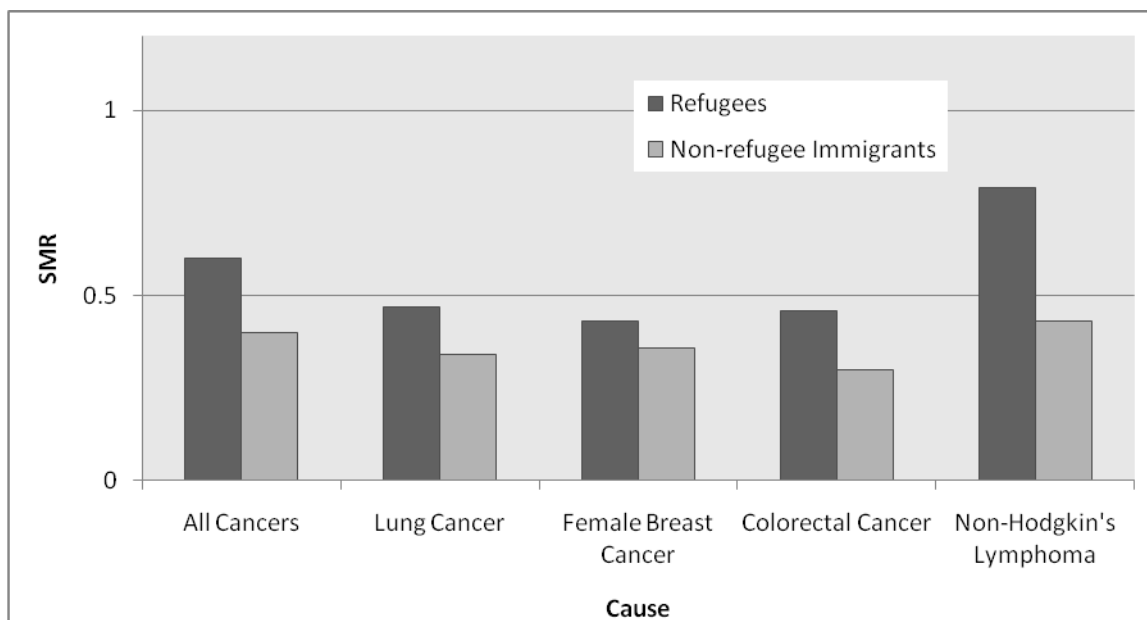
As seen above, refugee mortality attributable to infectious diseases and parasites is elevated, particularly in comparison with rates seen among non-refugee immigrants and the broader Canadian population.^{74,112} Many of the preventable and treatable illnesses included in this category are considered acute (e.g., intestinal parasites, tuberculosis, etc.), and therefore fall outside the scope of this review. However, HIV/AIDS and chronic hepatitis infection are considered chronic conditions and represent an important portion of infectious disease prevalence and associated morbidity and mortality for refugees. One study conducted with GARs settled in Ottawa between 2004 and 2005¹¹³ found that 6.3% of the study population had positive HIV test results, all of whom were refugees from sub-Saharan

Africa. This infection rate mirrors the disease rates found in the refugees' countries of origin, but was far higher than HIV prevalence in the Canadian population, estimated at 0.18% in 2005.

Cancer

Figure 16 shows SMR estimates for refugees compared to the general Canadian population for all-site cancer mortality as well as leading causes of cancer mortality in Canada. Overall, cancer-related mortality is lower among refugees than the general population for all-site cancer and the majority of cancers examined. Mortality associated with lung, breast, and colorectal cancer was more than 50% lower among refugees than all Canadians, but refugee rates remain higher than those found among other immigrants. However, rates for non-Hodgkin's lymphoma were not significantly different from the general population. Although not shown here, incidence of the leading cancers among refugees followed similar patterns to those for mortality.⁷⁴

Figure 16: Standardized Mortality Ratios (SMR) for Cancer, Comparing Refugees and Non-refugee Immigrants to the Canadian General Population, 1980 - 1998⁷⁴



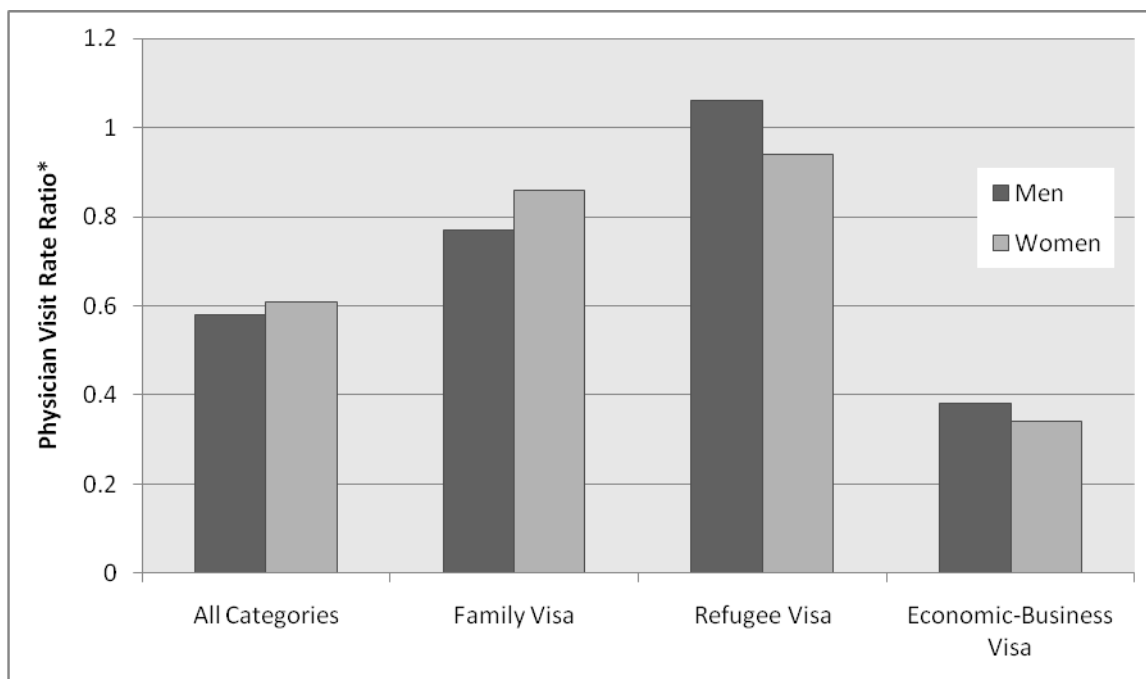
Note: Mortality estimates for prostate cancer are not available as the immigrant data included only a small number of cases.

Health Service Utilization

Upon arrival, refugees initially have low health care utilization patterns, for primary and tertiary health care services alike. The number of family physician visits generally increases shortly after the three-month waiting period for provincial insurance coverage expires in British Columbia (see subsequent section on Structural Barriers). Until they are able to acquire family physicians, newly arrived refugees and immigrants tend to use walk-in clinics and emergency room services. Overall, refugees have fewer physician visits than non-immigrants.^{19,22,24,28,52,61,74,104}

The utilization of medical services by refugees has been found to vary substantially according to demographic and socioeconomic factors, as well as existing medical conditions. Immigrants to British Columbia on a Refugee or Family visa tend to utilize physicians and hospitals the most, while those on an Economic visa tend to utilize them the least, as seen in Figure 17. Only male refugees in British Columbia utilize physicians more than other residents over the course of a year (relative rate 1.06).⁷⁵

Figure 17: Age-adjusted Physician Visit Ratios* by Visa Category and Sex, British Columbia, 1995 – 1996^{74,74}



* Relative to total age-standardized rate for other residents of British Columbia.

A qualitative study¹²⁶ with refugee women in Winnipeg who had fled the civil war in El Salvador between 1979 and 1992, probed how these women define health, how they maintain their health, and what they identify as the major causes of illness. The women participating in the study made clear links between psychological health and physical symptoms, with psychological concerns and family problems being perceived as major causes of illness. Stress and depression were ever-present, and deemed key sources of health complaints. Participants used the health service system confidently for physiological complaints, but were unwilling or unable to share much of their previous experiences of trauma, and were frustrated by an inability to find solutions for emotionally-based problems. The women identified a preference for Canadian professionals for psychological or sensitive family concerns over Spanish-speaking practitioners. A pervasive and lasting distrust regarding confidentiality within the Salvadoran community was expressed. This continuing community polarization, fragmentation and mistrust, linked to pre-migratory experiences, were seen to affect current health more than past trauma.¹²⁶

Factors Affecting Health Service Utilization

Refugees and all other immigrants share many challenges inherent to the process of adaptation and settlement in Canadian society. These include the existence of language barriers, changes in familial and generational roles and relations, shifts in socioeconomic status (often resulting from underemployment), lack of familiarity and understanding of the educational and health systems, and coping with the loss of a support system (in particular, the extended family). Some newcomers may experience discrimination and racism, which may in turn limit employment and educational opportunities. Others may suffer from PTSD or other mental health disorders resulting from trauma witnessed or experienced.¹⁴ Such challenges may become barriers to receiving adequate health care, and can be categorized into three main areas of accessibility: geographic, sociocultural, and economic. While many of the same barriers to health care access experienced by all immigrants also affect refugees, there are a few factors unique to refugees that should be highlighted here.

Geographic Accessibility

Geographic accessibility is influenced by the physical location of a health care service and an individual's ability to receive care at that location. Refugees settling in British Columbia experience many of the same issues around geographic access that are cited as barriers to

care by all immigrants to the province. That is, refugees are often forced to rely on walk-in clinics and hospitals for primary and chronic care due to a lack of conveniently located family physicians and extended wait times for new patients. Seeking care that is not within close proximity brings additional difficulties, as refugees tend to rely heavily on public transportation, have lower language skills, and limited resources.^{28,83}

Sociocultural Accessibility

As with geographic accessibility, sociocultural factors influencing refugees' ability to access the health care system mirror those discussed in the previous section on immigrants. Shortages of linguistically and culturally appropriate services for refugees often lead to underutilization and worsened health outcomes for this population.

There are some challenges for refugees that are often much greater than those experienced by other immigrants to the province. Health professionals working with refugees may be challenged by sparse information available about refugees' diverse culture and experiences. The population of refugees changes very quickly, as source countries change from year to year, and health professionals and systems may not be prepared to serve persons with unique and unexpected language and cultural backgrounds. Furthermore, the few professionals in the province who are experienced in working with refugees have difficulty meeting their varied and pressing needs, and available services are often overburdened.¹⁴

Refugees are much less likely to speak either English or French when they arrive in BC than are immigrants arriving through other classes (e.g. Economic or Business, and Family).^{14,108} Family doctors who share the language and culture of their patients are an extremely valuable resource for refugees. However, they are often in short supply, and refugees settling outside the major metropolitan areas may have to bear the cost of long-distance travel and lost wages just to find a physician of their same ethnic affiliation. On the other hand, many refugees have experienced persecution and cultural fragmentation along political, ethnic, religious or spiritual lines. Thus, some refugees may be understandably reluctant to use a physician from their home country until they can be certain of the doctor's politics, social position, and possible association with groups responsible for torture, persecution, and eventual displacement.¹⁴

Economic Accessibility

Government policy and structural issues inherent to health care delivery drastically limit refugees' access to health services, work and social benefits.¹⁴ This is particularly true of asylum seekers, who are not eligible for the same levels of assistance as convention refugees. Canada generally accepts two types of refugees: convention refugees who apply outside the country, and asylum seekers who apply from within Canada. This distinction is important, as the processes that these two groups experience vary, especially legally and in terms of services. "Convention refugees, who arrive sponsored by the resettlement programme have far better support from government services than asylum seekers who appear in Canada with status beyond their statements of claim."^{14(p293)}

In British Columbia, as well as in the provinces of Ontario, Quebec, and New Brunswick, all newcomers are required to wait three months before they are enrolled in a provincial health insurance program. While many immigrants purchase private insurance to ensure coverage, refugees are often unable to purchase such policies. Intended in part to address this gap, the Interim Federal Health Program (IFHP) was introduced in 1957 to assist convention refugees "who are unable to pay for essential and emergency healthcare and who are not covered by a public or private health insurance plan."¹²⁷ Refugee newcomers to Canada can apply for IFHP for "emergency and essential" coverage until they are accepted into a provincial medical insurance plan in their province of residence. The program also covers some essential services not covered under provincial health insurance programs for a set period of time.^{104,127}

In a study of difficulties experienced by refugees enrolled in IFHP in New Brunswick, researchers found that family physicians—often operating as solo, fee-for-service practitioners—frequently do not recognize the IFHP certificate owing to their lack of familiarity with the program. Even when they are familiar with it, they find the reimbursement procedures too cumbersome, and so often refuse to accept IFHP coverage. In such situations, refugees are left to pay the direct costs or to seek care in emergency rooms and urgent care centres for non-acute, and often chronic, conditions.¹⁰⁴ Alternatively, refugee patients may delay seeking care until the problem has compounded, resulting in increased physical and emotional suffering and damage, as well as inflated costs. Although hospital authorities tend to accept IFHP certificates more readily, if a refugee is assessed in an emergency department and follow-up care with a specialist is deemed necessary, further

problems are created by the rules of the IFHP coverage.¹⁰⁴ Finally, it is not uncommon for family physicians to approach their refugee patients directly for payment for services when IFHP is slow with reimbursements or requires yet more paperwork before reimbursement can be granted.

Population-Specific Conclusions and Opportunities

The health status and particular needs of refugees in Canada is generally reflected in those of the total immigrant population. There are some areas in which refugee health and experiences with the health care system are distinct, however. Refugees often present unique health problems due to substandard living conditions in refugee camps, endemic diseases in their countries of origin, and traumatic experiences in the pre- and post-migration period. Although overall health status may be better than the general Canadian population, refugees tend to fare worse than the total immigrant population. These overall trends also obscure some important health disparities in chronic disease prevalence and trends according to gender, region of origin, migration experiences, and legal status in Canada. In terms of chronic disease, refugees are particular susceptible to mental health problems, as well as morbidity and mortality associated with certain cancers and infectious diseases.

Future Opportunities

Many of the opportunities covered in the preceding section on immigrants to the province are also relevant for refugees. The following list suggests some additional areas for systematic change and future lines of research that are particular to Canadian refugees.

System and Policy

- *Interventions to enhance coping skills:* Many refugees have experienced traumatic events before arriving in the province, and continue to confront stressful situations associated with adaptation to life in a new country. Intervention efforts that facilitate refugees' abilities to cope with ongoing acculturation stressors may be beneficial in promoting overall mental health. Such interventions may enhance both individual and community resilience.

- *Disease surveillance and follow up on IME results:* Refugees and all other immigrants have been found to have elevated rates of infectious diseases. Although all immigrants to Canada must undergo an Immigrant Medical Examination (IME), follow up on positive test results for conditions such as HIV, chronic hepatitis, and tuberculosis are often complicated by the mobility of refugees after arrival. This highlights the importance of effective and comprehensive disease surveillance systems at the federal and provincial levels, which may help to ensure timely and appropriate care for newcomers once they have settled into communities and have established regular health care providers.
- *Increased acceptance and ease of use of IFHP coverage:* Several studies have documented refugees' difficulties in utilizing IFHP coverage to the fullest extent. Modifications to the plan should be considered in order to ensure complete coverage of refugees' health needs, particular as they relate to specialized care. Furthermore, structural changes and policies may need to be implemented to guarantee that providers are familiar with the program and are able to easily process all required paperwork for reimbursement.
- *Education and training of health care professionals:* Health professionals working with refugees are challenged by the limited information readily available about refugees, and their diverse cultures and experiences. The population of refugees changes very quickly, and health professionals may not be prepared for persons with unexpected languages and cultural backgrounds. Moreover, the few professionals experienced in working with refugees have difficulty meeting their varied and pressing needs. Thus, education and training of health care professionals ought to include information regarding the particular needs of refugee patients and best practices for appropriate and effective care.
- *Expanded services at the community level:* Refugees, particularly asylum seekers who do not receive as many government services as convention refugees, could benefit from enhanced orientation to the health care system in BC. This should include tips on how to navigate the system and information on system procedures and policies. Furthermore, community level services to help refugees better access available care could be designed to address the barriers unique to this population (e.g., transportation, targeted health promotion, IFHP assistance, etc.).

Research

- *Chronic conditions:* In this review, information on the prevalence of heart disease, diabetes, disabilities and other major chronic diseases among refugees was not found. This represents a significant gap in our understanding of refugee health, and ought to be addressed through quantitative and qualitative research and analysis of existing databases.
- *Other categories of refugees:* Many studies of health status and health care utilization consider the broader immigrant population, and are unable to contribute reliable data or analysis on the specific needs of refugees. Furthermore, what little is known about refugees tends to only include those individuals granted protected status and permanent residency. Future research should attempt to include other categories of refugees, including Asylum Seekers, whose needs and interaction with the health care system remain largely invisible, as they are not captured by existing studies.

Corrections Population

Everyone in the corrections environment—prisoners, prison staff, and service providers—benefits from enhancing the health of prisoners, as it is truly an issue of public health concern. After all, prisoners come from the community and the vast majority return to it. To a great extent, corrections facilities house people who have been socially marginalized. The corrections population encompasses men and women with addictions and mental health issues, people who have experienced poverty and have low levels of literacy, and individuals who have suffered physical, emotional, and psychological abuse, including the effects of colonization in the case of many Aboriginal prisoners. There is compelling evidence that a significant number of offenders present complex physical and mental health needs. High rates of concurrent mental and substance abuse disorders, as well as certain long-term communicable diseases (i.e., HIV/AIDS and Hepatitis C) raise important challenges to disease prevention and continuity of care between correctional health care facilities and health authorities once prisoners are released from custody.

Prison and penitentiary^{†††} inmates experience disproportionately high levels of chronic and acute physical and mental health problems, resulting in increased utilization of health services both within correctional institutions and once released from custody.^{16,128} Concern about the causes of such elevated morbidity has led researchers to consider at least three competing explanations for this phenomenon. First, some researchers have suggested that health inequities among this population may be due to an underlying susceptibility to morbidities that predates incarceration. This susceptibility is higher among inmates because they are disproportionately impoverished, less educated, experience high levels of unemployment and underemployment, and belong to ethnic minority groups. Since such factors are closely associated with worsened physical and mental health in the general population, it follows that incarcerated individuals would also experience diminished health. Alternatively, it is argued by other researchers that features of correctional facilities and institutions have a detrimental influence on the health condition of inmates. Penitentiaries and prisons contain severe stressors that threaten health, including factors such as

^{†††} The term penitentiary is used in the Corrections and Conditional Release Act (CCRA) and refers to federal institutions, whereas the term prison is typically reserved for provincial correctional facilities. For ease of description and consistency, this report will follow this schema. When alternative terms are utilized (e.g. institution, jail, facility, etc.) the report will specify whether institutions and services are provided by the federal or provincial government.

violence, overcrowding, and isolation, which may have an impact on physical and mental health problems. Finally, some researchers have concluded that high morbidity levels are likely due to the combination of offenders' underlying susceptibility to worsened health with the environmental conditions experienced within custody.^{16,129,130}

In Canada, the federal and provincial/territorial governments share responsibility for housing offenders sentenced to a term of incarceration. The Correctional Service of Canada (CSC) administers sentences of a term of two years or more, as imposed by the courts, within 53 federal penitentiaries across the country (Table 5).¹⁷ Separate facilities exist for males and females and for three different security levels: minimum, medium, and maximum.^{16,17} The CSC's Pacific Region covers the province of British Columbia and the Yukon Territory and includes nine institutions operated by the CSC, as seen in (Table 6).¹³¹ Only one facility, the Fraser Valley Institution for Women, houses female offenders. The Regional Treatment Centre at the Pacific Institution is equipped with a psychiatric care unit, a health centre, and a rehabilitation unit that serve all federal inmates in the region. Additionally, federal inmates entering custody in the Pacific Region pass through the reception and assessment centre housed at this facility.¹³¹

Table 5: Security Level of Federal Penitentiaries, by Region^{17,131}

Security Level	Pacific	Prairie	Ontario	Quebec	Atlantic	Total
Maximum	1	1	2	3	1	8
Medium	3	4	5	5	2	20
Minimum	3	7	4	3	1	17
Multi-level	2	3	2	1	1	8
Total	9	15	13	12	5	54

Table 6: Federal Institutions Operated by CSC in the Pacific Region, by Security Level¹³¹

Institution	Location	Population Housed	Capacity
Maximum Security			
Kent Institution	Agassiz	Males	298
Medium Security			
Matsqui Institution	Abbotsford	Males	350
Mission Institution	Mission	Males	180
Mountain Institution	Agassiz	Males	440
Minimum Security			
William Head Institution	Victoria	Males	140
Kwikwèwelhp Healing Village	Harrison Mills	Aboriginal Males	50
Ferndale Institution	Mission	Males	166
Multi-level Security			
Pacific Institution & Regional Treatment Centre	Abbotsford	Males	415
Fraser Valley Institution for Women	Abbotsford	Females	61

Provincial and territorial governments are responsible for the administration of sentences of less than two years. Additionally, they are exclusively responsible for housing all young offenders, as well as adults charged with offences who have been remanded to custody while awaiting trial, and those offenders sentenced to probation.^{16,17} The Corrections Branch of the Ministry of Public Safety and Solicitor General operates nine provincial correctional centres for adults in British Columbia. Two are located on Vancouver Island, two in Greater Vancouver, three in the Fraser Valley, one in the Interior and one in the North (Table 7).¹³² Young offenders are housed in separate facilities. There are three youth custody services centres in BC (Table 7), and all are operated by the Ministry of Children and Family Development. Each custody centre provides a wide variety of programs to meet the needs of youth including:

- Basic programs attending to essential needs (health care, food services, etc.);

- Core programs aimed at directly influencing attitudes and skill deficits known to contribute to offending behaviour (life skills and substance abuse management, etc.);
- Specialized programs that address the distinct needs of individuals or categories of youth (services for Aboriginal and female youth, etc.);
- Re-integration programs to support youths' transition back into the community (work programs, support and supervision programs, etc.).¹³³

Table 7: Provincial Correctional Centres in British Columbia^{132,133}

Institution	Location	Population Housed	Capacity
Adults			
Alouette Correctional Centre for Women	Maple Ridge	Females	112
Ford Mountain Correctional Centre	Chilliwack	Males	88
Fraser Regional Correctional Centre	Maple Ridge	Males	422
Kamloops Regional Correctional Centre	Kamloops	Males	223
Nanaimo Correctional Centre	Nanaimo	Males	170
Prince George Regional Correctional Centre	Prince George	Males & Females	206 men 26 women
Surrey Pre-trial Services Centre	Surrey	Males & Females	134 men 65 women
Vancouver Island Regional Correctional Centre	Victoria	Males	294
Vancouver Jail	Vancouver	Males & Females	63 men & women
Youth			
Prince George Youth Custody Services	Prince George	Young Offenders	36
Burnaby Youth Custody Services	Burnaby	Young Offenders	84
Victoria Youth Custody Services	Victoria	Young Offenders	48

The provincial government remains responsible for health care delivery and costs within provincial correctional facilities. Although health care is generally a provincial responsibility in Canada, the federal government provides such services in a few exceptions. One of

these exceptions is the delivery of health services to inmates of federal penitentiaries, which falls under the purview of CSC. The 1992 *Corrections and Conditional Release Act* (CCRA) states that the CSC shall provide every inmate with essential health care, and reasonable access to non-essential mental health care, with the intention of contributing to the inmate's rehabilitation and successful reintegration into the community after serving their sentence in custody. The provision of such care must conform to professional accepted standards. The CCRA also states that "correctional policies, programs and practices respect gender, ethnic, cultural and linguistic differences and be responsive to the special needs of women and aboriginal peoples as well as to the needs of other groups of offenders with special requirements."^{16(pS9)} For the most part, CSC is not responsible for providing health services for inmates once they are released from a correctional facility, although there are some exceptions. For example, once granted conditional release, essential services are still covered by CSC if offenders reside in one of the seventeen community facilities^{****} operated by CSC. Additionally, CSC will continue to pay for medications or dental services for former inmates on conditional release, if the individuals are unable to do so themselves. Non-insured mental health programs required by either the National Parole Board or by the correctional plan are also covered by the federal service after release from custody.¹⁶

There are three main types of health care settings administered by CSC across Canada, including ambulatory health centres in each penitentiary, regional hospitals, and regional psychiatric treatment centres. In British Columbia, the latter two are located in the Pacific Institution in Abbotsford. Beginning in the 1990s, Healing Lodges have been developed to address the unique needs of Aboriginal inmates, and a variety of other health centres—including clinics and treatment centres—are operated in association with other authorities, such as the provincial governments and First Nations. The majority of penitentiary health services are provided at the primary care level, with nurses comprising the large majority of staff and the main providers of the bulk of health services. For the most part, other health professionals work with the correctional health services on a contract basis.¹⁶

The provision of health care in correctional facilities differs from the care provided to the non-prison population in community settings in numerous ways. Within prisons and penitentiaries there is a general need for greater control of medications, due to an increased

^{****} CSC community facilities include residential and treatment centres designed to assist offenders in transitioning back into life outside of the corrections setting, once they are released from custody. They offer numerous programs meant to aid offenders in adhering to the conditions of their release.¹⁷

potential for misuse, risk of suicide, etc. Community health services, such as dental clinics or specialty care, are often used to supplement services provided within institutions. When inmates require health services beyond what is offered within their correctional facility, this often requires escort services and increased security. Within the corrections setting, there is some tension between the goals of health service providers and correctional staff (i.e., delivery of health care vs. security). Additionally, both inside and outside of correctional facilities, there is often a divide between the goals of the inmates seeking health care and the staff providing the health services. There is a chance that inmates may attempt to manipulate health service staff for personal gain (e.g., reduction of work hours, drug-seeking behaviours, etc.), and some inmates may attempt to use health services as a social outlet or a break from the routine and restrictions of the institutional environment.¹⁶

While there is a substantial amount of information available on individuals within federal correctional facilities, the current review did not find much information specific to provincial facilities. Therefore, the ensuing discussion is predominantly based on federal institutions and the populations housed and services provided therein. When statistics and analysis are available on provincial prisons in British Columbia, they are emphasized throughout.

Demographics

Several demographic features of the inmate population distinguish it from the Canadian population. On average, inmates are much younger, they are predominantly male, and Aboriginal individuals are substantially overrepresented. In recent years the demographic profile of the incarcerated population has been shifting as the number and proportion of female, Aboriginal, and older prisoners entering custody has increased.

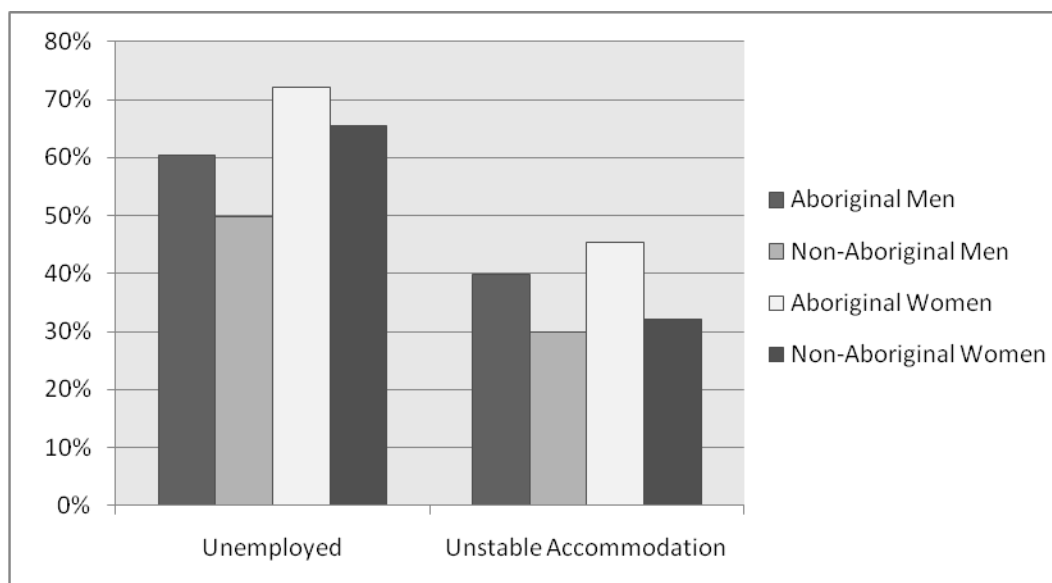
Adults

The profile of adults entering correctional facilities in Canada has changed substantially since the mid-1990s. More adults are being remanded to provincial facilities to await trial or sentencing and fewer are entering these facilities to serve a sentence ordered by the court. In 2006, there were 26% more admissions to remand and 28% fewer admissions to sentenced custody in provincial facilities compared to one decade earlier.¹³⁴ Meanwhile, the number of people admitted to federal prisons grew steadily over the same period, increasing by 18%.¹³⁴ As a result, provincial correctional service facilities are holding more adults in

remand, where security risks are high and the environment is considered to be very harsh, due to heightened security, a lack of rehabilitative and preventive programming (e.g., violence prevention, harm reduction, education, etc.), and the unpredictability of length of stay.¹³⁴ Changes in the characteristics of individuals entering both federal and provincial facilities were also observed between 1996 and 2006, and have significant implications for correctional services in terms of the types of rehabilitative and health programming needed and the infrastructure required to house this shifting population.

Education levels achieved by incarcerated Canadians are notably lower than the general population and vary substantially by ethnicity, with Aboriginal inmates generally having lower levels of education than non-Aboriginal inmates. Additionally, standard literacy testing reveals that 70% of inmates score below a grade eight literacy level, and 86% score below grade ten.¹⁶ Prior to incarceration, sentenced offenders generally experience high levels of unemployment and unstable accommodation. As seen in Figure 18, female inmates generally face more challenges in these areas than their male counterparts, and Aboriginal offenders more so than non-Aboriginal.

Figure 18: Unemployment and Unstable Accommodation among Federal Offenders prior to Incarceration, by Aboriginal Status and Sex, Canada, 2001¹⁶



Ethnicity

Nearly two out of every ten adults admitted to custody in BC in 2006 were Aboriginal, which is disproportionate to the general population.^{134,135} According to the 2006 Census, approximately 4% of the Canadian population identified themselves as Aboriginal. In this same year, however, 20% of adults admitted to remand were Aboriginal, as were 20% of those admitted to provincial sentenced custody in BC, and 18% of adults admitted to federal custody in the province.^{134,135} Growth in the number of Aboriginal adults admitted to remand outpaced the overall growth in admissions to remand between 2001 and 2006, increasing by 23% and 14%, respectively.¹³⁴

Such changes can have implications for program requirements within correctional facilities as research suggests that Aboriginal offenders may have distinct needs from non-Aboriginal offenders. Additionally, growing numbers of Aboriginal men and women in custody drive a need for culturally-sensitive programming.¹³⁵ For instance, compared to non-Aboriginal offenders, greater proportions of Aboriginal offenders are unemployed and have achieved lower levels of education at the time of admission to custody.^{16,134} Among the incarcerated Aboriginal population, many have experienced physical or sexual abuse, early drug and alcohol use, childhood adversity, and emotional problems.¹⁶ Additionally, a higher proportion of Aboriginal adults were admitted to provincial custody in 2006 for violent offences (31% compared to 26% of non-Aboriginal adults).^{16,134} Aboriginal inmates are more likely than non-Aboriginal offenders to be serving their third or greater sentences (7.6% vs. 3.8%), and to be classified as high risk (73% vs. 61%).¹⁶ Finally, health needs and issues particular to the Aboriginal adult population differ from those of the general corrections population, and will be covered in sections to follow.

As cultural diversity has increased in the general Canadian population, the corrections population is beginning to reflect such changes. Male and female offenders from ethnic minorities represent approximately 14% of the total federal offender population, and represent new challenges and diverse cultural and rehabilitative needs.¹³⁵ As such, culturally based tools, translation and interpretation services, and culturally-appropriate health and rehabilitation services will need to be enhanced, and created where they are non-existent, within federal and provincial facilities alike.

Gender

While women continue to represent a relatively small proportion of the corrections population (12% of those admitted to remand, and 4.3% of the federal and 11% of the BC provincial offender population in 2006),^{134,135} in recent years the number of adult females admitted to remand and federal and provincial/territorial sentenced custody has increased. Indeed, growth in the number of women admitted to remand has been greater than overall growth, rising by 36% between 2001 and 2006, while the total number in remand was up 14%.¹³⁴ Approximately 40% of women in federal custody are younger than 34 years of age,¹⁶ and about 17% are serving a life sentence.¹³⁵

Male inmates are more likely than female offenders to be classified at maximum or medium security levels, as shown in Table 8.¹⁶ Length of sentence varies even more drastically by sex, with men being substantially more likely to receive longer sentences (Table 9). Finally, experience with the justice system overall is substantial, although males are much more likely than females to have had a previous sentence (38.4% vs. 17.6%). Over two-thirds (67%) of inmates have served at least one prison term in a provincial adult institution, and this soars to 87% if one includes those serving a prior term while they were under age 18.¹⁶

Table 8: Distribution of Security Level in Federal Penitentiaries by Sex, Canada, 2001¹⁶

Security Level	Males	Females
Maximum	16.4%	14.6%
Medium	63.4%	47.8%
Minimum	20.2%	37.7%
No Security Level Specified	5.8%	11.7%

Table 9: Length of Sentence in Federal Penitentiaries by Sex, Canada, 2001¹⁶

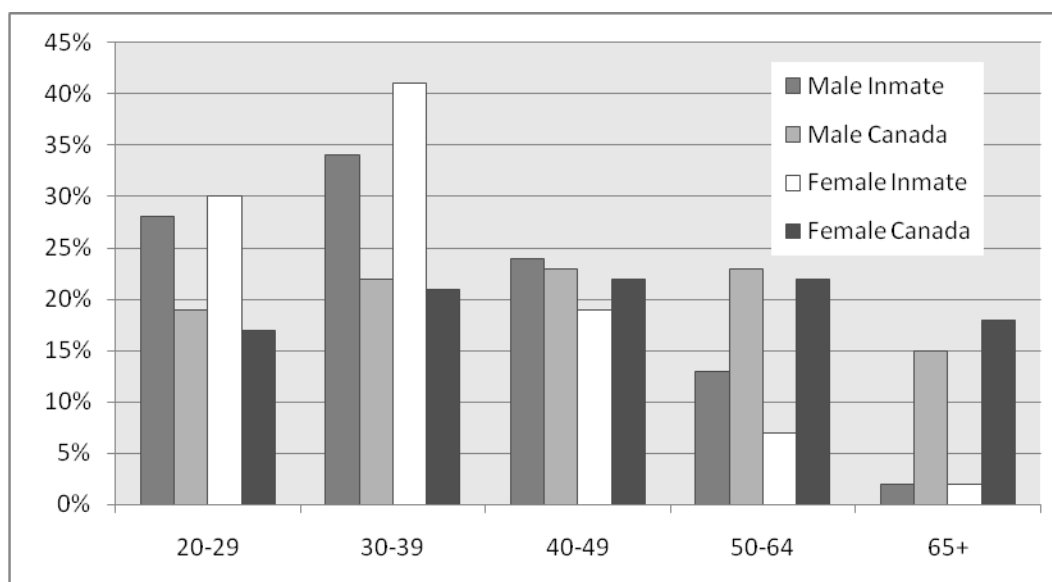
Sentence Length (years)	Males	Females
< 3	19.7%	34.1%
3-6	30%	28.8%
6-10	15.3%	13.7%
10+	13%	4.2%
Life	22.1%	19.3%

Growing numbers of women in correctional facilities can have significant implications for a number of reasons. In general, women have different programming requirements than the larger male population in terms of treatment, rehabilitation, and successful reintegration upon release from custody back into the community. The largest differences between the needs assessed for men and women at admission are in the areas of family/marital relationships, employment and personal or emotional challenges.¹³⁴ The specific health concerns of female prisoners also tend to vary from those of their male counterparts, as will be discussed in a subsequent discussion.

Age

Inmates are substantially younger than the Canadian population, with the majority being less than 40 years of age (Figure 19). The age profile of offenders has changed across Canada and within British Columbia in recent years, however. The median age of adults admitted to provincial and territorial facilities has increased, as is consistent with Canada's aging demographic, rising from 29 to 33 years of age between 1991 and 2006 in British Columbia.^{134,135} While the median age of offenders at admission to federal custody has not changed significantly, the CSC indicates that the average age of federal offenders in custody is increasing, suggesting that this group is aging within the correctional system.¹³⁵

Figure 19: Age Distribution of Federal Inmates Compared with Canadian Population, 2002¹⁶

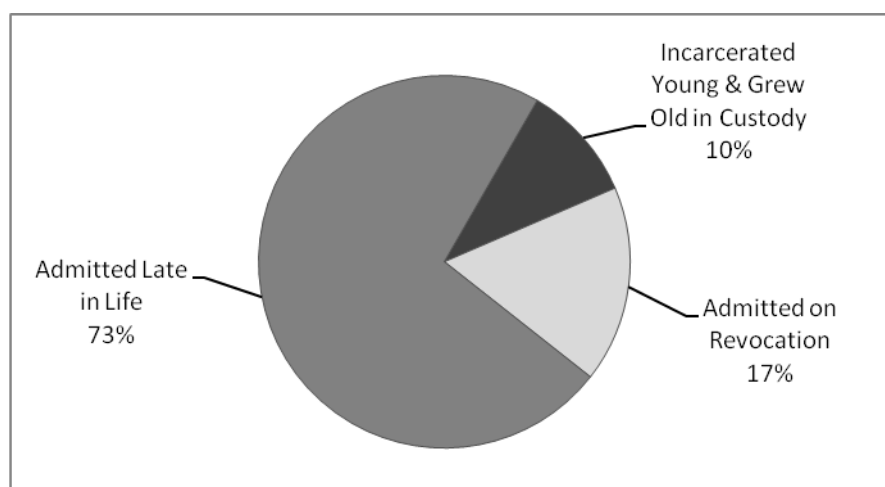


Currently, older offenders,^{§§§§} defined by the CSC as anyone 50 years or older, represent 19.5% of the total federal offender population.¹³⁵ Between 1991 and 2006, the number of adults aged 50 or older admitted to remand doubled. In provincial prisons, there was a 9% decrease in all adults admitted, but the number of older offenders admitted to provincial custody remained unchanged.¹³⁴ Research indicates that the aging process, wherein health status decreases with age, is accelerated by approximately 10 years in institutions, due to factors such as lowered socio-economic status, limited access to medical care, and lifestyle factors common to many offenders.^{16,135} Older offenders have needs that distinguish them from the rest of the corrections population, ranging from medical care, accessibility and mobility, adjustment to imprisonment, peer and family relationships, and conditional release.^{16,134,135} Older prisoners tend to have higher incidence and prevalence of chronic conditions than younger prisoners, and these will be covered shortly.

There are notable differences between older and younger adult inmates across Canada. The majority of older inmates (76.1% of offenders 65 and older) are serving time for sexual offences, while 10.7% of those adults under 30, and 18.9% of those aged 30-49, have been sentenced in this category.¹⁶ Older inmates are more likely to have alcohol problems, to be aggressive, and to have poor stress management than their younger counterparts. There appears to be an inverse relationship between age and security level, with the majority of older offenders being housed in minimum and medium security level facilities. Figure 20 shows that the majority (72.8%) of older inmates have been admitted to correctional facilities late in life, and therefore may not simply represent older versions of younger inmates.¹⁶

^{§§§§} While CSC defines older offenders as being over the age of 50, many of the statistics available and included in this report consider inmates over the age of 65. Throughout this report the term older inmates refers to the 50+ age group, and it is explicitly noted when statistics refer to those inmate 65 and older.

Figure 20: Incarceration History of Older Inmates, Federal Penitentiaries, Canada, 2001¹⁶



Youth

In many ways, the demographic characteristics of youth^{*****} involved with the corrections system in Canada mirror those of the adult population profiled above. However, implementation of the *Youth Criminal Justice Act (YCJA)* has significantly affected the overall profile and trends among youth in correctional facilities across Canada and the province. The *YCJA* was introduced in 2003 with several objectives:

- to improve decision-making in the youth justice system through the application of clear and coherent principles;
- to make more appropriate use of the courts;
- to achieve fairness in sentencing and reduce the use of custody so that the most serious interventions are reserved for the most serious crimes;
- to make clear distinctions between serious violent offences and less serious offences;
- and to effectively reintegrate youth.^{136,137}

During the first year of implementation of the *YCJA*, there were substantial decreases in the number of youth charged by police, appearing before youth courts, and entering custody.

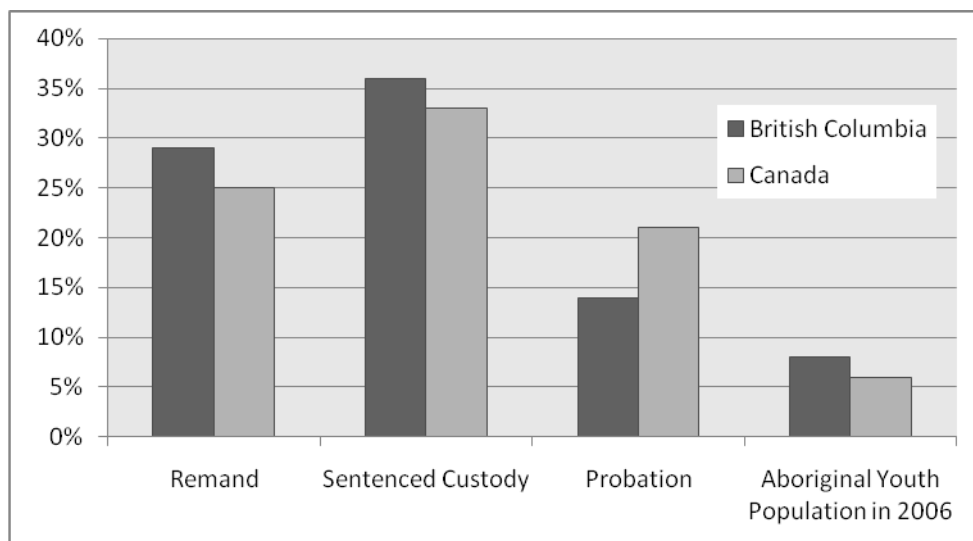
^{*****} Within the corrections system, youth are considered to be individuals between 12 and 17 years of age.

These decreases have been followed by a gradual and steady decline in each ensuing year.^{136,137}

The rate of youths admitted to remand has changed little since 2004, reaching 40 per 10,000 youth in British Columbia in 2007. The rate of youth admitted under a deferred custody and supervision order has grown 15% since 2003, the year that the *YCJA* was first implemented.¹³⁷ This order is similar to an adult conditional sentence, allowing a young offender who would otherwise be sentenced to custody to serve the sentence in the community under a number of conditions. Any breach of these conditions may result in the youth being sent to custody. The rate of youth aged 12 to 17 years entering sentenced custody declined 30% between 2003 and 2007, and the largest proportion (39%) of those sentenced were admitted for violent offences. Probation has historically been the most common sentence imposed in youth courts, and this trend continues in the youth corrections system. In 2007, youth admitted to probation accounted for about 40% of all reported admission to youth programs that year.¹³⁷

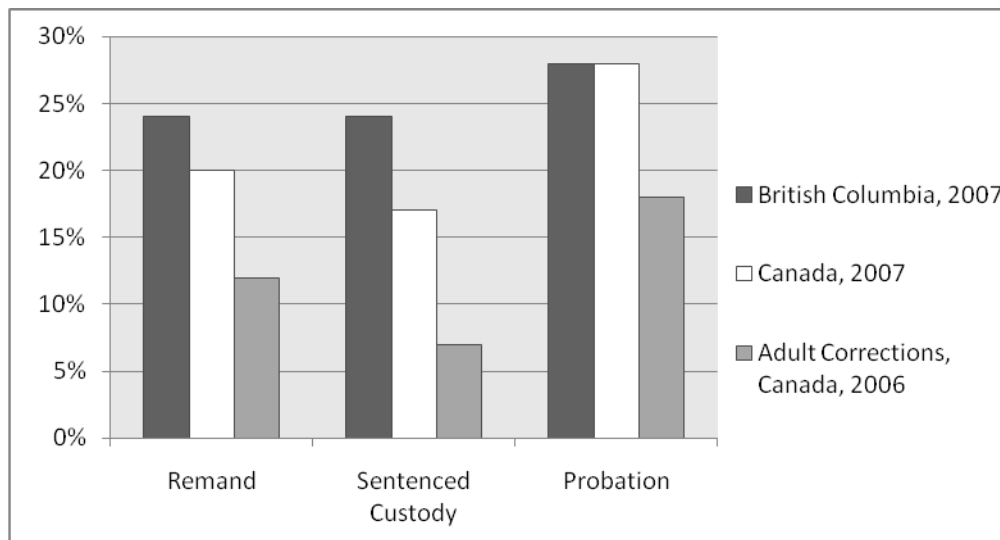
As with adult offenders, Aboriginal youth continue to be disproportionately represented in youth corrections, accounting for 29% of those remanded, 36% admitted to sentenced custody, and 14% admitted to probation in British Columbia in 2007 (Figure 21).¹³⁷ Disconcertingly, since implementation of the *YCJA* the representation of Aboriginal youth among those admitted to correctional services has increased slightly, up to 25% in 2007 from 23% in 2004.¹³⁷

Figure 21: Proportion of Youth Admitted to Corrections Who Were Aboriginal, Canada, 2007¹³⁷



Overall, representation of young women in custody has changed little over the years since the implementation of the YCJA. In 2007, young women accounted for 24% of youth admitted to remand, 24% of those admitted to sentenced custody, and 28% of those admitted to probation in BC. (Figure 22).¹³⁷ Within the youth system, females continue to account for a larger proportion of admissions than do females in the adult system.

Figure 22: Proportion of Female Youth Admitted to Corrections, Compared to Adult Admissions, Canada, 2007^{134,137}



Mortality and Health Status

Because male inmates are incarcerated, they are protected from the leading cause of death for young Canadian men aged 20 to 44—motor vehicle crashes. Despite this protection, inmates have substantially higher mortality rates in institutions than comparably aged members of the general Canadian population. As shown in Table 10, between 1996 and 2001, there were an average of 54 inmate deaths per year in federal penitentiaries. Over this time period, mortality among this population exceeded the expected mortality^{††††} rate by 45%.¹⁶ Violent deaths, both self-inflicted and involving others, are a major cause of death for inmates, as seen in the prevalence of homicide and suicide. Indeed, the homicide rate in federal penitentiaries between 1996 and 2001 was approximately eight times general population homicide levels, after adjustment for age and sex.¹⁶ Suicide rates are also substantially higher in this population and will be addressed in detail in the Mental Health section of this report.

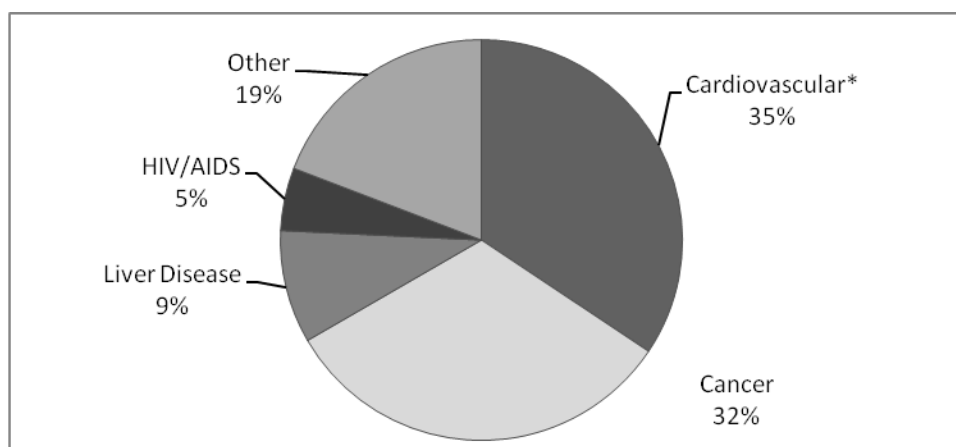
^{††††} Expected mortality is based on age- and sex-specific Canadian mortality rates.

Table 10: Numbers of Inmate Deaths in Federal Penitentiaries, Canada, 1996/97 – 2001/02¹⁶

Cause of death	1996/97	1997/98	1998/99	1999/2000	2000/01	2001/02	Total
Homicide	5	2	7	8	0	1	23
Suicide	10	9	17	11	9	12	68
Natural Causes	32	32	33	35	25	32	189
Other/Indeterminate	5	10	7	5	9	6	42
Total Deaths	52	53	64	59	43	51	322

Data shows that over half of all deaths among male and female inmates in federal correctional facilities are due to natural causes. Where specific causes are available, cardiovascular disease and cancer account for nearly two-thirds of this category (Figure 23), and a third of all cancer deaths have been attributed to lung cancers.¹⁶ One study of male inmates in penitentiaries in Ontario found that deaths due to cardiovascular conditions were 3.5 times higher among inmates than the rate in the Canadian male population.¹³⁸ As inmates age, high rates of cardiovascular disease and cancer could be expected, due to the high prevalence of smoking, diabetes and other risk factors, which will be further discussed in subsequent sections. As seen in Figure 23, liver disease and HIV/AIDS are also leading natural causes of death among the incarcerated population. High mortality rates attributed to these conditions are likely due to the high rates of HIV and hepatitis in offenders, as well as risky behaviours including alcohol and injection drug use.

Figure 23: Natural Causes of Inmate Death in Federal Penitentiaries, Canada, 1996 - 2001¹⁶



*Cardiovascular deaths include heart disease, stroke, and other vascular diseases, such as abdominal aneurysms.

Upon intake to federal penitentiaries, records demonstrate that nearly one quarter of female inmates (23%) and 13% of male inmates are deemed to have health concerns requiring immediate attention.¹⁶ The proportion of inmates with health-related concerns increases with age, as seen in Table 11, wherein over half of male inmates over 65 years of age are on medication and 27% have immediate health concerns.

Table 11: Health-related Concerns of Male Inmates by Age, Federal Penitentiaries, Canada, 2002¹⁶

Health Concern	< 50	50 – 64	65 +
Special Needs	13.1%	17.8%	32.8%
Requiring Immediate Attention	12%	16.1%	27.2%
Taking Medication	26.5%	35.3%	56%

Behavioural Risk Factors

Individuals who partake in certain behaviours are at increased risk of developing many of the chronic health conditions prevalent among inmates of the corrections system. Among the major health-related behaviours (i.e., tobacco use, physical activity level, diet, obesity),^{####} only male federal inmate smoking rates are available. Within correctional institutions, nutritional practices and obesity levels are not currently or systematically documented, and limited data on physical activity are available. Tobacco use is considered to be the leading cause of preventable death in Canada, contributing to mortality related to heart disease, lung cancer, and chronic obstructive pulmonary disease (COPD), and complicating other conditions such as diabetes and hypertension. Although smoking is prohibited in many common areas of penitentiaries and prisons, inmates are permitted to smoke in cells as these areas have been designated as living accommodations per the regulations pursuant to the Non-smokers Health Act.¹⁶ According to the 1995 Inmate

^{####} For a discussion of the behaviours increasing risk of infectious disease transmission, refer to the section on long-term communicable diseases.

Survey,^{§§§§§} 72% of all inmates reported current tobacco use, which is twice the expected prevalence^{*****} of 31% based upon similarly aged male Canadians.¹⁶

Specific Chronic Disease Concerns

From a health determinants perspective, several critical factors influence the health of inmates, including: low rates of literacy and education attainment; poor employment histories and financial instability; unstable accommodation; poor social networks and attachments; and extensive criminal histories. Additionally, the three sub-groups seen in higher numbers and proportions of the corrections population in recent years—Aboriginals, women, and older offenders—have a higher risk of poor health outcomes, when compared with the general inmate population. The subsequent section of this report will highlight findings in these population groups when data are available, and will consider variations in health status amongst offenders held in remand, and in federal and provincial facilities alike.

Mental Health

Promoting mental health in correctional settings is challenging since a prison is, by definition, a coercive environment. There are real risks of violence and death in correctional institutions, as documented previously. Additionally, incarcerated individuals experience separation from community support and social networks, and heightened stress and anxiety over such issues as parole reviews, transfers to other facilities, and concern about loved ones outside of the institution. All of these stressors can challenge one's mental health. Decreased ability to cope with stressors—often related to social isolation and the coercive nature of corrections institutions—may lead some offenders to develop mental health issues, and those individuals with existing disorders may experience exacerbation of their conditions.

^{§§§§§} The National Inmate Survey was conducted in the Fall of 1995, and involved 4,285 male inmates under the jurisdiction of the CSC. Women were not included because at the time the survey was being conducted, CSC was in the process of phasing out the operation of its only federal institution for women and establishing five new federal facilities to accommodate the female population.¹⁵⁹

^{*****} This expected smoking prevalence was based on the 1995 Statistics Canada's General Social Survey.¹⁶

Mental Health Issues Identified at Intake

At intake, offenders are assessed on several mental health-related items (Table 12). According to official CSC records, substantial proportions of inmates are identified as having trouble with substance abuse, wherein drug abuse is commonly identified than alcohol abuse. About 3% of federal prisoners have mental disorders at intake, and a higher proportion of disorders is observed in females than in male inmates. Almost one third of female prisoners (31%) and 15% of male inmates are assessed with emotional or mental health problems. A substantial number of offenders have had recent psychiatric or psychological treatment prior to incarceration, and considerable proportions (21% female, 14% male) have attempted suicide in the five years preceding the intake assessment.¹⁶

Table 12: Proportion of Federal Inmates Identified at Intake with Mental Health Needs, Canada, 2002¹⁶

Need Domain	Male			Female		
	Minimum	Medium	Maximum	Minimum	Medium	Maximum
Facility Security Level						
Substance Abuse						
Alcohol	34.3%	45.8%	42.1%	29.3%	49.4%	69.6%
Drugs	36.4%	51.2%	51.4%	40.1%	67.5%	78.3%
Mental Health						
Appears mentally disordered	1.4%	2.9%	3.3%	2.5%	4.4%	8.6%
Emotional/mental health requiring immediate attention	4.4%	7.3%	7.6%	6.8%	15.4%	17.1%
Reporting emotional/mental health problem	11.4%	15.7%	13.6%	17.8%	40.4%	37.1%
Recent mental health intervention or hospitalization	10.6%	14.5%	15.3%	12.2%	24.7%	19.6%
Signs of depression/hopelessness	9.0%	9.7%	9.4%	8.8%	16.2%	2.2%
Suicide						
Previous attempt(s) in past 5 years	9.5%	14.5%	16.4%	10.9%	23.4%	41.3%
May be suicidal	3.4%	5.2%	5.5%	2.7%	5.8%	6.5%

Table 13 displays a breakdown of mental health intake measures by age for male inmates in federal penitentiaries in 2002. The data demonstrates that in general, older inmates have slightly better mental health profiles and considerably lower rates of alcohol and drug abuse than younger inmates.

Table 13: Male Federal Inmates with Mental Health-related Concerns at Intake, Canada, 2002¹⁶

Need Domain	Age (years)		
	< 50	50 – 64	65 +
Substance Abuse			
Alcohol	46.4%	25.7%	21.6%
Drugs	54.4%	16.2%	5.3%
Mental Health			
Appears mentally disordered	2.6%	3.2%	3.2%
Emotional/mental health requiring immediate attention	6.9%	5.9%	4.8%
Reporting emotional/ mental health problem	14.6%	13.7%	12.0%
Recent mental health intervention or hospitalization	14.2%	11.1%	10.5%
Signs of depression/hopelessness	9.7%	7.4%	10.5
Suicide			
Previous attempt(s) in past 5 years	14.5%	9.3%	9.5%
May be suicidal	5.0%	3.6%	3.2%

Many individuals in correctional facilities have been found to have intellectual disabilities. Intellectual disability has been described as “significantly sub-average general intellectual functioning resulting in or associated with concurrent impairments in adaptive behaviour.”^{16(pS37)} Individuals with an intellectual disability will present several challenges, including difficulty understanding direction from correctional officers, difficulty learning from mainstream programming, and potential victimization from the general corrections population. Furthermore, a large proportion of individuals with an intellectual disability will have diagnosable psychiatric disorders.^{16,139} Systematic testing for intellectual disabilities is not performed on inmates, although a rudimentary assessment of mental ability is performed at intake by a corrections officer. Mental ability needs are identified in roughly 3% of male

prisoners, and 5% of female inmates. These percentages increase among individuals entering higher security facilities.¹⁶

Prevalence of Mental Disorders

The consistent and repeated documentation of the prevalence of individuals with mental disorders in correctional facilities around the world has raised concerns in Canada and elsewhere regarding the criminalization of those with mental disorders following the widespread deinstitutionalization of the chronically mentally ill.^{16,130,140,141} A relationship between mental illness and criminality has been described and is proposed as one explanation for the large number of mental patients in correctional facilities. It is a matter of debate whether this relationship is one of causality or if it is confounded by other shared determinants of criminal tendencies and risk of mental disorders and substance use.^{130,141}

A summary of current and lifetime prevalence⁺⁺⁺⁺⁺ of Axis I⁺⁺⁺⁺⁺ disorders among male inmates is provided in

Table 14, and is based upon results of a study of inmates entering penitentiaries in British Columbia in 1999.¹⁴² This study found that 84% of inmates had at least one current or lifetime diagnosis, including substance abuse. Indeed, substance abuse disorders were extremely common, with the majority of offenders meeting diagnostic criteria for abuse or dependence. However, even after removing substance abuse disorders, 43% of prisoners still met the criteria for at least one lifetime Axis I diagnosis.

⁺⁺⁺⁺⁺ Lifetime prevalence is understood here to be the proportion of a population known to have had a disorder for at least part of their lives.

⁺⁺⁺⁺⁺ The Diagnostic and Statistical Manual of the American Psychiatric Association organizes each psychiatric diagnosis into five levels, or axes, relating to different aspects of disorder or disability. Axis I disorders consist of major mental disorders and learning disorders. Common Axis I disorders include depression, anxiety disorders, bipolar disorder, ADHD, autism spectrum disorders, phobias, and schizophrenia.¹⁶⁰

Table 14: Prevalence of Select Axis I Disorders, Federal Male Inmates in BC, 1999¹⁴²

Disorder	Current	Lifetime
Psychotic	3.5%	8.4%
Depressive	8.4%	30.2%
Anxiety	17.3%	18.3%
Alcohol	3.5%	59.4%
Substance + Alcohol	5.9%	75.7%
Somatoform	0%	1.5%
Eating	0.5%	1.5%
Adjustment	0.5%	1.5%

Findings from the 1999 BC study¹⁴² present some other interesting patterns. Prevalence of current disorders increased with age (79.5 prevalence in those aged 17 to 24 and 100% in those 65 and older). Lower education levels were associated with higher prevalence of mental disorders. The vast majority (94%) of those inmates who had completed grade 8 or less were identified as having a mental disorder, compared to 79% of those who completed grade 12 or more. Most of this difference was due to higher rates of substance abuse disorders in those with less education. Aboriginal inmates were significantly more likely to have a substance abuse disorder, compared with Caucasian inmates (97% and 79%, respectively). Inmates with prior federal sentences were more likely to have a disorder and had higher prevalences of drug use, alcohol, anxiety, and mood disorders. Finally, over 90% of prisoners diagnosed with either a mood, psychotic or anxiety disorder had at least one other disorder (Table 15). Almost half of those with substance use disorders had an additional disorder, which has important implications for the design and implementation of substance abuse treatment programs.

Table 15: Frequency of Co-occurring Disorders, Federal Male Inmates in BC, 1999¹⁴²

Disorder	Number of Additional Disorders		
	None	1 – 2	3 or More
Mood	9.8%	80.3%	9.8%
Psychotic	5.9%	75.5%	17.7%
Anxiety	8.1%	75.6%	16.2%
Substance Use	54.2%	41.8%	4.0%

Fewer studies on the prevalence of mental disorders in female offenders are available, although existing information suggests that prevalence is higher in females than in their male counterparts. In 1992, inmates at the Burnaby Correctional Centre for Women were assessed for mental health problems.¹⁴³ Table 16 provides a summary of the prevalence of Axis I disorders among the female inmates at the Burnaby site included in the study. Nearly half of the women (49%) in the study were identified as having anti-social personality disorders, and anxiety, depressive disorders, and substance use were all predominant.

Table 16: Prevalence of Mental Disorders, Burnaby Correctional Centre for Women, 1992¹⁴³

Disorder	Current	Lifetime
Anxiety	24%	29%
Bipolar	7%	8%
Depressive	20%	32%
Eating	4%	8%
Organic Mood	1%	1%
Psychoactive Substance Use	67%	87%
Psychotic	4%	4%
Sleep-wake	1%	1%

Research has demonstrated that women in correctional facilities have significant histories of suffering physical and sexual abuse as children and adults.^{16,143} This potent mixture of personality disorders, depression and other disorders, substance abuse, self-injurious

behaviour, and histories of physical/sexual abuse, presents substantive challenges for programming, rehabilitation, and health maintenance in prison settings.

Long-term Communicable Diseases

Incarcerated offenders are at increased risk of having acquired several types of infectious diseases prior to incarceration, due to their unique socio-demographic and behavioural profiles. Transmission of communicable diseases within corrections facilities is also influenced by the extent of risky behaviour continued throughout incarceration.

The most common bloodborne viral diseases found among incarcerated offenders are the human immunodeficiency virus (HIV) and the hepatitis C virus (HCV). Both viruses are transmissible via the blood of infected individuals, although rates of transmission vary. Via percutaneous exposures (e.g., needle-sharing), HBV is generally more easily transmitted than HCV, which is in turn more easily transmitted than HIV. Both HBV and HIV are sexually transmissible, while HCV is much less likely to be spread in this way.

The self-reported prevalence of risk factors for HIV and HCV among federal offenders in CSC penitentiaries are shown in Figure 24 (non-sexual risk factors) and Figure 25 (sexual risk factors). These percentages are based on self-reported data collected through a 2004 pilot program of enhanced screening for bloodborne and sexually transmitted infections at intake into custody, which was subsequently expanded across the CSC system in 2005.¹⁴⁴ With a few exceptions, women offenders tend to report a higher prevalence of risks compared to male offenders.

Figure 24: Non-Sexual Risk Factors Associated with HIV and HCV Infection among CSC Federal Inmates, 2004 - 2005¹⁴⁴

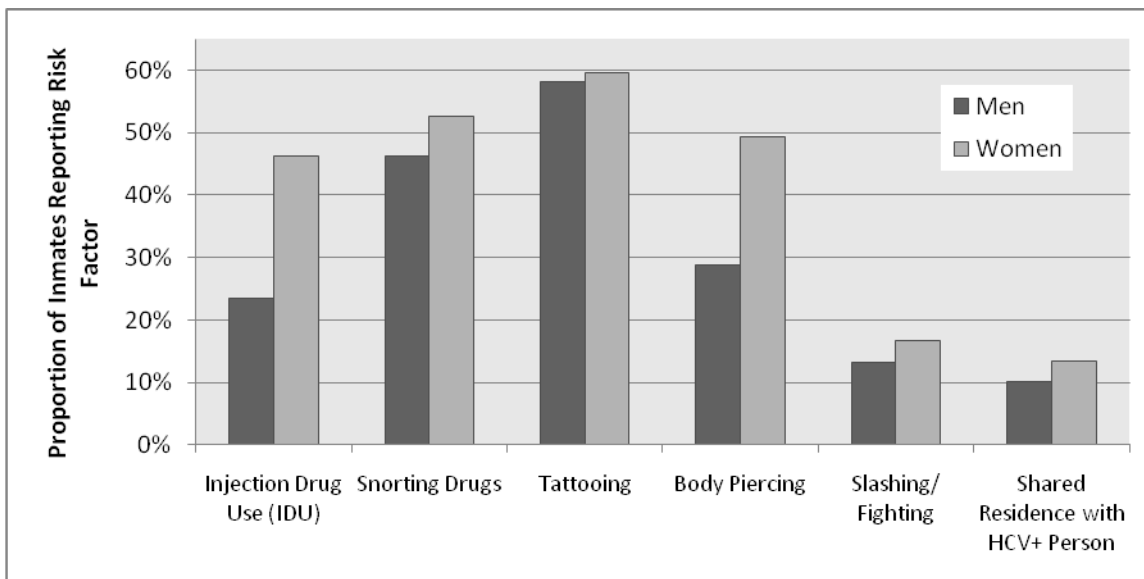
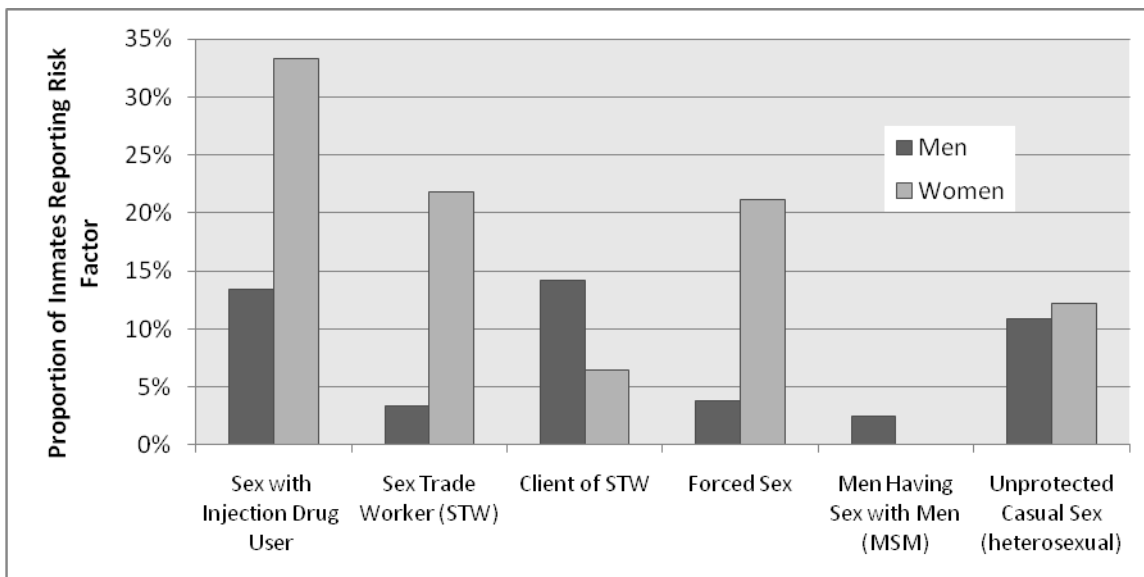


Figure 25: Sexual Risk Factors Associated with HIV and HCV Infection among CSC Federal Inmates, 2004 - 2005¹⁴⁴



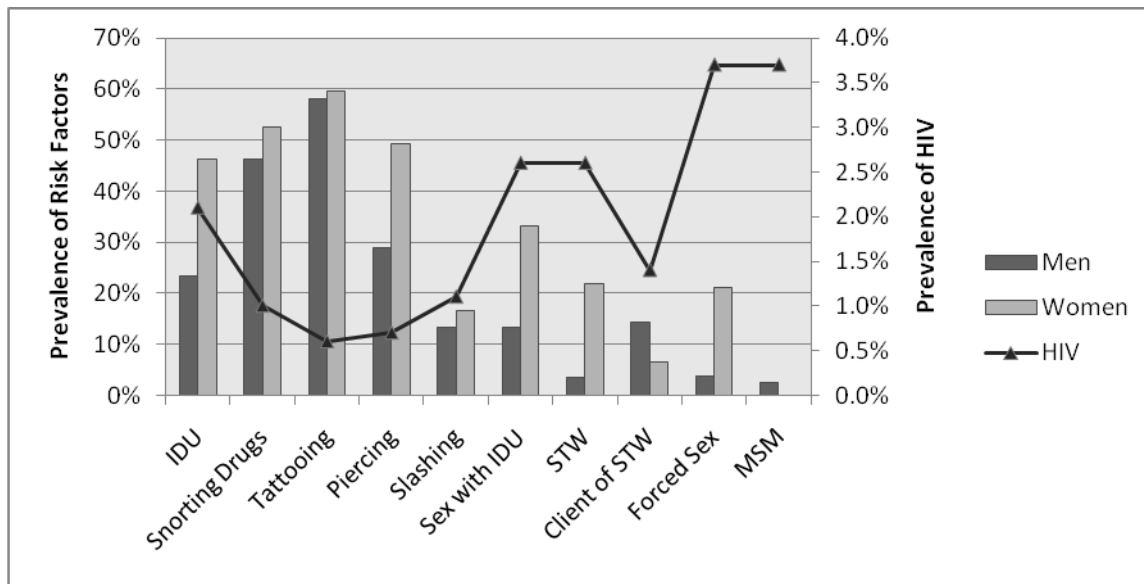
Voluntary testing for HIV and HCV infection is available to new and existing inmates, and testing frequency and results are routinely reported in all federal and provincial correctional institutions. It is nearly impossible to determine with certainty the percentage of prisoners in Canada living with HIV or HCV, however. Since testing is voluntary and only a proportion of inmates participate, it is unclear if the number of reported cases reflects the true prevalence

of disease.¹⁴⁵ While it has been estimated that about 0.13% of Canadians are infected with HIV, infection rates among inmates are more than 10 times higher.¹⁴⁵ In Pacific Region federal facilities in 2001, approximately 1.4% of all institutionalized offenders were reported to be HIV positive.¹⁶ Data from the enhanced screening program implemented in CSC facilities indicates that the overall prevalence of HIV among new admissions was 0.8% among males and 1.9% among females between 2004 and 2005.¹⁴⁴ Additionally, recent studies performed in provincial facilities have revealed HIV prevalence rates among inmates between 11 (in Ontario) and 19 (in Quebec) times higher than in the general population in those provinces.^{146,147}

The number and proportion of inmates tested for HCV is similar to that of HIV. In 2001, 24.7% of new admissions and 21.7% of the general federal inmate population were voluntarily tested for HCV.¹⁶ HCV infection rates in offenders are more than 20 times higher than the estimated prevalence of hepatitis infection in Canada, deemed to be between 19.2 and 39.8 percent, compared to 0.8 percent.^{145,148} The prevalence of HCV among new admissions to CSC facilities in 2004-2005 was 9% among males and 30.8% among female offenders. Within the Pacific Region penitentiaries rates of HCV infection are relatively high, reported at 34.8% in 2001.¹⁶ Of those who were HIV positive, 50% were also HCV positive; of those HCV positive, 5% were also HIV positive.¹⁴⁴ Outside of British Columbia, HCV prevalence among offenders admitted to provincial facilities has been found to range between 22 and 23 times higher than rates of HCV infection among the general population of Ontario and Quebec.^{146,147}

The proportion of HIV among newly admitted federal inmates is presented in Figure 26. These percentages are shown according to risk factor, and reveal some important patterns. The prevalence of HIV and HCV are substantially higher in injection drug users (IDU) than in non-users, and are also elevated among those having sex with an IDU, sex trade workers (STW), those reporting forced sex (non-consensual sex), and men who have sex with men (MSM). Other behaviours that can transmit blood between individuals, including tattooing and piercing, are highly prevalent in the inmate population.^{16,144,145}

Figure 26: Prevalence of HIV by Risk Factor among Federal Admissions, Canada, 2004 - 2005¹⁴⁴



A variety of interventions are currently in place to reduce the risk of transmission of these diseases, including education and harm reduction initiatives. Needle exchange programs have been demonstrated in multiple jurisdictions to be an effective harm reduction measure, one that would reduce sharing of drug injection equipment and the associated risk of HIV and HCV transmission.^{149,150} Although medical, legal, and community-based experts, as well as United Nations agencies have recommended such programs for use in prisons and penitentiaries, needle exchange programs are not currently available within Canadian prisons or penitentiaries.^{149,150} Methadone maintenance programs, and bleach and cleaning supplies for injection equipment are available, in addition to drug treatment programs, and condom and dental dam distribution.^{16,145}

The treatment of HCV and HIV has the potential to prevent long-term complications and improve quality of life. Clinical management and treatment for both infections are available for inmates of all prisons and penitentiaries across the country, but requires long-term monitoring and follow-up, has several contra-indications and negative side effects for the patient, and can be quite costly.^{§§§§§§} Overall uptake of treatment appears to be low. Within Pacific Region penitentiaries, only 41.9% of HIV positive inmates, and 8% of HCV positive offenders, were estimated to be receiving therapy in 2004.¹⁵¹ A review of HIV and HCV

§§§§§§ CSC has estimated the annual cost of providing treatment at \$29,000 per inmate for HIV and \$26,000 per inmate for HCV.¹⁴⁹

treatment rates by sex shows varying rates over time. While HIV treatment rates for 2002 and 2003 were lower for women than men (35.6% versus 56%, and 48.4% versus 52.4% respectively), by 2004 treatment uptake among female offenders exceeded that of men (60.5% versus 58.5%).¹⁵¹ Among HCV positive offenders, the rates of treatment among women and men were virtually identical in 2004 (4.1% versus 4%), though they had been lower among women for 2002 and 2003 (1.2% for women versus 3% for men in 2002; 0.9% for women and 3.9% for men in 2003).¹⁵¹

Cancer

It is not known to what extent cases of cancer occur in inmates. As seen previously, lung cancer is the leading cause of cancer deaths in males and females in the community. With the high smoking rates observed in this population, increased lung cancer rates could be expected as inmates age, and could be substantially higher than those observed among all Canadians.

Screening for cervical cancer is an effective means of reducing the incidence of invasive cancer and related mortality in females. The lower socioeconomic status, higher prevalence of HIV, and higher incidence of human papilloma virus (HPV) and other STIs among incarcerated women all lead one to expect higher than average rates of cervical cancer in female offenders compared with the general public. While some institutions screen virtually all females on admission and perform more frequent follow-up on HIV-positive women, Pap testing and HPV screening rates and results are not systematically tracked.¹⁶ In one study undertaken with women at the Burnaby Correctional Centre for Women, only half of female inmates who participated in a specifically designed prison screening intervention were rescreened during the subsequent three years. The study authors contend that this is evidence that “further work is needed to design, implement and evaluate follow-up initiatives of community cervical cancer screening programs for women who are at higher risk of developing cervical dysplasia.”^{152(p265)}

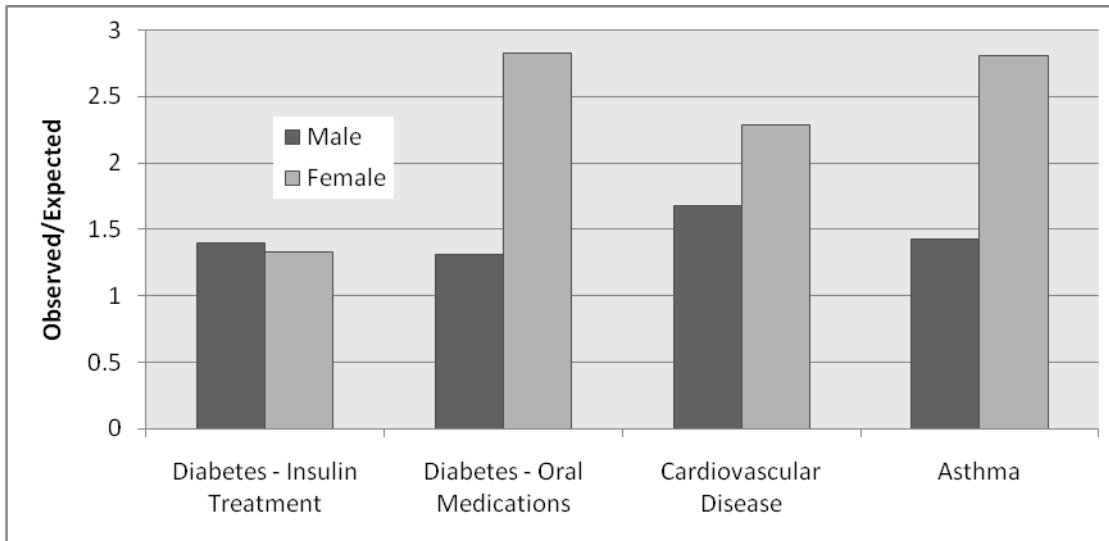
As with cervical cancer screening, mammography screening rates and results are not systematically tracked within correctional health facilities. Mammography screening has been shown to reduce deaths from breast cancer. Routine screening is recommended for women from age 50 onwards. Given the small number of females in this age group in CSC

institutions, mammography tests are performed if requested by the inmate or by their physician.¹⁶

Heart Disease

Cardiovascular diseases are the leading cause of death across Canada, and within the inmate population. Extrapolation of regional pharmacy data has found that treatment with cardiovascular medications among federal inmates is 68% greater in male inmates than their non-incarcerated counterparts, and 129% greater among female inmates than females in the community.¹⁶ Figure 27 compares rates of medications prescribed for select chronic conditions observed among the federal inmate population to the expected treatment rates among all Canadian men and women. This is represented as a ratio of observed to expected. Thus, the ratios for treatment of cardiovascular disease among male inmates is 1.68, or a rate 68% above what is seen in the general population. Some of the excess treatment level observed, particularly among women prisoners, may be due to the use of beta-blockers—indicated for treatment of high blood pressure and heart disease—to control chronic migraines.

Figure 27: Ratio of Observed to Expected Numbers of Inmates Being Treated with Medication for Chronic Conditions¹⁶



Diabetes

Based on extrapolation of pharmacy-based medication rates in the Ontario and Pacific Regions, rates of diabetes treated in federal inmates have been found to exceed rates in the

general population by 40% for those treated with insulin and by 36% for those treated with oral medications (Figure 27).¹⁶ This treatment disparity is particularly significant among women offenders, wherein female inmates receive oral medication treatment for diabetes nearly three times as often as the female Canadian population.

Asthma

Inhaler prescription data from federal penitentiaries in the Ontario and Pacific Regions shows that rates of treatment for asthma are 43% and 181% higher among male and female inmates, respectively, compared with the Canadian population (Figure 27).¹⁶ While impressive, there are several potential explanations for these differences. Inmates with COPD may be treated with inhalers and this could inflate the asthma prevalence estimate. Individuals with asthma would necessitate more intensive treatment if they smoke or are exposed to second-hand smoke, which would be expected in this population given smoking prevalence and pervasiveness within institutions. Finally, a substantial proportion of inhalers may be prescribed for other indications, including airway hyper-activity due to colds and other upper respiratory conditions.

Epilepsy

Seizure disorders among inmates may result from many different causes, including previous head injuries and substance withdrawal. Pharmacy database extrapolation suggests that male and female inmates are being treated with epileptic medication at rates higher than those found in the general population.¹⁶ A segment of this excess use may be due to the higher risk of developing seizure disorders in inmates, as a result of the higher prevalence of head injuries and substance use in this population (see sections on injury and mental health). However, another proportion of the excess medication use may also be due to use of anti-epileptic medication for other conditions, such as chronic pain and mood stabilization.

Injury and Disability

Incidents involving injury of inmates are relatively common within corrections institutions and are predominantly related to the prison environment, as seen in Figure 28 (e.g., assaults on inmates or staff, self-injury, hostage taking, etc.). Common types of injuries due to recreation or employment are not systematically recorded, however. One study in the

Kingston, Ontario area compared injuries seen in the hospital emergency department from CSC penitentiaries with those of the general public between 1996 and 1998.¹⁵³ As shown in Table 17, inmate injuries were significantly more likely to be non-accidental and to be more serious, presenting a higher likelihood of fractures, head injuries, long-term disability, and death.

Figure 28: Number of Injury-related Incidents in Federal Penitentiaries by Cause, Canada, 2000/01¹⁶

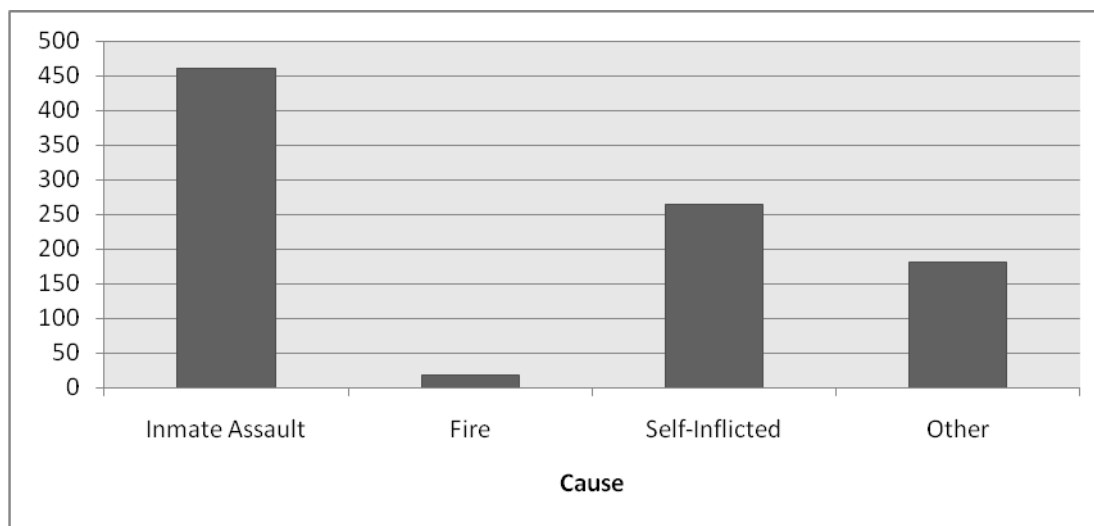


Table 17: Federal Inmate and General Population Injuries, Kingston, Ontario, 1996 – 1998¹⁵³

	Prison Population (%)	General Population (%)
Nature of Injury		
Fracture	31.8	13.4
Blunt Head Injury	10.1	2.2
Intent		
Accidental	35.2	94.9
Assault	49.3	2.8
Self-inflicted	11.5	0.6
Unknown	4.0	1.7
Disposition		
Admitted to Hospital	42.6	4.1
Death	2.7	0.6

Note: All measures statistically significant (p < 0.001).

In 2002, federal institutions reported that 1.4% of male inmates required some type of mechanical support to get around the facilities, including canes, crutches, braces, and wheelchairs.¹⁶ Unfortunately, official records are unable to confidently report on women offenders' use of mechanical aids due to low numbers.

Dental Health

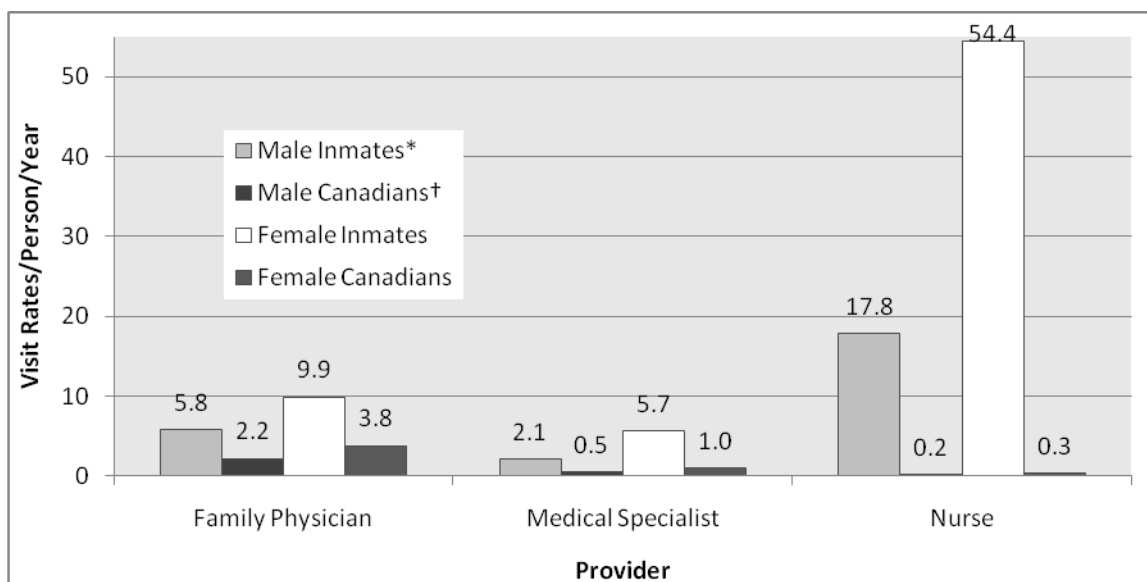
Information on the extent of dental problems in inmates is not generally available. However, due to the lower than average socioeconomic status of incarcerated individuals, a higher than average prevalence of dental problems could reasonably be expected. CSC dental standards allow for teeth to be restored to functional and aesthetic acceptability using standard restorative materials. Minor oral surgical procedures and preventive care, including cleaning and scaling are also provided.¹⁵⁴ Inmate dental visit data from 19 federal penitentiaries indicates that inmates' visit rates for dental services are comparable to rates seen in the broader Canadian population.¹⁶

Health Service Utilization

Offenders institutionalized in federal penitentiaries have substantially higher utilization rates of health care services than in similarly aged individuals in the community, as seen in Figure 29. Notably, penitentiary health services make extensive use of nurses, as compared to rates outside correctional facilities, where nurses are not relied upon as heavily in primary care settings.^{16,155} High reliance on nurses to provide care reflects the institutional setting of correctional facilities, wherein nurses are engaged in the performance of admissions reviews, tuberculosis screening, and paperwork related to work releases. Specific inmate health issues, such as bloodborne virus testing and monitoring also contribute to increased workloads for nurses. Within prisons and penitentiaries, there is limited availability of pre-clinical care, in the form of self-care performed by inmates themselves or informal care received from family and friends. These limitations are compounded by minimal semi-formal care (e.g. advice from telehealth lines, websites, etc.). This, in combination with the preponderance of administrative tasks performed by health care providers, will contribute to an increased demand for services. Overall, increased utilization of health care services can be explained by several factors, including:

- Greater need (inequitable distribution of health determinants, high prevalence of health conditions, decreased recourse to self-care or informal care);
- Administrative requirements (admission screening, incident reporting, excused duty from work or programs due to illness, etc);
- Greater supervision and control of medication use;
- Increased accessibility to service;
- Opportunity to interact with caregivers.¹⁶

Figure 29: Comparison of Utilization Rates Between Federal Inmates in the Ontario Region and Canadian Population^{16,155}



Sources: *Ontario Region: Hutchings et al., 1999;¹⁵⁵

†Canada: NPHS, 1998/99 (adjusted to inmate age distribution).¹⁶

In 1984, a one-month study on frequency of use of health services was conducted in all Pacific Region federal penitentiaries.¹⁵⁶ The overall rate was estimated at 5.2 contacts per inmate per month. The vast majority of encounters (89%) were with nurses, and the remainder (11%) were with physicians. Based upon this study, the authors postulated that inmates would average 6.7 physician encounters per year. A small minority (3.5%) of offenders had 25 or more visits in the one-month period, thereby accounting for 25% of all interactions.¹⁵⁶

A more recent utilization study was conducted in the Ontario Region for the 1998/99 fiscal year.¹⁵⁵ Table 18 provides a summary of this study’s major findings, comparing results for male and female inmates. Similar to the results of the Pacific Region study, health services were found to be used on a frequent basis and a small number of individuals utilized a large portion of services. On average, offenders made 20 nursing visits and 6 physician visits per year. Women used services substantially more than men, including visits to nurses, physicians, and other health professionals as well as medication-related visits. Only 4% of all inmates were admitted to a Regional Treatment Centre for psychiatric services, although those who were admitted had lengthy stays (mean of 94.5 days per user).¹⁵⁵

Table 18: Comparison of Male and Female Health Services Utilization, Ontario Region, 1998/99¹⁵⁵

Measure	Males		Females	
	% Used	Mean per Inmate	% Used	Mean per Inmate
Nursing Visit	99%	17.8	100%	54.4
Meds Administration	92%	40.8	100%	197.8
FP* Visit at CSC	91%	5.8	100%	9.9
Specialist Visit at CSC	36%	1.4	68%	4.4
Specialist Visit in Community	27%	0.7	53%	1.3
Community Hospital Clinic Visit	17%	0.3	69%	1.9
Diagnostic Visit in Community	46%	1.4	90%	3.0
ER Visit in Community	5%	0.1	2%	0.0
Other HProf† Visit at CSC	50%	1.3	71%	4.8
Community Hospital Admissions	3%	0.0	9%	0.1
Community Hospital Days	3%	0.3	1%	0.0

*FP: family physician; †HProf: health professional

In the general corrections population, health care service utilization increases with age, ranging from 1.7 family physician visits per year for males aged 20 to 24 years to 6.1 visits per year for males aged 75 and over. For females, these rates range from 4.3 visits per year and 5.2 visits per year, respectively.¹⁶ The Ontario Region study provided data for five age groups of male inmates, as shown in Table 19. Patterns of increasing use with age are not observed for most measures, with the exception of the “Treatment” category, which

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includes activities such as blood pressure reading. The increasing frequency of this category with age provides indirect evidence of an increasing prevalence of conditions with age. Importantly, it is not that older inmates are using services less frequently than expected,^{*****} but rather that younger offenders are using services as often, and sometimes more frequently, than older inmates.

Table 19: Average Health Services Utilization per Male Inmate by Age, Ontario Region, 1998/99¹⁵⁵

Measure	Age (years)				
	18 – 29	30 – 39	40 – 49	50 – 59	60 +
Nursing Visit	17.7	16.9	17.6	19.4	17.7
Meds Administration	23.0	46.9	44.0	50.0	47.0
Treatment	1.9	3.5	4.6	6.2	20.9
FP* Visit at CSC	4.6	6.0	6.2	6.4	6.4
Specialist Visit at CSC	1.1	1.8	1.6	1.1	1.1
Specialist Visit in Community	0.3	0.6	1.0	1.0	0.9
Community Hospital Clinic Visit	0.2	0.3	0.4	0.4	0.4
Diagnostic Visit in Community	1.2	1.0	1.5	1.7	1.9
ER Visit in Community	0.1	0.0	0.1	0.1	0.2
Other HProf† Visit at CSC	1.0	1.3	1.4	1.3	1.6
Community Hospital Admissions	0.0	0.0	0.0	0.1	0.1
Community Hospital Days	0.0	0.1	0.8	0.21.1	0.0
Regional Hospital Admissions	0.2	0.2	0.1	0.1	0.3
Regional Hospital Days	0.1	0.1	0.2	0.3	0.4

*FP: family physician; †HProf: health professional

Compared to utilization rates, less information is readily available on reasons for use. This may be due to the fact that reasons for visits to CSC health services are not collected or recorded in a standardized format or made available in an electronic information system. In the 1984 Pacific Region study,¹⁵⁶ the ten most common conditions seen during the month accounted for 60% of all encounters, with sore throats and headaches predominating. More

^{*****}Family physician rates for male inmates aged 50 and over averaged 6.4 visits per inmate per year, which compares with rates of 3.1 visits per year for males aged 50 to 64 and 5.2 visits per year for those aged 65 and over in the general population.^{16,155}

than half (57%) of visits were for new illnesses. In those institutions which have reported data on visits at their facilities, musculoskeletal concerns predominate and represent approximately one quarter of all visits.¹⁶ This is consistent with the data presented previously on injuries. There also appear to be relatively few visits to physicians for mental health-related issues, ranging between 7% and 28% of all visits.¹⁶ Although all facilities provide psychologists, mental health issues were not identified as a more common reason for visits, which is particularly surprising when the high prevalence of mental health disorders in the corrections population is taken into account. Inmate dental visit data from 19 institutions indicate that inmates have approximately 1.7 visits per inmate per year, not adjusted for turnover. This is slightly higher than average rates of 1.1 visits per year for males and 1.6 visits per year for females of comparable age in the general population.¹⁶

Population-specific Conclusions

Despite gaps in some types of health information, institutionalized offenders consistently show poorer health measures compared with the Canadian population. Health behaviours are an important determinant of health, but do not occur in isolation of many of the other determinants of health outlined earlier (e.g., education, income, etc.). For a number of the disorders examined, including diabetes, cardiovascular diseases, respiratory conditions, and long-term infectious diseases, the numbers of inmates being treated far exceeds treatment rates among the non-incarcerated population. This higher level of treatment indicates that the prevalence of chronic conditions is considerably higher in the corrections population than in comparably aged Canadians, and provides an incentive for a greater emphasis on preventive services and the need for strategies to address the identification and management of such conditions.

Future Opportunities

Based on this review of the literature, the following opportunities for change are proposed. These opportunities are organized into two categories related to systems and policy changes and future research directions. They are all intended to inform further dialogue and development of a strategy that could be adopted by the health care system in BC, aimed at ensuring the reduction of chronic health inequities observed among the corrections population and the enhancement of disease prevention efforts and continuity of care between correctional health care facilities and health authorities in the province.

System and Policy

- *Adaptation of health care services to reflect shifting population demographics:* The three sub-groups seen in higher numbers and proportions of the corrections population in recent years—Aboriginals, women, and older offenders—have a higher risk of poor health outcomes, when compared with the general inmate population. As the proportion of inmates who are female, Aboriginal, and/or over the age of 50 expands, health care services must respond to the specific health concerns and chronic conditions predominant among these subgroups.
- *Improvement of continuity of care between correctional health facilities and health authorities:* High rates of concurrent mental and substance abuse disorders, as well as certain long-term communicable disease (i.e., HIV/AIDS and Hepatitis C) mean that a substantial number of inmates have been treated for such illnesses while in custody. Thus, a thorough treatment plan and continuity of care must be continued after release. This is particularly relevant for individuals in provincial corrections centres, as they will be released from custody after less than two years. Reliable communication, information and knowledge sharing between correctional health facilities and regional health authorities should ensure appropriate responses to the health of previously incarcerated individuals.
- *Enhancement of prevention efforts:* Incarceration provides an opportunity for preventive health care among men and women who might not otherwise receive such services outside of the corrections context. This is particularly true for members of populations that are typically underserved by provincial health care systems (e.g., Aboriginals, women, individuals with low income, people with mental illnesses and/or substance abuse disorders). Prevention efforts should include expanded and thorough screening programs as well as health promotion, education, and behavioural modifications.
- *Modification of existing services to respond to specific mental health concerns of inmates:* Almost half of incarcerated individuals estimated to have substance use disorders also have an additional mental disorder, which has important implications for the design and implementation of substance abuse treatment programs.
- *Expansion and enhancement of harm reduction interventions:* Existing programs that provide bleaching equipment, condoms and dental dams should be improved and

expanded to reach as many incarcerated individuals as possible. In parallel, corrections institutions should consider the adoption of approaches proven effective in other contexts and jurisdictions, such as needle-exchange and violence reduction programs.

- *Expansion of culturally appropriate services:* These should include effective and appropriate services for Aboriginals and ethnic minorities. Translation and interpretation services may be necessary in facilities with groups of men and women with low official language proficiency. Additionally, the particular needs and concerns of women and transgendered individuals should be considered.
- *Revision of policies on smoking within corrections institutions:* Given the association between lung cancer and smoking, and the high mortality rate from lung cancer observed among the corrections population, policies allowing inmates to smoke in living areas warrants reconsideration.

Research

- *Qualitative studies of health service utilization:* Future research should aim to elucidate some of the factors affecting inmates' utilization of health care services. This could include qualitative studies examining the perceived need for care, health beliefs, and engagement with available resources. The low rate of psychiatric and psychological consults is concerning, given the predominance of mental health and substance abuse disorders in the corrections population. Qualitative research could attempt to explain such discrepancies as:
 - High prevalence of mental health disorders and low utilization of psychiatric and psychological services;
 - High prevalence of HIV/AIDS and HCV infection and relatively low treatment uptake.
- *Quantitative studies of health status indicators.* Further quantitative understandings of various chronic conditions among inmates are needed. Little longitudinal data is available, which would help in elucidating trends in health status and service utilization over time. Additionally, current information does not clearly distinguish between health

issues predating incarceration, and those which are developed or exacerbated while in custody.

- *Consideration of subgroups:* In this review, little research on the health status and health care service utilization of young offenders was found. Research on the health of other subgroups of inmates, such as women and Aboriginal offenders, is also limited, particularly at the provincial level.

Appendix 1: List of Abbreviations and Acronyms

AIDS	Acquired Immunodeficiency Syndrome
CCHS	Canadian Community Health Survey
CCRA	Corrections and Conditional Release Act
CHA	Canada Health Act
CIC	Citizenship and Immigration Canada
CIHR	Canadian Institutes of Health Research
COPD	Chronic Obstructive Pulmonary Disease
CSC	Correctional Service Canada
GAR	Government Assisted Refugee
H&C	Humanitarian and Compassionate (Refugee)
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
IDU	Injection Drug User
IFHP	Interim Federal Health Program
IMDB	Longitudinal Immigrant Database
IME	Immigration Medical Examination
IRB	Immigrant and Refugee Board of Canada
IRPA	Immigrant and Refugee Protection Act
LCR	Landed-in-Canada Refugee
MSM	Men who have Sex with Men
NPHS	National Population Health Survey
PHSA	Provincial Health Services Authority
PSR	Privately Sponsored Refugee
PTSD	Posttraumatic Stress Disorder
SMR	Standardized Mortality Ratio
STIs	Sexually Transmitted Infections
STW	Sex Trade Worker
UNHCR	United Nations High Commissioner for Refugees
YCJA	Youth Criminal Justice Act

Appendix 2: Literature Search Criteria and Terms

Immigrant Population

ISI Web of Knowledge Searches*

	Term(s)	Refined by	Results (Final)	Notes	Abstract Review for Relevance
1	(immigrant) AND (health inequit*)		13 (11)	Canada: 4 US: 4 US & UK: 1 Sweden: 4	2 deemed not relevant
2	(immigrant) AND (health inequit*)	Countries/Territories = (CANADA)	4 (3)	Canada: 2 Ontario: 1 Quebec: 1	1 deemed not relevant (Quebec)
3	(immigrant) AND (health inequalit*)		63 (46)	Canada: 11 US: 14 W. Europe: 33 Australia: 2 International: 2	17 deemed not relevant
4	(immigrant) AND (health inequalit*)	Countries/Territories = (CANADA)	11 (7)	Canada: 3 BC: 3 Ontario: 4 Quebec: 1	4 deemed not relevant
5	(immigrant) AND (chronic disease)		74 (37)	Canada: 8 N. Amer. & US: 34 W. Europe: 20 Other: 12	37 deemed not relevant

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	Term(s)	Refined by	Results (Final)	Notes	Abstract Review for Relevance
6	(immigrant) AND (chronic disease)	Countries/Territories = (CANADA)	8 (4)	Canada: 7 BC: 1	4 deemed not relevant (Canada)
7	(immigrant) AND (health disparit*)		168 (119)	Canada: 24 US: 124 W. Europe: 20	49 deemed not relevant
8	(immigrant) AND (health disparit*)	Countries/Territories = (CANADA)	24 (16)	Canada: 14 Quebec: 4 Ontario: 3 US: 2 Slovakia: 1	8 deemed not relevant (including 2 from US, 1 from Slovakia)
9	(immigrant) AND (health system*)		285 (133)	Canada: 49 US: 112 W. Europe: 89 International: 8 Other: 27	152 deemed not relevant
10	(immigrant) AND (health system*)	Countries/Territories = (CANADA)	49 (36)	Canada: 20 International: 9 BC: 8 Quebec: 6 Ontario: 5 Manitoba: 1	13 deemed not relevant

*The following were used for all searches:
Date of Searches: 04 February 2010 to 10 February 2010
Timespan Searched: All Years Available (1898 to 2010)
Databases Searched: SCI-EXPANDED, SSCI, A&HCI

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PubMed Searches*

	Term(s)	Results (Final)	Notes	Abstract Review for Relevance
1	"Emigrants and Immigrants" (MeSH) AND (health inequit*)	1 (1)	US review article on theories of community engagement to reduce child health disparities	
2	"Emigrants and Immigrants" (MeSH) AND "Chronic Disease" (MeSH)	14 (5)	N. Amer. & US: 7 Australia: 2 W. Europe: 5	9 deemed not relevant
3	"Emigrants and Immigrants" (MeSH) AND "Chronic Disease/prevention and control"[Mesh]	0		
4	"Emigrants and Immigrants"[Mesh] AND "Healthcare Disparities"[Mesh]	51 (25)	US: 37 W. Europe: 9 Canada: 5 Ontario: 3	26 deemed not relevant
5	"Emigrants and Immigrants"[Mesh] AND "Health Status Disparities"[Mesh]	57 (39)	US: 34 W. Europe: 9 Other: 5 International: 2 Canada: 7 Quebec: 2 Ontario: 1	18 deemed not relevant
6	"Emigrants and Immigrants"[Mesh] AND "Minority Health"[Mesh]	9 (1)	US: 2 Argentina: 2 Europe: 2 Canada: 1 Australia: 1 Cuba: 1	8 deemed not relevant; Canadian study on tobacco use among immigrant & refugee youth in Vancouver

*The following were used for all searches:
 Medical Subject Heading (MeSH) search terms were used when possible
 Date of Searches: 04 February 2010 to 10 February 2010
 Timespan Searched: All Years Available
 Databases Searched: PubMed (MedLine)

Refugee Population

ISI Web of Knowledge Searches*

	Term(s)	Refined by	Results (Final)	Notes	Abstract Review for Relevance
1	(refugee*) AND (health inequit*)		9 (9)	Canada: 1 US: 1 International: 3 Sweden: 2 Uganda: 1 Australia: 1	All deemed relevant; Canadian article theory-based
2	(refugee*) AND (health inequit*)	Countries/Territories = (CANADA)	0		
3	(refugee*) AND (health inequalit*)		22 (17)	Canada: 1 US: 1 UK: 5 Europe: 8 International: 2 Other: 4	5 deemed not relevant
4	(refugee*) AND (health inequalit*)	Countries/Territories = (CANADA)	0		
5	(refugee*) AND (chronic disease)		35 (13)	Canada: 3 US: 10 Europe: 14 Other: 8	22 deemed not relevant
6	(refugee*) AND (chronic disease)	Countries/Territories = (CANADA)	3 (3)	Canada: 2 Ontario: 1	

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	Term(s)	Refined by	Results (Final)	Notes	Abstract Review for Relevance
7	(refugee*) AND (health disparit*)		24 (15)	Canada: 5 US: 10 Europe: 5 Other: 4	9 deemed not relevant
8	(refugee*) AND (health disparit*)	Countries/Territories = (CANADA)	5 (3)	Canada: 3 Ontario: 2	2 deemed not relevant (1 general & 1 Ontario)
9	(refugee*) AND (health system*)		263 (127)	Canada: 24 US: 59 UK: 15 Europe: 43 International: 38 Africa: 21 E. Eur. & Middle East: 26 Asia: 18 Australia & NZ: 19	136 deemed not relevant
10	(refugee*) AND (health system*)	Countries/Territories = (CANADA)	24 (14)	Canada: 7 International: 2 BC: 2 Ontario: 6 Quebec: 6 Alberta: 1	13 deemed not relevant

*The following were used for all searches:
Date of Searches: 15 February 2010 to 17 February 2010
Timespan Searched: All Years Available (1898 to 2010)
Databases Searched: SCI-EXPANDED, SSCI, A&HCI

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PubMed Searches*

	Term(s)	Results (Final)	Notes	Abstract Review for Relevance
1	"Refugees" [Mesh] AND (health inequit*)	0 (0)		
2	"Refugees" [Mesh] AND "Chronic Disease" [Mesh]	39 (25)	Canada: 1 (Ontario) US: 8 Europe: 20 Australia: 4 Other: 6	14 deemed not relevant
3	"Refugees" [Mesh] AND "Chronic Disease/prevention and control"[Mesh]	1 (1)		Psycho-social aspects of measures aimed at decreasing prevalence of chronic diseases in the population of returnees in the Osijek Region, Croatia
4	"Refugees"[Mesh] AND "Healthcare Disparities"[Mesh]	8 (7)	Australia: 4 Europe: 2 US: 1 International: 1	1 deemed not relevant (European Court of Human Rights case)
5	"Refugees"[Mesh] AND "Health Status Disparities"[Mesh]	11 (7)	US: 34 Canada: 1 (General) Australia: 2 Europe: 3 Other: 3	4 deemed not relevant
6	"Refugees"[Mesh] AND "Minority Health"[Mesh]	1 (1)	Canada: 1	Correlates and predictors of tobacco use among immigrant and refugee youth in a Western Canadian city.
7	"Refugees"[Mesh] AND "Health Status"[Mesh] AND "Canada"[Mesh]	13 (12)	Canada: 5 Ontario: 6 Quebec: 2	1 deemed not relevant (comparison of culturally sensitive perinatal care in Canada & the US)

*The following were used for all searches:
 Medical Subject Heading (MeSH) search terms were used when possible
 Date of Searches: 15 February 2010 to 17 February 2010
 Timespan Searched: All Years Available
 Databases Searched: PubMed (MedLine)

Corrections Population

ISI Web of Knowledge Searches*

	Term(s)	Refined by	Results (Final)	Notes/Filtering	Abstract Review for Relevance
1	(prison*) AND (health inequit*)		7 (3)	Canada: 0 US: 3 Europe: 2 International: 1 Australia: 1	4 deemed not relevant
2	(prison*) AND (health inequit*)	Countries/Territories = (CANADA)	0		
3	(prison*) AND (health inequalit*)		17 (9)	Canada: 0 US: 6 UK: 5 Europe: 2 International: 2 Other: 2	8 deemed not relevant
4	(prison*) AND (health inequalit*)	Countries/Territories = (CANADA)	0		
5	(prison*) AND (chronic disease)		68 (36)	Canada: 0 US: 37 Europe: 11 UK: 7 Australia/NZ: 7 International: 3 Other: 3	32 deemed not relevant
6	(prison*) AND (chronic disease)	Countries/Territories = (CANADA)	3 (0)	US: 1 Australia: 1 China: 1	3 deemed not relevant (none from Canada)

**Reducing Health Inequities: A Health System Approach to Chronic Disease Prevention
A Review of Health Status and Service Utilization of Underserved Populations**

	Term(s)	Refined by	Results (Final)	Notes/Filtering	Abstract Review for Relevance
7	(prison*) AND (health disparit*)		22 (10)	Canada: 0 US: 21 France: 1	12 deemed not relevant
8	(prison*) AND (health disparit*)	Countries/Territories = (CANADA)	2 (0)	US: 2	2 deemed not relevant (none from Canada)
9	(prison*) AND (health system*)	Languages = (ENGLISH)	477 (267)	Canada: 16 US: 277 UK: 59 Europe: 41 International: 29 Australia & NZ: 28 Asia: 10 Latin America: 7 Africa: 6 Middle East: 3	219 deemed not relevant
10	(prison*) AND (health system*)	Languages = (ENGLISH) Countries/Territories = (CANADA)	31 (14)	Canada: 9 International: 7 BC: 3 Ontario: 2 Other (not CA): 10	13 deemed not relevant
11	(inmate*) AND (health inequit*)		4 (1)	Canada: 0 US: 4	3 deemed not relevant
12	(inmate*) AND (health inequit*)	Countries/Territories = (CANADA)	0		
13	(inmate*) AND (health inequalit*)		3 (2)	Canada: 0 US: 3	1 deemed not relevant
14	(inmate*) AND (health inequalit*)	Countries/Territories = (CANADA)	0		

**Reducing Health Inequities: A Health System Approach to Chronic Disease Prevention
A Review of Health Status and Service Utilization of Underserved Populations**

	Term(s)	Refined by	Results (Final)	Notes/Filtering	Abstract Review for Relevance
15	(inmate*) AND (chronic disease)		35 (9)	Canada: 0 US: 24 Europe: 7 Australia/NZ: 2 UK: 1 International: 1	26 deemed not relevant
16	(inmate*) AND (chronic disease)	Countries/Territories = (CANADA)	2 (0)	Canada: 0 US: 1 Australia/NZ: 1	2 deemed not relevant (none from Canada)
17	(inmate*) AND (health disparit*)		8 (4)	Canada: 0 US: 8	4 deemed not relevant
18	(inmate*) AND (health disparit*)	Countries/Territories = (CANADA)	0 ()		
19	(inmate*) AND (health system*)	Languages = (ENGLISH)	231 (81)	Canada: 6 US: 173 Europe: 15 Australia & NZ: 12 International: 11 UK: 5 Latin America: 3 Africa: 2 Middle East: 2 Asia: 2	150 deemed not relevant
20	(inmate*) AND (health system*)	Countries/Territories = (CANADA)	11 (8)	Canada: 4 BC: 1 International: 4 US: 2	3 deemed not relevant

*The following were used for all searches:
Date of Searches: 22 February 2010 to 24 February 2010
Timespan Searched: All Years Available (1898 to 2010)
Databases Searched: SCI-EXPANDED, SSCI, A&HCI

**Reducing Health Inequities: A Health System Approach to Chronic Disease Prevention
A Review of Health Status and Service Utilization of Underserved Populations**

PubMed Searches*

	Term(s)	Results (Final)	Notes/Filtering	Abstract Review for Relevance
1	"Prisons" [Mesh] AND (health inequit*)	0 (0)		
2	"Prisons" [Mesh] AND "Chronic Disease" [Mesh]	39 (6)	US: 27 Europe: 5 UK: 4 Middle East: 1 Africa: 1	32 deemed not relevant
3	"Prisons" [Mesh] AND "Chronic Disease/prevention and control"[Mesh]	1 (0)	Prison experiences and the reintegration of male parolees <u>Marlow E, Chesla C.</u>	1 deemed not relevant (US study on reintegration of male parolees)
4	"Prisons"[Mesh] AND "Healthcare Disparities"[Mesh]	7 (4)	Canada: 0 US: 5 UK: 1 Europe: 1	3 deemed not relevant
5	"Prisons"[Mesh] AND "Health Status Disparities"[Mesh]	6 (3)	Canada: 0 US: 5 UK: 1	3 deemed not relevant
6	"Prisons"[Mesh] AND "Minority Health"[Mesh]	0 (0)		
7	"Prisons"[Mesh] AND "Health Status"[Mesh] AND "Canada"[Mesh]	1 (0)	<u>Work characteristics and health of correctional officers</u> Bourbonnais R, Malenfant R, Vézina M, Jauvin N, Brisson I.	1 deemed not relevant (Article in French, Quebec study of health of correctional officers)
8	"Prisoners" [Mesh] AND (health inequit*)	2 (1)	Canada: 1 (Ontario) US: 1	1 deemed not relevant

**Reducing Health Inequities: A Health System Approach to Chronic Disease Prevention
A Review of Health Status and Service Utilization of Underserved Populations**

	Term(s)	Results (Final)	Notes/Filtering	Abstract Review for Relevance
9	"Prisoners" [Mesh] AND "Chronic Disease" [Mesh]	61 (12)	Canada: 0 US: 35 UK: 10 Australia/NZ: 8 Europe: 8	49 deemed not relevant
10	"Prisoners" [Mesh] AND "Chronic Disease/prevention and control"[Mesh]	1 (0)	Prison experiences and the reintegration of male parolees <u>Marlow E, Chesla C.</u>	1 deemed not relevant (US study on reintegration of male parolees)
11	"Prisoners"[Mesh] AND "Healthcare Disparities"[Mesh]	8 (3)	Canada: 1 (Ontario) US: 4 UK: 1 Australia/NZ: 1 Europe: 1	5 deemed not relevant
12	"Prisoners"[Mesh] AND "Health Status Disparities"[Mesh]	10 (2)	Canada: 1 (Ontario) US: 9	8 deemed not relevant
13	"Prisoners"[Mesh] AND "Minority Health"[Mesh]	0 (0)		
14	"Prisoners"[Mesh] AND "Health Status"[Mesh] AND "Canada"[Mesh]	4 (3)	Canada: 1 BC: 2 Ontario: 1	1 deemed not relevant (about arrest and detention among Canadians travelling abroad)

*The following were used for all searches:
 Medical Subject Heading (MeSH) search terms were used when possible
 Date of Searches: 22 February 2010 to 24 February 2010
 Timespan Searched: All Years Available
 Databases Searched: PubMed (MedLine)

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