

HIV, Stigma and Society:

*Tackling a Complex Epidemic and Renewing HIV
Prevention for Gay and Bisexual Men
in British Columbia*



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**Provincial Health Officer's
Annual Report**

Ministry of Health
Victoria, BC

July 14, 2014

The Honourable Terry Lake
Minister of Health

Sir:

I have the honour of submitting the Provincial Health Officer's Annual Report for 2010.

A handwritten signature in black ink, appearing to read 'P.R.W. Kendall', with a long horizontal line extending from the end of the signature.

P.R.W. Kendall
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Under Section 66 of the *Public Health Act*, the Provincial Health Officer has the authority and responsibility to monitor the health of the population of BC, and to provide independent advice on public health issues and the need for legislation, policies, and practices respecting those issues. The Provincial Health Officer is required to report annually to the Minister of Health on the health of the population of BC. Some annual reports provide a broad overview of health status, while others focus on specific topics. Recent annual reports have focused on food, injection drug use, Aboriginal health, women's health, and gambling.

Executive Summary

Since the Human Immunodeficiency Virus (HIV) epidemic was detected in the early 1980s, there has been a considerable decrease in the annual number of new HIV infections in BC and Canada. Nationally, there was also a substantial decrease in the proportion of HIV diagnoses attributable to men who have sex with men from the mid-1980s until the late 1990s. However, that decrease subsequently subsided and has even increased in some years. Similar patterns have been observed in BC, where the number of new diagnoses per year among gay and bisexual men has been stable or decreasing only slightly in comparison to other exposure groups. In BC in 2011, gay and bisexual men made up 57 per cent of new HIV infections and 45 per cent of all people known to be living with HIV. As a result, the incidence and prevalence of HIV in BC will not be further reduced without a substantial reduction in new HIV infections among gay and bisexual men.

This Provincial Health Officer's (PHO) annual report examines the HIV epidemic in BC among gay and bisexual men, and makes recommendations for renewing HIV prevention in this population. It was developed in partnership with the BC Centre for Disease Control and with input from two advisory groups that included gay and bisexual men and related service providers and organizations. Using a multi-level approach combined with a population health approach, this report discusses HIV infection, reviews trends in the epidemic over time in BC, and explores a series of variables that impact the HIV epidemic among gay and bisexual men.

Understanding the Human Immunodeficiency Virus

Since the 1980s, advancements have been made in the understanding, diagnosis, and treatment of HIV. HIV is a virus that attacks the immune system and leaves the body unable to fight off usually harmless infections. Transmission most commonly occurs through sex and through sharing of used needles or other drug paraphernalia; however, the highest estimated risk from sexual transmission is through receptive anal sex (0.5 to 3.38 per cent). High viral load level and other factors (e.g., presence of other sexually transmitted infections [STIs]) also increase the risk of transmission. Tests to diagnose HIV have expanded and improved, and they are now over 99 per cent successful at detecting the virus by three months after infection. While there is no cure for HIV, antiretroviral medication can reduce the amount of virus in the body, and has revolutionized HIV treatment, shifting the prognosis of HIV disease from a fatal infection to a chronic, manageable illness with near normal life expectancy.

HIV Trends in Gay and Bisexual Men in BC

Provincial surveillance data of new HIV diagnoses among gay and bisexual men in BC from 2004 to 2012 demonstrate variation by health authority, age, birth cohort, ethnicity, and stage of infection:

- Geographically, the majority of all new HIV diagnoses among gay and bisexual

men in BC have consistently been in the Vancouver Coastal Health Authority, while Northern and Interior Health Authorities have had the lowest numbers.

- Distribution of new HIV diagnoses by age group is relatively stable among gay and bisexual men, with those 30 to 44 years old consistently having the highest proportion.
- Analyses by birth cohort indicate that new diagnoses have been decreasing among gay and bisexual men born before 1980 (particularly those born 1960–1979), and increasing among those born 1980–1999.
- Analyses by ethnicity show that those who self-identify as Caucasian consistently made up the majority of new diagnoses during this time (averaging 70.5 per cent). The next largest groups were gay and bisexual men who self-identified as Asian (10.6 per cent), Latino (7.0 per cent), and Aboriginal (4.6 per cent).
- Among ethnocultural minority gay and bisexual men, a greater proportion of HIV-positive diagnoses occurred among younger men (those born 1980 or later), making up 44 per cent of new diagnoses, compared to 28 per cent among men born 1960–1979 and 13 per cent among men born before 1960.
- The proportion of gay and bisexual men diagnosed with HIV in the acute (first) stage of HIV infection (when HIV viral load and risk of transmission are highest) increased from 6 per cent in 2006 to 19 per cent in 2012. Despite this improvement, many gay and bisexual men continue to be diagnosed at the advanced stage of HIV infection, which can result in poorer health outcomes, and may involve a prolonged period of unknowingly transmitting HIV to partners.

Drivers of the HIV Epidemic

Variables that impact the HIV epidemic among gay and bisexual men are presented as “drivers” in this report, and are explored based on their levels of influence. Societal and structural drivers work broadly within society and its institutions to influence HIV transmission. Community and relationship drivers work within and across communities and social networks. Behavioural and biological drivers operate at the most immediate level, ultimately determining whether HIV transmission occurs between two people. These drivers are complex; they overlap, intersect, and are not experienced by all individuals in the same way.

Stigma – HIV infection carries a powerful societal stigma. HIV-positive gay and bisexual men, who may already experience stigma as a result of sexual orientation, may experience further marginalization based on HIV status. Stigma, prejudice, and discrimination on the basis of sexual orientation continue to be experienced by gay and bisexual men in BC, and include violence, verbal harassment, and suicide, and all have profound consequences for the health of gay and bisexual men.

HIV Prevalence – HIV prevalence is a fundamental driver of the epidemic. HIV diagnoses can accumulate within a population over one’s lifespan, so that as a person ages it can be more common to have HIV-positive friends or acquaintances. While one of the greatest achievements in HIV treatment is the potential for a near-normal life expectancy, as the number of men living with HIV grows, the net effect of increased life expectancies for HIV-positive men may be toward increased prevalence, and may result in an increasing number of new infections. The strong stigma associated with HIV infection can also lead to delays in getting tested, or assumptions about a partner’s HIV status based on anxiety or discomfort with discussing it.

Sexual Behaviours – The use of condoms is an established and effective strategy for reducing HIV transmission, and condom use among gay and bisexual men in BC remains high, particularly among those born after 1980. Gay and bisexual men have also adopted other risk reduction behavioural strategies called seroadaptive behaviours, which may include safe-sex agreements with their main partner, serosorting (having sex without condoms with someone of the same HIV status), and seropositioning (choosing insertive or receptive roles during anal sex based on HIV status).

Sexual Networks – Sexual networks of gay and bisexual men are often larger and more densely connected than those of heterosexual men, with more sexual partners and concurrent or overlapping relationships. The occurrence of some sexual risk-taking behaviours reported by gay and bisexual men in sexual networks fluctuated from 2007 to 2011, but do not show sustained changes during that time. From 2007 to 2011, 23.0 to 36.4 per cent of men reported having sex without condoms with at least one partner of unknown HIV status in the previous year, and 26.8 to 33.6 per cent reported having 10 or more sex partners in the last year. Sexual networks are dynamic and change over time; one shift observed is that more men now meet sex partners online.

HIV Testing and Awareness of HIV

Status – Approximately half of gay and bisexual men in BC reported being tested for HIV in the past year, though this varies by birth cohort and region of BC. Among newly diagnosed men from 2006 to 2011, the median time between their last negative test and first positive test was 15 months. Many risk reduction strategies require an accurate and timely understanding of one's HIV status. Persons with undiagnosed HIV infection are more likely to transmit HIV to others, and face related delays in HIV clinical care and treatment.

Treatment and HIV Viral Load – A high HIV viral load is associated with a greater risk of HIV transmission. An individual's

viral load will vary by stage of infection, but can be lowered through HIV treatment. There have been improvements in early initiation of HIV treatment and reductions in viral load at a population level among gay and bisexual men in BC from 1996 to 2011. While there are still gaps, engagement in care is also improving; in Vancouver, 65 per cent of newly diagnosed gay and bisexual men between 2010 and 2012 were linked to care within 30 days of diagnosis.

Acute HIV Infection – Many newly infected individuals are unaware of their HIV infection during the acute or early stage, which can lead to a high risk of transmission to others since viral load is very high. Since a diagnosis of HIV typically leads to behaviour change that reduces the risk of transmission to others, increasing the number of diagnoses in the acute stage of infection may result in the prevention of HIV infections and substantial population benefits.

Sexually Transmitted Infections – The presence of other STIs impacts the risk of HIV transmission by increasing the infectiousness of HIV-positive individuals and the susceptibility of HIV-negative individuals to infection. The higher incidence of some STIs (e.g., gonorrhea, chlamydia, syphilis) among gay and bisexual men in BC is also likely related to HIV transmission, since STIs can be markers of behavioural risk.

Appropriate Health Care – Gay and bisexual men face challenges in accessing appropriate and culturally sensitive health care—a fundamental determinant of health. In 2011, 14 per cent of gay and bisexual men in BC reported that they had stopped seeing their health care provider because of his or her negative attitude toward their sexual orientation. Appropriate health care for gay and bisexual men requires accessible, quality health care services; health care providers who are knowledgeable about a patient's sexual orientation and health issues affecting gay and bisexual men; and safe and informative communication between clients and care providers. Overall, 61 per cent of gay and bisexual men surveyed in BC reported that

they were currently “out” to their primary health care provider, though this ranged from a high of 84.8 per cent in Vancouver West End to a low of 36.6 per cent in North Fraser and Northern BC.

Marginalization, Mental Health, and HIV Risk – Experiences of marginalization and discrimination, rooted in homophobia and stigma on the basis of sexual orientation, can impact gay and bisexual men’s health. Causal pathways link experiences of marginalization (e.g., verbal harassment, physical violence) with a greater likelihood of poor mental health outcomes (e.g., problematic substance use, depression), which in turn are associated with increased sexual risk-taking behaviour and put an individual more at risk for HIV infection. Protective factors (e.g., family acceptance, school connectedness, and social supports) can help buffer the impacts of marginalization, foster resilience, improve mental health, and reduce HIV risk.

Migration and Immigration – It is common for many gay and bisexual men (including Aboriginal and Two-Spirited gay and bisexual men) to migrate to urban centres such as Vancouver. For Aboriginal men, the search for a home or place where they feel safe and accepted and the potential mobility related to this search are compounded by the historic forced migration of many Indigenous people due to residential schooling and foster care or adoption. Immigrants to BC may have challenges with new social and sexual cultures and expectations. Canadian immigration patterns and testing procedures can also contribute to the numbers of new HIV diagnoses among ethnocultural minority men.

Experiences of Racism – Experiences of racism can add another element of marginalization. Gay and bisexual men from ethnocultural minorities in BC have reported oppression on multiple fronts, including stigma within their ethnocultural communities or families on the basis of their sexuality, and exclusion from gay communities that are predominantly Caucasian. In addition, experiences of

racism from other gay and bisexual men can translate to power differentials within partnerships, leading to weakened or compromised negotiations or sexual decision-making.

Systemic Challenges to HIV Prevention – Existing programs and resources for gay and bisexual men are unevenly distributed in BC, may not reflect the needs of more marginalized gay and bisexual men, and may rely on federal funding that is not guaranteed. A more holistic approach to gay and bisexual men’s health would situate HIV prevention within a broader, more inclusive health framework. Evidence-based policies for HIV prevention require more HIV research that focuses on gay and bisexual men.

Solutions

The findings in this report demonstrate the importance of comprehensive, multi-level approaches to HIV prevention for gay and bisexual men in BC. Two sets of recommendations are presented in this report, including 15 recommendations from the advisory groups, and six recommendations from BC’s PHO. Advisory committee recommendations include actions in the areas of policy, monitoring, evaluation, and research, and actions specifically targeting each of the drivers identified in the report. The PHO endorses these 15 recommendations and offers six priority recommendations for immediate attention. These six PHO recommendations focus on developing a comprehensive health strategy for gay and bisexual men, enhancing related protective factors, improving and expanding health care for HIV-positive individuals, advancing support for mental health and substance use among gay and bisexual men, revisiting prosecutorial guidelines pertaining to HIV, and expanding research and monitoring for HIV prevention among gay and bisexual men. The goals of these recommendations are to renew HIV prevention for gay and bisexual men in BC and reduce overall rates of HIV incidence and prevalence in BC.

Chapter 1

Introduction

This Provincial Health Officer (PHO) annual report examines the ***Human Immunodeficiency Virus (HIV)**** epidemic among ***gay and bisexual men*** in British Columbia. A special report on HIV infections among people who use injection drugs in BC, released by the PHO in 2011, concluded that the combination of harm reduction and prevention programs, uptake of HIV treatment, and changes in drug-using behaviour has led to a sustained and dramatic decline in new HIV infections among injection drug users since 2008.¹ The number and rate of new diagnoses in BC overall is also declining; however, as this PHO annual report demonstrates, the decline in new HIV diagnoses is not occurring as quickly among the sub-population of gay and bisexual men in BC. This report sets out to provide a comprehensive review of the HIV epidemic among gay and bisexual men in BC, and to make recommendations for renewing HIV prevention in BC in this population.

In December 2012, the Province of BC released a strategic guidance document to regional health authorities (*From Hope to Health: Towards an AIDS-free Generation*). The first goal of the strategy document is to reduce the number of new HIV infections in the province.² This PHO report illustrates that substantially reducing the number of new HIV infections among gay and bisexual men will go a long way toward achieving this goal, given the large proportion of new infections within this population.

Chapter 1 provides a brief overview of the last 30 years of the HIV epidemic, and outlines how a complex approach is used in this report to contextualize HIV within a broader health determinants framework. Chapter 2 provides an overview of HIV, including the history of the epidemic in BC and advancements in diagnosis and treatment. Chapter 3 presents trends in the epidemic among gay and bisexual men, and examines diagnoses by health regions, age, ethnicity, and stage of infection. Chapter 4 explores the epidemic and its contributing factors among gay and bisexual men in greater detail. Chapter 5 presents best practices and 15 recommendations for action offered by the two advisory groups that were consulted in the development of this report. Chapter 6 includes a summary and discussion of key findings in the report and offers six priority recommendations from BC's PHO to renew HIV prevention among gay and bisexual men in BC.

Thirty Years of the HIV Epidemic

By 1982, clinicians in North America and Europe recognized the appearance of a new and concerning clinical syndrome occurring among gay and bisexual men. The syndrome, marked by weakened immune systems and leading to rare infections and cancers, was typically fatal, and was eventually termed ***Acquired Immunodeficiency Syndrome (AIDS)***.³ AIDS was subsequently recognized in

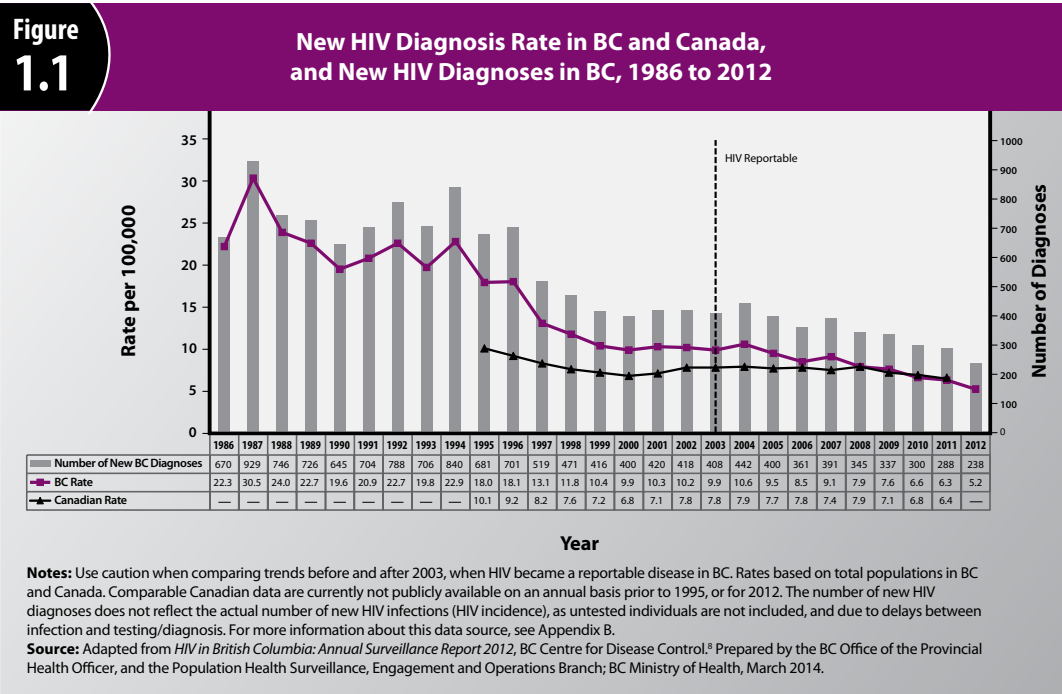
* Note: Terms that appear bold and italicized are glossary terms in this report; see Appendix A for glossary term definitions.

other populations, including people who use injection drugs, immigrants, and *haemophiliacs*. In 1983, the cause of AIDS was determined to be a virus spread through blood and body fluids,^{4,5} which was subsequently named the Human Immunodeficiency Virus. These cases signalled the early stages of what is now a global epidemic, which has led to an estimated 70 million infections and 35 million deaths worldwide as of 2011.⁶

In Canada, there were an estimated 3,175 new HIV infections in 2011.⁷ As shown in Figure 1.1, in Canada the rate of new diagnoses per 100,000 population decreased from 1995 to 2000 and has fluctuated slightly in recent years. Within BC, while there are some individual years showing increases in the rate of new diagnoses per 100,000 population, overall there is a declining trend.^a Some of these increases may be a result of changes in testing and reporting practices, as discussed later in this report. This figure shows that for years in which data were available, BC had a rate of new HIV diagnoses that was greater

than or equal to the national rate until 2010, when the BC rate dropped slightly below the national rate. In 2012, 238 new HIV diagnoses were observed in BC—the lowest number of new diagnoses per year on record.⁸ In addition to these improvements, the life expectancy for people living with HIV has dramatically increased due to the success of HIV treatment.^{9,10}

The nature of the epidemic’s trend within different countries varies substantially. In Canada, the HIV epidemic is said to be “concentrated,” meaning that HIV is not widely spread in the population but rather has a higher *prevalence* in specific sub-populations, specifically gay and bisexual men, people who use injection drugs, Aboriginal people, and people immigrating from countries where HIV is *endemic*.^{11,12,13} Nationally, the proportion of HIV diagnoses attributed to men who have sex with men (age 15 and up) have shown a substantial decrease from the mid-1980s to the late 1990s. However, those data also show that from 2002 to 2011, the proportion of diagnoses attributable to this exposure group



^a HIV became a reportable disease in BC in May 2003; therefore, comparisons of counts of new diagnoses and new diagnosis rates before and after 2003 should be made with caution.

has remained relatively stable, and has even shown some increase.¹⁴

The route of exposure to HIV is important for understanding health care and related policy needs in BC. Figure 1.2 illustrates that some *exposure groups* have experienced greater decreases in new diagnoses than others from 2004 to 2012. Gay and bisexual men continue to have the highest number of new diagnoses, and the number of new infections each year does not show similar decreases as those seen in other groups.

These trends suggest that existing efforts to prevent further transmission of HIV among the sub-population of gay and bisexual men in BC may not be achieving the successes that other sub-populations are experiencing in reduced numbers of new HIV diagnoses. Continuing to achieve meaningful reductions in the number of new HIV infections in BC requires exploration of the comparatively slower decline among gay and bisexual men in BC. As this report shows, examining and renewing HIV prevention efforts for this sub-population requires a holistic approach and an understanding of the context of gay and bisexual men's lives.

HIV among Gay and Bisexual Men in BC

Since the HIV epidemic was detected in BC in the early 1980s, gay and bisexual men have been the group most affected, bearing the brunt of the infections and deaths from HIV. In the face of a slow response to the epidemic by government agencies both in Canada and globally, gay and bisexual men mobilized, developed the first peer-support and educational initiatives, and were central to the recognition of the rights of HIV-positive people to be involved in all aspects of the response to HIV.¹⁵ In large part due to this community mobilization of gay and bisexual men, the number of new infections among this group decreased dramatically by the mid-1990s.^{15,16,17}

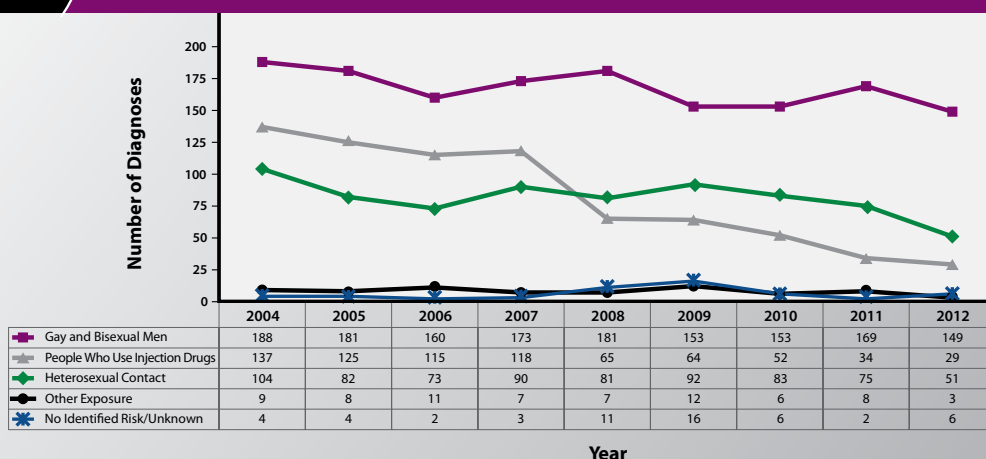
While there are no reliable estimates of the number or proportion of gay and bisexual men in BC, nor how the size of the population may be changing over time, it is likely within the range of recent estimates in the United States, where 4 per cent of men reported having male sex partners in the past five years (7 per cent in their lifetime).¹⁸ Therefore, in comparison to their likely



Photo credit:
Positive Living Society
of British Columbia

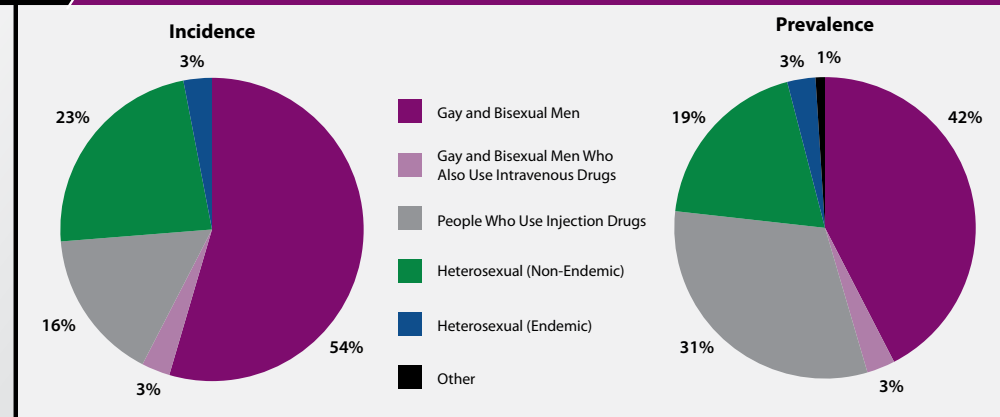
Figure
1.2

Number of New HIV Diagnoses by Exposure Group, BC, 2004 to 2012



Notes: New diagnoses only reflect individuals who have tested positive for HIV. Newly diagnosed individuals are assigned to exposure groups based on likely route of exposure to HIV. "Other exposure" includes receipt of blood products, occupational exposure, and perinatal transmission. For more information about this data source, see Appendix B.

Source: HIV and AIDS Surveillance System database, BC Centre for Disease Control. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

Figure 1.3**Estimated Proportion of HIV Infections by Exposure Group, Incidence and Prevalence, BC, 2011**

Notes: Provincial estimates provided by the Public Health Agency of Canada. Estimates of HIV incidence and prevalence are based on HIV surveillance data that do not track undiagnosed/untested cases. Therefore, modelling and additional sources of information were used to estimate incidence and prevalence. Newly diagnosed individuals were assigned to exposure groups based on likely route of exposure to HIV. "Heterosexual (non-endemic)" refers to heterosexual contact with a person who is either HIV-infected or at risk for HIV or where heterosexual contact is the only identified risk. "Heterosexual (endemic)" refers to heterosexual contact with a partner originating from a country where HIV is endemic. "Other" includes recipients of blood transfusion or clotting factor, occupational transmission, and perinatal transmission. For more information about this source, see Appendix B.

Source: HIV in British Columbia: Annual Surveillance Report 2011, BC Centre for Disease Control (2012).⁹ Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

proportion within the BC population, gay and bisexual men are over-represented in BC's HIV epidemic.⁹ As Figure 1.3 shows, in 2011 gay and bisexual men (including gay and bisexual men who use injection drugs) comprised 57 per cent of all new infections (incidence) and 45 per cent of all people living with HIV in BC (prevalence). In a survey of gay and bisexual men in the Greater Vancouver area in 2008, 21 per cent of gay and bisexual men surveyed self-reported as HIV positive.¹⁹ These trends are not unique to BC; in other Canadian provinces as well as other developed countries (e.g., Australia, the United Kingdom, the United States), the majority of new HIV infections are in gay and bisexual men, and trends are either stable or increasing, which has led some to describe a "re-emerging epidemic" of HIV among gay and bisexual men.^{20,21}

Terminology

The terminology "gay and bisexual men" is deliberately used to describe all people in BC who identify as men who have romantic

or sexual relationships with other men, regardless of their own sexual or *gender identity*, instead of the term "*men who have sex with men*" (MSM). The term "gay and bisexual men" will be used because it is broadly understood within society, and has historical significance. Other terminology is used in this report where relevant, such as when referring to specific sub-populations of gay and bisexual men based on a shared sexual or gender identity (e.g., gay men, Two-Spirited men).

MSM is the term most commonly used when describing how HIV spreads between males through sexual contact, and is a term that reflects the epidemiological basis of transmission in this group. The term MSM focuses on behaviour rather than cultural or *sexual identities*.²² However, MSM does not represent a homogeneous group nor would men who have sex with men necessarily define themselves purely on the basis of their sexual partners. The use of the term MSM does not recognize important distinctions in sexual and gender identities, culture, and behaviour between men in this group.²³ For example, men who have sex with

Two-Spirited Individuals

The term “**Two-Spirit**” has a number of meanings in different contexts. Historically, Two-Spirited persons were First Nations and Métis people who held an honoured gender or social status in their community. There were variations in the cultural practices and beliefs with respect to Two-Spiritedness across communities in North America. In recent decades this term has been reclaimed by members of various First Nations in the context of decolonization and acknowledgment of the strength and value of Two-Spirited persons in communities. Now the term Two-Spirit may refer to lesbian, gay, or transgender people who have adopted an identity that connects with sexuality and gender traditions relevant to their respective indigenous culture.²⁰⁹

men may identify as **transgender**, queer, **Two-Spirited** (see sidebar *Two-Spirited Individuals*), gay, bisexual, or heterosexual, or may be in a period of transition or questioning regarding their sexual identity. As there are key differences among these groups in lived experiences, sexual practices, community affiliation and HIV risk, for HIV prevention strategies to be successful they should be designed and implemented with consideration of these varied aspects of identity.^{20,24} The term “gay and bisexual men” is more relevant and meaningful for this report than the term MSM, but it is an imperfect solution; the intent in using the term “gay and bisexual men” is not to exclude or alienate any men who do not identify specifically with these terms.

The term “**gay communities**” is used in this report as a commonly understood term and a concept of established historical importance in HIV prevention for gay and bisexual men.^{25,26} For the purpose of this report this term is used loosely to describe groups of gay and bisexual men connected through common social or cultural relationships and affiliations, but it is not intended to imply that these groups are either homogeneous or exclusive.

Conceptual Approaches

Understanding health issues such as HIV among gay and bisexual men requires consideration of the social context in which these issues occur. While there have been improvements in society for gay and bisexual men in recent decades, this population continues to experience stigma, prejudice, and discrimination on the basis of sexual orientation. The conceptual approaches taken in this report strive to incorporate the impact of those experiences on the health of gay and bisexual men overall, and in relation to the HIV epidemic in particular. For a comprehensive understanding of HIV among gay and bisexual men in BC, the analyses, discussion, and related recommendations presented in this report combine two conceptual approaches: a multi-level approach and a population health approach.

Multi-level Approach

The traditional approach to both understanding HIV trends among gay and bisexual men and developing strategies for HIV prevention has been to focus on sexual behaviour (such as condom use). Sexual

“Health outcomes do not happen in a vacuum. They are the result of a complex interaction of a number of factors, many of which are determined by the environments within which boys and men live, learn, work and play.”

Northern Health Authority. Where are the Men? Chief Medical Health Officer's report on the health and wellbeing of men and boys in Northern BC (2011).²⁷

"It's, you know, why did I turn HIV positive? You know. Lonely, depressed... finding I'm totally on the rocks, and stuff like that. You know, the reasons for that are just as individual as people that are experiencing it."

55 years old, HIV positive

Reflecting on factors that contributed to becoming HIV positive



behaviour continues to be an important and immediate driver of the epidemic in gay and bisexual men, since ultimately, HIV is most commonly passed from a man who has HIV to a man who does not, through intercourse. Social, structural, and inter-relational factors provide important contexts for understanding behaviour. A multi-level approach recognizes the interaction between different levels of influence, including behaviour and underlying community, societal, and structural level determinants. Furthermore, differences in behaviour alone are not sufficient to explain differences in risks of HIV infection among groups of gay and bisexual men.²⁸ Focusing exclusively on sexual behaviour can lead to the inadvertent blaming of gay and bisexual men for becoming infected with HIV, and contribute to societal stigma. Community organizations have long advocated for comprehensive approaches,^{29,30,31} and these approaches are

now gaining recognition in public health and among researchers.^{16,32,33}

Analyses in this report draw upon several existing theoretical frameworks that reflect more comprehensive approaches and involve both communicable disease and social theories.^{32,34,35,36} In this report, HIV is examined through the many "drivers," or variables that impact or influence HIV transmission among gay and bisexual men. As shown in Figure 1.4, these drivers are explored at three broad levels in this report:

- 1. Societal and Structural Level** drivers work broadly within society and its institutions and underlay all other drivers;
- 2. Community and Relationship Level** drivers operate at an intermediate level, and work across communities and social networks; and
- 3. Behavioural and Biological Level** drivers ultimately determine whether HIV transmission occurs between two people.

While these three levels help to contextualize and consider the drivers examined in this report, they are not mutually exclusive; they are complex; they overlap and intersect

**Figure
1.4**

Conceptual Approach to Drivers of the HIV Epidemic among Gay and Bisexual Men in British Columbia



Societal and Structural Level

Drivers work broadly within society and its institutions
Examples: stigma, marginalization, racism, and access to appropriate health care

Community and Relationships Level

Drivers work within and across communities and social networks
Examples: mental health, HIV prevalence in gay communities, and composition and density of sexual networks

Behavioural and Biological Level

Drivers have most direct impact, ultimately determining whether HIV transmission occurs between two people
Examples: individual HIV viral load, sexual behaviour, and presence of sexually transmitted infections

among individuals, and are not experienced by all gay and bisexual men in the same way. Some drivers presented in this report fit largely within one level, while others fit within two or even all three. Drivers of the HIV epidemic among gay and bisexual men will be explored in detail in Chapter 4, using this multi-level approach.

Population Health Approach

A population health approach requires an “upstream” examination of health that considers determinants, conditions, and factors that influence the health of a population. This may include social, economic, and physical environments, personal health practices and coping skills, biology, and access to health care.³⁷ It also considers health within and between groups in a population; for example, based on birth cohort, age, ethnicity, and other factors. It incorporates prevention, health promotion, health protection, diagnosis, treatment, and care into a comprehensive view of health.³⁸ This upstream approach involves investigating many potential factors and using that information to develop and implement policies and actions that can improve the health and well-being of vulnerable sub-populations and the larger population overall. A population health approach has been combined with a multi-level approach in this report to help understand HIV within the context of gay and bisexual men’s lives, and to more comprehensively understand gay and bisexual men’s health within the larger BC population.

Development Process

For this report to be both effective and informative in renewing HIV prevention for gay and bisexual men in BC, it was important to involve gay and bisexual men as well as service providers and organizations

that work with them. To this end, two advisory groups were established to support the development of this report. The first, the Community Advisory Group, included gay and bisexual men (and allies) who are leaders working in gay men’s health and HIV prevention and research in BC. The second, the Public Health Advisory Group, included public health and clinical HIV leads and researchers from regional health authorities, First Nations and Inuit Health,^b the Ministry of Health, the BC Centre for Disease Control (BCCDC), and the BC Centre for Excellence in HIV/AIDS.

Preliminary meetings with the advisory groups enabled collaborative development of the rationale, conceptual framework, and approach to the report. Data analyses were conducted by the BCCDC, and were reviewed by the two advisory groups as well as other key groups of stakeholders not represented in these groups. Advisory group members were also invited to review and provide feedback on report drafts, and to propose recommendations for inclusion in the report. Recommendations provided by the advisory groups are presented in Chapter 5.

Data Analysis

To examine the HIV epidemic among gay and bisexual men in BC, this report draws on multiple provincial sources of information. Recent trends for HIV and syphilis were examined through analyses of data derived from provincial *surveillance* systems housed at the BCCDC. These data have been collected from case report forms or clinic records completed by public health staff who follow up new HIV and syphilis diagnoses. Due to known differences in data before and after HIV became a reportable disease in BC in May 2003, analyses of HIV surveillance data from BCCDC were restricted to the time period of 2004 to 2012 to ensure comparability in data presented.³⁹ Trends



^b During the development of this report, First Nations and Inuit Health (FNIH) became part of the First Nations Health Authority (FNHA), following the health authority’s creation in December 2011. As such, while advisory group membership included FNIH, representatives are identified by their current FNHA affiliations in the acknowledgements section of this report.



in gonorrhea and chlamydia infections were analyzed using data from sexually transmitted infection (STI) clinics operated by the BCCDC in Vancouver, BC. Lastly, in partnership with the Community-Based Research Centre (CBRC) for Gay Men's Health, four occurrences of the *Sex Now* survey were analyzed. The *Sex Now* survey is a large, community-based online survey of gay and bisexual men in BC conducted every 12-18 months.⁴⁰ See Appendix B for further discussion of these data sources, including their respective details and known or potential limitations.

Some groups provided data and related analyses for this report, including the Public Health Agency of Canada (HIV incidence estimates), the BC Centre for Excellence in HIV/AIDS (***HIV viral load*** and ***CD4+ T-cell*** counts), Vancouver Coastal Health Authority (CD4+ T-cell count at time of HIV diagnosis in the Vancouver Coastal region), and the McCreary Centre Society (results of the 2008 *BC Adolescent Health Survey*). See Appendix B for more information.

Quotations from interviews with gay and bisexual men in BC are provided throughout this report to help illustrate some of the key

concepts discussed, and to contextualize the complex issues related to HIV that gay and bisexual men describe experiencing in their everyday lives. These are taken from interviews conducted between 2009 and 2012 with gay and bisexual men newly diagnosed with HIV infection, and gay and bisexual men with a recent negative HIV test, in the Greater Vancouver area. These quotations were provided by the Canadian Institutes of Health Research Team in the Study of Acute HIV Infection in Gay Men, coordinated through the BCCDC.⁴¹

Where possible, analyses in this report have been provided by region of BC, birth cohort, and ethnicity. Analyzing data by region helps to identify differences in terms of gay communities as well as access to services, as there are likely differences between men living in urban, suburban, rural, and remote areas. Analysis by ethnicity helps to identify potential socio-cultural impacts. Differences between birth cohorts of gay and bisexual men are also important to consider, as differences in lived experience by age are profound due to the different eras of the HIV epidemic (e.g., whether or not one has experienced the peak of the HIV epidemic and deaths prior to the development of current anti-HIV drugs).

Gaps and Limitations

This report and its analyses are subject to the limitations of available data and research. While this report examines the gay and bisexual population as comprehensively as possible with respect to HIV, this picture is not exhaustive. There is currently a lack of data available to comment on trends among some relevant sub-groups of gay and bisexual men (e.g., men involved in ***sex work***, incarcerated men, and homeless men). Empirical local or national data on factors influencing HIV risk among gay and bisexual Aboriginal or Two-Spirited men are limited or outdated.^{22,42,43} There are also insufficient data by which to address the unique prevention needs across the spectrum of gender identities, including

transgender men in BC who identify as gay, bisexual, or queer.⁴⁴ While this report also highlights key differences between gay and bisexual men around the province, particularly between Metro Vancouver and other regions, research is currently limited outside the Vancouver area.

Ecological analyses have been used to inform the discussion of HIV trends and drivers of the epidemic among gay and bisexual men in BC. This type of analysis may overlook important trends at an individual level and cannot be used to infer a causal relationship between any variable studied and HIV incidence. Additionally, since there are currently no reliable estimates of the size of the population of gay and bisexual men in BC, there is limited ability to consider the impact of migration or changes in population size on trends documented in this report.

This report focuses specifically on sexual transmission of HIV among gay and bisexual men, although some men in this population may also be exposed to HIV through sharing of syringes or other drug-related paraphernalia. Between 2004 and 2011, 7 per cent of gay and bisexual men newly diagnosed with HIV also reported using injection drugs and sharing syringes (and this was more common among Aboriginal gay and bisexual men). As factors related to HIV trends among people who use injection drugs were discussed in a previous PHO report,¹ and comparisons of the relatedness of different strains of the virus in BC demonstrate different patterns

of HIV transmission between gay and bisexual men and people who use injection drugs,⁴⁵ the focus of this report is on sexual transmission only.

Despite these limitations and gaps in available research, when taken together, the findings presented in this report provide the most comprehensive picture of the current HIV epidemic among gay and bisexual men in BC that is possible at the current time.

Summary

In Canada and BC the HIV epidemic is concentrated, with a higher burden of illness in specific sub-populations, such as gay and bisexual men, people who use injection drugs, and Aboriginal people. Overall, rates of new HIV diagnoses in BC are declining, but gay and bisexual men continue to have the highest number of new diagnoses and have not experienced the meaningful declines that other sub-populations have. This report uses multi-level and population health conceptual approaches to examine HIV among gay and bisexual men in BC with a holistic perspective, and is the result of collaboration with gay and bisexual men and service providers and organizations that work with them. The goal of this report is to examine HIV trends among gay and bisexual men in BC and provide evidence-based recommendations to renew HIV prevention for gay and bisexual men in BC. The next chapter provides an overview of HIV, including its stages, transmission, diagnosis, and treatment.

Chapter 2

An Overview of HIV

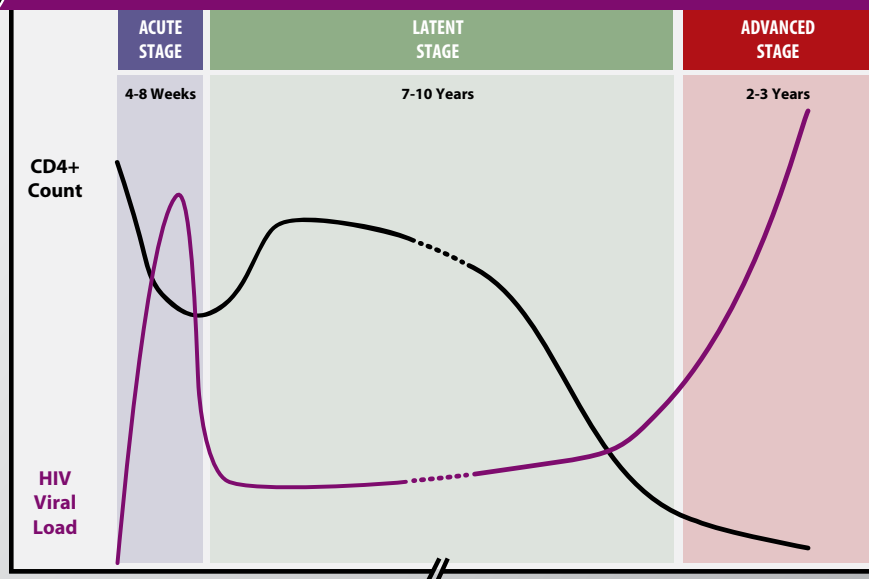
What is HIV?

Human Immunodeficiency Virus (HIV) is a virus that attacks the immune system (particularly through attacking CD4+ T-cells), the system that defends the body from micro-organisms that cause infections or cancer cells. HIV weakens the immune system, which eventually leads to the body being unable to fight off usually harmless infections (called “opportunistic” infections) and cancers. In the absence of treatment, there are typically three general stages of HIV infection: acute, latent, and advanced.

Stages of HIV can be identified through clinical tests that measure disease progress, including HIV viral load in the body and CD4+ T-cell counts. HIV viral load indicates the amount of virus in the blood, and reflects replication of the virus in the body. It is highest during acute and advanced stages of infection. CD4+ T-cells play an important role in the body’s immune system and are destroyed by the virus. Comparing the number of existing cells to the normal range (500 to 1,500) and to an individual’s previous counts can be used to measure the progression of HIV.⁴⁶

Figure 2.1

HIV Progression without Treatment



Notes: This figure shows the natural progression of a person infected with HIV, without treatment with anti-HIV drugs. The most common time for each stage is provided; however, the natural history of infection can be highly variable, with some people progressing to the advanced stage within a year while others may remain in the latent stage for 10 years or more.

Source: Adapted by Dr. Mark Gilbert, BC Centre for Disease Control, from Pantaleo, Graziosi, and Fauci (1993),⁴⁷ and Lewthwaite and Wilkins (2005).⁴⁸

As shown in Figure 2.1, without treatment, HIV infection progresses through three stages of infection that are associated with changes in both HIV viral load and CD4+ T-cell counts. The **acute stage** of infection occurs in the first two months after infection, and includes a sharp increase in HIV viral load, and a drop in CD4+ T-cell count. During this stage most people will not have symptoms, and if they do have symptoms (known as “**seroconversion** illness”), the symptoms may not be attributed to HIV since they are typically non-specific and are often described as “flu-like” (such as fever, muscle aches, weakness, and rash). The **latent stage** can last up to 10 years or occasionally longer. During this phase individuals infected with HIV would typically have a slow increase in HIV viral load and decline in CD4+ T-cell counts, and will generally have no symptoms. The third, **advanced stage** usually includes a high viral load level and the lowest CD4+ T-cell count within the disease progression. It is in this stage that the immune system weakens considerably and opportunistic infections and cancers appear. The appearance of these infections marks the development of advanced HIV infection and a clinical diagnosis of Acquired Immunodeficiency Syndrome (AIDS).

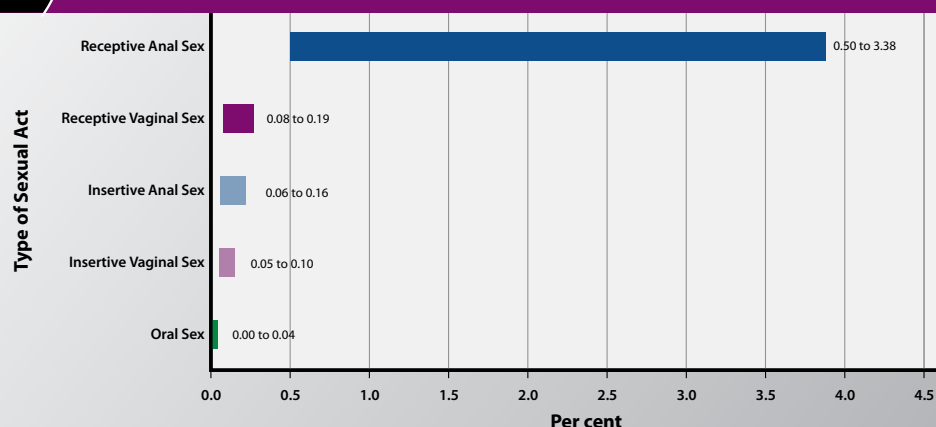
How is HIV Transmitted?

HIV transmission can occur when someone who is HIV negative is exposed to the blood or body fluids (e.g., semen, vaginal fluids, rectal fluids) of someone who is HIV positive and an infectious dose of the virus is transmitted. This most commonly occurs through sex and through sharing of used needles, syringes, or other drug paraphernalia. Other modes of transmission were more common in the early days of the epidemic but are now less common due to advancements in diagnosis and treatment. For example, as many as 2,000 people were infected with HIV between 1978 and 1985 from blood transfusions (approximately 1,150 cases) or other blood



products (approximately 850 cases)⁴⁹ in what is referred to as *the tainted blood tragedy* (or *scandal*),⁵⁰ but now universal screening precautions have been put into place in Canada and most other industrialized countries to prevent transmission through blood and blood products. In addition, HIV can be spread from an HIV-positive mother to her child during pregnancy, delivery, or through breastfeeding; however, HIV treatment of an HIV-positive mother can reduce her HIV viral load and thereby reduce the risk of transmission to her infant,⁴⁶ and the rate of transmission from mother to child has declined dramatically.¹³

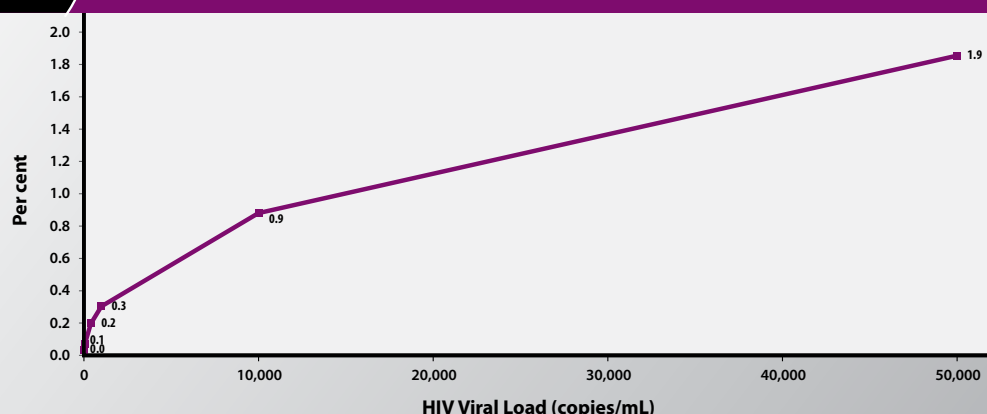
Since sex and the sharing of drug paraphernalia are the most common modes of transmission, risk-reduction methods are the use of condoms or other barrier protection methods during sex, and not sharing needles, syringes, or other drug paraphernalia. However, not all behaviours carry the same risk of HIV acquisition; type of sex, viral load level, and other factors impact the risk of transmission during a particular event.⁵¹ As shown in Figure 2.2, the estimated risk of an HIV-negative person acquiring the infection from an HIV-positive person is highest for a person during receptive anal sex (0.5 to 3.38 per cent risk per act). Other types of sexual interactions have much lower estimated risks, and acquisition through oral sex is considered to be a rare occurrence.

Figure 2.2**Estimated Per-Act Risk of HIV Acquisition from an HIV-Positive Partner, by Type of Sexual Act**

Notes: These estimates of per-act risk of HIV acquisition reflect the range of risks identified in a Public Health Agency of Canada evidence review that examined multiple studies of acquisition risk among various populations and exposure groups. For more information about this source, see Appendix B.
Source: *HIV Transmission Risk: A Summary of the Evidence*, Public Health Agency of Canada (2012).⁵¹ Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

In addition to the level of risk associated with behaviour, one of the strongest predictors of whether HIV transmission will occur is an individual's HIV viral load. Figure 2.3 demonstrates the risk of acquisition per act, for receptive anal sex; the higher a partner's HIV viral load the greater the chance of transmission of HIV to an HIV-negative individual.⁵¹

Another factor that influences the chance of transmission is the presence of other infections such as sexually transmitted infections (STIs). Some evidence suggests that STIs play a role in increasing the infectiousness of HIV-positive individuals, and may also increase the susceptibility of HIV-negative individuals to acquiring HIV during a potential transmission event.⁵¹

Figure 2.3**Estimated Per-Act Risk of HIV Acquisition through Receptive Anal Sex with an HIV-Positive Partner, by HIV Viral Load**

Notes: HIV viral load is the amount of HIV in the blood or genital fluid. Risk of HIV acquisition was calculated using a mathematical model and assuming that the per-act HIV transmission risk in the absence of treatment is 1.5 per cent for receptive anal sex. For more information about this source, see Appendix B.

Source: *HIV Transmission Risk: A Summary of the Evidence*, Public Health Agency of Canada (2012).⁵¹ Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.



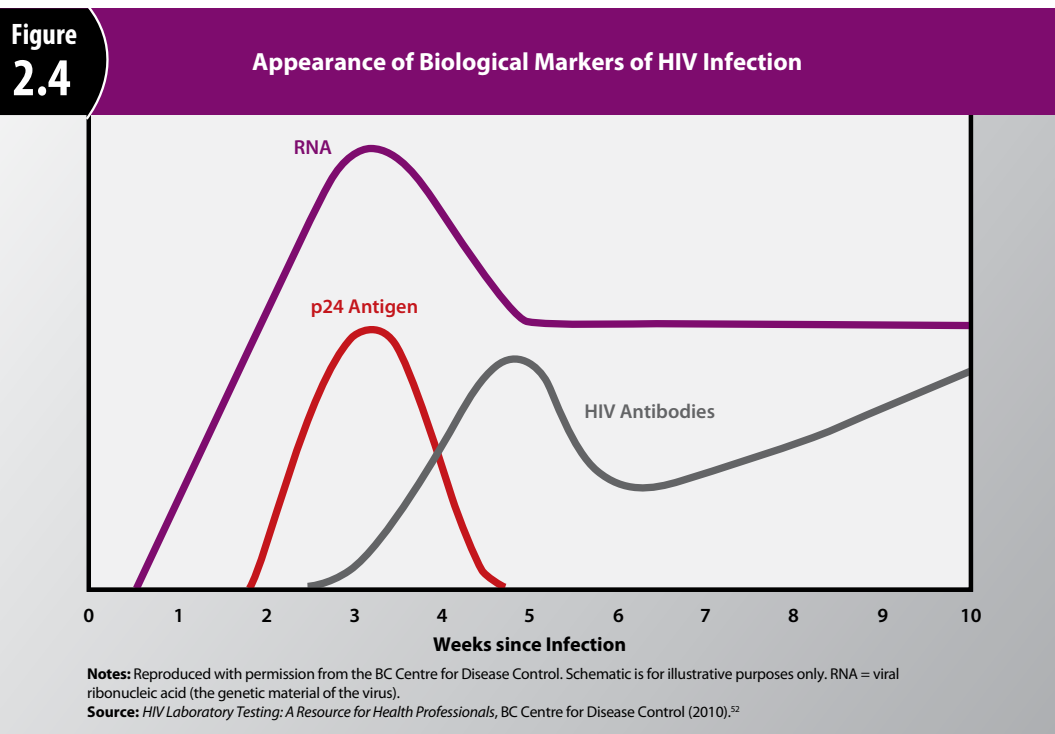
According to one evidence summary, STIs increase susceptibility to HIV by a factor of 2 to 4 and increase transmissibility 2 to 3 times; however, this summary also notes that the relationship between STIs and HIV is complex, and the evidence is at times contradictory or difficult to interpret due to the presence of confounding factors (e.g., sexual behaviour).⁵¹

How is HIV Infection Diagnosed?

Laboratory tests used to diagnosis HIV infection have expanded and improved since the first assays developed in the 1980s, and a variety of different tests exist today. In general, the most common tests for diagnosing HIV are based on the detection of three biological markers of HIV infection:

- **viral ribonucleic acid (RNA)** - the genetic material of the virus
- **p24 antigen** - a virus protein
- **HIV antibody** - generated by the body's immune system against the virus

These three markers of HIV infection appear at different times in the blood following infection, with the first to appear being viral RNA, then p24 antigen, and finally, HIV antibodies (Figure 2.4). This means that each test will be effective at different time periods after someone is infected with HIV—this is called the “window period.” Earlier testing can diagnose individuals in the acute phase of HIV, within four to six weeks after infection, when a person has a high viral load and there is a greater risk of HIV transmission.



CASE STUDY: Increasing Awareness and Detection of Acute HIV Infection • Vancouver

One study demonstrated that combining awareness campaigns with pooled nucleic acid amplification testing (NAAT; which can detect HIV at 1-2 weeks after infection) was effective in increasing HIV testing and diagnosis rates of acute HIV for gay and bisexual men.

BC Centre for Disease Control, BC Public Health Microbiology Reference Laboratory, Health Initiative for Men

The first test performed at laboratories in BC is either a **3rd generation enzyme immunoassay (EIA) test** or **4th generation EIA test**, depending on the test currently in use by a particular laboratory. If there is any reactivity to these tests, further tests will be performed to confirm or rule out HIV infection. These tests include the **Western Blot** test and Individual RNA **Nucleic Acid Amplification Test (NAAT)**. These tests enable detection of HIV in 95 per cent of HIV-positive people by four to six weeks after initial infection, and over 99 per cent successful detection by three months and later, after infection.⁵² (See sidebar: *HIV Tests* for more information).

How is HIV Treated?

While there is no cure for HIV, antiretroviral medication can reduce the amount of virus in the body (reducing a person's HIV viral

load) and help someone infected with HIV to be healthier. Without treatment, the weakening of the immune system due to HIV will get worse, leading to symptoms of AIDS and ultimately to death.⁵³ With modern treatment regimens and adherence to therapy, a patient with HIV can be expected to have a near normal life expectancy, which approaches that of the general population.⁵⁴

When people are diagnosed with HIV, the selection of medication depends on multiple factors including a person's medical history.⁵⁵ It is recommended that HIV-positive people get regular check-ups with a primary care physician who is experienced with HIV care, and who can consult with specialists in HIV treatment as needed. Check-ups are recommended at least every three to six months to measure CD4 counts and viral load levels, and annually for a full physical examination.⁵⁶

HIV Tests

4th Generation Enzyme Immunoassay (EIA) Test - An HIV screening test that improves upon 3rd generation EIA tests by detecting p24 antigen in addition to HIV antibody, although it does not distinguish between them. As this is a screening test, any positive result needs to then be confirmed by a second test (e.g., the Western Blot test). The 4th generation EIA test has a shorter window period compared to the 3rd generation EIA tests.

Western Blot Test - An HIV test that is considered the gold standard for confirmation of HIV infection. Specimens that are reactive on EIA screening tests and on Western Blot are considered to be confirmed HIV-positive. The EIA-Western Blot combination is estimated to have an overall sensitivity (accuracy) of 99.9 per cent and specificity (ability to identify a negative result) of 99.9 per cent.

Nucleic Acid Amplification Testing (NAAT) - A highly-sensitive method of testing blood that is used to detect the genetic material of viruses such as HIV. If there is a weak signal on enzyme immunoassay testing and the Western test, NAAT is typically performed. A negative test result can rule out HIV infection. If viral RNA is detected, then the result is suggestive of acute HIV infection. NAAT tests can be done on individual specimens or using pooling methods.



Photo credit:
AIDS Vancouver Island

Antiretroviral therapy (ART) is treatment for people infected with HIV that uses anti-HIV drugs. ART has the potential both to reduce morbidity and mortality rates among HIV-positive people, and to improve their quality of life.⁵⁷ Once initiated, ART should be continued regularly and indefinitely, as intermittent treatment has been associated with risk of HIV-related and non-HIV-related complications.⁵⁸ **Highly active antiretroviral therapy (HAART)** consists of a combination of at least three anti-HIV drugs, and is the standard treatment. HAART does not kill the virus and does not completely stop the replication of the virus in the bloodstream; however, it does suppress HIV replication, and the combination of drugs reduces the likelihood of the virus developing resistance. Small amounts of the virus continue to live despite drug therapy.⁴⁶ From 1996 to 2012, the estimated overall HIV prevalence in BC increased from 7,900 to almost 12,000 cases, and the number of individuals actively undergoing HAART increased from 837 to 6,772.⁵⁹

In the past, anti-HIV drug treatment was typically started once a person with HIV had reached a specific CD4+ T-cell count (for example, when the count was less than 350 cells/ μ L). Now, beginning treatment with HAART right away is recommended for almost all people newly diagnosed with HIV, regardless of CD4 count or stage of infection. Earlier treatment has been shown to be of long-term clinical benefit to people diagnosed with HIV, and the related suppression of their viral load can contribute to reduced risk of HIV transmission to others.⁵⁵ Aiming to increase the uptake of HAART in order to reduce viral load and prevent HIV transmission is referred to as “*treatment as prevention*” and will be discussed further in Chapter 4.

HAART has revolutionized HIV treatment, and for most patients in high-income countries, the development of HAART

shifted the prognosis of HIV from almost certain fatality to a chronic, manageable illness.⁶⁰ In BC, between 1996 and 2012, expanded use of HAART was associated with a sustained and profound population-level decrease in HIV-related morbidity and mortality, and HIV transmission.⁵⁹ Research also shows that there is long-term effectiveness and sustainability of HIV treatment as a method of HIV prevention within an adequately resourced environment with no financial barriers to diagnosis or treatment.⁵⁹

Summary

HIV weakens the immune system, making an HIV-positive person unable to fight off usually harmless infections and cancers. Transmission of HIV is not easy but occurs through sex, sharing of needles or drug paraphernalia, and other routes. Risk of HIV acquisition is complex, and varies by method of contact, HIV viral load, presence of other STIs, and other variables. Receptive anal sex has the highest estimated risk of acquisition compared to other types of sex and sharing of drug paraphernalia. HIV viral load and CD4+ T-cell counts vary according to which stage the virus is in (acute, latent, or advanced). The acute and advanced stages of disease have the highest HIV viral load level, while the latent stage has the lowest. Through advancements in testing and diagnosis it is estimated that after contracting the infection, over 95 per cent of people will test positive by four to six weeks, and over 99 per cent will test positive by three months. Once HIV is contracted, treatment with HAART can suppress HIV replication and reduce a person’s viral load to an almost undetectable level, and can allow a near normal life expectancy. The next chapter examines trends in HIV among gay and bisexual men in BC, including trends in new diagnoses.

Chapter 3

HIV Trends in Gay and Bisexual Men in BC

In addition to key advances in the diagnosis and treatment of Human Immunodeficiency Virus (HIV), other variables contribute to understanding the course of the HIV epidemic among gay and bisexual men in BC. This chapter identifies and explores several key variables and trends in the epidemic, including new HIV diagnoses

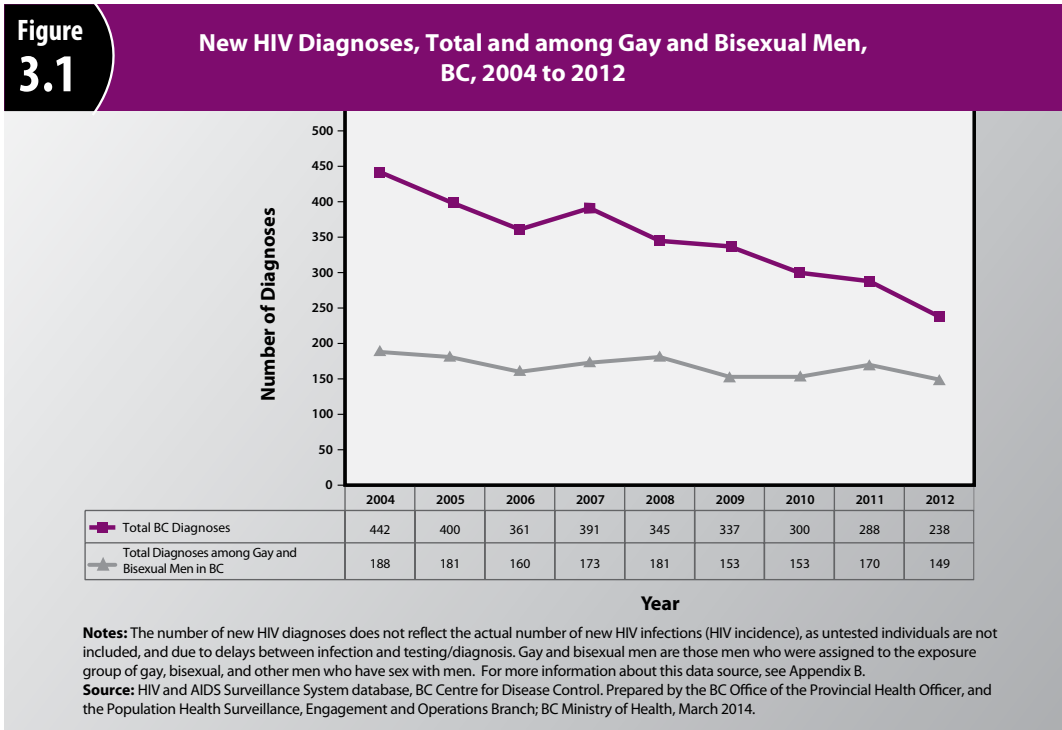
by health authority area, age, birth cohort, ethnicity, and stage of infection. It draws primarily on provincial surveillance data to review new HIV diagnoses among gay and bisexual men in BC from 2004 to 2012. New diagnoses have been analyzed by variable in this chapter; for a comprehensive compilation of these variables, see Appendix C.



Data on new HIV diagnoses is the foundation of HIV surveillance in BC. When an individual tests positive for HIV, that information must be reported to the BC Centre for Disease Control (BCCDC), providing the most complete epidemiological description of recent cases among gay and bisexual men. However, measuring new diagnoses is not the same as measuring incidence (new infections), because a diagnosis can be made years after HIV is contracted and because counts of new diagnoses are influenced by testing behaviours and related variations in testing services and uptake across regions.

Incidence of HIV among Gay and Bisexual Men

As discussed in Chapter 1, there are currently no reliable estimates of the number or proportion of gay and bisexual men in BC, nor how the size of the population may be changing over time. However, it is likely to resemble estimates in the United States, where 4 per cent of men



reported having male sex partners in the past five years and 7 per cent reported this in their lifetime.¹⁸ This suggests they are highly over-represented in BC’s HIV epidemic in which they comprise the greatest proportion of HIV incidence and prevalence (57 per cent and 45 per cent, respectively) (see Figure 1.3). Figure 3.1 illustrates that the total number of new diagnoses in BC each year declined between 2004 and 2012, but this decline was not seen among gay and bisexual men. Over time, gay and bisexual men are making up an even greater proportion of new HIV cases in BC.

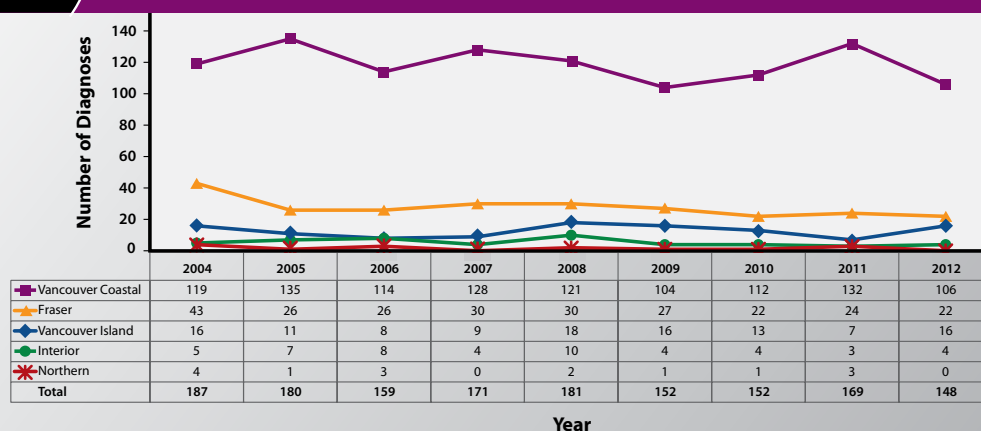
New HIV Diagnoses by Health Authority

There are noticeable differences in the number of new HIV diagnoses among gay and bisexual men across the five regional health authorities in BC. Consistent with the overall provincial trend depicted in Figure 3.1, Figure 3.2 shows that despite yearly fluctuations, there have been no substantial decreases in new diagnoses among gay and bisexual men over the past nine years within each health

authority. The largest reduction during this time is seen in Fraser Health Authority, with a reduction from 43 cases to 22 cases. The expansion of HIV testing and follow-up since 2010 in the Vancouver Coastal Health Authority may have influenced the trends in new HIV diagnoses among gay and bisexual men in this health authority in more recent years.

Figure 3.2 also highlights some key differences between the regional health authorities. The majority of new HIV diagnoses among gay and bisexual men have consistently been in Vancouver Coastal Health Authority. Fraser Health Authority is a distant second in the number of new diagnoses, while Northern and Interior Health Authorities have the lowest number of new diagnoses in gay and bisexual men in nearly every year from 2004 to 2012.

There are also differences in the proportion of new HIV diagnoses among gay and bisexual men within the regional health authorities. Table 3.1 shows that the proportion of new diagnoses among gay and bisexual men ranges from 65 per cent in Vancouver Coastal Health Authority to 7 per cent in Northern Health Authority.

Figure 3.2**New HIV Diagnoses in Gay and Bisexual Men, by Health Authority, BC, 2004 to 2012**

Notes: Figure does not include cases where health authority could not be assigned. The number of new HIV diagnoses does not reflect the actual number of new HIV infections (HIV incidence), as untested individuals are not included, and due to delays between infection and testing/diagnosis. Gay and bisexual men are those men who were assigned to the exposure group of gay, bisexual, and other men who have sex with men. For more information about this data source, see Appendix B.

Source: HIV and AIDS Surveillance System database, BC Centre for Disease Control. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

Table 3.1**Distribution of New HIV Diagnoses, by Health Authority, BC, 2004-2012**

Health Authority	Total New HIV Diagnoses	New HIV Diagnoses in Gay and Bisexual Men	
		Number	Per cent
Interior (Population: 713,307)	152	49	32%
Fraser (Population: 1,546,633)	677	250	37%
Vancouver Coastal (Population: 1,101,982)	1,659	1,071	65%
Vancouver Island (Population: 738,252)	378	114	30%
Northern (Population: 286,263)	214	15	7%
BC (Total Population: 4,386,437)	3,103	1,507	49%

Notes: The number of new HIV diagnoses does not reflect the actual number of new HIV infections (HIV incidence), as untested individuals are not included, and due to delays between infection and testing/diagnosis. If known, regions assigned based on health authority of residence; otherwise, where clients were tested. These data were extracted in June 2013 but are subject to change over time. For more information about this data source, see Appendix B.

Source: HIV and AIDS Surveillance System database, BC Centre for Disease Control. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.



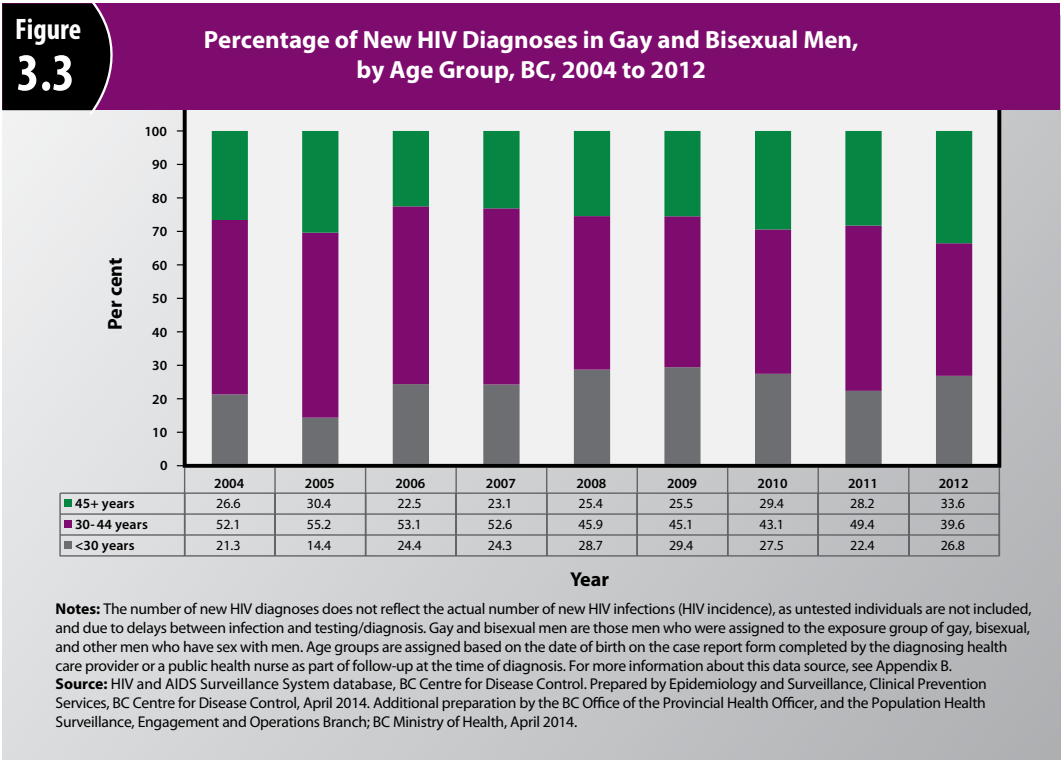


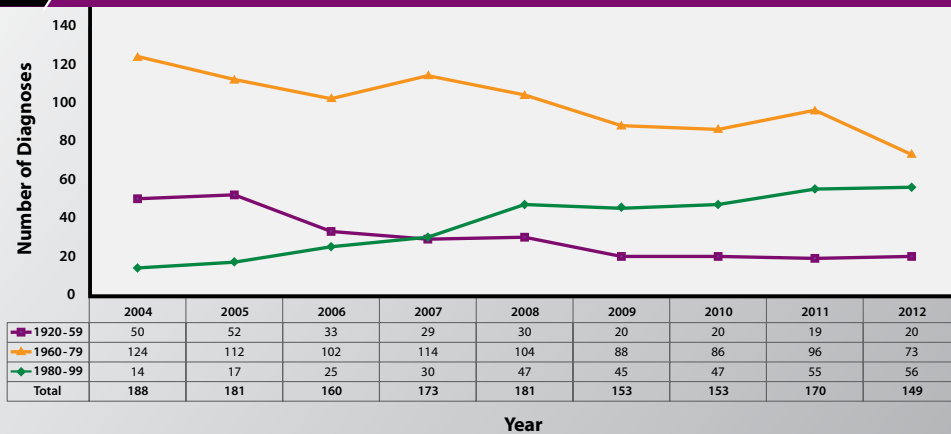
New HIV Diagnoses by Age Group

New HIV Diagnoses by Birth Cohort

Among gay and bisexual men newly diagnosed with HIV each year in BC, distribution across age groups is relatively stable over time. As Figure 3.3 shows, gay and bisexual men age 30 to 44 years consistently had the highest proportion of new diagnoses among gay and bisexual men from 2004 to 2012. Further analyses of these data reveal that from 2004 to 2012 overall, the median age at diagnosis was 38 years old.

Examining HIV diagnosis trends revealed a relatively steady distribution of new HIV diagnoses over time based on age (in the previous discussion). However, analyses based on gay and bisexual men’s year of birth reveals changes over time. As shown in Figure 3.4, new diagnoses have been decreasing among men born before 1980, particularly for those born 1960–1979.



**Figure
3.4****New HIV Diagnoses in Gay and Bisexual Men,
by Birth Cohort, BC, 2004 to 2012**

Notes: The number of new HIV diagnoses does not reflect the actual number of new HIV infections (HIV incidence), as untested individuals are not included, and due to delays between infection and testing/diagnosis. Gay and bisexual men are those men who were assigned to the exposure group of gay, bisexual, and other men who have sex with men. For more information about this data source, see Appendix B.

Source: HIV and AIDS Surveillance System database, BC Centre for Disease Control. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

This trend is likely influenced by changes in social and health contexts that have occurred over the last 30 years, such as the important developments in HIV education, awareness, diagnosis, and treatment. Conversely, there has been a steady increase in diagnoses among gay and bisexual men born 1980–1999. This increase likely reflects an “aging in” to the HIV epidemic,

as younger gay and bisexual men become sexually active and face potential exposure to HIV. These trends by birth cohort mirror findings of other research, which estimate that unless the incidence of HIV decreases, the current generation of younger gay and bisexual men may have a similar HIV prevalence to earlier birth cohorts once they are in their 40s.⁶¹



Table 3.2 presents the distribution of newly diagnosed gay and bisexual men according to birth cohort among the five BC regional health authorities for the period from 2004 to 2012. The cohort born from 1960 to 1979 is the largest group of newly diagnosed gay and bisexual men across all regional health authorities, ranging from 56 per cent in Fraser Health to 73 per cent in Northern Health. There is more variation in the proportion of newly diagnosed gay and bisexual men from earlier and later cohorts between the regional health authorities: Interior and Northern Health Authorities had more diagnoses among older men (those born before 1960) than among those born 1980 or later, while Fraser, Vancouver Coastal, and Vancouver Island Health Authorities^c had more new diagnoses among younger gay and bisexual men (those born 1980 and later).



Photo credit: Health Initiative for Men, Vancouver

Health Authority	Total New HIV Diagnoses	Distribution of New HIV Diagnoses in Gay and Bisexual Men, by Health Authority and Birth Cohort, BC, 2004-2012				
		New Diagnoses in Gay and Bisexual Men		Percentage of Diagnoses in Gay and Bisexual Men by Birth Cohort		
		Number	Per cent	1920-1959	1960-1979	1980-1999
Interior	152	49	32%	29%	57%	14%
Fraser	677	250	37%	21%	56%	24%
Vancouver Coastal	1,659	1,071	65%	17%	61%	22%
Vancouver Island	378	114	30%	20%	57%	24%
Northern	214	15	7%	20%	73%	7%
BC	3,103	1,507	49%	18%	60%	22%

Notes: The number of new HIV diagnoses does not reflect the actual number of new HIV infections (HIV incidence), as untested individuals are not included, and due to delays between infection and testing/diagnosis. If known, regions assigned based on health authority of residence; otherwise, where clients were tested. Use caution when interpreting age-related sub-groups in some regions due to small sample size. These data were extracted in June 2013 but are subject to change over time. For more information about this data source, see Appendix B.

Source: HIV and AIDS Surveillance System database, BC Centre for Disease Control. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

^c During the development of this report, Vancouver Island Health Authority became Island Health. As such, while this report uses the former name of the health authority throughout for consistency, advisory group representatives are identified by their current Island Health affiliation in the Acknowledgments.

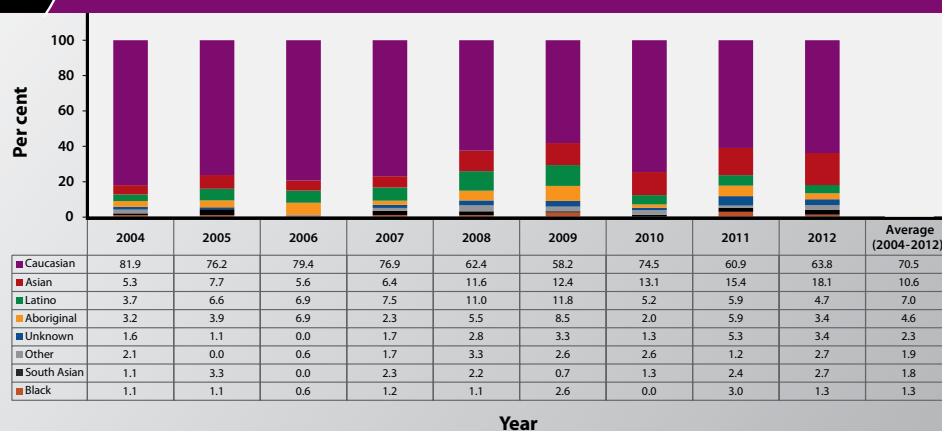
New HIV Diagnoses by Ethnicity

Evidence suggests that rates of new HIV diagnoses among gay and bisexual men vary based on ethnicity in BC. There also appears to be some gradual changes in the distribution of these new diagnoses over the last decade. As Figure 3.5 shows, the proportion of newly diagnosed gay and bisexual men who self-identify as Caucasian varied over time from a high of 81.9 per cent in 2004 to a low of 58.2 per cent in 2009. Despite this variation and the overall downward trend, these Caucasian men consistently made up the majority of new diagnoses among gay and bisexual men from 2004 to 2012, averaging 70.5 per cent of the new diagnoses during this time. Asian men have increased in proportion of new diagnoses among gay and bisexual men from 2006 to 2012, and accounted for the second largest group of new diagnoses on average from 2004 to 2012, (10.6 per cent). Men who self-identified as Latino (7.0 per cent) or Aboriginal (4.6 per cent) represented the third and fourth largest groups of new diagnoses among gay and bisexual men during this



**Figure
3.5**

**Percentage of New HIV Diagnoses among Gay and Bisexual Men,
by Self-Identified Ethnicity, BC, 2004 to 2012**



Notes: The number of new HIV diagnoses does not reflect the actual number of new HIV infections (HIV incidence), as untested individuals are not included, and due to delays between infection and testing/diagnosis. Gay and bisexual men are those men who were assigned to the exposure group of gay, bisexual, and other men who have sex with men. Ethnicity data are based on self-identification. For more information about this data source, see Appendix B.

Source: HIV and AIDS Surveillance System database, BC Centre for Disease Control. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

time period; however, there is considerable variation year to year among these two groups as well as other self-identified ethnocultural minority groups shown here.

Proportions of new HIV diagnoses among gay and bisexual men varied for Aboriginal and self-identified ethnocultural minorities across regional health authorities for 2004 to 2012 (see Table 3.3). As this table shows, a greater proportion of newly diagnosed gay and bisexual men in Northern Health Authority identify as Aboriginal, although this percentage is based on a small number of cases from 2004 to 2012. In contrast, while Vancouver Coastal has the largest total number of HIV diagnoses among gay and bisexual Aboriginal men (43 cases) this represents only 4 per cent of new diagnoses among gay and bisexual men in the region.

Further analyses of these data indicate that there are some differences by ethnicity between birth cohorts over time, with a

greater proportion of HIV-positive diagnoses occurring among younger non-Caucasian men. These analyses revealed that for 2004 to 2012, 44 per cent of these new diagnoses were among men born in 1980 or later, compared to 28 per cent among men born 1960–1979 and 13 per cent among men born before 1960.

New HIV Diagnoses by Stage of Infection at Diagnosis

The proportion of gay and bisexual men identified as HIV positive in the acute stage of HIV infection has increased from 6 per cent in 2006 to 19 per cent in 2012.⁶² As described in Chapter 2, this is the period early in infection when HIV viral load and risk of transmission are highest. This observed increase is likely to have resulted at least in part from the targeted implementation of pooled nucleic

Table 3.3 Distribution of New HIV Diagnoses in Gay and Bisexual Men, by Health Authority and Self-Identified Ethnicity, BC, 2004-2012					
Health Authority	Diagnoses in Gay and Bisexual Men	Self-Identified as Aboriginal		Self-Identified as Other Ethnocultural Minority	
	Number	Number	Per cent	Number	Per cent
Interior	49	5	10%	4	8%
Fraser	250	12	5%	56	22%
Vancouver Coastal	1,071	43	4%	263	25%
Vancouver Island	114	2	2%	9	8%
Northern	15	7	47%	2	13%
BC	1,507	69	5%	338	22%
Notes: The number of new HIV diagnoses does not reflect the actual number of new HIV infections (HIV incidence), as untested individuals are not included, and due to delays between infection and testing/diagnosis. Ethnicity and Aboriginal data based on self-identification. If known, regions assigned based on health authority of residence; otherwise, where clients were tested. Use caution when interpreting ethnicity-related sub-groups in some regions due to small sample size. These data were extracted in June 2013 but are subject to change over time. For more information about this data source, see Appendix B. Source: HIV and AIDS Surveillance System database, BC Centre for Disease Control. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.					

**Table
3.4****Distribution of New HIV Diagnoses in Gay and Bisexual Men, by Health Authority and Stage of Infection, BC, 2004-2012**

Health Authority	BC Population Diagnoses	Gay and Bisexual Men		
		New Diagnoses		Percentage with Advanced HIV Disease at Diagnosis
		Number	Per cent	Per cent
Interior	152	49	32%	35%
Fraser	677	250	37%	14%
Vancouver Coastal	1,659	1,071	65%	7%
Vancouver Island	378	114	30%	11%
Northern	214	15	7%	33%
BC	3,103	1,507	49%	10%

Notes: The number of new HIV diagnoses does not reflect the actual number of new HIV infections (HIV incidence), as untested individuals are not included, and due to delays between infection and testing/diagnosis. Advanced HIV disease at diagnosis is defined as having an AIDS diagnosis and case report within 12 months of the date of first positive HIV test. If known, regions assigned based on health authority of residence; otherwise, where clients were tested. These data were extracted in June 2013 but are subject to change over time. For more information about this data source, see Appendix B.

Source: HIV and AIDS Surveillance System database, BC Centre for Disease Control. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

acid amplification testing (NAAT), which increases the ability to detect acute HIV, and has been used at clinics serving gay and bisexual men in Vancouver since 2009.⁶³

Despite these improvements, a substantial proportion of gay and bisexual men continue to be diagnosed at the advanced stage of HIV infection (defined as having an AIDS-defining illness within a year after diagnosis).⁶² Being diagnosed at this stage can lead to poorer health outcomes, and indicates a prolonged period of being unaware that one is infected with HIV, as well as potentially transmitting HIV to partners. Between 2004 and 2012, an average of 10 per cent of newly diagnosed gay and bisexual men in BC had advanced HIV disease at diagnosis. As shown in Table 3.4, this proportion was lowest in Vancouver Coastal (7 per cent), and highest in Interior and Northern Health Authorities (35 per cent and 33 per cent, respectively).

Summary

HIV incidence among gay and bisexual men in BC peaked in 1987, and overall, has decreased since that time. As this chapter has demonstrated, there are differences in new HIV diagnoses among gay and bisexual men in BC based on health authority, age, birth cohort, ethnicity, and stage of infection. There was minimal change in the number of new HIV diagnoses among gay and bisexual men within each health authority from 2004 to 2012, but noticeable variation between regional health authorities; Vancouver Coastal had the highest number of new diagnoses while Northern and Interior had the lowest. When analyzed by age, the proportion of new diagnoses each year was consistently highest in gay and bisexual men aged 30 to 49. The number of new diagnoses from 2004 to 2012 by birth cohort indicate that there were decreases among men born

1920–1959 and 1960–1979 and increases among those born 1980–1999, but overall, the 1960–1979 birth cohort consistently had the highest counts across all regional health authorities. Caucasian men made up the majority of new HIV diagnoses among gay and bisexual men, while Asian men accounted for the largest (and growing) proportion of diagnoses among ethnocultural minority groups from 2004 to 2012. Northern Health had the largest proportion of new diagnoses among gay and bisexual men who self-identify as Aboriginal,

while Vancouver Coastal had the largest proportion among those who self-identified as other ethnocultural minorities. Despite an increased proportion of gay and bisexual men being diagnosed with HIV in the acute stage, a substantial proportion continues to be diagnosed at an advanced stage of HIV infection, particularly in the Interior and Northern Health Authorities. (For the full table examining these variables by health authority, see Appendix C.) The next chapter explores drivers of the HIV epidemic among gay and bisexual men in BC.

Chapter 4

Drivers of the HIV Epidemic among Gay and Bisexual Men

This chapter further explores the concept of “drivers” and their influence on the Human Immunodeficiency Virus (HIV) epidemic among gay and bisexual men, and examines a series of key drivers of the epidemic.

Data and Terminology

Data sources used in this chapter may use the terms “gay and bisexual men” or “men who have sex with men (MSM);” however, this report uses the term “gay and bisexual men” in all figures and related discussions for consistency and clarity (see Chapter 1 for more information on terminology). More details about the populations sampled or surveyed, predetermined epidemiological categories, and self-identification via surveys are included in the notes of each figure, and in Appendix B.



Exploring Drivers and their Levels of Influence

Variables that impact the HIV epidemic can be classified or categorized in several ways. In accordance with the conceptual approach described in Chapter 1, these variables are explored in this report as drivers, and are examined with consideration of several levels or spheres of influence. However, these are not meant to be discrete or mutually exclusive categories, but rather, overlapping and intersecting layers of influence. The challenge with current approaches to sexual health and related HIV prevention strategies is that they are simplistic and reductionist, assuming that decisions about sex are made based solely on knowledge about HIV transmission and weighing of potential risks; thus, they fail to recognize the intrinsically human feelings and desires that propel human sexuality.^{16,64} In fact, general knowledge about sexual risks for infection appears high for gay and bisexual men of all ages.⁶⁵ Therefore, one benefit of examining HIV infection by exploring drivers and considering the multiple levels at which they operate, is the potential for a more comprehensive investigation of the complex factors simultaneously influencing HIV transmission. This in turn enables a more robust foundation for prevention strategies. This examination was informed by a review of the published and grey literature. The drivers examined in this report have been described and examined with consideration



of three main levels of influence: societal and structural, community and relationships, and behavioural and biological.

Drivers at the most removed level include *societal and structural* factors that work broadly within society or its institutions to impact HIV transmission. They influence drivers at the community and relationships level, and behavioural and biological level. Examples include experiences of marginalization and stigma, access to appropriate health care, and racism.

Drivers at the intermediate level include *community and relationship* factors, which work within and across communities and social networks to influence HIV transmission. They exist within the context of societal and structural level drivers and underlie behavioural and biological level drivers. Examples include mental health, HIV prevalence in gay communities, and composition of sexual networks.

Drivers with the most immediate or proximal relationship to the HIV epidemic are *behavioural and biological* drivers, which most directly affect the rate of HIV transmission and infection within a population, based on communicable disease theory regarding the spread of infectious disease epidemics.³⁴ These drivers affect whether HIV transmission ultimately

occurs between two people. This includes factors that affect the chance of having a sexual partner who is HIV positive and whether HIV is transmitted during a particular sexual encounter. Examples include individual HIV viral load, presence of sexually transmitted infections (STIs), and sexual behaviour (e.g., condom use).

At all of the levels of influence, drivers can have many different implications: they can be highly deterministic or more indirectly influential; they may act to either increase or decrease HIV transmission; they may influence one individual substantially but have little or no effect on another; and their impacts can be cumulative and/or multiplicative.¹⁷ Additionally, some drivers are potentially modifiable, while others are not. For an individual, these drivers are not necessarily static over time and their influence may change at different life stages. In some cases, a driver may be a single variable, while in others a driver may be a cluster or group of variables that together impact the HIV epidemic.

Singling out specific drivers of the epidemic in this way does not fully explain the disparities related to HIV among gay and bisexual men in BC. For an individual gay or bisexual man, it is the combined influence and intersection of these multiple drivers that influences the likelihood of HIV infection.³² There are important relationships between drivers across all three levels; for example, HIV-based stigma within gay communities at an intermediate level is linked to stigma related to HIV within society at the broadest level.

The remainder of this chapter will focus on an examination of these drivers, including: stigma; HIV prevalence; sexual behaviours; sexual networks; the effect of HIV treatment, HIV viral load, and acute HIV infection; testing and awareness of HIV status and other STIs; appropriate health care; marginalization and mental health; migration and immigration; racism; and broader systemic challenges.



“There is no evidence to suggest that criminalization of non-disclosure of HIV status has had an impact on HIV transmission rates. Many have argued criminalization is problematic, undermines public health efforts, and exacerbates stigma. It is also thought to be causing some gay and bisexual men to delay getting tested.”

Stigma

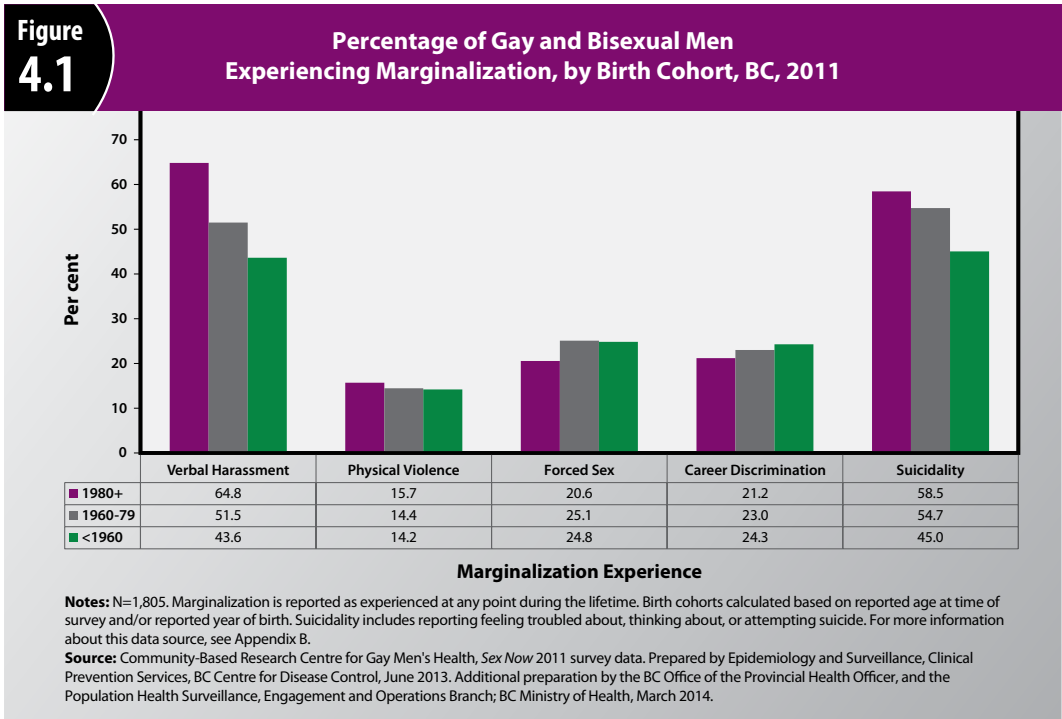
Stigma is a powerful factor that infuses social and cultural experiences and contexts, as well as having more direct or immediate results. It can affect the broader population of gay and bisexual men who may experience stigma as a result of sexual orientation, as well as HIV-positive men who may experience stigma as a result of their HIV status. In part, this stigma among gay and bisexual men is a reflection of broader societal attitudes towards people with HIV. In a recent national survey, only 48 per cent of Canadians agreed that people with HIV have the right to be sexually active. Additionally, 11 per cent of those surveyed felt that people who become infected with HIV have only themselves to blame.⁶⁶ In the same survey, 74 per cent of Canadians considered it appropriate to prosecute someone who knowingly did not divulge his or her status to a sexual partner.⁶⁶

Since the HIV epidemic began in Canada, there have been calls to use criminal law as a means of curbing HIV transmission. This led to a significant ruling in 1998 by the Supreme Court of Canada (*R. v. Cuerrier*) that a person who did not disclose their HIV status and whose partner was at “significant risk” of HIV transmission could be found guilty of aggravated assault.⁶⁷ Since that ruling, from 1989 to 2009, there have been an increasing number of criminal cases involving charges related to non-disclosure of HIV status in Canada, and 18 per cent of these criminal cases involved gay and bisexual men.⁶⁸ The repercussions of these criminal cases of HIV non-disclosure are profound, as they are typically accompanied by sensational media accounts that reflect or appeal to fears, misinformation, and prejudices about HIV and people living with HIV.⁶⁹ There is no evidence to suggest that criminalization of HIV non-disclosure has had an impact on HIV transmission rates. In fact, many community leaders, researchers,

“[I have] new fears I never had before. Fear of, will I ever be able to have a relationship with someone again? Fear of dating somebody and advising them of your status and then being rejected. Fear of, will I be sick? Will I lose work because of this? [...] I just don’t want to end up being alone or lonely because [of my HIV status].”

55 years old, HIV positive
On living with HIV and uncertainty regarding its impact on his life





and policy-makers have argued that criminal approaches to disease control are problematic as they undermine public health efforts and can worsen stigma related to HIV.⁷⁰ For example, the criminalization of HIV non-disclosure⁷¹ is thought to be causing some gay and bisexual men to delay getting tested in order to avoid the obligation to disclose HIV status, and/or to avoid being at risk of prosecution.⁷²

Experiences of stigma, prejudice, and discrimination on the basis of sexual orientation can have profound consequences on gay and bisexual men's health, including rates of violence and suicide. As

Figure 4.1 shows, gay and bisexual men of all birth cohorts, and those born in 1980 or later in particular, reported high rates of marginalization experiences in the 2011 *Sex Now* survey. Almost two-thirds (64.8 per cent) of gay and bisexual men born 1980 and later reported experiencing verbal harassment, compared to 51.5 per cent of those born 1960–1979 and 43.6 per cent of those born before 1960. Percentages are also high for suicidality, with 58.5 per cent of gay and bisexual men born 1980 and later stating that they felt troubled about, thought about, or attempted suicide, compared to 54.7 per cent of those born 1960–1979 and 45.0 per cent of those born before 1960.

I had many friends here who died. And I was aware of how the community was changing ... When you're my age, it doesn't matter how intimate the moment. There is a constant bell going off, you know? Sometimes I even see the faces of my friends who died. And it's, you know, it's pretty startling when you're in the heat of the moment [and] suddenly you have a vision of one of your best friends.

63 years old, HIV negative
Reflecting on experiences with HIV-positive friends and lovers over his lifetime

The Impact of HIV Prevalence

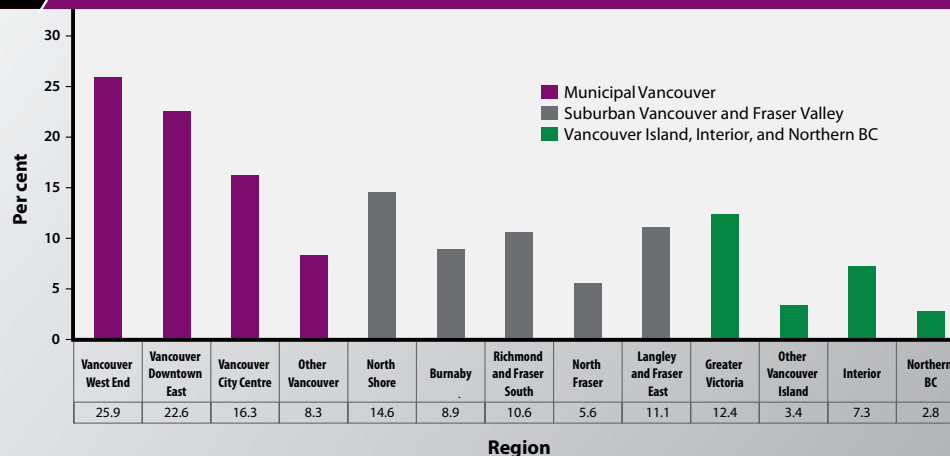
The prevalence of HIV is a fundamental driver of the epidemic among gay and bisexual men. It impacts the epidemic through its accumulated presence in the community biologically, socially, and/or mentally. As explored in Chapter 1, the *ManCount* survey of gay and bisexual men in Vancouver in 2008 found that 21 per cent of those surveyed were HIV positive.¹⁹ As shown in Figure 4.2, the 2011 *Sex Now* survey results showed that the proportion of gay and bisexual men reporting HIV-positive status varied in different geographical areas of BC, ranging from a high of 25.9 per cent in Vancouver West End to a low of 2.8 per cent in Northern BC. Overall, 13.2 per cent of those surveyed reported being HIV positive.

HIV diagnoses can accumulate within a gay or bisexual man's social and sexual networks over his lifespan so that as he ages it becomes more common to have HIV-positive friends or acquaintances; for example, in Vancouver in 2008, one out of every three gay and bisexual men 45 years and older was HIV positive).⁷³ Older generations of gay and bisexual men are the survivors of the pre-treatment era, while younger generations of men have never known a world where the risk of HIV has not been associated with sex. This personal connection to HIV, combined with the historical legacy of HIV among gay communities, has had a profound impact on how gay and bisexual men in BC respond to the epidemic.

One of the greatest achievements in the treatment of HIV is the potential for gay and bisexual men with HIV to have a near-

**Figure
4.2**

Percentage of Gay and Bisexual Men who are HIV Positive (Self-Reported), by Region, BC, 2011



Notes: N=1,805. Regions and communities were assigned based on self-reported location. For more information about this data source, see Appendix B.
Source: Community-Based Research Centre for Gay Men's Health, *Sex Now* 2011 survey data. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

I find that older men... are the only people that are accepting. Anybody my age or younger [are not as open] because they're too naïve about it or they just don't know. And what they don't know scares them.

26 years old, HIV positive
 On the challenges of disclosing HIV-positive status to sexual partners of similar age



normal life expectancy.⁵⁴ As the population of HIV-positive men continues to grow in BC, the net effect of this increasing HIV prevalence may be towards increased numbers of HIV infections.⁷⁴ The concept of “**positive prevention**” includes enhancing the capacity of both HIV-negative and HIV-positive men to prevent new HIV infections. This concept recognizes the central role that HIV-positive men have in HIV prevention among gay and bisexual men, and is an integral component of HIV prevention strategies for gay and bisexual men.⁷⁵

Emotional and sexual relationships between HIV-positive and HIV-negative men (**serodiscordant** partners) are not uncommon, with 5 per cent of HIV-negative men reporting having an HIV-positive partner or boyfriend in BC in 2011.²⁴ However, there remains a strong stigma associated with HIV infection among gay and bisexual men, which can lead to delays in getting tested, or making assumptions about a partner’s HIV status due to anxiety or discomfort with discussing it directly.^{77,78}

Sexual Behaviours

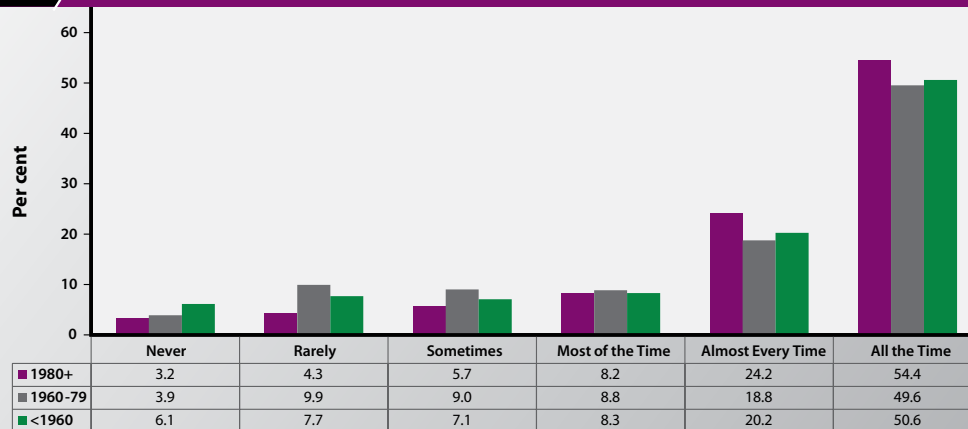
The most long-standing and effective strategy for reducing the risk of HIV transmission is the use of condoms. High levels of condom use by gay and bisexual men during the height of the HIV epidemic contributed to the drop in new HIV infections in the early 1990s.^{15,17} Condom use remains high among gay and bisexual men in BC, and as shown in Figure 4.3, the majority of gay and bisexual men surveyed (75 per cent average across all age groups) in 2010 reported “always” or “almost always” using condoms with casual sex partners. This figure also shows that of the three birth cohorts analyzed, those born after 1980 reported the highest rates of condom use.

Despite high levels of condom use, HIV prevalence has become entrenched in the population of gay and bisexual men in BC. One key reason for this is the inherent risk

involved in the type of sex that gay and bisexual men have.²⁰ As shown in Chapter 2, anal sex physiologically carries the highest risk of HIV transmission—up to 18 times greater than vaginal sex—and the level of risk varies according to one’s position (insertive or receptive) during sex. A recent study explored this by changing parameters in a theoretical model of a population of gay and bisexual men (i.e., changing risk of transmission via anal sex to that of vaginal sex, and restricting men to either an insertive or receptive role). Changing these parameters resulted in a decrease in incidence of more than 80 per cent over 5 years in the HIV epidemic among gay and bisexual men, confirming the substantial contribution of these physiological factors.²⁰

Further to the adoption of these biomedical preventive measures, as knowledge about HIV transmission has grown, gay and bisexual men have adopted a variety of risk reduction or prevention strategies other than condom use, called “**seroadaptive behaviours**”—strategic behaviours based on knowledge about a partner’s HIV status. For example, men may negotiate safe-sex agreements with their main partner (such as only having sex with condoms outside their relationship). Another strategy known as “**serosorting**” involves having sex without condoms with someone of the same HIV status. Another seroadaptive behaviour is “**seropositioning**” (or strategic positioning), in which partners choose insertive or receptive roles during anal sex based on HIV status; for example, among serodiscordant partners there is lower risk of HIV transmission if the HIV-positive partner is in a receptive role.²⁰ While these risk reduction strategies are not as effective as consistent condom use and are dependent on assumptions about HIV status, they are common, and gay and bisexual men who use them have a demonstrated lower risk of HIV compared to men who do not.^{79,80}

To be effective, prevention interventions should not be based on the assumption that decisions made about sex are based solely

Figure 4.3**Frequency of Condom Use with Casual Sex Partners among Gay and Bisexual Men, by Birth Cohort, BC, 2010****Frequency of Condom Use**

Notes: N=1,428. Birth cohorts calculated based on reported age at time of survey and/or reported year of birth. For more information about this data source, see Appendix B.

Source: Community-Based Research Centre for Gay Men's Health, *Sex Now* 2010 survey data. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

on knowledge about HIV transmission, as this fails to recognize the emotions and desires that drive sexuality.^{16,64} Gay and bisexual men have been found to have a high degree of general knowledge about HIV and sexual risks for infection, as well as accurate perceptions of their risk of HIV.⁶⁵ While there is some suggestion that the perception of the risk of acquiring HIV is decreasing over time among gay and bisexual men in BC (from 38 per cent in 2007 to 23 per cent in 2011, according to *Sex Now* survey data), men who report having sex

without condoms are also more likely to perceive themselves to be at higher risk of HIV transmission.²⁴ Increasingly, scholars are demonstrating the importance of factors that are critical for understanding the full context of gay men's sexual lives and that influence decisions about condom use (e.g., pleasure, risk, desire, emotional intimacy, trust, social norms). Therefore, addressing these factors is a way to engage gay and bisexual men in more realistic conversations about HIV prevention.^{81,82,83,84} Experiences over the life course can also have important influences



There [were] no decisions. It just happened. Yeah. I didn't really ask because... he always says he's negative, so I trust him. And on the profile, he also says he's negative. Not that I think he would lie, but I'm not sure if he does regularly get tested. But I know he usually, when he does anal, he only tops. So the risk of him contracting HIV is not, is not null, but it is quite low. So, even if he wasn't testing regularly, I trusted him and I took the risk. And I kind of regret it.

29 years old, HIV negative
On the complexity of sexual decision-making and awareness of his partner's HIV status



So, we were having unsafe sex together. And that's why I first came to the clinic. [...] I would say there was an emotional need to have that closeness. For the first time in three years of being single, I actually had that intimacy with somebody that was very special to me. And he really wanted that. [...] Now, I'm having, only having educated barebacking sex. I'm educated about my partners, we've had a conversation, I'm educated about his status, he's educated about mine. We've discussed some boundaries within our sexual relations. And we made an educated decision to have 'unsafe sex'. [...] And I've been told by some of my friends that I'm being irresponsible. I don't get that.

43 years old, HIV negative
On his use of risk reduction strategies and the role that desire for intimacy plays in sexual decision-making

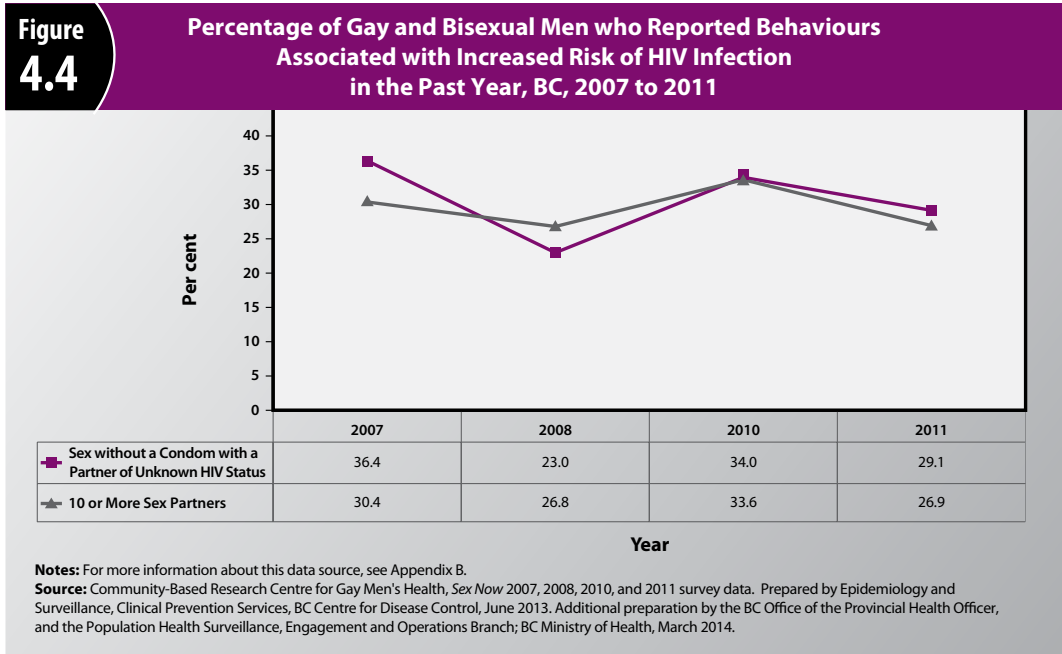


on sexual behaviour, such as experiences of coming out, experiences in a relationship, or the death of a partner.^{29,32} Community-driven interventions are emerging that are based on a more nuanced understanding of these factors as well as the risk-reduction strategies that gay and bisexual men use. Currently these interventions are largely confined to research and have not yet gained more widespread traction within formal public health approaches.^{85,86}

Sexual Networks

The sexual networks of gay and bisexual men are also key to understanding the HIV epidemic, as they are often larger and more densely connected than those of heterosexual men, with a greater number of both sexual

partners and concurrent or overlapping relationships.^{20,87} As Figure 4.4 shows, across four instances of the *Sex Now* survey (from 2007 to 2011), 23.0 to 36.4 per cent of respondents reported having sex without condoms with at least one partner of unknown HIV status in the previous year, and 26.8 to 33.6 per cent of men had 10 or more sex partners in the previous year. These measures do not show a sustained increase or decrease during this time. Recent analyses of the molecular epidemiology of HIV among gay and bisexual men in the United Kingdom have demonstrated that transmission occurs through episodic bursts in large, linked groups, and that HIV spreads much more quickly among networks of gay and bisexual men than in heterosexual networks.^{88,89,90} Sexual networks are also changeable, as over a lifespan men may go



Well, most of the people which I had sex [with] here in Vancouver moved around the same circle [...] obviously the more people you have sex with, the most unprotected sex with, the more riskier you indeed are. Like, maybe you have sex with one person who barely has sex, or is in a relationship, or, that's not as risky for the health and diseases. But if you are having unprotected sex with people who are in the same train, in the, yeah, it's kind of a community[...] So having sex with them would be risky.

32 years old, HIV negative

Discussing having sex without condoms within a network of men, some of whom are HIV positive



through periods of higher and lower sexual activity. The formation of sexual networks has also changed over the past decade; year a majority of gay and bisexual men reported meeting partners on the Internet in the past year.^{19,65} Networks are not geographically confined, as men may travel within BC or abroad to meet sex partners.

HIV Testing and Awareness of HIV Status

HIV testing is a cornerstone of HIV prevention strategies. To be effective, many risk reduction strategies adopted by gay and bisexual men require an accurate understanding of one's own and one's partner's HIV status.^{91,92,93} Individuals with undiagnosed HIV infection are more likely to transmit HIV to others,⁹⁴ whereas upon

receipt of an HIV-positive diagnosis, most people take measures to reduce the risk of transmission to others.^{95,96} An HIV diagnosis is also a fundamental first step to accessing HIV clinical care and treatment, which have both individual and population health benefits (e.g., by reducing population viral load).

Nationally, an estimated 20 per cent of HIV-positive gay and bisexual men were unaware of their infection in 2011.⁷ In a 2008 survey of Vancouver gay and bisexual men that collected and tested blood specimens for HIV, 14 per cent of HIV-positive men were unaware of their infection, and over two-thirds of those men had previously tested for HIV within the past two years. These data suggest that most men who are unaware of their infection are between HIV tests, and that efforts to increase HIV testing frequency would be beneficial for earlier diagnosis.¹⁹



CASE STUDY: Anonymous HIV Testing Pilot Project • British Columbia

Anonymous testing links a person to their test result using a numbered code that only they know, with no identifiable information collected. This pilot is currently underway and being implemented at clinics across BC, to increase uptake of testing for people who delay testing because of concerns about confidentiality.

BC Centre for Disease Control



As shown in Figures 4.5 and 4.6, the *Sex Now* survey results suggest that HIV testing has become common among gay and bisexual men in BC. As shown in Figure 4.5, for most survey years, approximately half of gay and bisexual men surveyed reported being tested for HIV in the past year. Past year testing rates were highest among those born 1960–1979 and lowest among those born before 1960, in three out of the four survey cycles depicted. Survey results shown in Figure 4.6 suggest that HIV testing rates are lower in areas outside of Vancouver. Further analyses of these *Sex Now* survey data indicated that over 80 per cent of survey participants in 2011 have been tested in their lifetime.

Examining stages of infection and testing patterns of newly diagnosed gay and bisexual men in BC provides further evidence of the potential importance of strategies to increase the uptake and frequency of HIV testing in this population. Among men newly diagnosed between 2006 and 2011, the median time between their last negative and first positive test was 15 months, and 25 per cent had an interval of three years or more. Furthermore, 40 per cent of newly diagnosed gay and bisexual men were not known to have previously tested for HIV.^{76,97} Within Vancouver Coastal Health Authority between 2009 and 2011, 13 per cent of newly diagnosed gay and bisexual men had a low

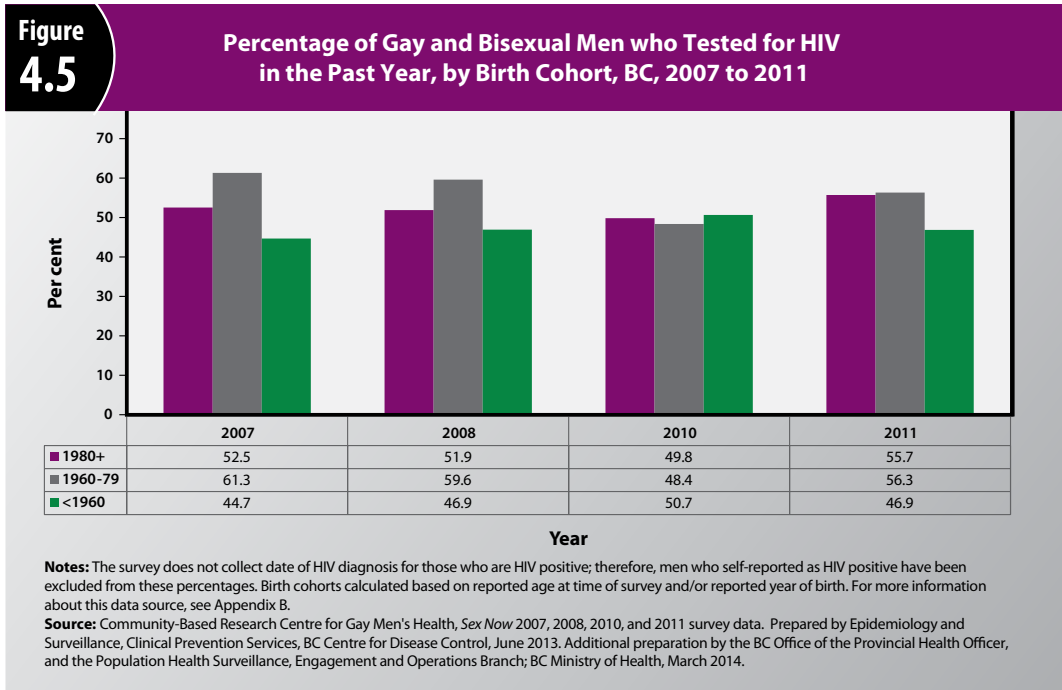
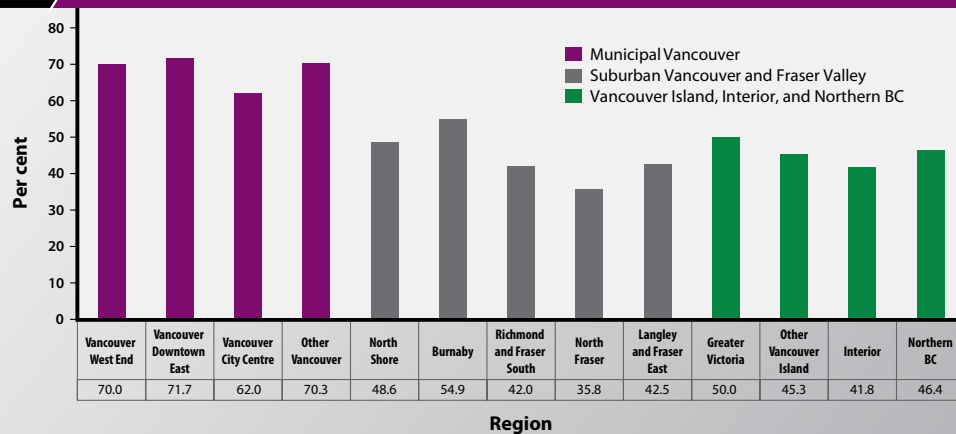


Figure 4.6**Percentage of Gay and Bisexual Men who Tested for HIV in the Past Year, by Region, BC, 2011**

Notes: N=1,805. The survey does not collect date of HIV diagnosis for those who are HIV positive; therefore, men who self-reported as HIV positive have been excluded from these percentages. Regions and communities were assigned based on self-reported location. For more information about this data source, see Appendix B.

Source: Community-Based Research Centre for Gay Men's Health, Sex Now 2011 survey data. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

CD4+ T-cell count at diagnosis, suggesting an advanced stage of infection. Many people with advanced HIV at diagnosis—including gay and bisexual men—are known to have missed opportunities for HIV testing at previous encounters with the health system. In Vancouver, 60 per cent of newly diagnosed people between 2010 and 2012 with advanced HIV at diagnosis had a documented laboratory test, emergency visit, or hospital admission in the previous three years or since their last negative HIV test.⁹⁸

To further expand HIV testing, it is necessary to understand and address the barriers to testing reported by gay and bisexual men.⁹⁹ According to the *ManCount* survey of gay and bisexual men in Vancouver in 2008, the three most common reasons for not

I personally like unprotected sex after we have been tested and all that, just because you can have sex more spontaneously, you know, without preparation and that kind of stuff, you know. And I like that.

25 years old, HIV negative
On why he tested for HIV with his partner



testing were the following: perceived self to be at low risk of infection (59 per cent), consistently practicing safe sex (32 per cent), and procrastination (30 per cent).¹⁹ A smaller proportion of men (16 per cent) reported not testing due to fear of negative consequences of HIV infection, (e.g., not being able to deal with the diagnosis, fear of repercussions on their career, or impact on

CASE STUDY: Sexual Health Centres • Vancouver

The Health Initiative for Men (HIM) operates two sexual health centres for gay men, which offer a range of services including testing, peer and professional support and counselling, and education. These services are aligned with HIM's mission to strengthen gay men's health, including physical, sexual, social, and mental health.

Health Initiative for Men

their sex life); and 14 per cent reported not testing because of difficulty accessing testing (e.g., not having a doctor, not able to get an appointment, or not knowing where to go for testing).¹⁰⁰ In 2011, gay and bisexual men in BC who had not recently been tested or who had delayed testing for HIV identified the following barriers: 15 per cent reported clinic access barriers (e.g., need for appointment, wait times, hours of operation); 14 per cent reported privacy concerns (e.g., not wanting the test from their own doctor, lack of anonymous HIV testing); and 5 per cent reported distance to a testing clinic as a barrier.²⁴ While the reasons for the disparity in testing across BC shown in Figure 4.6 are not clear, it may be related to barriers to testing faced by gay and bisexual men in some geographical areas (e.g., access to culturally sensitive HIV testing services, concerns about privacy or confidentiality, or stigma related to HIV or sexual orientation).

Survey findings about barriers to HIV testing contributed to a recent provincial decision to pilot a formal system for individuals to

test anonymously (i.e., using only a testing code).¹⁰¹ This and other testing models that aim to reduce barriers for testing (called “low-barrier” testing models)—such as outreach testing in gay venues, or in clinics where identifying information is not collected—are necessary to facilitate testing for the small but significant proportion of gay and bisexual men who delay or avoid testing due to concerns about privacy.¹⁰²

Treatment and HIV Viral Load

As described earlier in this report, for individuals with HIV, having a high viral load (a high level of HIV in the blood) is associated with a greater risk of transmission of HIV to others.¹⁰³ When extrapolated to a sub-population or community level, the number of HIV-positive people with high or detectable viral loads within a community (*population viral load*), can cause higher HIV infection rates, while decreases in viral loads within a community have been associated with decreases in HIV incidence within that population.¹⁰³

CASE STUDY: hiv101 Campaign • Northern British Columbia

The hiv101 campaign is an award-winning health education campaign and website that aims to increase HIV testing and early treatment, and uses powerful video testimonials by people living with HIV to help reduce HIV-related stigma and dispel misinformation about HIV. Visit the website at hiv101.ca.

Northern Health Authority



Photo credit: Northern Health – hiv101.ca

An individual's viral load will vary by stage of infection, but can be lowered through anti-HIV medication—particularly with highly active antiretroviral therapy (HAART). In order to decrease HIV incidence, attention is increasingly being given to strategies that aim to increase the uptake of HAART, and to support people to stay in HIV care and on treatment. This is referred to as “treatment as prevention,” a strategy developed in BC and a key component of the current provincial program Seek and Treat for Optimal Prevention of HIV/AIDS (STOP HIV/AIDS; see related side bar).^{104,105,106}

Decreases in the viral load in a certain population through increased treatment is considered to be one of the reasons for the decrease in HIV among people who use injection drugs in BC.^{1,105} Evidence from a randomized controlled trial testing the use of HAART as prevention in serodiscordant heterosexual couples in Africa provides further support for the effectiveness of this approach.¹⁰⁷ However, evidence for the impact of treatment as prevention is not as strong for gay and bisexual men compared to heterosexual populations.¹⁰⁸ While some jurisdictions have found an association at a population level between increasing uptake of HAART, decreasing population viral load, and decreasing HIV incidence among gay and bisexual men, others have not.^{74,109,110,111,112}



Seek and Treat for Optimal Prevention of HIV/AIDS (STOP HIV/AIDS)

Seek and Treat for optimal Prevention of HIV/AIDS (STOP HIV/AIDS) originated as a pilot project (2009-2013) in the City of Vancouver and Prince George, aiming to reach and engage people, including the most vulnerable and marginalized populations, into HIV testing and treatment. This approach was expanded to all areas of BC in April, 2013.

The STOP HIV/AIDS provincial program is implemented collaboratively by health authority partners, government, community organizations, and other valuable health care partners. Implementation is guided by the Ministry of Health's strategic framework, *From Hope to Health: Towards an AIDS-free Generation*,² which includes goals, milestones and targets for enhancing the reach of harm reduction services and testing for HIV, and for reaching and retaining people in HIV therapy, support and care.



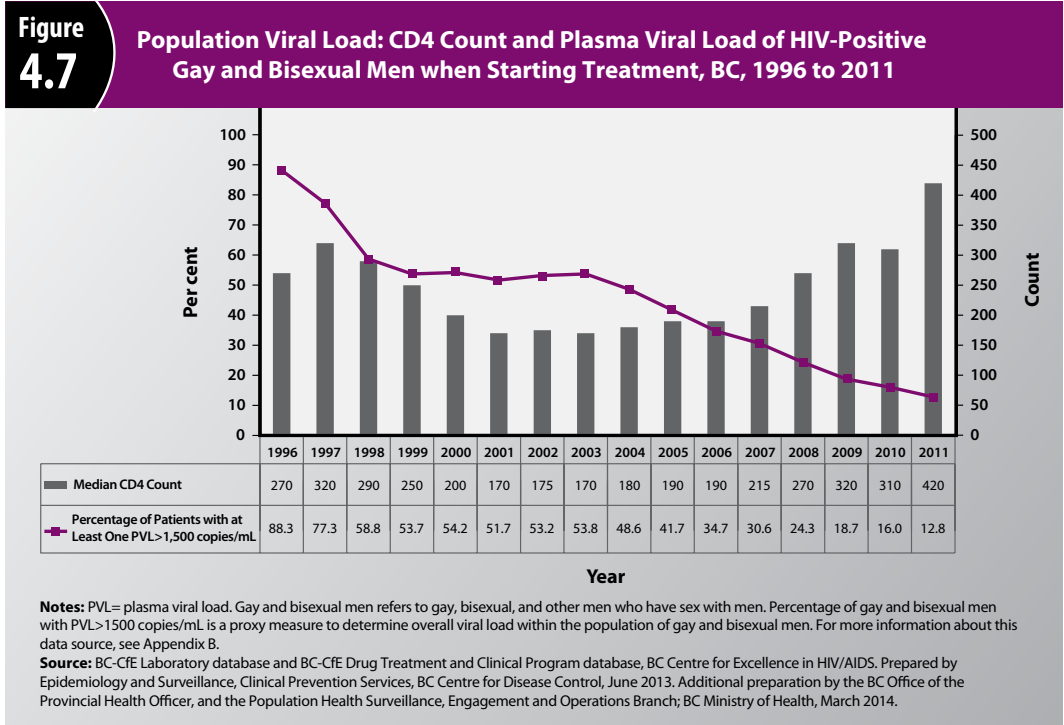
Photo credit: AIDS Vancouver Island

The recognition that treatment of an HIV-positive person has the potential to prevent HIV transmission to others has influenced recent recommendations for when to start HAART. As discussed in Chapter 2, treatment is now recommended upon positive diagnosis, regardless of CD4 count or stage of infection. Figure 4.7 shows that treatment is beginning earlier in HIV-positive patients, as evidenced by the increasing trend (since 2007) in median CD4 count among gay and bisexual men in BC when they start treatment. This figure also shows the percentage of men with at least one plasma viral load result with more than 1,500 copies/mL. This measure can be a proxy to determine the overall annual population viral load among gay and bisexual men in BC receiving HIV-related care and treatment. Using this proxy measure, these data suggest that there has been a steady and substantial decrease in population viral load among gay and bisexual men who are undergoing treatment, particularly since 2003.

In the early stages of HIV infection, engagement and retention in HIV-related care is necessary for treatment with HAART. According to data provided by Vancouver

Coastal Health Authority, 65 per cent of newly diagnosed gay and bisexual men in Vancouver from 2010 to 2012 were linked to care within 30 days. Additionally, among gay and bisexual men diagnosed with HIV since 2003, 63 per cent are currently prescribed HAART and 74 per cent are actively engaged in care.¹¹³ However, further analyses of these data suggest that while overall engagement in care and suppression of viral load is high among gay and bisexual men, engagement is poorer among those who are younger, as well as those who are Asian, Latino, or Aboriginal.^{114,115,116}

These trends identified among gay and bisexual men in BC support findings from other regions that indicate gay and bisexual men are more likely than some other exposure groups to be diagnosed and enter care at an earlier stage of infection, access HAART, and have better retention in care.^{117,118,119,120} There is continued room for improvement among some groups and individual clinical benefits of treatment remain important.⁹¹ However, “treatment as prevention” may have less impact among gay and bisexual men compared to other populations. Possible explanations for this reduced response are the physiological and network factors described



earlier in this chapter (e.g., associated risk of anal sex, more sexual partners, more concurrent or overlapping relationships).^{121,122} Moreover, the lifetime risk of transmission during HAART is not completely eliminated,^{122,123} viral loads may fluctuate, and increases in levels of sex without condoms or treatment adherence within the population could offset the impact of reduced population viral load.¹²⁴

Over the past five years there has been greater attention given to the relationship between viral load and risk of HIV transmission. For example, the “Swiss Statement” was a consensus statement issued on behalf of the Swiss Federal Commission for HIV/AIDS, which stated that HIV-positive people who take effective antiretroviral therapy, have an undetectable viral load, and are free from STIs, are not sexually infectious.¹²⁵ Although largely drawn from evidence among heterosexual couples, this recommendation may subsequently have resulted in gay and bisexual men in both stable and casual partnerships being more likely to have unprotected sex.^{125,126}

Risk-reduction strategies based on consideration of one’s own or one’s partner’s HIV viral load do not appear to have much traction among HIV-negative gay and bisexual men in BC; however, they are more commonly employed by HIV-positive gay and bisexual men^{73,81} and may become more common over time. This may be particularly true as the concept of treatment as prevention—and conceptualization of treatment as a way to reduce one’s risk of transmitting HIV to others—continues to gain prominence among gay and bisexual men.¹²⁷ In BC in 2010, 82 per cent of gay and bisexual men were aware that being the receptive anal sex partner was associated

Oh, it was pretty much if they’re undetectable, if they’re on HIV meds, and if I play the top role, [...] if I don’t put ejaculation in the picture, then I’m pretty safe.

34 years old, HIV positive

Discussing his understanding and use of safe sex practices prior to HIV diagnosis



with a higher risk of contracting HIV, while 66 per cent were aware that taking antiretroviral medication reduces viral load, and 57 per cent were aware that low viral load reduces the risk of HIV infection.²⁴ As a result of these messages, community agencies in Canada are focusing educational efforts to ensure that gay and bisexual men are fully considering both the advantages and limitations of using knowledge of HIV viral load as a risk reduction strategy.²⁴

HIV treatment can also be used by HIV-negative gay and bisexual men to prevent becoming infected with HIV. These complementary biomedical approaches include some new and emerging treatment-related technologies that may also assist with reducing HIV transmission. A recent proof-of-concept randomized controlled trial demonstrated that **pre-exposure prophylaxis** (PrEP) (regular use of antiretroviral medications prior to a sexual exposure to prevent infection) can decrease the risk of HIV infection by as much as 44 per cent;¹²⁸ however, the real-world effectiveness, uptake, and impact of this on sexual behaviour among gay and bisexual men has yet to be fully evaluated.¹²⁹ **Rectal microbicide** (antiretroviral rectal gel) is being developed and studied, and in the future, could be used during anal intercourse to prevent HIV infection.^{130,131} **Post-exposure prophylaxis** (PEP) (taking antiretroviral medication immediately following potential sexual exposure to HIV in order to prevent infection) is also being explored in a pilot program in Vancouver.^{132,133}

CASE STUDY: Post-exposure Prophylaxis Pilot Project • Vancouver

The post-exposure prophylaxis (PEP) pilot project in metro Vancouver offers PEP for risky sexual or needle-sharing encounters, and is accessed by gay and bisexual men.

BC Centre for Excellence in HIV/AIDS

Acute HIV Infection

As explained in Chapter 2, acute HIV infection is the stage during the first few months after an individual is first infected with HIV. Since many newly infected individuals are unaware of their infection but viral load is very high, there is a high risk of transmission to others during this period. Genetic studies have demonstrated that up to 50 per cent of new infections in a region may be acquired from individuals with acute HIV infection, and this may be particularly true of populations of gay and bisexual men.^{88,134,135}

In BC, gay and bisexual men have historically been more likely than other groups to be diagnosed during the acute stage of HIV infection, perhaps reflecting more frequent testing, or a greater awareness of seroconversion symptoms.¹³⁶ This is even more likely with the implementation of pooled nucleic acid amplification testing (NAAT) in Vancouver, which increases the ability to detect acute HIV infection.^{63,137}

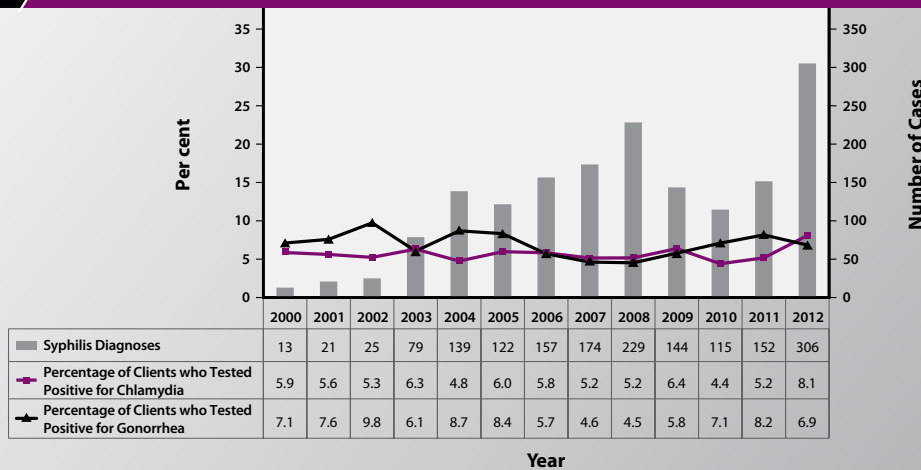
Individuals with acute HIV may not yet know they are HIV-positive and are likely part of active sexual networks,¹³⁸ but receiving a diagnosis of HIV typically leads to changes in behaviours that reduce the risk of transmitting HIV to others.^{95,96} Therefore, increasing the number of diagnoses in the acute stage of infection may result in the prevention of HIV infections and substantial population benefits. Furthermore, related interventions after diagnosis, such as partner notification and counseling, may be beneficial.¹³⁹ Some have estimated that being diagnosed during the acute stage of infection may prevent at least one additional HIV infection in the year following diagnosis.^{140,141} Overall, these findings suggest that targeting acute stage HIV infections for diagnosis and treatment could have substantial population benefits in addressing the HIV epidemic.

“A diagnosis of HIV typically leads to changes in behaviours that reduce the risk of transmitting HIV.”

Sexually Transmitted Infections

As discussed in Chapter 2, the presence of other infections such as STIs impacts the risk of transmission of HIV. While this relationship is complex, STIs can both increase the infectiousness of HIV-positive individuals and increase the susceptibility of HIV-negative individuals to acquiring HIV during a transmission event. Many of these bacterial and viral infections—notably syphilis, gonorrhea, human papillomavirus (HPV), and herpes simplex virus type 2 (HSV-2)—have been associated with increased risk for HIV infection.^{20,108} The higher incidence of STIs among gay and bisexual men is likely an important driver of HIV transmission among this population.¹⁴² These infections can make HIV transmission more efficient, because they cause mucosal damage that leads to increased susceptibility for infection among an HIV-negative individual, as well as increasing the amount of HIV in semen in an HIV-positive man.^{91,143} Treatment of STIs to reduce the risk of HIV is biologically plausible, but such treatment does not prevent HIV infection, and evidence regarding the impact of bacterial STI treatment on reducing the risk of HIV infection is limited.^{144,145}

According to *Sex Now* survey data, in 2011, 9 per cent of gay and bisexual men in BC reported having been diagnosed with an STI in the past 12 months. This did not vary by birth cohort but was higher for HIV-positive men (22 per cent).²⁴ As shown in Figure 4.8, at sexual health clinics operated by the BC Centre for Disease Control, the percentage of gay and bisexual men who tested positive for chlamydia and gonorrhea infection varied year to year (from 2000 to 2012). Across these 13 years, percentages ranged from 4.4 to 8.1 per cent for chlamydia, and from 4.5 to 9.8 per cent for gonorrhea. The number of syphilis cases were more variable and appear to be increasing, with over 300 cases identified in 2012. According to a BCCDC report, gay and bisexual men who are already HIV positive are over-represented among syphilis cases, accounting for

Figure 4.8**Sexually Transmitted Infections among Gay and Bisexual Men, BC, 2000 to 2012**

Notes: Syphilis diagnoses include all provincial case reports of infectious syphilis among gay, bisexual, or other men who have sex with men. Chlamydia and gonorrhea data represent a sample of provincial cases, and were calculated based on the number of visits among self-identified gay and bisexual men that included a test for chlamydia or gonorrhea at BC Centre for Disease Control Provincial Sexually Transmitted Infection clinics. For more information about this data source, see Appendix B.

Source: STI-IS, BC Centre for Disease Control. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

CASE STUDY: Multi-pronged Syphilis Campaigns • British Columbia

In response to the rising number of infectious syphilis cases in 2012, a variety of communication materials (e.g., posters, social media-based advertising, blog posts, newsletters) were developed. These materials were intended to increase awareness of the increase in syphilis among gay and bisexual men, HIV-positive men, community service providers, and clinicians in BC.

Syphilis cases in BC by year

The number of syphilis cases is steadily rising in BC, especially among gay and bisexual men. If you're sexually active, your best protection is to use condoms and get tested regularly.

Image credit: BC Center for Disease Control

CAN YOU SPOT THE SYPHILIS?

Syphilis is on the rise in BC. HIV+ men who have sex with men (MSM) account for more than 50% of all new infections.

Image credit: Positive Living Society of BC

#VANCOUVER? FRENCH BULLDOGS

GETTING TESTED FOR SYPHILIS

SYPHILIS RATES ARE AT A 30 YEAR HIGH

GET TESTED TODAY.

Image credit: Vancouver Coastal Health and partner agencies

I have an idea of how specific STIs and HIV is transmitted. But I think I'm relying [on] health material that I read at least five years ago. So, if things have changed, I don't know.

32 years old, HIV negative

Reflecting on the fact that his sexual health knowledge may be outdated



61 per cent of all cases in gay and bisexual men since 2003.¹⁴² The concentration of syphilis among HIV-positive men may be related to transmission in sexual networks that include HIV-positive men. There are limited data regarding infections such as genital herpes (e.g., HSV-2) or warts (e.g., HPV) among gay and bisexual men, but these infections are thought to be common among this population in BC.¹⁴⁶

In addition to the biological link between presence of STIs and susceptibility to HIV infection, STIs and HIV infection also share key root causes, including risk behaviour such as condomless sex. In fact, STIs are markers of behavioural risk in gay and bisexual men and have been found to be predictive of future HIV infection.⁹¹ According to the *ManCount* survey of gay and bisexual men in Vancouver in 2008, testing for STIs is not as common as HIV testing—approximately one-third reported being tested for STIs other than HIV in the past year, while one-half reported being tested for HIV.¹⁹ Additionally, many gay men reported not being vaccinated against important STIs, including 20-30 per cent reporting not having received vaccinations against **hepatitis A or B** infection (these vaccinations are provided free of charge

to gay and bisexual men in BC).¹⁴⁷ These data indicate a need to ensure that HIV prevention for gay and bisexual men encompasses broader aspects of overall sexual health, beyond STI testing and treatment; for example, promoting positive sexual health and wellness, appropriate sexual health education in schools, and access to appropriate vaccinations.¹⁶

Appropriate Health Care

Access to appropriate and culturally sensitive health care is a fundamental determinant of health, and is an area where many gay and bisexual men face challenges.¹⁴⁸ Appropriate health care for gay and bisexual men requires that quality health care services are accessible, that health care providers are knowledgeable in health issues relevant to gay and bisexual men, and that communication between a care provider and patient is safe and informative. However, some health care providers are poorly equipped to provide culturally sensitive, high-quality care and support, and/or may not be knowledgeable about health issues common among gay and bisexual men.²⁸ For example, while one survey determined that 85 per cent of gay and bisexual men in BC in 2011 were satisfied or very satisfied with their

CASE STUDY: AIDS Network Kootenay Outreach and Support Society • Kootenays

AIDS Network Kootenay Outreach and Support Society (ANKORS) provides a variety of services in safe environments across the Kootenays for people at risk for or living with HIV/AIDS or Hepatitis C. It aims to reach those who face barriers to accessing services elsewhere, including barriers related to mental health, substance use, sexual orientation, and gender identity.

ANKORS, AIDS Network Kootenay Outreach and Support Society

health care, it also found that 14 per cent of respondents had stopped seeing a health care provider because of his or her negative attitude toward their sexual orientation.²⁴

Disclosure of sexual orientation by patients is more likely to occur when a provider is perceived as being gay-friendly and knowledgeable about gay men's health issues.¹⁴⁹ Evidence also indicates that if health care providers know that their male clients are gay, bisexual, and/or have sex with other men, they are more likely to offer appropriate preventive health care (including HIV testing or counseling).¹⁵⁰ The most recent round of the *Sex Now* survey in BC in 2011 found that overall, 61 per cent of gay and bisexual men surveyed had disclosed to their care provider that they had sex with men (were "out" to their care provider).¹⁵¹ As shown in Figure 4.9, in many regions of BC fewer than 50 per cent of gay and bisexual men had disclosed this information. The percentages ranged from a high of 84.8 per cent in Vancouver West End to a low of 36.6 per cent in North Fraser and Northern BC, with higher percentages reported from residents of municipal Vancouver areas.

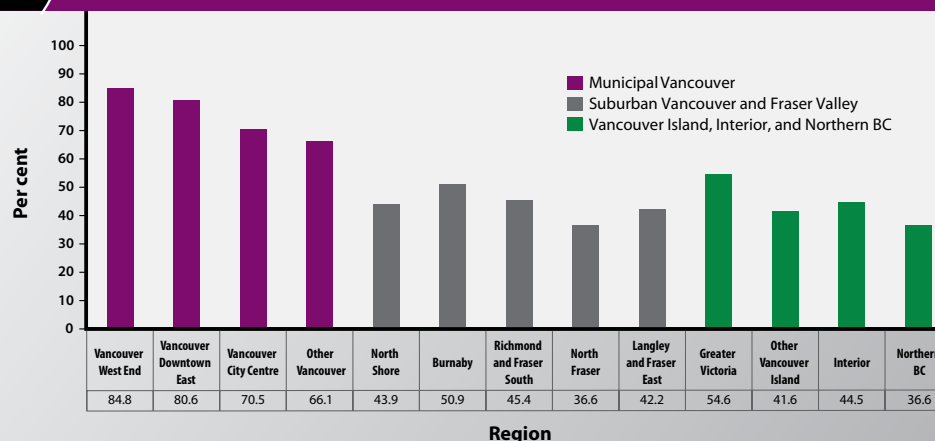
Improving engagement and reach of health care services for gay and bisexual men is a

recommended practice for improving sexual health and preventing HIV.^{16,30} In a different survey of gay and bisexual men in Vancouver in 2008, 79 per cent of participants said that they had told a health care professional that they had male sex partners. Among men who were HIV negative or did not know their HIV status, being out to their provider was more likely among participants who had a higher income and education, who were English-speaking, who identified as gay, and who had a greater number of lifetime sexual partners. Men who had not disclosed were less likely to report appropriate sexual health care, including testing for HIV and other STIs, or vaccination against STIs such as hepatitis A and B.¹⁵²

Gay and bisexual men who are recent immigrants or who are not fluent in English may face additional challenges in receiving appropriate health care. Recent immigrants may not be aware of available primary care services, know how and where to access them, or know about health care settings that are sensitive to the needs of gay and bisexual men. This may especially be the case if these health care settings and services were not readily available in their country of origin.¹⁵³ These health care access issues are echoed in data from Vancouver Coastal Health

**Figure
4.9**

Percentage of Gay and Bisexual Men who are "Out" to their Primary Health Care Provider, by Region, BC, 2011



Notes: N=1,805. "Out" is defined as having told their primary health care provider that they have sex with other men. Regions and communities were assigned based on self-reported location. For more information about this data source, see Appendix B.

Source: Community-Based Research Centre for Gay Men's Health, *Sex Now* 2011 survey data. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.



Authority, in which linkage to HIV care within 30 days of diagnosis from 2003 to 2012 was lower among gay and bisexual men who identified as Asian (58 per cent), Latino (42 per cent), and Aboriginal (51 per cent), compared to gay and bisexual men who identified as Caucasian (66 per cent). Further, some ethnocultural minority gay and bisexual men were less likely to be actively engaged in care, including Asian (73 per cent), Latino (56 per cent), and Aboriginal gay and bisexual men

(77 per cent), compared to Caucasian gay and bisexual men (79 per cent).¹¹⁴ Similarly, Asian gay and bisexual men in Vancouver in 2008 reported a lower level of HIV testing compared to non-Asian gay and bisexual men.¹⁵⁴

Overall, these findings indicate that access to appropriate health care for all gay and bisexual men could be improved in BC, and that barriers for some groups need to be addressed, including challenges based on geographical location and minority status.

CASE STUDY: Prism Services • Vancouver

Prism is a clinical, education, information and referral service for the lesbian, gay, bisexual, trans, queer, and Two-Spirit communities. In addition to providing substance use prevention and referral services, Prism provides workshops and training for service providers across the health sector.

Vancouver Coastal Health

Marginalization, Mental Health, and HIV Risk

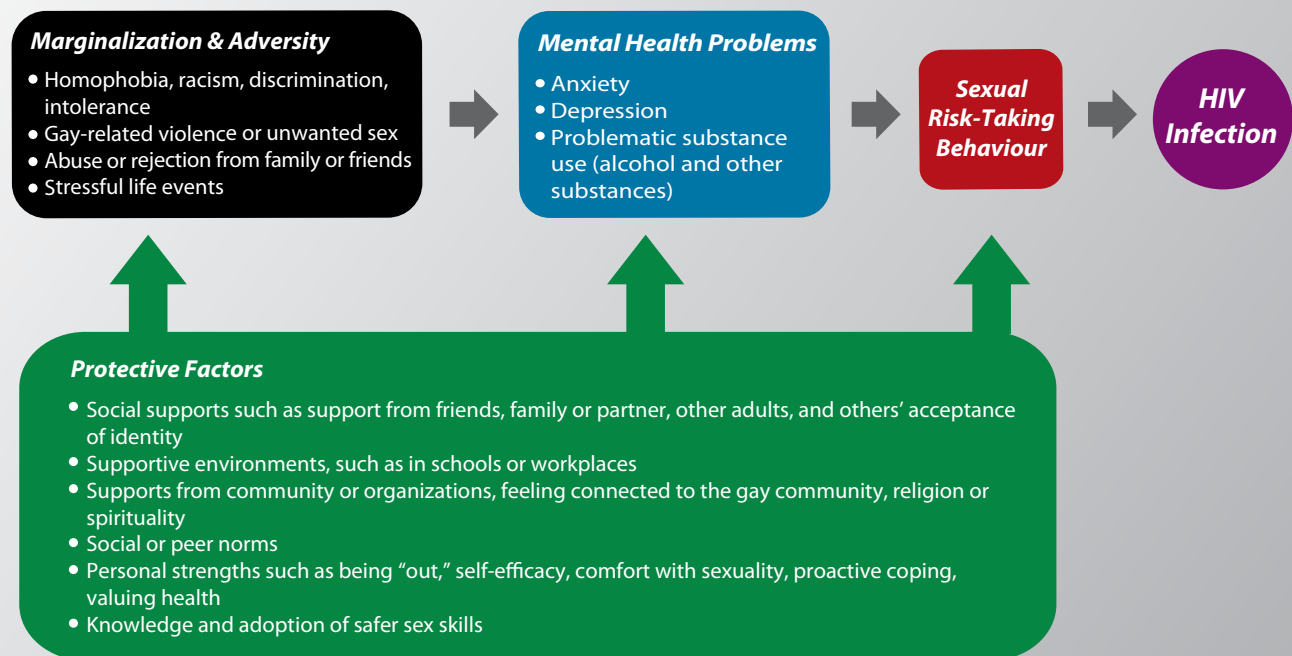
As discussed in Chapter 2, the HIV epidemic among gay and bisexual men cannot be understood without acknowledging the historical and contemporary experiences of marginalization and discrimination, rooted in *homophobia* and stigma on the basis of sexual orientation. These are fundamental determinants of the health of gay and bisexual men.^{16,28,155} Some gay and bisexual men recognize their attraction to other men at an early age (14 or younger).¹⁹ Through the process of “coming out,” many men come to accept their sexual orientation and identity, but this is not always an easy process, and it can result in experiences of rejection and/or emotional or physical abuse from family members and friends.⁸⁷ Harassment, discrimination, and violence can be experienced in a variety of settings—including within families, schools,

workplaces, and religious communities—and they affect gay and bisexual men of all ages. As previously shown in Figure 4.1, lifetime experiences of marginalization and discrimination among gay and bisexual men in BC in 2011 were discouragingly common.

A well-studied pathway between these adverse experiences and HIV infection is illustrated in Figure 4.10. As this diagram shows, experiences of marginalization and discrimination are known to manifest themselves in a variety of mental health problems that are common among gay and bisexual men (e.g., mood disorders, victimization and sexual abuse, problematic substance use, and suicide attempts).^{16,87,156,157} These co-occurring elements compound and can lead to increased sexual risk-taking behaviours, which ultimately result in HIV infection.^{36,87} As one example of this pathway, substance use among gay and bisexual men has been associated with mental health disorders such as depression,^{158,159} and

**Figure
4.10**

**Causal Pathway between Marginalization,
Mental Health, and HIV**



Source: Adapted from Mayer et al. (2012).⁸⁷



CASE STUDY: Out in Schools • British Columbia

The Out in Schools education program engages youth through film to promote safe and diverse learning environments that are free from homophobia, transphobia and bullying. Trained facilitators deliver workshops to students in schools across BC, and the program also develops curriculum resources and works with educators, school boards, and Gay-Straight Alliances.

the relationship between substance use and sex without condoms (and by inference, HIV infection) is well established, particularly for methamphetamine use and binge drinking.¹⁶⁰

Recently, BC researchers explored this causal pathway for Canadian gay and bisexual men using *Sex Now* survey data from 2010 among men under age 30. This analysis demonstrated that greater exposure to experiences of marginalization was associated with a greater likelihood of reporting poor mental health outcomes, which in turn was associated with increased risk of HIV.¹⁶¹ This analysis was repeated using survey responses of gay and bisexual men in BC in 2011, and the results are shown in Figures 4.11a and 4.11b. Figure 4.11a shows that for those gay and bisexual men surveyed, the

greater the number of lifetime experiences of marginalization, the more likely they were to report poor mental health outcomes (sadness, social isolation, excessive substance use, depression, or other poor mental health outcomes). Figure 4.11b then shows that the greater the number of poor mental health outcomes gay and bisexual men reported experiencing, the more likely they were to engage in sexual risk, which includes behaviour that puts an individual at risk for HIV infection.

Despite this causal pathway, there is also emerging evidence that protective factors can help to buffer the impacts of marginalization. Protective factors such as family acceptance, school connectedness, and social supports may serve to foster resilience, improve mental health, and reduce HIV risk. A recent

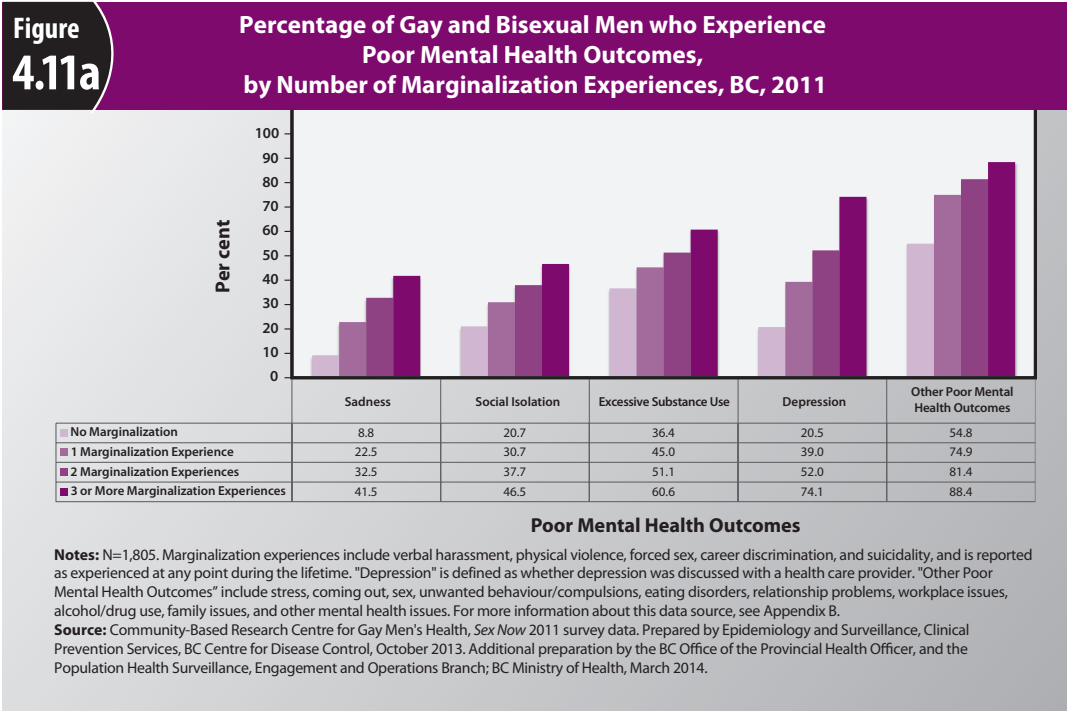
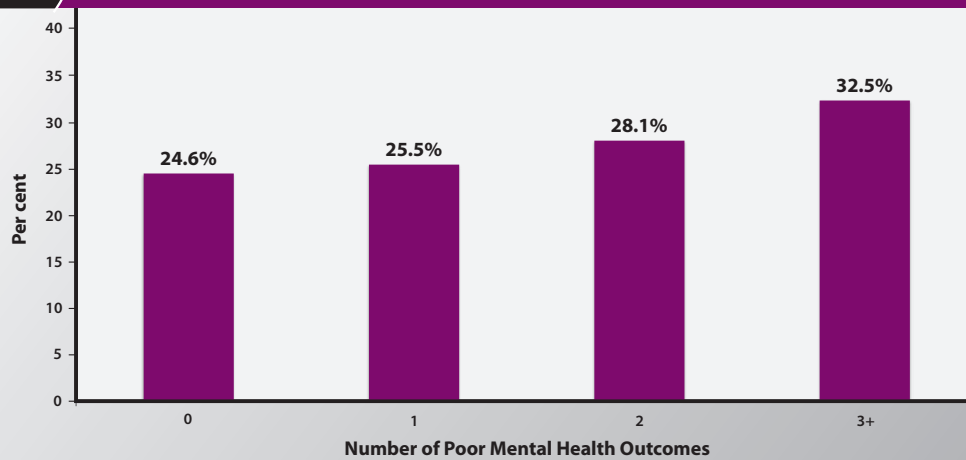


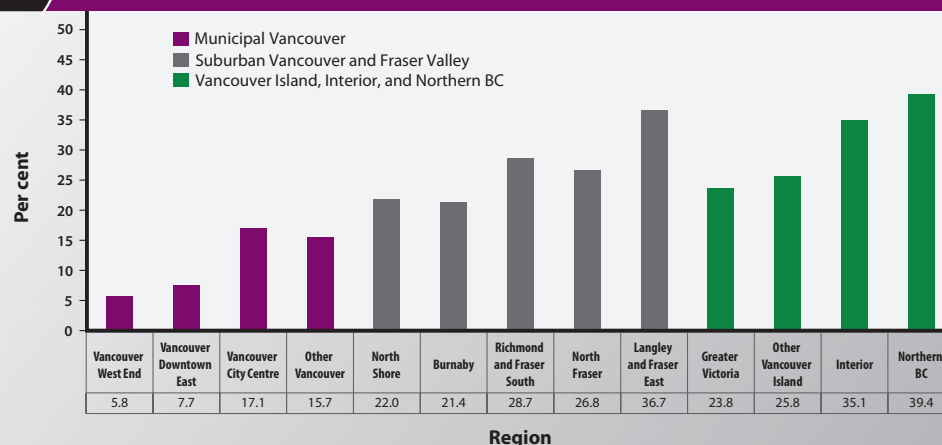
Figure 4.11b**Percentage of Gay and Bisexual Men who Engage in Sexual Risk-Taking Behaviour, by Number of Poor Mental Health Outcomes, BC, 2011**

Notes: N=1,805. Sexual risk defined as unprotected anal sex with at least one partner of unknown HIV status in the past 12 months. Poor mental health outcomes include sadness, social isolation, excessive substance use, depression, and other. For more information about this data source, see Appendix B.
Source: Community-Based Research Centre for Gay Men's Health, *Sex Now* 2011 survey data. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, October 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

analysis of responses to the *BC Adolescent Health Survey* by sexually experienced gay and bisexual male youth in 2008 identified protective factors that reduced the risk of HIV, including: family caring and support, inclusive and safe schools, pro-social attitudes of friends and peers, and meaningful extracurricular activities. However, these protective factors were not sufficient to offset the increased risk associated with exposure

to physical and sexual abuse, having been in government care, and discrimination on the basis of sexual orientation.¹⁶²

Having social support is a well-established protective factor for good health. As shown in Figure 4.12, many gay and bisexual men in BC reported not having someone to turn to for social support, particularly those men outside of municipal Vancouver.

Figure 4.12**Gay and Bisexual Men who Report Poor Social Support, by Region, BC, 2011**

Notes: N=1,805. Poor social support includes men reporting that they have few to no others they can count on for support right now. Regions and communities were assigned based on self-reported location. For more information about this data source, see Appendix B.
Source: Community-Based Research Centre for Gay Men's Health, *Sex Now* 2011 survey data. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch; BC Ministry of Health, March 2014.

CASE STUDY: Totally Outright • Vancouver

The Totally Outright program is a leadership and skill-building program for young gay men that aims to foster future leaders in gay communities, heighten self-esteem, reinforce resiliency, and equip them to make healthy decisions.

Community-Based Research Centre, Health Initiative for Men

Having social support or a positive sense of self-identity may be related to having a strong connection to gay communities.¹⁶³ Connection to gay communities has also been considered important for gay and bisexual men for HIV prevention, because this connection means they have access to relevant education and awareness of prevention services, including testing.^{25,164}

Despite these benefits of community attachment, similarly to what has been identified in high-income countries, the nature and role of gay communities in BC have changed since the beginning of the

HIV epidemic, and there are decreases in traditional measures of community attachment (e.g., the proportion of free time spent with other gay men, membership in gay organizations). Decreases in these measures correspond to social and cultural shifts, including increasing social acceptance of gay and bisexual men, decreasing numbers of venues catering specifically to gay and bisexual men, and increasing use of the Internet to meet romantic and sexual partners.^{25,65} However, despite these shifts, gay men remain a significant and valued source of support for each other in BC.¹⁶⁵

While the unique mental health needs of gay and bisexual men have been identified,^{153,166} the extent to which culturally sensitive mental health services for gay and bisexual men exist across BC is unknown, but is perceived to be low. The clear relationship between marginalization, mental health, and HIV risk emphasizes the importance of mental health promotion programs and services that aim to improve mental health among gay and bisexual men.



Photo credit: Health Initiative for Men, Vancouver

Rationally yes, I was aware of the risk [for HIV]. But when I'm under the influence of substances it becomes not even a secondary concern. It's all about the substances and engaging in sex. You know, sort of executive-level functioning just kind of goes out the window. So yes, I was absolutely aware of the risks, but it just wasn't on my radar at that point.

30 years old, HIV positive
On substance use and the sexual encounter he believed led to his HIV infection



... I moved to Vancouver and found some amazing resources at the gay and lesbian centre on Bute, and that was just amazing. I found a counselor. I went to a couple of gay men's discussion groups. I went to some coming-out groups. [...] That saved me. Not that I was ever suicidal, but it just really helped me get my life together, not to hide anymore and to lie and stuff.

47 years old, HIV negative
On the positive impact of appropriate community resources



Migration and Immigration

In response to experiences of marginalization and isolation in remote areas or smaller gay communities, and in light of the potential support within larger gay communities, many gay and bisexual men migrate to urban areas such as Vancouver. However, migration can lead to experiences that vary from feelings of sexual liberation to loneliness or interpersonal rejection, and as a result contribute to increased sexual risk. In a 2011 survey of HIV-negative gay men at a testing clinic in Vancouver, 25 per cent reported living outside the Greater Vancouver Regional District one year earlier, and 50 per cent reported this within the previous five years.⁹⁷

A 2011 project examining the effects of migration on health among Aboriginal, Two-Spirited, and other sexual minority people in BC highlighted the role of mobility in the lives of gay, bisexual, and Two-Spirited men who were seeking a home or place where they felt safe and accepted; this motive for migration has also been observed elsewhere in Canada.^{167,168} For gay, bisexual, and Two-Spirited Aboriginal men, the effects of mobility are often compounded by the traumatic forced migration due to residential schooling and foster care or adoption that occurred for many Indigenous people. Many survivors of these experiences report a history of sexual, physical, and emotional abuse, which in turn are known to increase vulnerabilities to HIV and other adverse health outcomes.^{169,170}

CASE STUDY: Family Acceptance Project • California

The Family Acceptance Project is a university-based initiative that works to decrease health and related risks for lesbian, gay, bisexual and transgender (LGBT) youth. It does so in the context of their families through research, policy, and interventions such as family education materials and support programs.

Family Acceptance Project, San Francisco State University



Image credit: Family Acceptance Project, San Francisco State University

I came here three years ago, from Spain. And at the beginning, it didn't look to me [to be] a very friendly city. And I haven't been much of an outgoing guy ever. And meeting people was difficult to me. So, I started to hang out in the gay community, to be able to, or to find friends, or, you know, people to hang out with. The worst thing is that I found drugs and sex instead, not friends.

32 years old, HIV negative
Reflecting on experiences of immigration and social isolation



For gay and bisexual men who immigrate to BC from other countries, the transition may pose additional challenges in navigating new social and sexual cultures and expectations. There is an added level of adjustment involved if they are emigrating from an area where awareness of HIV risk among gay and bisexual men is low. Immigration patterns may also contribute to rates of new HIV diagnoses among gay and bisexual men, such as the increases in new HIV diagnoses among ethnocultural minority groups shown in Figure 3.5. Mandatory HIV testing through the application process for immigration to Canada resulted in the new diagnosis of 41 gay and bisexual men in BC between 2004 and 2012 (68 per cent of whom were Latino).^{97,171} Since Latino persons comprise 0.7 per cent of the total BC population¹⁰⁰ but comprise 7 per cent of all new HIV diagnoses between 2004 and 2012,¹⁷² Latino men are over-represented among newly diagnosed gay and bisexual men in BC, and suggests the need to focus efforts on these sub-populations.



Experiences of Racism

Experiences of racism manifest in various ways for gay and bisexual men, and can add another dimension of marginalization to lived experiences. In recent consultations and interviews with gay and bisexual men from ethnocultural minorities in BC (including East Asian, South Asian, Latino, and Aboriginal men), many reported experiencing oppression on multiple fronts. They reported that they may be

stigmatized within their ethnocultural communities or families on the basis of their sexuality, and simultaneously feel excluded from predominantly Caucasian gay communities.¹⁵³ Some men experience racial stigmatization when meeting new partners, either in the form of rejection or sexual objectification on the basis of skin colour.¹⁷³

A recent qualitative study of 49 Asian gay and bisexual men in the Greater Vancouver area revealed that close to 70 per cent of first-generation immigrants perceived high levels of discrimination in their ethnic communities, as did half of second-generation Asian gay and bisexual men. Although most reported that gay communities were more welcoming than the ethnic community, the sense of belonging expressed by second-generation Asian men did not differ much from their first-generation counterparts. Many encountered “No Asians” messages when seeking partners online and felt that gay communities were “cliquey” and “hard to crack.”¹⁷⁸

Experiences of racism from other gay and bisexual men can translate into power differentials, leading to weakened or compromised negotiations or sexual decision-making, particularly for new immigrants.¹⁷⁹ While BC data examining the relationship between racism and sexual risk-taking are limited, research from the United States on the experiences of immigrant Latino gay and bisexual men identified higher rates of substance use and mental health issues, which contributed to sex without condoms in this population.^{174,175,176,177}

CASE STUDY: Our City of Colours • British Columbia

Our City of Colours is a community organization that uses different strategies to increase the visibility of and address the issues facing lesbian, gay, bisexual, transgender, and queer people in a variety of linguistic and cultural communities.



Photo credit: Photo by Ken Yang.
Courtesy of Our City of Colours

Systemic Challenges to HIV Prevention

Globally, the public health response to the HIV epidemic in gay and bisexual men has not sufficiently protected the health of this exposure group, with inadequacies in both the scale and effectiveness of interventions.¹⁶ While effective behavioural and medical preventive interventions for HIV in gay and bisexual men exist, they require a significant investment of resources for successful delivery, and their real-world effectiveness is not always known.⁹¹ BC has been criticized

for insufficiencies in related resources—gay and bisexual men are the “most affected group with the least prevention funding.”¹⁸⁰ Indeed, criticism about insufficient funding and resources for gay and bisexual men in BC is not new; it was identified in a report about HIV in gay and bisexual men released by the BC Centre for Disease Control over 10 years ago.¹⁸¹ Some specific programs or resources for gay and bisexual men do exist, but they are unevenly distributed throughout BC, may not reflect the needs of more marginalized gay and bisexual men, and may rely on non-renewable or unpredictable federal funding. While gay and bisexual men have historically been—and

When men say “No Asians,” [when looking to hookup online] I find it incredibly repugnant. I think I find it kind of hard to make connections here. But more than that, and more dangerously, I’ve internalized a lot of racism. And I’m still trying to undo all of that. [...] And I think what that’s done is that it’s also closed me off to all sorts of ways of interacting and sensing and feeling the world... so I spend a lot of time actually, like, you know trying to pass [as straight].

32 years old, HIV negative
A Filipino man on experiences of racism and its impact on his mental health



continue to be—acknowledged as a priority population for HIV prevention within provincial and regional strategies, to date there has been no provincial coordinated response or strategy for HIV prevention for gay and bisexual men in BC.

To be most effective, HIV prevention programs for gay and bisexual men should be developed and implemented in partnership with—if not led by—community-based health care and other service providers and organizations.^{15,181} For example, an intervention that has demonstrated reduced sexual risk behaviour for gay and bisexual men is the Mpowerment program (recently adapted for use in Vancouver). This is a community and peer-led HIV prevention program where the embedding of the program in social activities and community life is integral to its success.¹⁸² In New South Wales, Australia, community-based prevention programs for gay and bisexual men have been identified as factors in the successful response to HIV in this region. More specifically, these programs have been successful due to their partnerships between communities, researchers, and policy makers, and have had adequate political and financial support.¹⁸³

There are examples of community-led initiatives in BC that have likely had a positive impact on the HIV epidemic among gay and bisexual men, and many are supported through government funding for HIV prevention (examples of which are provided in the case studies presented throughout this report). Over time, approaches that build upon traditional biomedical and behavioural approaches to

HIV prevention have emerged. Gay and bisexual men's organizations and service providers have identified the need to shift towards a more holistic approach to gay men's health, and to situate HIV prevention within a broader, more inclusive health framework. This framework would include HIV as well as other health issues, and would address common social and structural determinants of health and illness for gay and bisexual men.^{30,184} However, this more comprehensive approach is not always well-aligned with funding opportunities, which typically have a more narrow focus on HIV prevention and traditional biomedical and behavioural prevention strategies.

A further challenge to developing evidence-based policies for HIV prevention in gay and bisexual men is rooted in the gaps in HIV-related research focused on gay and bisexual men. For example, the current availability of evidence-based interventions for HIV prevention does not match the disease burden in gay and bisexual men, and there are even fewer interventions for subgroups of men at higher risk of infection.¹⁸⁵ A review of the Canadian Institutes of Health Research funding decisions website in 2011 found that 9.7 per cent of the research budget for grants mentioning HIV prevention were targeted to gay and bisexual men.¹⁸⁶ Reviews of conference abstracts for international and national HIV-related conferences have also demonstrated a very low proportion of conference proceedings exclusively focused on gay and bisexual men; for example, only 6.6 per cent of all abstracts at the 2010 International AIDS Conference and 7 per cent of abstracts for the Canadian Association for HIV Research Conferences

CASE STUDY: Mpowerment YVR • Vancouver

Mpowerment is an evidence-based, community-level intervention in the United States that reduces sexual risk through building social capital. It has been adopted in Vancouver as “Mpowerment YVR” as a program that promotes healthy and inclusive communities by facilitating events for young gay, bisexual, and transgender men, and their allies.

YouthCo

between 2007 and 2011 were focused on gay and bisexual men.^{187,188} In order to move forward with a greater understanding of successful methods of HIV prevention, implement appropriate health care, and establish evidence-based policies and programs, it is important to sustain and renew research efforts into HIV and other issues of importance for gay and bisexual men's health and well-being.³²

Summary

Together, the drivers explored in this chapter form a multi-level and dynamic socio-cultural context for gay and bisexual men's relationships and HIV transmission. While personal/behavioural factors affect whether HIV transmission ultimately occurs between two people, these factors can only be fully understood with consideration of community

and relationship variables, and broader societal and structural influences. Drivers explored in this chapter have included broad factors such as access to appropriate health care, marginalization, migration and immigration, and racism; interrelational and community level factors like HIV testing and awareness, and sexual networks; as well as behavioural and biological level influences like HIV treatment and viral load, acute HIV infection, STIs, and sexual behaviour. All of these variables are situated within larger societal and systemic challenges as well, including stigma, shortage or unpredictability of resources, research gaps, and a need to shift towards a more holistic approach to gay and bisexual men's health. The next chapter presents recommendations from the this report's two advisory groups, incorporating these drivers into a renewed approach to HIV prevention among gay and bisexual men in BC.

Advisory Group Recommendations

This report was developed with input from two advisory groups. The Community Advisory Group included gay and bisexual men (and allies) who are leaders working in gay men's health and Human Immunodeficiency Virus (HIV) prevention and research in BC. The Public Health Advisory Group included public health and clinical HIV leads and researchers from regional health authorities, First Nations Inuit Health,^d the Ministry of Health, the BC Centre for Disease Control (BCCDC), and the BC Centre for Excellence in HIV/AIDS. Based on data and research presented in this report as well as their expertise in HIV and working with gay and bisexual men, these groups collaborated with the primary author to identify vulnerable sub-populations and best practices, and make 15 recommendations to address the HIV epidemic among gay and bisexual men in BC.

Vulnerable Sub-populations

As a population, gay and bisexual men in BC face unique challenges in health. The two advisory groups who provided input and expertise in developing this report recommend that province-wide health initiatives recognize the health status and needs of this population and

augment services accordingly. This report demonstrates the substantial diversity that exists among gay and bisexual men in BC, and shows that some sub-populations face additional vulnerability due to social, political, and environmental factors. The recommendations presented in this chapter do not aim to address the unique needs of all sub-populations of gay and bisexual men; rather, the advisory groups propose that specific emphasis is required when implementing these recommendations among the following sub-populations:

- HIV-positive men: Advisory group members reflected that gay and bisexual men living with HIV often constitute a distinct sub-population—with its own culture, behaviours, and aspirations—within the larger population of gay and bisexual men. Gay and bisexual men living with HIV are not passive partners in HIV prevention efforts; instead, they are critical to the success of these efforts and should be meaningfully involved in program development, implementation, and policy-making.¹⁸⁹
- Aboriginal and Two-Spirited men: Aboriginal men who are gay, bisexual, or Two-Spirited face health inequities due to the multigenerational impacts

^d During the development of this report, representatives from First Nations and Inuit Health (FNIH) became part of the First Nations Health Authority (FNHA), following the health authority's creation in December 2011. As such, while advisory group membership included FNIH, representatives are identified by their current FNHA affiliations in the acknowledgements section of this report.

of colonization, discrimination, and residential schools.¹⁶⁹ HIV prevention programs for Aboriginal and Two-Spirited men should consider the historic role of Two-Spirited people within Aboriginal communities, the availability and accessibility of culturally appropriate care (particularly in rural and remote areas), and the potential mistrust of medical institutions.

- **Other ethnocultural minority men:** An increasing proportion of new HIV diagnoses are among gay and bisexual men from ethnocultural minorities, including Asian and Latino men. The unique experiences of immigration, racism, and marginalization for these men warrant program and policy attention.
- **Young gay and bisexual men:** The number of new HIV diagnoses among young gay and bisexual men (those born 1980 and later) has been increasing, and it is clear from a life course perspective that since younger gay and bisexual men will face a greater number of years at risk of HIV acquisition, enhancing the capacity for youth to remain HIV negative will have a significant long-term impact on HIV prevalence. It is particularly important to consider the needs of more vulnerable youth and young men, who may not identify as gay or bisexual, such as youth engaged in sex work.
- **Gay and bisexual men in active sexual networks:** HIV and other sexually transmitted infections (STIs) trends among gay and bisexual men are driven by infections that are present in active, densely connected sexual networks. Programs related to behavioural

and biological, and community and relationship drivers are likely to have the most impact among men in these active networks.

- **Men in suburban, rural, and remote regions:** This report demonstrates some geographic inequities in social support and engagement in health services for gay and bisexual men. The highest levels of engagement are often found in urban areas, while rural and remote areas have the lowest levels. These inequities need to be addressed, while recognizing that health services in urban areas (where most new HIV infections occur) must also be sustained and expanded.

Recommendations

Recognizing that no single intervention for HIV prevention will be sufficient, a broad and comprehensive approach using a combination of strategies for gay and bisexual men is recommended.^{16,33,190} While the rationale for a comprehensive approach is sound and justified by available evidence, this is an area of active enquiry as researchers and modellers are attempting to determine the optimal mix of strategies that will be most effective.¹⁹¹ In the absence of such guidance at this time, the recommendations that follow are based on the best available evidence and the advice of provincial experts who comprised the advisory groups for this report. These recommendations are presented in five parts: (1) policy level; (2) behavioural, network, and biological factors; (3) community and relationship factors; (4) societal and structural factors; and (5) monitoring, evaluation, and research.

CASE STUDY: Peer Navigator Program • Vancouver

Peer Navigators are HIV-positive people who assist people who are newly diagnosed with HIV, in learning new skills such as preventing disease progression, discussing disclosure strategies, and making treatment-related decisions.

Positive Living Society of British Columbia

CASE STUDY: Men's Wellness Program • Vancouver Island and Gulf Islands

The Men's Wellness Program promotes men's health and well-being in order to reduce HIV and sexually transmitted infections through outreach, one-on-one and group education and support, condom distribution, and building social connections between gay and bisexual men.

AIDS Vancouver Island

Part 1: Recommendations at a Policy Level

1. The following practices should be considered when implementing programs or services for gay and bisexual men in BC:

- Ensure there is meaningful involvement and leadership by gay and bisexual men—including HIV-positive gay and bisexual men—at all stages of planning, implementation, and evaluation.
- Use assets or strengths-based approaches to health promotion (e.g., framing as staying healthy) over deficits-based approaches (e.g., framing as reducing risky behaviour).
- Incorporate online models of outreach and service delivery, with links to regional services.
- Work with other sectors to improve the reach and engagement of existing health services for gay and bisexual men (e.g., mental health and addictions services, sexual health services).
- Tailor services to the current epidemiology of the HIV epidemic among gay and bisexual men in BC, reflect regional differences, and evolve over time in response to changes in trends.

2. Develop, implement, and monitor a provincial HIV prevention work plan for gay and bisexual men in BC, integrated within the provincial Seek and Treat for Optimal Prevention of

HIV/AIDS (STOP HIV/AIDS) program and BC's overall HIV response, which:

- Is jointly led by government and community leaders.
- Applies the guiding principles and focused actions of the *From Hope to Health* strategy to gay and bisexual men in BC.
- Encompasses all levels of drivers of the HIV epidemic among gay and bisexual men (i.e., behavioural and biological; community and relationships; societal and structural).
- Has clear goals, objectives, commitments and timelines agreed to by STOP HIV/AIDS program partners, and is appropriately funded and resourced.

3. Develop a long-term provincial health strategy for gay and bisexual men, that:

- Is developed in partnership with gay and bisexual men's community leaders.
- Includes HIV prevention as a key component, within a broader focus on the overall health and wellness of gay and bisexual men.
- Has a strong focus on the community, social, and structural determinants of health.
- Is accompanied by sustained programmatic support and funding that is accessible to community agencies.

Part 2: Recommendations Addressing Behavioural, Network, and Biological Factors

4. Expand HIV testing initiatives to increase the uptake and frequency of HIV testing among gay and bisexual men, using both targeted and routine testing approaches in a variety of settings. This includes:

- Expanding or adapting successful testing models known to reach gay and bisexual men in active networks, for use in other regions (including low-threshold testing clinics, dedicated sexual health clinics or services for gay and bisexual men, outreach testing programs, and routine offering of HIV testing in settings accessed by gay and bisexual men for health care).
- Expanding the availability of pooled nucleic acid amplification testing (NAAT) testing to other sites where gay and bisexual men present for testing in BC.
- Continuing to develop and expand innovative approaches to HIV testing (e.g., anonymous testing, Internet-based testing, couples-based or home testing programs).
- Ensuring that provincial HIV testing guidelines incorporate test frequency recommendations for gay and bisexual men, and that these recommendations are disseminated effectively for use by community agencies and providers working with gay and bisexual men.

5. Continue to support biomedical approaches to HIV prevention:

- Increase condom distribution and promote the use of condoms to gay and bisexual men in BC.
- Support efforts to improve engagement and retention in HIV-related care and treatment for gay and bisexual men diagnosed with HIV (e.g., through peer navigator programs). Efforts should also focus on less engaged sub-populations of men such as HIV-positive youth and ethnocultural minority men.
- Assess the feasibility of pre-exposure prophylaxis (PrEP) as a prevention tool for gay and bisexual men in BC, working with community agencies to appropriately address and evaluate community concerns regarding PrEP.¹²⁹
- Complete the current evaluation of the post-exposure prophylaxis (PEP) pilot project, and if found effective among gay and bisexual men in Vancouver, sustain and expand to other areas of BC.
- Establish and maintain a provincial summary of evidence and recommendations regarding the potential benefits and limitations of biomedical approaches as individual-level HIV risk-reduction strategies for gay and bisexual men, which can inform the work of community agencies and counseling of gay and bisexual men by health care providers.

CASE STUDY: HIVStigma.com • Ontario

Researchers developed an innovative online stigma reduction intervention for gay and bisexual men (HIVStigma.com) that used interactive features and social media. The website had high traffic and was demonstrated to reduce HIV stigma-related attitudes and behaviours.

University of Windsor

CASE STUDY: The Investigaytors • Vancouver

The Investigaytors program aims to increase interest and foster capacity in research and the social sciences among young gay men. Those involved in the program (the “investigaytors”) played key roles in questionnaire design, data collection, and analysis in the 2011 *Sex Now* survey.

Community-Based Research Centre

6. Promote sexual health for gay and bisexual men across BC using a sexual health framework that goes beyond HIV, STIs, and sexual behaviour to incorporate physical, social, and mental aspects (e.g., relationships, intimacy, and pleasure).¹⁶ This includes:

- Expanding STI testing for HIV-positive and HIV-negative gay and bisexual men, through developing and promoting provincial recommendations for STI testing, and incorporating STI testing into HIV testing programs or initiatives.
- Establishing a publicly-funded human papillomavirus vaccination (HPV) program for gay and bisexual boys and men (in the absence of a publicly funded program for all boys).
- Ensuring that strategies to address sexual health for gay and bisexual men are included as part of a comprehensive Sexually Transmitted Infection Strategy for BC (for development as outlined in *Promote, Protect, Prevent: Our Health Begins Here - BC's Guiding Framework for Public Health*).³⁷
- Ensuring that all school-based sexual health education programs are required, as part of the Career Education and Planning 10 curricula, to meet the needs of youth of all gender and sexual identities (i.e., inclusion of relevant content, development of teaching resources, and links to relevant community services).

Part 3: Recommendations at the Community and Relationships Level

7. Support the central role of HIV-positive men in HIV prevention among gay and bisexual men, through:

- Programs that support the active adoption of prevention behaviours by HIV-positive men through knowledge and skills building. For example, targeted social marketing campaigns, leadership development and training programs, and social support and peer counseling programs.
- Consideration of the realities of this sub-population, such as aging with HIV and associated impacts, and mental health challenges that colour the lives of many gay and bisexual men living with HIV. These realities can affect individuals' sexual health and relationships and their ability to practice effective prevention behaviours.

8. Implement regular, periodic health promotion and education campaigns for gay and bisexual men across BC that:

- Use a multi-pronged approach by involving multiple media (including online and social media), are coordinated across multiple sectors (e.g., community, health care, policy, and business sectors), and are adapted according to regional needs.
- Are responsive to current trends, are evaluated to ensure effectiveness, and evolve as new prevention

knowledge emerges. For example, an immediate priority is campaigns to increase community knowledge regarding benefits and limitations of risk-reduction strategies, including seroadaptive and biomedical approaches.

9. Better meet the mental health and substance use needs of gay and bisexual men in BC:

- Improve the reach, engagement, and quality of mental health and substance use services and resources for gay and bisexual men, in alignment with the provincial *Healthy Minds, Healthy People* 10-year plan.¹⁹² Areas of particular concern for gay and bisexual men include mood disorders, sexual abuse and physical violence, problematic substance use, and support for dealing with the mental health impacts of homophobia and stigma.
- Work with the mental health/substance use sector to create dedicated services for gay and bisexual men, and ensure that existing mental health and substance use services are respectful and responsive to the beliefs, practices, and cultures of gay and bisexual men.
- Develop approaches that reach men across BC, including community-based approaches such as self-management toolkits, peer counselors or support groups, community counseling, and online or telehealth services.

10. Engage and support communities of Aboriginal, Two-Spirited, and other ethnocultural minority gay and bisexual men to reduce the disparities in health and HIV prevention faced by men from these sub-populations. This includes:

- Working in partnership with gay, bisexual, and Two-Spirited Aboriginal men's community leaders, and men living with HIV.

- Ensuring the Indigenous cultural competency of health care service providers who work with gay, bisexual, and Two-Spirited Aboriginal men, including men living with HIV.
- Engaging, assessing, and responding to the prevention needs of Aboriginal and Two-Spirited men, particularly those at greater risk of infection and those living in rural or remote communities, recognizing the impact of colonization, intergenerational trauma, and the legacy of residential schools on vulnerability to HIV.
- Supporting initiatives that aim to reduce racism among gay and bisexual men.
- Engaging, assessing, and responding to the prevention needs of gay and bisexual men who have recently immigrated to BC.
- Being responsive to the needs of gay and bisexual men for whom English is a second language (e.g., materials in multiple languages, access to translation services).

Part 4: Recommendations Addressing Societal and Structural Drivers of HIV Infection

11. Improve the capacity for policies, programs, and services within the BC health system to reduce existing health inequities for gay and bisexual men, in alignment with existing provincial policies for improving health equity and quality:^{193,194,195}

- Ensure that all strategies or programs aiming to reduce health inequities within the health system consider the specific inequities experienced on the basis of sexual orientation and/or gender identity.
- Increase the reach of health services to gay and bisexual men by ensuring services are respectful and responsive to the beliefs, practices, and cultures

CASE STUDY: Momentum • Vancouver

Momentum is a sexual health study for gay and bisexual men. The study aims to describe sexual behaviours and estimate the prevalence of HIV and STIs using respondent-driven sampling and cohort designs.

BC Centre for Excellence in HIV/AIDS

of gay and bisexual men. For example, promoting “gay-friendly” health care spaces, and developing and promoting organizational policies or professional practice standards that prohibit discrimination on the basis of sexual orientation.

- Support opportunities to increase the capacity of health care providers to communicate effectively and respond to the diverse needs of gay and bisexual men. For example, by working with academic institutions to increase the knowledge and skills of health care professional students to be able to provide appropriate health care to gay and bisexual men, and supporting continuing medical education such as development of resources and collaborative health networks (e.g., online learning modules, learning collaboratives, or communities of practice).
- Support opportunities to increase the capacity of gay and bisexual men to better understand, communicate, evaluate, and act on health information and services. For example, by developing self-management health resources, or raising awareness of actions that can be taken when an individual receives inappropriate health care services.

12. Support initiatives that aim to reduce the stigma and discrimination associated with HIV at a societal level:

- Ensure that prosecutorial guidelines maintained by the Ministry of Justice incorporate the best available evidence on HIV transmission risk, and specify that prosecutorial decisions regarding criminal charges for possible transmission of HIV are based on a fair and independent assessment of whether the public interest requires a prosecution or whether the desired outcome could be achieved in the absence of prosecution. Public health legislation should be sufficient except in the most extraordinary of circumstances, and it is the preferred route for these cases, which are handled through the authority of regional medical health officers.¹⁹⁶
- Develop programs or campaigns that raise awareness of the negative impact of stigma on the lives of HIV-positive people.

13. Promote positive mental health and well-being for gay and bisexual men of all ages by fostering safe and supportive environments for gay and bisexual men of all ages:

- Recognize the importance of family acceptance for gay and bisexual youth, and ensure that family health programs (such as parenting classes and resources)

provide information and supports for parents of youth of all sexual orientations and gender identities.

- Develop or enhance community-based services and resources to support gay and bisexual youth and men in the coming out process (e.g., coming out groups or peer supports, online resources).
- Support initiatives that seek to foster social and community engagement and connection among gay and bisexual men, such as programs that build leadership skills for gay youth, or that foster opportunities for connection and learning between different generations of gay and bisexual men.
- Ensure that policies, curriculum, and programs implemented by the Ministry of Education and regional school boards through the *BC Safe Schools Strategy* specifically address discrimination, harassment, and bullying on the basis of sexual orientation and gender identity (e.g., in provincial standards, regional codes of conduct, and bullying prevention programs such as the *ERASE Bullying* program).
- Support programs that foster supportive school environments, connection, and resilience of gay and bisexual youth (e.g., gay-straight alliances and school-based programs delivered by community agencies to reduce homophobia).
- Ensure that discrimination and harassment policies in the workplace also specifically address discrimination and harassment on the basis of sexual orientation and gender identity.

Addressing Knowledge Gaps through Research

Current knowledge gaps that should be addressed through research include the following:

- Greater understanding of the role of social and structural determinants on the health of gay and bisexual men, including HIV transmission.
- Sexual networks and how to best reach groups that are influential in HIV and STI transmission.
- Effectiveness and impact of risk reduction strategies employed by gay and bisexual men, including seroadaptive strategies and biomedical approaches (e.g., effectiveness and feasibility of PEP and PrEP).
- HIV prevention needs of sub-populations of gay and bisexual men (e.g., youth and men involved in sex work, men who use injection drugs, men in correctional facilities, men with mental health concerns, transgender men).
- HIV prevention needs of gay and bisexual men who identify as Aboriginal or Two-Spirited, particularly youth.
- Factors affecting HIV transmission for men in suburban, rural, and remote areas.
- Broader mental and physical health needs of aging HIV-positive gay and bisexual men.
- A greater understanding of factors important for young gay and bisexual men for HIV prevention (e.g., relationships, coming out, gay spaces, gender and sexual identities, different experiences of being gay, and structural issues).¹⁹⁷

Part 5: Monitoring, Evaluation, and Research

14. Establish ongoing monitoring to identify changes in trends and population dynamics:

- Use and provide resources to sustain community-based surveys and knowledge generation (such as through the *Sex Now* survey), which are critical in order to understand how changes at all levels are influencing the HIV epidemic among gay and bisexual men in BC.
- Address current gaps in understanding about how the size and membership of the population of gay and bisexual men in BC may be changing over time, which is important for understanding rates of infection.
- Incorporate capacity-building for evaluation of programs and knowledge dissemination across community and health system partners, in order to expand effective interventions and inform best practices for HIV prevention for gay and bisexual men.

15. Address key gaps in research, both in terms of specific knowledge gaps as well as prioritization of research related to HIV prevention for gay and bisexual men in BC. To be most effective and to advance the state of research for gay and bisexual men in BC, researchers should:

- Actively partner with community organizations in identification of research priorities and community-based research efforts.
- Adopt implementation science approaches that consider how best to maximize the joint impact of different interventions on HIV prevention for gay and bisexual men (i.e., combination or multi-level prevention).⁹¹
- Make use of social science methods of inquiry (e.g., life course perspective, intersectionality).³²
- Make use of and foster data linkage initiatives between health administrative datasets. These linkages should be facilitated, as they can provide unique insights into the HIV epidemic in BC among gay and bisexual men (such as data linkages established through the STOP HIV/AIDS program).

Provincial Health Officer Recommendations

Discussion of Key Findings

This report has shown that advances in HIV prevention and treatment have resulted in a number of successes in the epidemic in BC since the 1980s, while highlighting that some populations face higher vulnerability for infection. Gay and bisexual men are the population most affected by the HIV epidemic in BC today. Within and across the various spheres of influence examined here (societal and structural, community and relationship, and behavioural and biological), this report has demonstrated the breadth and complexity of the drivers impacting and influencing the HIV epidemic among gay and bisexual men in BC. It is anticipated that addressing these drivers will reduce the incidence of HIV infection in BC in this population.

Overall, HIV prevention for gay and bisexual men should be more holistic and encompass more than increased and expanded HIV and sexually transmitted infection (STI) testing and treatment. The culture, practices, and general health status of gay and bisexual men should also be central to planning and implementing HIV prevention programs and initiatives. A more holistic approach to gay and bisexual men's health would situate HIV prevention within a broader, more inclusive health framework that includes other mental and physical health issues, recognizes the impact of stigma and marginalization on the basis of sexual orientation and other factors, and addresses common social and structural

determinants of health and illness. Strategies that reflect gay and bisexual men's sexual behaviours could incorporate the already high rates of condom use and generally high knowledge of HIV, while leveraging seroadaptive behaviours. These strategies should also reflect an understanding of gay and bisexual men's sexual networks, and accommodate their size, density, and overlapping relationships, while recognizing that they change over time and are not geographically constrained.

Trends identified in this report suggest that gay and bisexual men continue to be over-represented in the HIV epidemic, and should be a priority population for prevention and intervention. Within this exposure group some sub-populations face additional vulnerability based on age, ethnicity, and geographic location. Evidence presented here illustrates differences by region in BC, with gay and bisexual men in Vancouver having the highest rates of testing and of disclosing that they have sex with men to their care providers, as well as the lowest reported rates of poor social support. Analyses also suggest that targeting prevention initiatives based on age and birth cohort would be beneficial, with a focus on gay and bisexual men aged 30 to 44 (the age group where the majority of new diagnoses occur each year), as well as young men in the 1980–1999 birth cohort (where immediate reductions in HIV incidence would prevent this cohort from reaching the high HIV prevalence of

older cohorts over their lifetime). Similarly, initiatives should incorporate the trends in ethnicity and migration: Caucasian gay and bisexual men made up the majority of new diagnoses from 2004 to 2012, while new HIV diagnoses among ethnocultural minorities have increased during this time and in some cases show over-representation compared to proportion of the ethnocultural group within the BC population (with Asian, Latino, and Aboriginal men making up the largest proportion of new diagnoses among ethnocultural minority groups).

Delays in testing and awareness of HIV status result in delays in adaptation of sexual practices and initiation of treatment with antiretroviral drugs, which subsequently results in a higher individual viral load as well as higher population viral loads within a sexual network or population group. Since many risk reduction strategies require accurate knowledge of one's HIV status, delays in testing increase the likelihood of HIV transmission. In BC between 2006 and 2011, the median time between the last negative test and the first positive test among gay and bisexual men was 15 months, despite improvements in testing and diagnosis. Self-reported HIV testing in the past year similarly indicates that there is room for improvement among gay and bisexual men, particularly outside of the Vancouver area.

To further expand HIV testing, providers of testing services in BC must examine and address the barriers to testing reported by gay and bisexual men (e.g., perception of infection risk, privacy concerns, access to low-barrier testing). BC must also address the access to appropriate health care in general for gay and bisexual men. This includes extending the reach of programs that are unavailable in some regions in BC, supporting clients to disclose sexual activities to their care providers, increasing the knowledge and cultural sensitivity of care providers to support gay and bisexual men's health, and ensuring that communication between patients and care providers is safe and effective.

Addressing sexual risk-taking behaviour and related vulnerabilities to HIV infection is also important in curbing the HIV epidemic among gay and bisexual men in BC. The high incidence rates of other STIs among gay and bisexual men (e.g., gonorrhea, chlamydia, syphilis) should be addressed within HIV prevention strategies, as the presence of other STIs can increase the infectiousness of an HIV-positive individual or the susceptibility of an HIV-negative individual. The pathway from poor mental health outcomes to sexual risk-taking behaviour demonstrated in this report also suggests that a comprehensive approach to HIV prevention should include culturally sensitive support for mental health and problematic substance use, to help address root causes and prevent sexual risk-taking behaviour.

Recommendations

The Provincial Health Officer (PHO) endorses the 15 recommendations made by the advisory groups and presented in Chapter 5 of this report, and believes they should be implemented in full. Recognizing that addressing all of these recommendations may be beyond the resource capacity of the government and community at this time, the PHO recommends that the following six priority actions be taken to advance HIV prevention and treatment in BC while leveraging existing programs and initiatives.

A BC Health Strategy for Gay and Bisexual Men

Recommendation 1: Given that HIV—like other health outcomes for gay and bisexual men—is the result of the socio-political context in which gay and bisexual men find themselves, develop a comprehensive provincial health strategy for gay and bisexual men that addresses the drivers of poor health status, including HIV.

Collaborating and partnering with community leaders and different sectors across BC highlights the critical role of

sectors outside of health in fostering the health and resilience of gay and bisexual men in BC (such as creating safe and supportive environments in families, schools, and workplaces). A comprehensive approach addresses overall health and health inequities among gay and bisexual men and recognizes the common root causes of ill-health in this population. A broader focus on the overall health and wellness of gay and bisexual men is also beneficial to improve mental, physical, social, and sexual health, while addressing all levels of drivers of the HIV epidemic (i.e., behavioural and biological; community and relationships; societal and structural). A population health approach can be used to focus on the community, societal and structural determinants of health, while also recognizing vulnerable sub-populations within gay and bisexual men. This comprehensive strategy and its implementation should be appropriately resourced, with sustained program support within government to serve gay and bisexual men's needs.

Enhance Protective Factors

Recommendation 2: The Ministries of Health and Education, regional health authorities, provincial education partners, and other key stakeholders should collaborate on the development of a comprehensive sexual and reproductive health education strategy for BC. This strategy should incorporate a comprehensive school health lens, be inclusive of all gender and sexual identities, and integrate health promotion messages that challenge stigma and foster protective factors, including the development of decision-making skills related to sexual and risk-taking behaviour.

It is important to meet the sexual and reproductive health education needs of all youth in BC, and to ensure that youth of all genders and sexual identities and orientations feel supported within school environments, including having

access to relevant education, supports, services, and resources for their sexual and reproductive health. It is likewise important to enhance protective factors for health, including support for youth during stages of developing or questioning one's gender or sexual identity, acceptance by friends and family, and enhanced community-based services and resources to support youth and their families in transitioning or in their coming out processes. Stigma can be challenged both directly, through increased knowledge and understanding, and indirectly, through environments in which discrimination, harassment, and bullying on the basis of sexual orientation and gender identity are not tolerated. Initiatives that seek to foster social and community engagement and connection among gay and bisexual youth should be supported, as should programs that foster supportive school environments, connection, and anti-homophobia programs.

Appropriate Health Care

Recommendation 3: Within the *From Hope to Health* framework, develop a strategy to improve and expand access to timely HIV and STI diagnosis, treatment, and support for gay and bisexual men.

This report shows that despite improvements in diagnosing and treating HIV, some gay and bisexual men are still being diagnosed in the advanced stage of HIV (including 10 per cent of new diagnoses among gay and bisexual men across BC from 2004 to 2012), and some groups of men with HIV have delays in engaging in HIV treatment. Furthermore, the median time between a person's last negative HIV test and first positive HIV test in BC from 2006 to 2011 was 15 months. Additionally, since other STIs enhance the likelihood of HIV transmission and/or acquisition, but testing for STIs is not as common as HIV testing among gay and bisexual men, offering testing for other STIs to all men who access health care for HIV testing could reduce the incidence of all STIs, including HIV.

Recommendation 4: Within the *Healthy Minds, Healthy People* 10-year plan, develop a strategy to better meet gay and bisexual men's health care needs related to mental health and problematic substance use.¹⁹²

Areas of particular concern for gay and bisexual men include mood disorders, sexual abuse and physical violence, problematic substance use, and other mental health impacts of homophobia and stigma. Addressing this recommendation should include working with the mental health/substance use sector, creating dedicated services for gay and bisexual men, and increasing the cultural competency and capacity of existing mental health and substance use services for gay and bisexual men. This may also include developing approaches that reach men across BC, including community-based approaches such as self-management toolkits, peer counselors or support groups, community counseling, and online or telehealth services.

Recommendation 5: Ensure that prosecutorial guidelines incorporate the best available evidence on HIV transmission risk, and that prosecutorial decisions regarding criminal charges for possible transmission of HIV are based on an assessment of whether the desired social outcome (prevention of HIV transmission) could be achieved in the absence of prosecution. Public health legislation and the authority of regional medical health officers, except in the most extraordinary of circumstances, may offer a more effective approach.

During the 10 years after the 1998 Supreme Court of Canada ruling that a person who does not disclose their HIV status and whose partner is of significant risk of HIV transmission could be found guilty of aggravated assault, there was an increase in the number of criminal cases involving

charges. Media accounts that accompany these criminal cases appeal to related fears, create misinformation, and foster or exacerbate prejudices about HIV and people living with HIV. Many community leaders, researchers, and policy makers have argued that criminal approaches to disease control are problematic for public health efforts. Indeed, criminalization of these cases may increase related stigma, cause delays in testing, and at the same time has not been shown to impact HIV transmission rates. Pursuing these cases through public health legislation and the authority of medical health officers can achieve the desired social outcome of prevention of HIV transmission without undermining efforts to promote testing and reduce stigma and discrimination for people living with HIV.

Research and Monitoring

Recommendation 6: Support or initiate monitoring and research to identify changes in the population of gay and bisexual men, address gaps in understanding, and evaluate intervention programs, targets, and approaches for implementing and expanding promising strategies for HIV prevention.

Enhancing research and addressing gaps improves both knowledge and understanding of the HIV epidemic as well as prioritization of programming related to HIV prevention for gay and bisexual men in BC. Establishing ongoing monitoring can identify changes in trends and population dynamics, which will enhance understanding of how changes at all levels are influencing the HIV epidemic among gay and bisexual men in BC. Addressing current gaps in understanding can inform how the size and membership of the population of gay and bisexual men in BC may be changing over time, which can then inform understanding and prevention efforts for HIV infections. To be most effective and

to advance the state of research for gay and bisexual men in BC, researchers and health agencies should partner with community organizations to identify research and evaluation priorities, as well as support community-based research efforts (such as the *Sex Now* survey). Collaboration between government and external researchers for research and monitoring can provide unique insights into the HIV epidemic in BC among gay and bisexual men, and could be achieved through data linkage initiatives. Research should include evaluation of programs in order to expand effective interventions and continue to inform best practices for HIV prevention. This research should include both scientific (e.g., epidemiological) and social science (e.g., life course) approaches.

Conclusion

Evidence presented in this report clearly demonstrates that while there has been considerable advancement in understanding and treating HIV, and related successes in reducing HIV incidence overall in BC, existing programs and initiatives have not resulted in meaningful reductions in HIV incidence among gay and bisexual men since the early 2000s. This exposure group currently makes up the largest number and proportion of new HIV diagnoses in BC. Renewing HIV prevention in BC requires working with gay and bisexual men to address the many drivers of the epidemic and making meaningful improvements in HIV prevention within this important exposure group.

Appendix A

Glossary Terms

3rd generation enzyme immunoassay (EIA) test

An HIV screening test with high sensitivity (accuracy) that detects HIV antibodies. Since this is a screening test, any positive result needs to then be confirmed by a second test, typically a 4th generation EIA test, the Western Blot test, or individual viral ribonucleic acid (viral RNA) nucleic acid amplification testing (NAAT).⁵²

4th generation enzyme immunoassay (EIA) test

An HIV screening test that improves upon the 3rd generation EIA test by detecting p24 antigen in addition to HIV antibodies, although it does not distinguish between them. As this is a screening test, any positive result needs to then be confirmed by a second test (e.g., the Western Blot test). The 4th generation EIA test has a shorter window period compared to the 3rd generation EIA tests.

Acquired Immunodeficiency Syndrome (AIDS)

A condition that describes the advanced stage of HIV infection. With AIDS, the virus has progressed, causing significant loss of white blood cells (CD4 cells) and cancers or infections that result from immune system damage. An AIDS diagnosis is made if a person with HIV is diagnosed with a clinical condition identified as an “AIDS-defining illnesses.”²²

Antibody See *HIV antibody*.

Antiretroviral therapy (ART) Treatment with anti-HIV drugs to suppress or inhibit the ability of HIV to multiply in the body.¹⁹⁸

Bisexual Sexual orientation in which a person is attracted sexually and/or emotionally to both males and females.²²

CD4 count The number of CD4 cells per cubic millimetre of blood. Once a person is infected with HIV, their CD4 count begins to decrease.⁴⁶ A CD4 count test indicates the strength of one’s

immune system and can be used to predict the risk of complications and debilitating infections.¹³ CD4 count results are used to monitor the clinical progress of a person infected with HIV.

CD4+ T-cell A type of white blood cell that has CD4 molecules on its surface. CD4+ T-cells (CD4+ T-lymphocytes, or CD4 cells) normally move throughout the body, helping to fight infection by identifying infection by bacteria and viruses. HIV infects CD4+ T-cells, causing them to decrease in number. The loss of CD4+ T-cells is one of the indicators of HIV infection. See *CD4 count* for information on how CD4 levels are monitored.⁵⁶

Endemic Diseases such as HIV are said to be endemic when they are a constant presence within a given geographic area or population group.¹⁹⁹

Exposure group Specific sub-populations within the HIV epidemic that reflect the route by which that group is at risk of HIV infection, (e.g., gay and bisexual men, people who use injection drugs, blood product recipients, occupational exposure).⁸

Gay Sexual orientation in which a person is sexually and emotionally attracted to members of the same sex. The word gay can refer to both males and females, but is most commonly used to identify males.²²

Gay and bisexual men For the purpose of this report, the term “gay and bisexual men” includes all people who identify as men, and have romantic or sexual relationships with other men, regardless of their own sexual or gender identity.

Gay communities Groups of gay and bisexual men connected through common social or cultural relationships and affiliations. Use of this term in this report is not intended to imply that these groups are homogeneous or exclusive.

Gender identity Gender identity is linked to a person's internal and individual experience of gender. It is their sense of being a woman, a man, both, neither, or anywhere along the gender spectrum. A person's gender identity may be the same as or different from their birth-assigned sex. Gender identity is fundamentally different from a person's sexual orientation.²⁰⁰

Haemophiliac A hereditary condition in which a person's blood does not clot normally. A haemophiliac does not bleed more profusely or more quickly than other people, but bleeds for a longer time.²⁰¹

Hepatitis A A preventable disease of the liver caused by the hepatitis A virus, which can last from a few weeks to several months. It does not lead to chronic infection.²⁰²

Hepatitis B A preventable disease of the liver caused by the hepatitis B virus. It ranges in severity from a mild illness, lasting a few weeks (acute), to a serious long-term (chronic) illness that can lead to liver disease or liver cancer.²⁰²

Highly active antiretroviral therapy (HAART)

A therapy that involves taking a combination of at least three anti-HIV drugs. It is prescribed to HIV-positive people before AIDS symptoms develop.⁴⁶ The development of HAART shifted the prognosis of HIV disease from almost certain fatality to a chronic, manageable illness.⁶⁰

HIV antibody An antibody is a protein produced by the immune system to act against foreign particles in the body. The HIV antibody usually appears within six weeks after infection. Early on in an HIV infection, antibody testing may not produce accurate results, as the infection may not yet have begun to produce antibodies; therefore, a false-negative test result may occur. Also see *seroconversion*.¹⁹⁹

HIV viral load Viral load is the amount of HIV in the blood or genital fluid. The higher an individual's HIV viral load the greater the chance of transmission of HIV. The term is also used as the name of a specific type of blood test—the viral load test—which is a quantitative measurement of HIV nucleic acid (viral RNA) that provides important information used in conjunction with the CD4 count to monitor the status of HIV disease, guide recommendations for therapy, and predict the future course of the HIV infection/disease.¹³

Homophobia An irrational fear of, aversion to, or discrimination against gay people, and/or those one perceives as gay.²²

Human Immunodeficiency Virus (HIV) A virus that attacks the immune system. It is spread through contact with infected blood, and other body fluids (e.g., semen, vaginal fluids, and rectal fluids). There is no cure for HIV, but antiretroviral medication can reduce the amount of virus in the body. Without treatment, HIV infection can progress to AIDS.²⁰²

Men who have sex with men (MSM) The term most commonly used when describing how HIV spreads between males through sexual contact, and reflects the epidemiological basis of transmission in this group.²⁰ MSM are not a homogenous group and may identify as transgender, queer, Two-Spirited, gay, bisexual, or heterosexual, or may be in a period of transition or questioning regarding their sexual identity. They may not necessarily define themselves purely on the basis of sexual partners.²²

Nucleic acid amplification testing (NAAT) A highly-sensitive method of testing blood that is used to detect the genetic material of viruses such as HIV. If there is a weak signal on enzyme immunoassay testing and the Western test, NAAT is typically performed. A negative test result can rule out HIV infection. If viral ribonucleic acid (RNA) is detected, then the result is suggestive of acute HIV infection.⁵² NAAT tests can be done on individual specimens or using pooling methods.

P24 antigen One of several foreign proteins that make up HIV and that, when detected inside the body, stimulates the immune system to respond and destroy it. A positive result from a p24 antigen test indicates the presence of HIV; however, this test is not very sensitive and can result in false negatives.¹⁹⁹

Population viral load Viral load is the amount of HIV in the blood or genital fluid. Population viral load is an aggregate measure of all of the individual viral loads of people infected with HIV in a population or community. It is a reflection of the uptake of HIV treatment and suppression of HIV viral load at a population level. See *HIV viral load*.

Positive prevention While early HIV prevention focused on those at risk of exposure to HIV, positive prevention focuses on individuals who have been

diagnosed as HIV positive,⁷⁵ and aims to reduce the rate of HIV transmission. This involves educating HIV-infected individuals about transmission, safe sex practices, disclosure to partners, and screening for sexually transmitted infections (STIs).²⁰³

Post-exposure prophylaxis (PEP) Short-term antiretroviral therapy to reduce the risk of HIV infection after potential exposure, either occupationally or through sexual intercourse.^{132,133,204}

Pre-exposure prophylaxis (PrEP) A strategy that involves use of antiretroviral therapy by people who are HIV negative to reduce the risk of HIV infection *before* a potential exposure.²⁰⁵

Prevalence The total number of people with a specific disease or health condition living in a defined population at a particular time.¹³ HIV prevalence in British Columbia is the total number of people living with HIV infection (including those with AIDS) in British Columbia at a particular time.

Rectal microbicide A type of rectal lubricant for anal sex, currently being explored in clinical trials, which contains antiretroviral medications to prevent HIV infection. Rectal microbicides are intended to offer both primary protection against HIV in the absence of condoms and complementary and/or back-up protection when condoms are used.²⁰⁶

Seroadaptive behaviours Strategies for reducing risk and preventing HIV that are based on knowledge of one's own and/or a partner's HIV status. These behaviours include serosorting and seropositioning.^{20,41}

Seroconversion The development of detectable antibodies to HIV in the blood as a result of HIV infection. A person who goes from being HIV negative to HIV positive is said to have seroconverted or is a seroconverter.¹³

Serodiscordant Relationships where one partner is infected with HIV and the other is not.¹³

Seropositioning Also known as strategic positioning, this is a seroadaptive strategy that involves choosing sex acts based on HIV status.²⁰ This may include taking a role during anal sex that reduces one's risk of HIV infection (being the insertive partner, if one's own status is HIV negative) or transmission (being the receptive partner, if one's own status is HIV positive).⁴¹

Serosorting A seroadaptive strategy that involves choosing sex partners known to be the same HIV status as oneself.^{20,41}

Sex work Individuals who receive money, shelter, services, or goods in exchange for sexual services, either regularly or occasionally, and who may or may not consciously define those activities as income-generating.^{22,207}

Sexual identity How a person describes his/her own sexual orientation (i.e., homosexual, bisexual, heterosexual, or asexual). Common terms include gay, lesbian, bisexual, queer, Two-Spirit, or straight.

Surveillance The ongoing collection, analysis, and interpretation of data about a health condition or disease, such as HIV. The objective of surveillance is to assess the health status of populations, detect changes in disease trends or changes in how the disease is distributed, define priorities, assist in the prevention and control of the disease, and monitor and evaluate related treatment and prevention programs.¹³

Transgender, Transsexual, or Trans Trans is an umbrella term that encompasses a diverse group of people whose gender identity or expression is different from prevailing societal expectations based on biological sex.²⁰⁸

Two-Spirited A term with a number of meanings in different contexts. In contemporary times, Two-Spirit may refer to lesbian, gay, or transgender people who have adopted an identity that connects with sexuality and gender traditions relevant to their respective Indigenous culture. Historically, Two-Spirited persons were First Nations and Métis people who held an honoured gender or social status in their community. There were variations in the cultural practices and beliefs with respect to Two-Spiritedness across communities in North America. In recent decades this term has been reclaimed by members of various First Nations in the context of decolonization and acknowledging the strength and value of Two-Spirited persons in their communities.²⁰⁹

Viral load see *HIV viral load*, *Population viral load*.

Viral ribonucleic acid (Viral RNA) RNA is the sole genetic material of retroviruses. HIV carries its genetic material in the form of RNA rather than DNA, which is therefore known as viral RNA. Viral RNA is the

first of the three different markers of HIV infection to appear in the blood after HIV infection occurs (viral RNA, p24 antigen, antibody).⁵²

Western Blot test An HIV test that is considered the gold standard for confirmation of HIV infection.

Specimens that are reactive on EIA screening tests and on Western Blot are considered to be confirmed HIV-positive. The EIA-Western Blot combination is estimated to have an overall sensitivity (accuracy) of 99.9 per cent and specificity (ability to identify a negative result) of 99.9 per cent.⁵²

Appendix B

Data Sources

To examine the HIV epidemic among gay and bisexual men in BC, this report draws on multiple provincial sources of information examined through analyses by the BC Centre for Disease Control (BCCDC).

Data Source	Notes
BCCDC HIV and AIDS Surveillance System (HAISYS)	HIV data are derived from the provincial HIV and AIDS Surveillance System (HAISYS) housed at the BCCDC. These data were extracted in June 2013 but are subject to change over time. As these data are collected from case report forms completed by public health staff who follow-up new HIV diagnoses, they are subject to limitations; for example, men may not volunteer the information that they have sex with men. HIV cases are defined on the basis of a positive laboratory test, and so under-represent true incidence and prevalence, as they only include people who have been tested for these infections. Furthermore, analyses of HIV surveillance data were restricted to the time period of 2004 to 2012, due to known differences in data quality prior to HIV becoming a reportable disease in BC in May 2003.³⁹ This change improved the quality of surveillance data in two key ways. First, identification was improved for individuals who have a first HIV diagnosis in BC and were found to have a previous HIV diagnosis outside BC, resulting in their exclusion from surveillance reports. This contributed to an observed decline in new HIV diagnoses in BC since 2004. Second, documentation of exposure category and ethnicity improved, resulting in a decrease in the proportion of new HIV diagnoses where exposure or ethnicity is unknown. These data quality issues should be considered when comparing trends before and after 2003. Individuals newly diagnosed with HIV are assigned to “exposure groups” based on all likely routes of exposure to HIV. In BCCDC reports, individuals who belong to more than one exposure group are assigned to one group based on the following hierarchy: 1. gay, bisexual and other men who have sex with men; 2. people who use injection drugs; 3. heterosexual contact; 4. other exposure (receipt of blood products, occupational exposure, and perinatal transmission); 5. no identified risk/unknown. Age groups in this report are assigned based on the date of birth on the case report form completed by the diagnosing health care provider or a public health nurse as part of follow-up at the time of diagnosis. Birth cohorts end at 1999 as there have been no new reported cases of HIV for men who have sex with men born after 1999 in BC at the time of this report. For more information about this data source, see the Technical Appendix of BCCDC’s STI Annual Surveillance Reports available at www.bccdc.ca.

Data Source	Notes
BCCDC STI Information System (STI-IS)	Sexually Transmitted Infection (STI) Surveillance Data Data about infectious syphilis are derived from the STI surveillance database from the provincial STI Information System (STI-IS) housed at the BCCDC. Infectious syphilis cases are defined on the basis of a positive laboratory test, and so under-represent true incidence, as they only include people who have been tested for these infections. As these data are collected from case report forms or clinic records completed by public health staff who follow-up new syphilis diagnoses, they are subject to limitations; for example, men may not volunteer the information that they have sex with men. STI Clinic Data Gonorrhea and chlamydia data were analyzed using data from the same provincial STI Information System, which includes electronic medical records from STI clinics operated by the BCCDC in Vancouver. While the gay and bisexual men who attend these clinics are not representative of the total population of gay and bisexual men in BC, these clinics are considered to be “sentinel” clinics, and trends at these sites are likely indicative of overall trends in this population. For more information, see the Technical Appendix of BCCDC’s STI Annual Surveillance Reports available at www.bccdc.ca.
Sex Now Survey	In partnership with the Community-Based Research Centre for Gay Men’s Health, four occurrences of the <i>Sex Now</i> survey were analyzed. The <i>Sex Now</i> survey is a large, community-based online survey of gay and bisexual men in BC, available both in English and French, that is conducted every 12-18 months.⁴⁰ Survey participants are recruited through social media, gay organizations, sexual networking sites, and word of mouth. While there are limitations to this survey administration style (e.g., it is not inclusive of men who do not have Internet access, or are unable to answer survey questions in English or French), online surveys are a common method for surveying gay and bisexual men in many jurisdictions. Because this survey is freely available online, and we conducted these analyses based on all participants, there is no age cut-off for survey participants. For analysis of trends in HIV testing in the past year, men who self-reported as having HIV were not included in analysis, even if they may have tested positive in the past year, as the survey does not collect date of HIV diagnosis for those who are HIV positive. For analysis of trends by region, <i>Sex Now</i> survey participants were grouped into regions of the province based on self-reported forward sortation area (FSA; the first three characters of postal code), with adjacent regions combined on the basis of sample size. For more information, see: www.cbrc.net/sexnow. In the 2011 <i>Sex Now</i> survey regions were defined as follows: • Vancouver Westend = V6G, V6E (i.e., west of Burrard Street) • Vancouver Downtown East = V5K, V5L, V6A, V6B, V6C, V6Z (i.e., Downtown Eastside + all other downtown neighbourhoods not constituted by Westend FSA) • Vancouver City Centre = V5T, V5V, V5W, V5Y, V5Z, V6J, V6H, V6M (i.e., area bounded by False Creek and 49th Avenue, Arbutus Street and Knight Street) • Other Vancouver = all other FSA within boundaries of municipal Vancouver • North Shore = West Vancouver and North Vancouver • Burnaby = V3J, V3L, V3N, V5A, V5B, V5C, V5E, V5G, V5H, V5J • Richmond and Fraser South = Richmond, Surrey, Delta, White Rock • North Fraser = Port Moody, Anmore, Coquitlam, Port Coquitlam, Belcarra, Maple Ridge, Pitt Meadows • Langley and Fraser East = Langley, Abbotsford, Mission, Chilliwack, Agassiz, Harrison, and V0M FSA • Greater Victoria = V8K, V8L, V8M, V8N, V8P, V8R, V8S, V8T, V8V, V8W, V8X, V8Y, V8Z, V9A, V9B, V9C, V9E, V9G, V9L (i.e., Victoria, Sidney, Central Saanich, Salt Spring Island, Ladysmith, Duncan) • Other Vancouver Island = V0R, V9H, V9J, V9K, V9L, V9M, V9N, V9P, V9R, V9S, V9T, V9W, V9X, V9Y

Data Source	Notes
Sex Now Survey <i>(continued)</i>	- Interior = Kamloops, Kelowna, and the following FSA: V0A, V0B, V0G, V0H, V0K, V0X, V1A, V1B, V1C, V1E, V1H, V1K, V1L, V1N, V1R, V1T, V2A, V2J, V4V - North (Northern BC) = Prince George and the following FSA: V0C, V0J, V1G, V1J, V2G, V8C, V8G, V8J 180 of the 190 total FSA in British Columbia were represented. The following FSA cross boundaries of multiple regions and were therefore excluded (2%): V0N, V0P, V8A, V8B. 3% of FSA were invalid (i.e., did not conform with Canada Post formatting requirements or are not British Columbia FSA). The total number of participants in the survey varied for each year the survey was conducted: 2007: N=1,416 2008: N=1,288 2010: N=1,428 2011: N=1,805
The Public Health Agency of Canada. Estimates of HIV Prevalence and Incidence in Canada, 2011	Estimates of HIV incidence and prevalence are based on HIV surveillance data that do not track undiagnosed/untested cases. Therefore, modelling and additional sources of information were used to estimate incidence and prevalence. The Public Health Agency of Canada uses a slightly different hierarchy for exposure groups than BCCDC, separating men who have sex with men and use injection drugs into an additional exposure group. “Heterosexual (non-endemic)” refers to heterosexual contact with a person who is either HIV-infected or at risk for HIV or where heterosexual contact is the only identified risk. “Heterosexual (endemic)” refers to heterosexual contact with a partner originating from a country where HIV is endemic. “Other” includes recipients of blood transfusion or clotting factor, occupational transmission, and perinatal transmission. For more information, please see the source publication.⁷
Public Health Agency of Canada. HIV Transmission Risk: A Summary of the Evidence, 2012	This 2012 Public Health Agency of Canada evidence review provided estimates of per-act risk of HIV acquisition based on published estimates from other studies. Estimates for sexual acts are taken from studies where condoms were not used or rarely used, or with adjustment for condom use, and represent per-act risk without protection. The authors describe the following limitations to these estimates: - Within each act or route of transmission, estimates are from multiple settings and vary widely, likely due to the role of behavioural and biological cofactors (such as partner concurrency or concomitant STI infection). - The majority of studies were carried out before the advent of HAART, and estimates reflect the risk associated with the average viral load of individuals with untreated chronic HIV infection (note that per-act risk of acquisition will be lower if the HIV-positive partner is undergoing treatment with HAART and therefore has a lowered or suppressed viral load). In this report, estimates for the increase in per-act risk of HIV acquisition by viral load were calculated using published methods with the following assumptions: - Each log₁₀ increase in plasma HIV-1 RNA increases the per-act risk of transmission 2.9-fold for all sex acts. - Assumes risk of acquisition per act in the absence of treatment is 1.5 per cent for receptive anal intercourse, and 0.1 per cent for insertive anal intercourse.
The BC Centre for Excellence in HIV/AIDS	Data on trends in monitored HIV viral loads and CD4 counts at initiation of treatment, for clients in the provincial Drug Treatment Program who identify as gay, bisexual, or other men who have sex with men. CD4 counts and plasma viral load levels are based on the most recent test date within the six months prior to the start date of antiretroviral or HAART therapy. These data were provided for this report in September 2012.

Data Source	Notes
Vancouver Coastal Health Authority	Vancouver Coastal Health Authority provided data on CD4 count at time of HIV diagnosis and time to entry into HIV primary care for gay, bisexual, and other men who have sex with men who were newly diagnosed with HIV in the Vancouver Coastal region. These data were based on a linkage between Vancouver Coastal Health HIV surveillance data and the BC Centre for Excellence in HIV/AIDS drug treatment registry.
The McCreary Centre Society. 2008 <i>BC Adolescent Health Survey</i>	Researchers from the University of British Columbia School of Nursing, in partnership with McCreary Centre Society, conducted an analysis of data from the McCreary Centre Society's 2008 <i>BC Adolescent Health Survey</i> for this PHO report. The <i>BC Adolescent Health Survey</i> is a school-based survey of students in grades 7 to 12 across BC. Some of the analyses conducted for this report were based on the 13,000+ male students who indicated their sexual orientation (including heterosexual students); other analyses focused solely on the 2 per cent of the sample who identified as gay or bisexual, half of whom were sexually experienced.

Appendix C

New HIV Diagnoses in Gay and Bisexual Men in BC

This table demonstrates variation in new HIV diagnoses by birth cohort, ethnicity, and stage of infection. For discussion of these variables, see Chapter 3 and Tables 3.1, 3.2, 3.3, and 3.4.

Health Authority	BC Population Diagnoses	Diagnoses in Gay and Bisexual Men		Percentage of Diagnoses in Gay and Bisexual Men by Birth Cohort			Percentage of Diagnoses in Gay and Bisexual Men		
							With Advanced HIV Disease at Diagnosis	Self-Identified as Aboriginal	Self-Identified as Other Ethno-Cultural Minority
	Number	Number	Per cent	1920-1959	1960-1979	1980-1999			
Interior	152	49	32%	29%	57%	14%	35%	10%	8%
Fraser	677	250	37%	21%	56%	24%	14%	5%	22%
Vancouver Coastal	1,659	1,071	65%	17%	61%	22%	7%	4%	25%
Vancouver Island	378	114	30%	20%	57%	24%	11%	2%	8%
Northern	214	15	7%	20%	73%	7%	33%	47%	13%
BC	3,103	1,507	49%	18%	60%	22%	10%	5%	22%

Notes: The number of new HIV diagnoses does not reflect the actual number of new HIV infections (HIV incidence), as untested individuals are not included, and due to delays between infection and testing/diagnosis. Advanced HIV disease at diagnosis is defined as having an AIDS diagnosis and case report within 12 months of the date of first positive HIV test. Ethnicity data based on self-identification. If known, regions assigned based on health authority of residence; otherwise, where clients were tested. Use caution when interpreting age- and ethnicity-related sub-groups in some regions due to small sample size. These data were extracted in June 2013 but are subject to change over time. For more information about this data source, see Appendix B.

Source: HIV and AIDS Surveillance System database, BC Centre for Disease Control. Prepared by Epidemiology and Surveillance, Clinical Prevention Services, BC Centre for Disease Control, June 2013. Additional preparation by the BC Office of the Provincial Health Officer, and the Population Health Surveillance, Engagement and Operations Branch, BC Ministry of Health; March 2014.

References

1. Provincial Health Officer. Decreasing HIV infections among people who use drugs by injection in British Columbia: Potential explanations and recommendations for further action [available on the Internet]. Victoria, BC: Office of the Provincial Health Officer; 2011 [updated 2012 Feb 08; cited 2014 Apr 04]. Available from: <http://www.health.gov.bc.ca/library/publications/year/2011/decreasing-HIV-in-IDU-population.pdf>.
2. BC Ministry of Health. From hope to health: Towards an AIDS-free generation [available on the Internet]. Victoria, BC: Ministry of Health; 2012 [updated 2013 Jan 02; cited 2014 Apr 04]. Available from: <http://www.health.gov.bc.ca/library/publications/year/2012/from-hope-to-health-aids-free.pdf>.
3. Centers for Disease Control and Prevention. Current trends update: Acquired Immunodeficiency Syndrome (AIDS)-United States. *MMWR*. 1983;32(30):389-91.
4. Barre-Sinoussi F, Chermann JC, Rey F, Nugeyre MT, Chamaret S, Gruest J, et al. Isolation of a T-lymphotropic retrovirus from a patient at risk for acquired immune deficiency syndrome (AIDS). *Science*. 1983;220(4599):868-71.
5. Gallo RC, Sarin PS, Gelmann EP, Robert-Guroff M, Richardson E, Kalyanaraman VS, et al. Isolation of human T-cell leukemia virus in acquired immune deficiency syndrome T-cell leukemia virus in acquired immune deficiency syndrome (AIDS). *Science*. 1983;220(4599):865-7.
6. World Health Organization. Global Health Observatory – HIV/AIDS [available on the Internet]. Geneva: World Health Organization; [cited 2013 Sep 20]. Available from: <http://www.who.int/gho/hiv/en/>.
7. Public Health Agency of Canada. Summary: Estimates of HIV prevalence and Incidence in Canada, 2011. Ottawa, ON: Public Health Agency of Canada; 2012.
8. BC Centre for Disease Control. HIV in British Columbia: Annual Surveillance Report 2012. Vancouver, BC: Provincial Health Services Authority; 2013.
9. BC Centre for Disease Control. HIV in British Columbia: Annual Surveillance Report 2011. Vancouver, BC: Provincial Health Services Authority; 2012.
10. Lima VD, Hogg RS, Harrigan PR, Moore D, Yip B, Wood E, et al. Continued improvement in survival among HIV-infected individuals with newer forms of highly active antiretroviral therapy. *AIDS*. 2007;21(6):685-92.
11. UNAIDS/WHO. Guidelines for second generation HIV surveillance: an update: Know your epidemic [available on the Internet]. Geneva: UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance; 2013 [updated 2013 Jun 28; cited 2014 Apr 04]. Available from: http://apps.who.int/iris/bitstream/10665/85511/1/9789241505826_eng.pdf.
12. Public Health Agency of Canada. HIV and AIDS in Canada: surveillance report to December 31, 2009. Ottawa, ON: Public Health Agency of Canada; 2010.
13. Public Health Agency of Canada. HIV/AIDS Epi Updates: July 2010. Ottawa, ON: Public Health Agency of Canada; 2010.
14. Public Health Agency of Canada. HIV and AIDS in Canada: surveillance report to December 31, 2011. Ottawa, ON: Public Health Agency of Canada; 2012.
15. Trapence G, Collins C, Avrett S, Carr R, Sanchez H, Ayala G, et al. From personal survival to public health: community leadership by men who have sex with men in the response to HIV. *Lancet*. 2012;380(9839):400-10.
16. Wolitski RJ, Fenton KA. Sexual health, HIV, and sexually transmitted infections among gay, bisexual, and other men who have sex with men in the United States. *AIDS Behav*. 2011;15:S9-17.
17. Killen J, Harrington M, Fauci AS. MSM, AIDS research activism, and HAART. *Lancet*. 2012;380(9839):314-6.
18. Purcell DW, Johnson CH, Lansky A, Prejean J, Stein R, Denning P, et al. Estimating the Population Size of Men Who Have Sex with Men in the United States to Obtain HIV and Syphilis Rates. *The Open AIDS Journal*. 2012; 6(Suppl 1:M6):98-107.
19. Trussler T, Banks P, Marchand R, Robert W, Gustafson R, Hogg R, et al. ManCount - Sizes-up the gaps: A sexual health survey of gay men in Vancouver. Vancouver, BC: Vancouver Coastal Health; 2010.
20. Beyrer C, Baral SD, van Griensven F, Goodreau SM, Chariyaletsak S, Wirtz AL, et al. Global epidemiology of HIV infection in men who have sex with men. *Lancet*. 2012;380(9839):367-77.
21. Sullivan PS, Hamouda O, Delpech V, Geduld JE, Prejean J, Semaille C, et al. Reemergence of the HIV epidemic among men who have sex with men in North America, Western Europe, and Australia, 1996-2005. *Ann Epidemiol*. 2009;19(6):423-31.
22. Public Health Agency of Canada. Population specific HIV/AIDS status report: gay, bisexual, two-spirit, and other men who have sex with men. Ottawa, ON: Public Health Agency of Canada; 2013.
23. Young RM, Meyer IH. The trouble with “MSM” and “WSW”: erasure of the sexual-minority person in public health discourse. *Am J Public Health*. 2005;95(7):1144-9.
24. Hottes, TS. Analysis of Sex Now 2011 data. BC Centre for Disease Control, Vancouver, BC, 2012 (unpublished data).
25. Zablotska IB, Holt M, Prestage G. Changes in gay men's participation in gay community life: implications for HIV surveillance and research. *AIDS Behav*. 2012;16(3):669-75.
26. Rowe MS, Dowsett GW. Sex, love, friendship, belonging and place: is there a role for ‘Gay Community’ in HIV prevention today? *Cult Health Sex*. 2008;10(4):329-44.
27. Northern Health Authority. Where are the men? Chief Medical Health Officer's report on the health and wellbeing of men and boys in Northern BC. Prince George, BC: Northern Health Authority; 2011.
28. Millett GA, Peterson JL, Flores SA, Hart TA, Jeffries WL, Wilson PA, et al. Comparisons of disparities and risks of HIV infection in black and other men who have sex with men in Canada, UK, and USA: a meta-analysis. *Lancet*. 2012; 380(9839):341-8.
29. Gay & Lesbian Health Services of Saskatoon. Valuing gay men's lives: reinvigorating HIV prevention in the context of our health and wellness [available on the Internet]. Saskatoon, SK: Gay & Lesbian Health Services of Saskatoon; n.d. [cited 2014 Apr 17]. Available from: <http://librarypdf.catie.ca/PDF/P7/19191.pdf>.
30. CATIE. New directions in gay men's health and HIV prevention in Canada [available on the Internet]. CATIE. 2010; [updated 2010 Sept 23; cited 2014 Apr 04]. Available from: <http://www.catie.ca/en/resource/new-directions-gay-mens-health-and-hiv-prevention-canada-pan-canadian-deliberative-dialogue-0>.
31. CHAPS Partnership. Making it count: a collaborative planning framework to reduce the incidence of HIV infection during sex between men [available on the Internet]. London: Sigma Research; 2011 [updated 2011 Mar 08; cited 2014 Apr 04]. Available from: <http://www.sigmaresearch.org.uk/files/report2011b.pdf>.

32. Institute of Medicine. The health of lesbian, gay, bisexual, and transgender people: building a foundation for better understanding. Washington, DC: The National Academies Press.
33. Beyrer C, Sullivan PS, Sanchez J, Dowdy D, Altman D, Trapence G, et al. A call to action for comprehensive HIV services for men who have sex with men. *Lancet*. 2012 Jul 28;380(9839):424-38.
34. Aral SO. Determinants of STD epidemics: implications for phase appropriate intervention strategies. *Sex Trans Infect*. 2002;78 (Suppl 1):i3-13.
35. Aral SO, Padian NS, Holmes KK. Advances in multilevel approaches to understanding the epidemiology and prevention of sexually transmitted infections and HIV: an overview. *J Infect Dis*. 2005;191(Suppl 1):S1-6.
36. Stall R, Mills TC, Williamson J, Hart T, Greenwood G, Paul J, et al. Association of co-occurring psychosocial health problems and increased vulnerability to HIV/AIDS among urban men who have sex with men. *Am J Public Health*. 2003;93(6):939-42.
37. BC Ministry of Health. Promote, protect, prevent: our health begins here: BC's guiding framework for public health [available on the Internet]. Victoria, BC: Ministry of Health; 2013 [updated 2013 Mar 22; cited 2014 Apr 16]. Available from: <http://www.health.gov.bc.ca/library/publications/year/2013/BC-guiding-framework-for-public-health.pdf>.
38. Public Health Agency of Canada. What is the population health approach? [available on the Internet]. Ottawa, ON: Public Health Agency of Canada; 2012 [updated 2014 Apr 17; cited 2014 Apr 17]. Available from: <http://www.phac-aspc.gc.ca/ph-sp/approach-proche/index-eng.php>.
39. BC Centre for Disease Control. HIV and sexually transmitted infections 2010. Vancouver, BC: BC Centre for Disease Control; 2010.
40. Community Based Research Centre. Sex Now survey / Sondage Sexe au présent [available on the Internet]. Vancouver, BC: Community Based Research Centre; [cited 2014 Apr 04]. Available from: <http://cbrc.net/sexnow>.
41. Grace D, Chown SA, Jollimore J, Parry R, Kwag M, Steinberg M, et al. HIV-negative gay men's accounts of using context-dependent seroadaptive strategies. *Cult Health Sex*. 2014; 16(3):316-30.
42. Heath KV, Cornelisse PGA, Strathdee SA, Palepu A, Miller ML, Schechter MT, et al. HIV-associated risk factors among young Canadian Aboriginal and non-Aboriginal men who have sex with men. *Int J STD AIDS*. 1999;10:582-7.
43. O'Connell JM, Lampinen TM, Weber AE, Chan K, Miller ML, Schechter MT, et al. Sexual risk profile of young men in Vancouver, British Columbia, who have sex with men and inject drugs. *AIDS Behav*. 2004; 8(1):17-23.
44. Adams A, Lundie M, Marshall Z, Pires R, Scanlon K, Scheim AIM, et al. Getting primed: informing HIV prevention with gay/bi/queer/trans men in Ontario [available on the Internet]. ON: Gay/Bisexual/Queer Trans Men's Working Group, Ontario Gay Men's HIV Prevention Strategy, AIDS Bureau, Ontario Ministry of Health and Long-Term Care; 2008 Jun [cited 2014 Apr 17]. Available from: <http://queertransmen.org/wp-content/uploads/2014/01/gettingprimed.pdf>.
45. Poon AFY, Woods C, Shurgold S, GColley G, Brumme CJ, Harrigan PR, editors. Large-scale phylogenetic analysis of HIV sequences to reconstruct historical epidemic dynamics and transmitted drug resistance in British Columbia, Canada. Poster presented at: 22nd Annual Canadian Conference on HIV/AIDS Research; Vancouver, BC; 2013.
46. Watstein SB, Stratton SE. The encyclopedia of HIV and AIDS. New York: Facts on File; 2003.
47. Pantaleo G, Graziosi C, Fauci A. Immunopathogenesis of Human Immunodeficiency Virus infection. *N Engl J Med*. 1993;328(5):327-35.
48. Lewthwaite P, Wilkins E. Natural history of HIV/AIDS. *Medicine*. 2005;33(6):10-13.
49. Norris S. Canada's blood supply ten years after the Krever Commission [Publication #PRB 08-14E]. Ottawa, ON: Library of Parliament; 2008 Jul 10.
50. Wilson K. The Krever Commission – 10 years later. *CMAJ*. 2007;177(11):1387-9.
51. Public Health Agency of Canada, HIV transmission risk: a summary of the evidence. Ottawa, ON: Public Health Agency of Canada; 2012.
52. BC Centre for Disease Control. HIV laboratory testing: a resource for health professionals. Vancouver, BC: BC Centre for Disease Control; 2010.
53. BC Centre for Disease Control. HIV/AIDS [available on the Internet]. Vancouver, BC: BC Centre for Disease Control; 2011 [updated 2014 Apr 14; cited 2014 Apr 14]. Available from: <http://www.bccdc.ca/discord/a-z/h/HIVAIDS/default.htm>.
54. Samji H, Cescon A, Hogg RS, Modur SP, Althoff KN, et al. Closing the gap: increases in life expectancy among treated HIV-positive individuals in the United States and Canada. *PLOS One*. 2013;8(12): e81355.
55. Montaner J, Guillemi S, Harris M, editors. Therapeutic guidelines: antiretroviral (ARV) treatment of adult HIV infection [available on the Internet]. Vancouver, BC: BC Centre for Excellence in HIV/AIDS; 2013 [cited 2014 Apr 9]. Available from: <http://www.cfenet.ubc.ca/sites/default/files/uploads/Therapeutic%20Guidelines%202013-Feb-final.pdf>.
56. BC Centre for Excellence in HIV/AIDS. Primary care guidelines for the management of HIV/AIDS in British Columbia. Vancouver, BC: BC Centre for Excellence in HIV/AIDS; 2011.
57. World Health Organization. WHO - antiretroviral therapy [available on the Internet]. World Health Organization. 2014. [cited 2014 Apr 14]. Available from: http://www.who.int/topics/antiretroviral_therapy/en/.
58. Sax PE, Cohen CJ, Kuritzkes DR. HIV essentials. Sudbury, MA: Jones & Bartlett Learning; 2011.
59. Montaner JS, Lima VD, Harrigan PR, Lourenco L, Yip B, Nosyk B, et al. Expansion of HAART coverage is associated with sustained decreases in HIV/AIDS morbidity, mortality and HIV transmission: the "HIV treatment as prevention" experience in a Canadian setting. *PLOS One*. 2014;9(2):e87872.
60. Kallings L, McClure C. 20 years of the International AIDS Society: HIV professionals working together to fight AIDS. Geneva, Switzerland: International AIDS Society. 2008.
61. Stall R, Duran L, Wisniewski SR, Friedman MS, Marshal MP, McFarland W, et al. Running in place: implications of HIV incidence estimates among urban men who have sex with men in the United States and other industrialized countries. *AIDS Behav*. 2009;13(4):615-29.
62. Gilbert M. Internal analysis of BCCDC surveillance data. Vancouver, BC: British Columbia Centre for Disease Control; 2013 Jun [unpublished data].
63. Gilbert M, Cook D, Steinberg M, Kwag M, Robert W, Doupe G, et al. Targeting screening and social marketing to increase detection of acute HIV infection in MSM in Vancouver, British Columbia. *AIDS*. 2013;27.
64. Gastaldo D, Holmes D, Lombardo AP, O'Byrne P. Unprotected sex among men who have sex with men in Canada: exploring rationales and expanding HIV prevention. *Crit Public Health*. 2009;19(3-4):399-416.
65. Community-Based Research Centre. Pride, prejudice & determinants of health: What's trending with young gay men? Vancouver, BC: Community Based Research Centre; 2012.
66. Calzavara L, Allman D, Worthington C, Tyndall M, Adrien A. HIV and AIDS in Canada: A National Survey. Summary report. Toronto, ON: The CIHR Social Research Centre in HIV Prevention; 2012.
67. Symington A. Criminalization confusion and concerns: the decade since the Cuerrier decision. *HIV/AIDS Policy Law Rev*. 2009;14(1):4-10.
68. Mykhalovkiy E, Betteridge G, McLay D. HIV non-disclosure and the criminal law: establishing policy options for Ontario. Toronto, ON. A report funded by a grant from the Ontario HIV Treatment Network; 2010.
69. Canadian HIV/AIDS Legal Network. Does criminalizing HIV non-disclosure make sense? [available on the Internet]. Criminal law and HIV [fact sheet]. Toronto, ON: Canadian HIV/AIDS Legal Network; 2011 May [cited 2014 Apr 17]. Available from: <http://www.aidslaw.ca/publications/publicationsdocEN.php?ref=847>.
70. Grace D. Reconceiving the 'problem' in HIV prevention: HIV testing technologies and the criminalization of HIV non-disclosure. Vancouver, BC: Simon Fraser University; 2012.

71. Canadian HIV/AIDS Legal Network. HIV non-disclosure and the criminal law: An analysis of two recent decisions of the Supreme Court of Canada. Toronto, ON: Canadian HIV/AIDS Legal Network; 2012.
72. Tyndall M. HIV ruling was a blow to public health. *Ottawa Citizen*; 2012 Oct 11.
73. Moore DM, Kanters S, Michelow W, Gustafson R, Hogg RS, Kwag M, et al. Implications for HIV prevention programs from a serobehavioural survey of men who have sex with men in Vancouver, British Columbia: The ManCount Study. *Can J Public Health*. 2012;103(2):142-6.
74. Bänighausen T, Chaiyachati K, Chimbindi N, Peoples A, Haberer J, Newell M-L. Interventions to increase antiretroviral adherence in sub-Saharan Africa: a systematic review of evaluation studies. *Lancet Infect Dis*. 2011;11(12):942-51.
75. Gilliam PP, Straub DM. Prevention with Positives: A Review of Published Research, 1998-2008. *J Assoc Nurses AIDS Care*. 2009;20(2):92-109.
76. Gilbert M, Hottes TS, Lester R, Gustafson R, Krajdén M, Ogilvie G. Time since last negative HIV test among men who have sex with men and people who use injection drugs in British Columbia, 2006-2011. *Can J Public Health*. 2014; 105(1):E63-8.
77. Dowson L, Kober C, Perry N, Fisher M, Richardson D. Why some MSM present late for HIV testing: a qualitative analysis. *AIDS Care*. 2012;24(2):204-9.
78. Adam BD, Murray J, Ross S, Oliver J, Lincoln SG, Rynard V. hivstigma.com, an innovative web-supported stigma reduction intervention for gay and bisexual men. *Health Educ Res*. 2011;26(5):795-807.
79. Jin F, Crawford J, Prestage GP, Zablotska I, Imrie J, Kippax SC, et al. Unprotected anal intercourse, risk reduction behaviours, and subsequent HIV infection in a cohort of homosexual men. *AIDS*. 2009;23(2):243-52.
80. MSM Global Fund. Serosorting and Strategic Positioning. Technical Bulletin Series. MSMGF; 2012.
81. Grace D. Constructions of 'safe' and 'risky' condomless sex: narratives of HIV-negative and positive gay and bisexual men. Presented at: 8th Annual Gay Men's Health Summit; 2012 Nov 2; Vancouver, BC.
82. Carballo-Diéguez A, Ventuneac A, Dowsett GW, Balan I, Bauermeister J, Remien RH, et al. Sexual pleasure and intimacy among men who engage in "bareback sex". *AIDS Behav*. 2011;15(Suppl 1):S57-65.
83. Golub SA, Starks TJ, Payton G, Parsons JT. The critical role of intimacy in the sexual risk behaviors of gay and bisexual men. *AIDS Behav*. 2012;16(3):626-32.
84. Berg RC. Barebacking: a review of the literature. *Arch Sex Behav*. 2009;38(5):754-64.
85. Health Initiative for Men. Do the math [available on the Internet]. Vancouver, BC: Health Initiative for Men; [cited December 23, 2012]. Available from: <http://checkhimout.ca/dothemath>.
86. ACON. Know the risk [available on the Internet]. Australia: ACON; 2012 Dec 23]. Available from: <http://knowtherisk.org.au>.
87. Mayer KH, Bekker L-G, Stall R, Grulich AE, Colfax G, Lama JR. Comprehensive clinical care for men who have sex with men: an integrated approach. *Lancet*. 2012;380(9839):378-87.
88. Fisher M, Pao D, Brown AE, Sudarshi D, Gill ON, Cane P, et al. Determinants of HIV-1 transmission in men who have sex with men: a combined clinical, epidemiological and phylogenetic approach. *AIDS*. 2010;24(11):1739-47.
89. Hughes GJ, Fearnhill E, Dunn D, Lycett SJ, Rambaut A, Leigh Brown AJ, et al. Molecular phylogenetics of the heterosexual HIV epidemic in the United Kingdom. *PLoS Pathog*. 2009; 5(9):e1000590.
90. Lewis F, Hughes GJ, Rambaut A, Pozniak A, Leigh Brown AJ. Episodic sexual transmission of HIV revealed by molecular phylogenetics. *PLoS Med*. 2008;5(3):e50.
91. Sullivan PS, Carballo-Diéguez A, Coates T, Goodreau SM, McGowan I, Sanders EJ, et al. Successes and challenges of HIV prevention in men who have sex with men. *Lancet*. 2012;380(9839):388-99.
92. Morris SR, Little SJ. MSM: resurgent epidemics. *Curr Opin HIV AIDS*. 2011;6(4):326-32.
93. Wilson DP, Regan DG, Heymer KJ, Jin F, Prestage GP, Grulich AE. Serosorting may increase the risk of HIV acquisition among men who have sex with men. *Sex Transm Dis*. 2010;37(1):13-17.
94. Hall HI, Holtgrave DR, Mausbly C. HIV transmission rates from persons living with HIV who are aware and unaware of their infection. *AIDS*. 2012;26(7):893-96.
95. Marks G, Crepaz N, Senterfitt JW, Janssen RS. Meta-analysis of high-risk sexual behavior in persons aware and unaware they are infected with HIV in the United States: implications for HIV prevention programs. *J Acquir Immune Defic Syndr*. 2005;39(4):446-53.
96. Fox J, White PJ, Macdonald N, Weber J, McClure M, Fidler S, et al. Reductions in HIV transmission risk behaviour following diagnosis of primary HIV infection: a cohort of high-risk men who have sex with men. *HIV Med*. 2009;10(7):432-8.
97. Gilbert M. Personal communication. Vancouver, BC: British Columbia Centre for Disease Control.
98. Gustafson R, Montaner JM, Sibbald B. Seek and treat to optimize HIV and AIDS prevention. *CMAJ*. 2012;184(18):1971.
99. Lorenc T, Marrero-Guillamón I, Llewellyn A, Aggleton P, Cooper C, Lehmann A, et al. HIV testing among men who have sex with men (MSM): systematic review of qualitative evidence. *Health Educ Res*. 2011;26(5):834-46.
100. Gilbert M. Gay men and HIV: key findings from the ManCount Survey. *ForeFront Lecture Series*. Vancouver, BC: BC Centre for Excellence in HIV/AIDS; 2010 Dec 1.
101. BC Centre for Disease Control. Anonymous HIV testing pilot project [available on the Internet]. Vancouver, BC: BC Centre for Disease Control; 2013 [updated 2014 Apr 17; cited 2014 Apr 17]. Available from: <http://www.bccdc.ca/SexualHealth/Programs/AnonymousHIVTestingPilot/default.htm>.
102. Gilbert M, Hottes TS, Trussler T, Marchand R, Brownrigg B, Ogilvie G, et al. Avoidance of HIV testing among gay and bisexual men due to lack of anonymous testing option in British Columbia. Presented at: 22nd Annual Canadian Conference on HIV/AIDS Research; 2013 April 11-14; Vancouver, BC.
103. Wood E, Kerr T, Marshall BDL, Li K, Zhang R, Hogg RS, et al. Longitudinal community plasma HIV-1 RNA concentrations and incidence of HIV-1 among injecting drug users: prospective cohort study. *BMJ*. 2009;338:b1649.
104. BC Centre for Excellence in HIV/AIDS. STOP HIV/AIDS: Seek and Treat for Optimal Prevention of HIV/AIDS [available on the Internet]. Vancouver, BC: BC Centre for Excellence in HIV/AIDS; [cited November 10, 2012]. Available from: <http://www.stophivaid.ca/>.
105. Montaner JSG, Lima VD, Barrios R, Yip B, Wood E, Kerr T, et al. Association of highly active antiretroviral therapy coverage, population viral load, and yearly new HIV diagnoses in British Columbia, Canada: a population-based study. *Lancet*. 2010;376(9740):532-9.
106. Montaner JSG, Hogg R, Wood E, Kerr T, Tyndall M, Levy AR, et al. The case for expanding access to highly active antiretroviral therapy to curb the growth of the HIV epidemic. *Lancet*. 2006;368:531-6.
107. Cohen MS, Chen YQ, McCauley M, Gamble T, Hosseinipour MC, Kumarasamy N, et al. Prevention of HIV-1 infection with early antiretroviral therapy. *N Engl J Med*. 2011;365(6):493-505.
108. Chin-Hong PV, Husnik M, Cranston RD, et al. Anal human papillomavirus infection is associated with HIV acquisition in men who have sex with men. *AIDS*. 2009;23:1135-42.
109. Das M, Chu PL, Santos G-M, Scheer S, Vittinghoff E, McFarland W, et al. Decreases in community viral load are accompanied by reductions in new HIV infections in San Francisco. *PLoS ONE*. 2010;5(6):e11068.
110. Law MG, Woolley I, Templeton DJ, Roth N, Chuah J, Mulhall B, et al. Trends in detectable viral load by calendar year in the Australian HIV observational database. *J Int AIDS Soc*. 2011;14:10.
111. Wilson D. HIV treatment as prevention: natural experiments highlight limits of antiretroviral treatment as HIV prevention. *PLoS Med*. 2012.

112. Birrell PJ, Gill ON, Delpech VC, Brown AE, Desai S, Chadborn TR, et al. HIV incidence in men who have sex with men in England and Wales 2001-10: a nationwide population study. *Lancet Infect Dis*. 2013;13:313-8.
113. MacDonald L, Gustafson R, Chu T, Sandhu J. STOP HIV/AIDS quarterly monitoring report: quarter 1, 2012. Vancouver, BC: Vancouver Coastal Health Authority; 2012.
114. Chu T, Sandhu J. Analysis of linked HIV surveillance and drug treatment data. Vancouver, BC: Public Health Surveillance Unit, Vancouver Coastal Health; 2012 (unpublished data).
115. Christopoulos KA, Das M, Colfax GN. Linkage and retention in HIV care among men who have sex with men in the United States. *CID*. 2011;52 Suppl 2:S214-22.
116. Gataric N, Hogg R. Analysis of HIV drug treatment data. Vancouver, BC: BC Centre for Excellence in HIV/AIDS; 2012 (unpublished data).
117. Bamford LP, Ehrenkranz PD, Eberhart MG, Shpaner M, Brady KA. Factors associated with delayed entry into primary HIV medical care after HIV diagnosis. *AIDS*. 2010;24(6):928-30.
118. Giordano TP, Hartman C, Gifford AL, Backus LI, Morgan RO. Predictors of retention in HIV care among a national cohort of US veterans. *HIV Clin Trials*. 2009;10(5):299-305.
119. Zoufaly A, an der Heiden M, Marcus U, Hoffmann C, Stellbrink H, Voss L, et al. Late presentation for HIV diagnosis and care in Germany. *HIV Med*. 2012;13(3):172-81.
120. Leutscher PDC, Laursen T, Andersen B, Østergaard L, Laursen A, Larsen CS. HIV late presenters in Denmark - need for increased diagnostic awareness among general practitioners. *Dan Med Bull*. 2011;58(4):A4253.
121. World Health Organization. WHO and U.S. NIH Working Group Meeting on Treatment for HIV Prevention among MSM: What Additional Evidence is Required? [available on the Internet]. Geneva: World Health Organization; 2011 [updated 2011 Dec 12; cited 2014 Apr 09]. Available from: http://www.who.int/hiv/pub/msm_meeting_report.pdf.
122. Lima V, Williams B, Montaner J. Why the MSM-driven HIV epidemic is not slowing down even in the presence of HAART [Abstract 486]. Presented at 18th CROI. Boston, MA; Feb 27-Mar 2, 2011.
123. Hallett TB, Smit C, Garnett GP, de Wolf F. Estimating the risk of HIV transmission from homosexual men receiving treatment to their HIV-uninfected partners. *Sex Transm Infect*. 2011;87(1):17-21.
124. Cambiano V, Rodger AJ, Phillips AN. 'Test-and-treat': the end of the HIV epidemic? *Curr Opin Infect Dis*. 2011 Feb;24(1):19-26.
125. Vernazza P, Hirschel B, Bernasconi E, Flepp M. Les personnes séropositives ne souffrant d'aucune autre MST et suivant un traitement antirétroviral efficace ne transmettent pas le VIH par voie sexuelle. *Bulletin des medecins suisses*. 2008;89(5):165-9.
126. Hasse B, Ledergerber B, Hirschel B, Vernazza P, Glass TR, Jeannin A, et al. Frequency and determinants of unprotected sex among HIV-infected persons: the Swiss HIV cohort study. *Clin Infect Dis*. 2010;51(11):1314-22.
127. Coleman B. Show us the real transmission risks: Stop dumbing down HIV for gay men [available on the Internet]. Daily Xtra [newspaper on the Internet]; 2011 Feb 10 [cited 2014 Apr 16]. Available from: <http://dailyxtra.com/vancouver/ideas/show-us-the-real-transmission-risks>.
128. Grant RM, Lama JR, Anderson PL, McMahan V, Liu AY, Vargas L, et al. Preexposure chemoprophylaxis for HIV prevention in men who have sex with men. *N Engl J Med*. 2010;363(27):2587-99.
129. Jollimore J, Gair R, Nixey P, Reynolds K. Considerations for pre-exposure prophylaxis (PrEP) as an HIV prevention tool for gay men in British Columbia. Vancouver, BC: Health Initiative for Men; 2012.
130. McGowan I. The development of rectal microbiocides for HIV prevention. *Expert Opin. Drug Deliv*. 2014; 11(1):69-82.
131. McGowan I. Rectal microbicide development. *Curr Opin HIV AIDS*. 2012; 7(6):526-33.
132. BC Centre for Excellence in HIV/AIDS. B.C.'s treatment as prevention strategy expands with pilot project for non-occupational high-risk exposure to HIV [available on the Internet]. BC Centre for Excellence in HIV/AIDS; 2012 [cited February 16, 2013]. Available from: <http://www.cfenet.ubc.ca/news/releases/bc%E2%80%99s-treatment-prevention-strategy-expands-with-pilot-project-non-occupational-high-ri>.
133. Health Initiative for Men. PEP prophylaxis [available on the Internet]. Vancouver, BC: Health Initiative for Men; [cited February 16, 2013]. Available from: <http://checkhimout.ca/PEP/>.
134. Chibo D, Kaye M, Birch C. HIV transmissions during seroconversion contribute significantly to new infections in men who have sex with men in Australia. *AIDS Res Hum Retroviruses*. 2012;28(5):460-4.
135. Frange P, Meyer L, Deveau C, Tran L, Goujard C, Ghosn J, et al. Recent HIV-1 infection contributes to the viral diffusion over the French territory with a recent increasing frequency. *PLoS ONE*. 2012;7(2):e31695.
136. Steinberg M, Cook DA, Gilbert M, Krajden M, Haag D, Tsang P, et al. Towards targeted screening for acute HIV infections in British Columbia. *J Int AIDS Soc*. 2011;14:39.
137. Cook D, Krajden M, Kwag M, Steinberg M, Rekart M, Gilbert M, editors. Targeted screening of laboratory specimens for acute HIV infection among men who have sex with men (MSM). Presented at 21st Annual Canadian Conference on HIV/AIDS Research; 2012 April 19-22; Montreal, PQ.
138. Koopman JS, Jacquez JA, Welch GW, Simon CP, Foxman B, Pollock SM, et al. The role of early HIV infection in the spread of HIV through populations. *J Acquir Immune Defic Syndr Hum Retrovirol*. 1997;14(3):249-58.
139. Pilcher CD, Christopoulos KA, Golden M. Public health rationale for rapid nucleic acid or p24 antigen tests for HIV. *J Infect Dis*. 2010;201(Suppl 1):S7-15.
140. Karris MY, Anderson CM, Morris SR, Smith DM, Little SJ. Cost savings associated with testing of antibodies, antigens, and nucleic acids for diagnosis of acute HIV infection. *J Clin Microbiol*. 2012;50(6):1874-8.
141. Han X, Xu J, Chu Z, Dai D, Lu C, Wang X, et al. Screening acute HIV infections among Chinese men who have sex with men from voluntary counseling & testing centers. *PLoS ONE*. 2011;6(12):e28792.
142. Hottes TS, Lindegger M, Consolacion T, Wong S, Lester R, Montgomery C, et al. Infectious syphilis among gay, bisexual and other men who have sex with men in British Columbia 2003-2012. Vancouver, BC: BC Centre for Disease Control; 2013 Jun.
143. Galvin SR, Cohen MS. The role of sexually transmitted diseases in HIV transmission. *Nature Reviews*. 2004;2:33-42.
144. Padian NS, Buvé A, Balkus J, Serwadda D, Cates W. Biomedical interventions to prevent HIV infection: evidence, challenges, and way forward. *Lancet*. 2008;372(9638):585-99.
145. Celum C, Wald A, Hughes J, Sanchez J, Reid S, Delany-Moretlwe S, et al. Effect of aciclovir on HIV-1 acquisition in herpes simplex virus 2 seropositive women and men who have sex with men: a randomised, double-blind, placebo-controlled trial. *Lancet*. 2008;371(9630):2109-19.
146. Gilbert M, Kwag M, Mei W, Rank C, Kropp R, Severini A, et al. Feasibility of incorporating self-collected rectal swabs into a community venue-based survey to measure the prevalence of HPV infection in men who have sex with men. *Sexually Transm Dis*. 2011;38(10):964-9.
147. Kanters S, Michelow W, M G. Survey and dried blood spot results: Vancouver Site, M-Track Surveillance System. Vancouver, BC; 2010 (Unpublished).
148. Gay and Lesbian Health Services of Saskatoon. Framing gay men's health in a population health discourse: a discussion paper: Canadian Strategy on HIV/AIDS. Saskatoon, SK: Gay and Lesbian Health Services of Saskatoon; 2000 Oct 23.
149. Nelson KM, Thiede H, Hawes SE, Golden MR, Hutcheson R, Carey JW, et al. Why the Wait? Delayed HIV diagnosis among men who have sex with men. *J Urban Health*. 2010;87(4):642-55.

150. Petroll AE, Mosack KE. Physician awareness of sexual orientation and preventive health recommendations to men who have sex with men. *Sex Transm Dis*. 2011;38(1):63-7.
151. Holtzman S, Drabot K. Improving the health of men who have sex with men: engaging local physicians [available on the Internet]. Presented at 7th Annual BC Gay Men's Health Summit; 2011 November 3, 2011; Vancouver, BC. Available from: <http://cbrc.net/resources/2013/improving-health-men-who-have-sex-men-engaging-local-physicians>.
152. Ng B, Moore DM, Michelow W, Hogg R, Gustafson R, Trussler T, et al. Relationship between disclosure of same sex sexual activity to providers, HIV diagnosis and sexual health services for men who have sex with men (MSM) in Vancouver, Canada. *Am J Public Health*; in press.
153. Anderson I. Community consultation final report [available on the Internet]. Vancouver, BC: Health Initiative for Men; 2011. Available from: http://www.checkhimout.ca/assets/uploads/files/HIM_Community_Consultation_Report_Final.pdf.
154. Maung Maung T, Chen B, Moore D, Chan K, Kanters S, Michelow W, et al. Risks for HIV and other sexually transmitted infections among Asian men who have sex with men in Vancouver, British Columbia: a cross-sectional study. *BMC Public Health*. 2013;13:763.
155. Altman D, Aggleton P, Williams M, Kong T, Reddy V, Harrad D, et al. Men who have sex with men: stigma and discrimination. *Lancet*. 2012; 380(9839):439-45.
156. Friedman MS, Marshal MP, Stall R, Cheong J, Wright ER. Gay-related development, early abuse and adult health outcomes among gay males. *AIDS Behav*. 2008;12(6):891-902.
157. Ryan C, Huebner D, Diaz RM, Sanchez J. Family rejection as a predictor of negative health outcomes in White and Latino lesbian, gay, and bisexual young adults. *Pediatrics*. 2009;123(1):346-52.
158. Skeer MR, Mimiaga MJ, Mayer KH, O'Clerigh C, Covahey C, Safren SA. Patterns of substance use among a large urban cohort of HIV-infected men who have sex with men in primary care. *AIDS Behav*. 2012;16(3):676-89.
159. Stall R, Paul JP, Greenwood G, Pollack L, Bein E, Crosby GM, et al. Alcohol use, drug use and alcohol-related problems among men who have sex with men: the Urban Men's Health Study. *Addiction*. 2001;96(11):1589-601.
160. van Griensven F, Thienkrua W, Sukwicha W, Wimonasate W, Chaikummao S, Varangrat A, et al. Sex frequency and sex planning among men who have sex with men in Bangkok, Thailand: implications for pre- and post-exposure prophylaxis against HIV infection. *J Int AIDS Soc*. 2010;13:13.
161. Ferlatte O, Hottes TS, Trussler T, Marchand R. Evidence of a syndemic among young Canadian gay men: uncovering the associations between anti-gay experiences, psychosocial disorders, and HIV risks. *AIDS Behav*. 2014; 18(7):1256-63.
162. Saewyc E. Analysis of Adolescent Health Survey. McCreary Centre Society. Vancouver, BC; 2012 (unpublished data).
163. Fergus S, Lewis MA, Darbes LA, Kral AH. Social support moderates the relationship between gay community integration and sexual risk behavior among gay male couples. *Health Educ Behav*. 2009;36(5):846-59.
164. Holt M, Rawstorne P, Wilkinson J, Worth H, Bittman M, Kippax S. HIV testing, gay community involvement and Internet use: social and behavioural correlates of HIV testing among Australian men who have sex with men. *AIDS Behavior*. 2012;16(1):13-22.
165. Le D, editor. Gay men and social support. Sex Now survey 2011: Under the lens of the investigaytors. Presented at: 8th Annual BC Gay Men's Health Summit; 2012 Nov 1; Vancouver, BC.
166. Hamid-Balma S, editor. Themed issue: mental health and lesbian, gay, bisexual and transgender people in BC. . Visions: BC's Mental Health and Addictions Journal. 2010;6(2).
167. Ristock J, Zoccole A, Potskin J. Aboriginal Two-Spirit and LGBTQ migration, mobility, and health research project: Vancouver, Final Report. 2011 Sep.
168. O'Brien Teengs DO, Travers R. "River of life, rapids of change": understanding HIV vulnerability among Two-Spirit youth who migrate to Toronto. *Canadian Journal of Aboriginal Community-Based HIV/AIDS Research*. 2006:1.
169. Provincial Health Officer. Pathways to health and healing - 2nd report on the health and well-being of Aboriginal people in Canada. Provincial Health Officer's annual report 2007. Victoria, BC: Ministry of Healthy Living and Sport; 2009.
170. Fieland KC, Walters KL, Simoni JM. Determinants of health among Two-Spirit American Indians and Alaska Natives. In: Meyer IH, Northridge ME, editors. *The health of sexual minorities*. New York, NY: Springer Science+Business Media; 2007. p. 268-300.
171. Haag D, Gilbert M. Trends in HIV positive immigrants and reporting by Citizenship and Immigration Canada (CIC): 2000-2007. Vancouver, BC: BC Centre for Disease Control; 2007.
172. Statistics Canada. Visible minority population, by province and territory (Alberta, British Columbia, Yukon) (table) [available on the Internet]. 2006 Census. Ottawa, ON: Statistics Canada; [updated 2009 Sep 11; cited 2012 Dec 28]. Available from: <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/demo52c-eng.htm>.
173. Diaz RM, Peterson JL, Kyung-Hee C. Social Discrimination and health outcomes in African American, Latino, and Asian/Pacific Islander gay men. In: Wolitski RJ, Stall R, Valdiserri RO. *Unequal opportunity: Health disparities affecting gay and bisexual men in the United States*. New York, NY: Oxford University Press; 2008. p. 327-54.
174. Diaz RM, Ayala G, Bein E, Henne J, Marin BV. The impact of homophobia, poverty, and racism on the mental health of gay and bisexual Latino men: findings from 3 US cities. *Am J Public Health*. 2001;91(6):927-32.
175. Diaz RM. Methamphetamine use and its relation to HIV risk: data from Latino gay men in San Francisco. In: Meyer IH, Northridge ME, editors. *The health of sexual minorities*. New York, NY: Springer Science+Business Media; 2007. p. 584-603.
176. Wilson PA, Díaz RM, Yoshikawa H, Shrout PE. Drug use, interpersonal attraction, and communication: situational factors as predictors of episodes of unprotected anal intercourse among Latino gay men. *AIDS Behav*. 2009;13(4):691-9.
177. Ramirez-Valles J, Garcia D, Campbell RT, Diaz RM, Heckathorn DD. Hiv infection, sexual risk behavior, and substance use among Latino gay and bisexual men and transgender persons. *Am J Public Health*. 2008;98(6):1036-42.
178. Chan E, Nakamura N, Fischer B, editors. "Hard to crack": experiences of community integration among first & second generation Asian MSM in Canada. Presented at: 7th Annual BC Gay Men's Health Summit; 2012 Nov 2; Vancouver, BC.
179. Nemoto T, Operario D, Soma T, Bao D, Vajrabukka A, Crisostomo V. HIV risk and prevention among Asian/Pacific Islander men who have sex with men: listen to our stories. *AIDS Educ Prev*. 2003;15(1 Suppl A):7-20.
180. Ferlatte O. Are there enough gay dollars? An intersectionality-based policy analysis of HIV prevention funding for gay men in British Columbia, Canada. Vancouver, BC: Simon Fraser University; 2012.
181. Marchand R. Moving ahead: assessing gay men's HIV Prevention in BC. Vancouver, BC: BC Centre for Disease Control; 2001.
182. Kegeles SM, Hays RB, Coates TJ. The Mpowerment Project: a community-level HIV prevention intervention for young gay men. *Am J Public Health*. 1996; 86(8 Pt 1):1129-36.
183. de Wit JBF, Prestage GP, Duffin IR. Gay men: current challenges and emerging approaches in HIV prevention. *NSW Public Health Bull*. 2010;21(3-4):65-8.
184. Trussler T, Ferlatte O. Exposing the determinants: proceedings of the 5th Annual Gay Men's Health Summit; 2009 Nov 9-10; Vancouver, BC. Vancouver, BC: Community Based Research Centre; 2010.
185. Grossman CI, Forsyth A, Purcell DW, Allison S, Toledo C, Gordon CM. Advancing novel HIV prevention intervention research with MSM- meeting report. *Public Health Rep*. 2011;126(4):472-9.

186. Adam BD. Epistemic fault lines in biomedical and social approaches to HIV prevention. *J Int AIDS Soc.* 2011;14 (Suppl 2):S2.
187. Ayala G, Beck J, Hebert P, Padua LA, Sundararaj M. Coverage of four key populations at the 2010 International AIDS Conference: implications for leadership and accountability in the global AIDS response. Oakland, CA: Global Forum on MSM and HIV; 2011.
188. Tooley L, editor. Where are the gay men?! Representation of men who have sex with men in CAHR conference abstracts (2007-2011). Presented at: BC Gay Men's Health Summit 7; 2011 Nov 3; Vancouver, BC.
189. UNAIDS. UNAIDS policy brief: The greater involvement of people living with HIV (GIPA). Geneva: UNAIDS; 2007.
190. World Health Organization. Prevention and treatment of HIV and other sexually transmitted infections among men who have sex with men and transgender people: recommendations for a public health approach. Geneva: World Health Organization; 2011.
191. Chang LW, Serwadda D, Quinn TC, Wawer MJ, Gray RH, Reynolds SJ. Combination implementation for HIV prevention: moving from clinical trial evidence to population-level effects. *Lancet Infect Dis.* 2013;13(1):65-76.
192. BC Ministry of Health Services, BC Ministry of Children and Family Development. Healthy minds, healthy people: a ten-year plan to address mental health and substance use in British Columbia [available on the Internet]. Victoria, BC: Government of British Columbia; 2010 [updated 2011 Dec 13; cited 2014 Apr 16]. Available from: http://www.health.gov.bc.ca/library/publications/year/2010/healthy_minds_healthy_people.pdf.
193. Provincial Health Services Authority. Towards reducing health inequities: a health system approach to chronic disease prevention. A discussion paper. Vancouver, BC: Provincial Health Services Authority; 2011.
194. Health Officers Council of BC. Health inequities in British Columbia. Discussion paper. Vancouver, BC: Public Health Association of BC; 2008.
195. BC Patient Safety & Quality Council. BC health quality matrix: handbook to support the use of the BC Health Quality Matrix. Vancouver, BC: BC Patient Safety & Quality Council; 2009.
196. BC Centre for Disease Control. Guidelines for medical health officers: approach to people with HIV/AIDS who may pose a risk of harm to others. Vancouver, BC: BC Centre for Disease Control; 2010.
197. Community-Based Research Centre. Stepping up to the future of young gay men's health - proceedings of British Columbia's First Young Gay Men's Health Summit; 2012 Nov 3; Vancouver, BC. Vancouver, BC: Community-Based Research Centre; 2013.
198. Public Health Agency Of Canada. Population specific HIV/AIDS status report: women. Ottawa, ON: Public Health Agency of Canada; 2012.
199. Porta, M, editor. A dictionary of epidemiology: fifth edition. New York: Oxford Univeristy Press; 2008.
200. Ontario Human Rights Association. Gender identity and gender expression [available on Internet]. Toronto, ON: Ontario Human Rights Association; 2013 [updated 2014 Mar 20; cited 2014 Apr 16]. Available from: <http://www.ohrc.on.ca/en/gender-identity-and-gender-expression-brochure>.
201. Canadian Hemophilia Society. What is hemophilia? [available on the Internet]. Montreal, PQ: Canadian Hemophilia Society; 2014 [updated 2014 Apr 16; cited 2014 Apr 16]. Available from: <http://www.hemophilia.ca/en/bleeding-disorders/hemophilia-a-and-b/what-is-hemophilia/>.
202. BC Centre for Disease Control. Diseases & conditions A-Z [available on the Internet]. Vancouver, BC: BC Centre for Disease Control; 2014 [updated 2014 Apr 16; cited 2014 Apr 16]. Available from: <http://www.bccdc.ca/dis-cond/a-z/default.htm>.
203. Health Resources and Services Administration. Preventing HIV transmission / prevention with positives [available on the Internet]. Rockville, MD: Health Resources and Services Administration; 2011 [cited 2014 Apr 24]. Available from: http://hab.hrsa.gov/deliverhivaidscare/clinicalguide11/cg-303_prevention_with_positives.html.
204. World Health Organization. Post exposure prophylaxis [available on the Internet]. Geneva: World Health Organization; [cited 2014 Feb 17]. Available from: <http://www.who.int/hiv/topics/prophylaxis/en/>.
205. AVAC - Global Advocacy for HIV Prevention. Pre-Exposure Prophylaxis (PrEP) [available on the Internet]. New York, NY: AVAC; 2013 [cited 2014 Feb 02]. Available from: <http://www.avac.org/ht/a/GetDocumentAction/i/5851>.
206. Wang L, Schnaare RL, Dezzutti C, Anton PA, Rohan LC. Rectal microbicides: clinically relevant approach to the design of rectal specific placebo formulations. *AIDS Research and Therapy.* 2011;8(12).
207. UNAIDS. HIV/AIDS, gender and sex work. Geneva: Joint United Nations Programme on HIV/AIDS; 2002.
208. Bauer GR, Hammond R, Travers R, Kaay M, et al. "I don't think this is theoretical; this is our lives": how erasure impacts health care for transgender people. *J Assoc Nurses AIDS Care.* 2009;20(5):348-61.
209. First Nations of Quebec and Labrador Health and Social Services Commission. We are part of a tradition: 2 Spirited People of the 1st Nations; 1998.
210. Kegeles SM, Rebchook G, Pollack L, Huebner D, Tebbetts S, Hamiga J, et al. An intervention to help community-based organizations implement an evidence-based HIV prevention intervention: the Mpowerment Project technology exchange system. *Am J Community Psychol.* 2012 Mar;49(1-2):182-98.

