



Common conditions and diseases in HIV-positive men who have sex with men



Question

What conditions and diseases do HIV-positive men who have sex with men experience at higher rates than HIV-negative men who have sex with men and the general population?

Key Take-Home Messages

HIV-positive men who have sex with men who experience many physical health conditions at significantly higher rates than their peers who are HIV-negative and the general population, including:

- **Human papillomavirus (HPV).** Human papillomavirus is an independent risk factor for HIV infection. Oncogenic HPV types may cause anal, penile and oral tract cancers.(1-10)
- **Hepatitis C (HCV).** The incidence of HCV in populations of HIV-positive men who have sex with men is increasing.(6;11-15)
- **Lymphogranuloma venereum.** Almost all cases of lymphogranuloma venereum occur in HIV-positive men who have sex with men. HIV infection is the strongest risk factor for anorectal lymphogranuloma venereum.(6;16-19)
- **Syphilis, gonorrhea and chlamydia.**(6;16;20;21).
- **Recurrences of herpes.** While there is no significant difference in the rates of infection with herpes simplex virus in HIV-positive men who have sex with men, HIV-negative men who have sex with men or the general population, HIV-positive men who have sex with men are more likely to experience recurrences.(6;21;22)
- **Drug and alcohol use.** Drug and alcohol use may be a barrier to antiretroviral adherence. Serious drug interactions can also result from concurrent use of drugs and antiretroviral medications.(23-29)

Differences in prevalence also exist in the area of mental health:

- Mental health issues experienced by HIV-positive men who have sex with men are similar to the types of issues reported in the general population. (30) Common mental health disorders associated with HIV include: adjustment disorders, mood disorders, anxiety disorders, substance-related disorders, and HIV-associated dementia or AIDS dementia complex.(31-33)

EVIDENCE INTO ACTION

The OHTN Rapid Response Service offers HIV/AIDS programs and services in Ontario quick access to research evidence to help inform decision making, service delivery and advocacy.

In response to a question from the field, the Rapid Response Team reviews the scientific and grey literature, consults with experts, and prepares a brief fact sheet summarizing the current evidence and its implications for policy and practice.

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- Body image is a concern for many men who have sex with men. Studies are needed to determine whether HIV-positive men who have sex with men experience issues with body image at a higher rate than their HIV-negative counterparts.(32)

Given the high rates of sexually transmitted infections (STIs), substance use and mental health issues experienced by people living with HIV, care providers should be aware of these risks and offer immunization, screening, treatment, counseling and other services to protect and improve the health of HIV-positive men who have sex with men.(1;4;15;26)

The Issue and Why It's Important

Health care for gay, bisexual and other men who have sex with men involves a complex mix of physical, psychosocial and cultural issues.(5) Men who have sex with men have certain unique health care needs that primary care providers must understand in order to offer comprehensive and culturally appropriate care. Because of high rates of some conditions among men who have sex with men, primary care providers should place particular emphasis on primary prevention and disease detection.(5)

For all men, the leading causes of death are heart disease and cancer. However, men who have sex with men experience higher rates of HIV, other STIs and drug use than heterosexual men.(5) Individuals living with HIV also have unique physical and mental health care needs. They are more likely than people without HIV to experience co-infections with hepatitis C, tuberculosis, opportunistic infections, cancers, substance abuse and mental health concerns.

Although only about 2% of Canadian men self-identify as gay or bisexual, nearly half (47%) of those living with HIV are men who have sex with men.(32) Recent data indicates that in Canada, between 11% and 23% of men who have sex with men are living with HIV.(32) HIV-positive men who have sex with men face the health care concerns of men who have sex with men as well as those of people living with HIV. As a result of this intersectionality, HIV-positive men who have sex with men experience higher rates of many conditions than HIV-negative men who have sex with men or the general population. They are also coping with the stigma associated with both homosexuality and HIV, which may keep them from seeking appropriate health services. To improve the health of HIV-positive men who have sex with men, health care providers must offer accessible, appropriate and comprehensive primary care.

What We Found

Sexually Transmitted Infections

Understanding STI epidemiology among HIV-positive men who have sex with men is critical for "positive prevention", which focuses on improving the sexual health of HIV-positive men and preventing the transmission of STIs including HIV.(16) It is also necessary to guide STI testing and screening of HIV-positive men who have sex with men during routine HIV care.(16)

Some sexually transmitted infections facilitate HIV transmission, while the treatment of STIs can reduce HIV transmission.(6;16) Compared to heterosexual

men, men who have sex with men are more likely to have various STIs including HIV, syphilis, gonorrhea, lymphogranuloma venereum, human papillomavirus, human simplex virus and sexually-acquired hepatitis C.(34)

According to the STD Surveillance Network in the US, the prevalence of STIs is lower in HIV-negative men who have sex with men than HIV-positive men who have sex with men.(21) Matching of STI and AIDS databases in San Francisco has shown that people on highly active antiretroviral therapy (HAART) are more likely to develop another STI.(16) However, the differences in infection rates between HIV-positive and negative men who have sex with men may be due in part to a detection bias: HIV-positive men who have sex with men are generally under regular medical care so they are more likely to be screened for STIs. (15)

Most STIs—such as gonorrhea and chlamydia—are managed the same way in HIV-positive and HIV-negative individuals.(6) However, syphilis, herpes simplex virus and human papillomavirus can behave differently in HIV-positive people. (6) This review focuses on human papillomavirus, hepatitis C, lymphogranuloma venereum, syphilis, gonorrhea, chlamydia and herpes because of their epidemiologic synergies with HIV and their prevalence among men who have sex with men.(6;34)

Human Papillomavirus (HPV)

The US Centers for Disease Control and Prevention estimates that 20 million individuals worldwide are infected with human papillomavirus (HPV).(4) While HPV is highly prevalent in all men who have sex with men, prevalence of infection is significantly higher in those infected with HIV.(1;3;10) In a cohort study of HIV-positive men who have sex with men conducted in Montreal, HPV was detected in 98% of participants.(35) In HIV-positive men who have sex with men within the United States, the reported prevalence of HPV infection ranges from 72-92%, with reported incidence rates of infection ranging from 42 to 137 per 100,000 per year.(3;5) This number is increasing despite the use of highly active antiretroviral therapy (HAART).(3) In comparison, the prevalence of HPV infection is 57-65% in HIV-negative men who have sex with men (3;5) and 23% in the general population in the United States.(21)

In a large prospective study from San Francisco County, 95% of 357 HIV-positive men who have sex with men had anal HPV infection (7) while, in a similar study conducted in Boston, Denver, New York and San Francisco, only 57% of HIV-negative men had anal HPV.(2) In a comparative study from the United States, HIV-positive men who have sex with men were more likely than HIV-negative men who have sex with men to have an oral HPV infection (25% vs. 8%), to be infected with a high-risk HPV type (14% vs. 5%) and to be infected with multiple HPV types (6% vs. 2%).(7) Anal warts are common in HIV-positive men who have sex with men, occurring in 20-40% of patients.(6)

Prevalence rates of anal intraepithelial neoplasia (AIN), the precursor lesion to anal cancer, are 50% in HIV-positive men who have sex with men in the US and 25% in HIV-negative men who have sex with men.(3) In the US, men who have sex with men are 44 times more likely to develop anal cancer than the general population.(1) The incidence of anal cancer in HIV-negative men who have sex with men is as high as 37 cases per 100,000 per year while the incidence in HIV-positive men who have sex with men is estimated to be two times that, reaching epidemic proportions of 70 to 137 cases per 100,000 per year.(3;8;9)

Oncogenic HPV types may cause anal, penile, and oral tract cancers. In men, HPV DNA is regularly found in cancers of the penis (40-45%), most anal cancers (88-94%), and in 35-50% of oropharyngeal cancers.(36) HIV transmission in

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men who have sex with men may be facilitated by the presence of high-risk oncogenic HPV genotypes.(1) After adjusting for potential confounders such as age and risk behaviours, a study of 1409 HIV-negative men who have sex with men in the United States found that anal HPV infection is associated with a higher risk of acquiring HIV.(1)

Hepatitis C

Until recently, sexual transmission of hepatitis C virus (HCV) was thought to be infrequent. However, sexual transmission appears to be increasing, particularly in HIV-positive men who have sex with men.(6) Most sexually transmitted acute HCV infections worldwide have been reported among HIV-positive men who have sex with men.(12)

HIV-positive men who have sex with men are 10 times more likely to have HCV than the general male population in Ontario, with an incidence of 510 per 100,000 per year.(37) The prevalence of acute HCV infection in HIV-positive men who have sex with men in Canada and the United States is 19% and 15-30%, respectively.(12) According to the World Health Organization, the prevalence of HCV in Canada within the general population was estimated at 0.8% in 2007.(11) A 2008 study conducted in Amsterdam found that the prevalence of HCV in HIV-negative men who have sex with men was 0.4% and 18% in HIV-positive men who have sex with men.

According to a recent systematic review of 21 studies, HIV-positive men who have sex with men have rates of acute HCV that are between 4 and 10 times higher (6.08/1000 person-years) than those of HIV-negative men who have sex with men (1.48/1000 person-years).(15) The prevalence of HCV infection in HIV-negative men who have sex with men is comparable to that in the general population.(13;15)

While the incidence of HCV infection in both the general and injection drug-using populations has decreased substantially over time, incidence in HIV-positive men who have sex with men is on the rise.(14;15) Three studies with HIV-positive men who have sex with men reported increases of: 0.8 to 8.7/1000 person-years between 1989 and 2003; 3.6 to 10.5/1000 person-years between 2002 and 2009; and 1.0 to 6.5/1000 person-years between 2003 and 2008.(15)

Epidemiological studies of HCV have identified HIV as a factor associated with increased HCV prevalence.(13) Some studies have reported that patients co-infected with HIV and HCV experience worse outcomes with respect to HIV, although little information is available detailing the effects of acute HCV on HIV progression or its treatment.(15)

Lymphogranuloma venereum

Lymphogranuloma venereum (LGV) is a sexually transmitted infection related to Chlamydia that is caused by Chlamydia trachomatis serovars L1-3. Since 2003, a series of outbreaks among men who have sex with men have been reported in Europe, North America and Australia.(6;18) In Canada between 2001 and 2007, 88 cases of LGV were reported in men who have sex with men; of these, 78% occurred in HIV-positive men who have sex with men.(16;18) Among the confirmed cases, there was a high level of HIV co-infection, ranging from 67% to 100% across the reports.(17;19)

There is consistent evidence of a strong association between HIV and LGV. In a meta-analysis, men who have sex with men with LGV were more than eight times more likely to have HIV than those who had non-LGV chlamydia infection. (19) In a review of descriptive studies, at least two-thirds of men who have sex with men with LGV were co-infected with HIV.(19)

The relationship between LGV and HIV infection has not been investigated sufficiently.(17) HIV infection has been identified as the strongest risk factor for anorectal LGV, but the high rate of HIV co-infection likely reflects the confounding effect of HIV as a marker of high risk sexual behaviour.(17;18) Despite this, it is possible that HIV infection increases susceptibility to infection or facilitates disease expression. Despite the low prevalence of LGV, HIV-positive men who have sex with men remain the group with the highest risk of infection.

Syphilis

In Canada, most reported cases of syphilis are among men who have sex with men, many of whom are co-infected with HIV.(38) A large cohort study conducted in Ontario found that at least one in five HIV-positive men who have sex with men are co-infected with syphilis.(38) According to a report by the US Centers for Disease Control and Prevention in 2011, 14% to 65% (median 40%) of HIV-positive men who have sex with men who presented to STI clinics in the United States had syphilis infection.(21) In a survey of HIV-positive men who have sex with men attending genitourinary medicine services in the United States, the rates of syphilis infection ranged from 20 to 70%.(6) Incidence rates of syphilis among HIV-positive men who have sex with men in Germany exceed 1000 per 100,000.(16)

Syphilis incidence rates are significantly higher among HIV-positive men who have sex with men than HIV-negative men who have sex with men or the general population.(6)

- Within the United States, the prevalence of syphilis was 3% among HIV-negative men who have sex with men and 10% among HIV-positive men who have sex with men.(6;21) According to the US Centers for Disease Control and Prevention, in 2011 there were 13,970 documented cases of syphilis infection in the general population within the United States, corresponding to a rate of 4.5 cases per 100,000 population.(21)
- At a Dublin sexual health clinic, the rate of syphilis in HIV-positive men who have sex with men was 10 times greater than that in HIV-negative men who have sex with men.(16)

Infection with HIV increases risk for syphilis.(20;21) Although reported prevalence varies by location and year, the data clearly demonstrate higher incidence of syphilis among HIV-positive men who have sex with men when compared with HIV-negative men who have sex with men and the general population.

Men who are co-infected with HIV and syphilis may have a suboptimal response to syphilis treatment and they are more likely to develop neurosyphilis. Their treatment decisions are more complex, and the presence of syphilis may increase their HIV infectiousness.(38) Prompt syphilis testing and treatment is important to prevent potential clinical complications and to limit ongoing syphilis and HIV transmission.

Gonorrhoea and Chlamydia

Rates of gonorrhoea and chlamydia are higher in HIV-positive men who have sex with men than in HIV-negative men who have sex with men. In the US STI Surveillance Network's 2011 report:

- The incidence of urethral gonorrhoea was 9% in HIV-negative men who have sex with men and 13% in HIV-positive men who have sex with men
- The incidence of pharyngeal gonorrhoea infection was 6% in HIV-negative men who have sex with men and 7% in HIV-positive men who have sex with men
- The incidence of rectal gonorrhoea infection was 7% in HIV-negative men who

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have sex with men and 13% in HIV-positive men who have sex with men.(21)

In Denmark (1994-1999), gonorrhoea incidence was 6 times higher among HIV-positive men who have sex with men than incidence in the general population. (16) In Ontario, rates of gonorrhoea in HIV-positive men who have sex with men are 0.79 per 100 per year, compared with a rate of 0.03 per 100 per year found in the general population.(39)

According to a 2011 report by the US Centers for Disease Control and Prevention, in the US the incidence of urethral chlamydia was 7% in HIV-negative and 8% in HIV-positive men who have sex with men, and the incidence of rectal chlamydia was 11% in HIV-negative and 21% in HIV-positive men who have sex with men.(21)

In Ontario, rates of chlamydia in HIV-positive men who have sex with men are 1.1 per 100 per year while the rate in the general population is 0.27 per 100 per year.(39)

If left untreated, chlamydia and gonorrhoea co-infection in HIV-positive individuals can increase HIV infectiousness and lead to infertility and Reiter's Syndrome.(39)

Herpes

There is growing evidence of synergy between herpes simplex virus and HIV. Co-infection has been associated with an increased HIV viral load. People who are HIV-positive are also more likely than HIV-negative people to experience recurrences of herpes.(6) However, people with HIV do not appear to be at increased risk of infection with herpes simplex virus, and having herpes does not increase the risk of acquiring HIV.(22) In the US in 2008, rates of herpes infection among both HIV-positive and HIV-negative men who have sex with men were not significantly different from the overall prevalence rate in the general population of 16%.(21)

Substance Use

Substance-related disorders associated with HIV include substance dependence, substance abuse, intoxication, and withdrawal.(30)

Illicit Substances

In a 2010 study reporting on recent drug use in a sample of 6,489 men who have sex with men in New York City between 2002 and 2007,(25) HIV-positive men who have sex with men were more likely than HIV-negative men to report the use of drugs in all categories, including:

- crystal methamphetamine (15% vs. 7%)
- cocaine (16% vs 11%)
- ecstasy (12% vs. 9%)
- ketamine (7% vs. 4%)
- GHB (7% vs. 3%)
- poppers (39% vs. 21%)
- club drugs (28% vs. 18%)
- polydrug use (13% vs. 8%).(25)

These rates far exceed those in the general population. According to a Statistics Canada report, only 0.7% of the population reported illicit drug dependence and

3.0% reported substance dependence.(28)

Among men who have sex with men, the use of methamphetamine at least once is associated with a 2.3 times greater likelihood of HIV sero-conversion.(24) The prevalence of HIV is 3.4 times higher among amphetamine-injecting gay and bisexual men than their non-amphetamine using peers.(24)

Tobacco

Although we were not able to locate any studies comparing rates of tobacco use among HIV-positive and HIV-negative men who have sex with men, several studies indicate that about 50% of men who have sex with men smoke compared to 20% of the general population.(26) Data from a cohort of HIV-positive individuals in Ontario indicates that smoking prevalence in HIV-positive men who have sex with men (39%) is lower than that of HIV-positive men who do not have sex with men (50%).(40) However, the lower prevalence of smoking within this cohort of HIV-positive men who have sex with men in Ontario may not be representative of prevalence in other locations.

Tobacco-related health problems include lung disease and lung cancer, heart disease, high blood pressure, and a host of other serious problems. For HIV-positive individuals, this risk is heightened due to the development of cardiovascular disease associated with highly active antiretroviral treatment (HAART).(26) In addition, data from an HIV-positive cohort in Ontario indicates that HIV-positive smokers are more likely to have a higher viral load than non-smokers due to lower adherence to antiretroviral regimens.(41) A recent study on a large cohort of Danish HIV patients reports that HIV-infected smokers lose more years of life to smoking than to HIV itself. The risk of death associated with smoking is doubled among HIV patients compared to the background population.(42)

Alcohol

Alcohol use is highly prevalent among men who have sex with men. The Urban Men's Health Study found that 85% of urban men who have sex with men used alcohol, and 8% reported heavy-frequent alcohol use.(27)

Alcohol consumption by people living with HIV is an important issue with significant implications for overall health and immune functioning. HIV-positive people often report high levels of alcohol use and alcohol use disorders.(29) According to the HIV Cost and Services Utilization Study, of the 53% of persons in care for HIV who reported drinking alcohol in the last month, 15% were heavy drinkers.(23) Alcohol consumption is common among people in care for HIV, with rates of heavy drinking (8%) more than three times those in the general population (2.6%).(23) Drinking can have harmful effects on virologic response: heavy alcohol users are less likely to respond positively to HIV medication regimens.(23) Alcohol use—particularly heavy drinking—also has a negative effect on adherence to HIV medication.(23)

Mental Health

Men who have sex with men are more likely than heterosexual men to be diagnosed with a mental health disorder.(33) A study examining mental health in gay and bisexual men reported that men who have sex with men are three times more likely to meet criteria for major depression and five times more likely to meet criteria for a panic disorder than were heterosexual men.(33) Nearly 20% of the men who have sex with men in this study were comorbid for two or more disorders, a prevalence far exceeding that seen among heterosexual men (5%).(33)

HIV-positive individuals also experience high rates of depression, with some reports noting a prevalence rate as high as 50% compared to 8% among a representative sample of HIV-negative individuals.(30;32;43) The same holds true for other mental health disorders. People living with HIV experience higher rates of depression, anxiety and related disorders than their HIV-negative counterparts.(33) For most people, being diagnosed with HIV raises personal concerns about death and dying, disclosure and stigma, changes in personal relationships, and uncertainties about the future. These stresses can precipitate mental health issues.(30) Mental health disorders associated with HIV include adjustment disorders, mood disorders (including major depression and dysthymia), anxiety disorders (including generalized anxiety disorder, panic disorder, and post-traumatic stress disorder) and HIV-associated neurocognitive disorders.(30) To help deal with the stress associated with the disease and its treatment, HIV-positive individuals need ongoing social and psychological support.(30)

According to a 2000 study assessing the mental health of 54 HIV-positive men who have sex with men attending a mental health intake in Boston,(31) the most common diagnoses were depression (58%) and anxiety (38%).(31) The most frequently endorsed symptoms were depression (96%), low energy (78%), anxiety (69%), hopelessness (56%), irritability (56%) and grief (55%).(31) The most frequently reported area of impaired functioning was sleep (61%).(31) The most frequent DSM Axis 1 diagnoses were adjustment disorders (50%), major depression (21%), dysthymia (9%), anxiety disorders (5%), and bipolar disorders (4%).(31)

Social isolation, marginalization and discrimination due to HIV stigma can have profound effects on the mental health of people living with HIV.(30) Experiences of HIV stigma have been associated with psychological distress, negative self-image, lack of social support and poor mental health, and depression.(30;43)

Body Image

Concerns about body weight and body fat are highly prevalent among men who have sex with men.(32) Clinicians are seeing both weight loss and weight gain. A sizeable population of people living with HIV report significant weight loss as a result of disease progression and/or side effects of treatment.(32) However, increasing rates of overweight and obesity have recently been documented in people with HIV.

A study of 430 HIV-positive men who have sex with men in Boston found that body mass index moderated the association between depression and HIV sexual transmission risk behaviours.(32) Another study found that, within this population, there is a great deal of focus on muscularity, which is perceived to be an important marker of masculinity, sexual attractiveness and health.(32) The study also found that participants' level of risk taking, including steroid use and intentional unprotected anal intercourse, correlated with the participants' conception of physical masculinity.(32)

Given the high prevalence of HIV in men who have sex with men and the effects of HIV on body mass index, it is reasonable to conclude that many HIV-positive men who have sex with men experience body image issues.(32) Studies are needed to determine the effect of serostatus on body image among men who have sex with men, and to examine whether HIV-positive men who have sex with men experience issues with body image at a higher rate than their HIV-negative counterparts and the general population. It is critical to examine the interaction that occurs between the individual's overlapping identities (i.e., gay, masculine, HIV-positive) and its impact on the men's decisions and risk-taking behaviours. (32)

Implications for Care

Given the high rates of STIs, substance use and mental health issues experienced by people living with HIV, care providers should be aware of these risks and offer immunization, screening, treatment, counselling and other services to enhance health. Specifically, providers should consider offering:

- immunization against HPV, which is an independent risk factor for HIV sero-conversion,(1;4;4) to all men who have sex with men
- routine screening for and targeted prevention of HCV for HIV-positive men who have sex with men (15;15)
- assessment for early signs and symptoms of LGV (to ensure early diagnosis and treatment)
- routine screening and treatment for syphilis infection, gonorrhoea and chlamydia, particularly for HIV-positive men who have sex with men
- discussion of any club drugs that patients may use because they may affect adherence to HIV medications and/or result in serious drug interactions with antiretroviral medications.(26) Clinicians should be aware that club drugs are rarely sold in their pure form and are often mixed with other chemicals such as dextromethorphan, aspirin, lysergic acid, or pseudoephedrine. (26)
- screening and access to culturally sensitive tobacco prevention and cessation programs for all men who have sex with men and particularly for those who are HIV-positive (26)
- screening and treatment for harmful alcohol use
- culturally-sensitive mental health services targeted specifically at HIV-positive men.

Factors That May Impact Local Applicability

All studies included in this summary were conducted within Canada or in high income countries sharing similarities to Canada. There was limited data available on prevalence of diseases and conditions affecting men who have sex with men according to HIV serostatus. When considering the above information, it is important to remember that much of this data is collected from relatively small samples, and biases exist due to who undergoes testing. Many of the infections described above can be asymptomatic. Therefore caution should be used when interpreting findings or generalizing to other populations.

What We Did

We searched Medline for articles using a combination of text terms [(gay) or (men who have sex)] in the title, abstract, subject heading, and keywords AND text terms [(hepatitis) or (drug use) or (mental health) in the keywords or text terms (Mental Health) or (Sexually Transmitted Diseases) or (Syphilis) or (Anus Neoplasms) or Condylomata Acuminata) or (Alcoholism) or (Smoking) or (Marijuana Smoking) or (Depression) or (Anxiety) in the MeSH terms]. The search was limited to articles published since 2000 onwards, in English. We also collected relevant reference articles from the papers located in our search.

Suggested Citation: Rapid Response Service. Common conditions and diseases in HIV-positive men who have sex with men. Toronto, ON: Ontario HIV Treatment Network; May 2014.