The state of HIV testing in Canada: A systematic review

By James Wilton

In Canada, a substantial proportion of people with HIV are unaware they are infected and many are not learning about their HIV status until late in their disease. These individuals can be at higher risk of poor health and may be more likely to pass HIV to others. Diagnosing people as early as possible after infection – by increasing uptake and frequency of HIV testing – is critical to improving the health of people with HIV and reducing the number of new HIV transmissions.

This article describes and summarizes a recent systematic review of the literature exploring the state of HIV testing among different populations in Canada.

Why is HIV testing important?

According to the latest estimates from the Public Health Agency of Canada (PHAC), over 17,000 people living with HIV in Canada are unaware of their HIV status. This represents about 25% of all people with HIV and PHAC estimates that this proportion varies by population: 20% for men who have sex with men (MSM), 24% for people who use injection drugs, and 34% for heterosexual men and women.

The importance of HIV testing, knowledge of HIV status, and early diagnosis of HIV infection cannot be overstated, particularly given recent advances in our understanding of HIV treatment and prevention.

People who are aware of their HIV-positive status can access care and support services and start treatment when they are ready. Advances in treatment mean that people with HIV can live almost as long and as healthily as people who are uninfected. To get the most out of treatment, research suggests it may need to be started soon after someone is infected with the virus. Currently, however, many people in Canada are not learning about their HIV status until late in their disease, when they start to develop symptoms or opportunistic infections. At this point, antiretroviral treatment can help improve their health but not as effectively as when treatment is started earlier.

Knowledge of HIV status is also important for the prevention of HIV transmission. Generally, once people become aware of their HIV infection, they take steps to reduce their risk of HIV transmission. Also, once diagnosed, treatment can be started and this can further help reduce the risk of HIV transmission. Research suggests that the majority of HIV transmissions originate from people who are unaware of their HIV status.

Increasing the uptake and frequency of HIV testing among at-risk populations is necessary to diagnose people earlier after infection and decrease the number of people with HIV who are undiagnosed. To guide efforts to improve HIV testing, it is important to understand the extent of testing coverage among different populations in Canada.

What is the status of HIV testing among at-risk populations in Canada?
A systematic review exploring HIV testing coverage among populations in Canada was published in 2014. This review found that testing uptake and rates differs across populations and that there is room for improvement.

Overall, the systematic review identified 26 studies with information on testing practices in Canadian populations. The authors of the review only picked studies published between 2008 and 2012 to ensure the studies represented a recent snapshot of HIV testing in Canada. Below is some basic information on these 26 studies:

- Participants were from several different provinces/territories in Canada, including Ontario (15), British Columbia (7), Quebec (4), Nova Scotia (2), Manitoba (2), Alberta (1), Saskatchewan (1), Labrador (1), and Northwest Territories (1). Several studies enrolled participants from more than one place.
- Most studies focused on gay men and other men who have sex with men (MSM) (6), people who use injection drugs and people who smoke crack (3), Aboriginal people (3), federal prison inmates (2), and the general population (2). There was only one study for each of the following populations: transgender individuals, female sex workers, South Asian students, Canadian snowbirds (individuals aged 50 years or older who live in the southern United States during the winter season), people from African countries, female students, inner city residents, female primary care patients, street youth, and sexually active adults.
- Information on several types of HIV testing practices was available. Most studies (24) had information on whether study participants had ever been tested for HIV. Information on recent HIV testing was available in 11 studies and frequency of testing in four studies.

Below are the review’s key findings on testing practices by population.

**Gay men and other MSM**

- _Ever tested_: After pooling data from five studies, the proportion of MSM that had ever been tested for HIV was 83%.
- _Recent testing_: Almost 60% of men in two studies had been tested in the past year. The proportion tested in the past two years ranged from 63% to 75% in three studies.
- _Testing frequency_: Only one study collected information on testing frequency. In this study, 44% of men reported testing for HIV annually.

**People who use injection drugs and people who smoke crack**

- _Ever tested_: After pooling data from two studies, the proportion of injection drug users that had ever been tested for HIV was 91%. Similarly, in a study of people who smoke crack, 91% reported ever testing for HIV.
- _Recent testing_: In a study of people who smoke crack, 45% had been tested in the past six months. No data on recent testing were available for injection drug users.
- _Testing frequency_: In a study of people who smoke crack, 26% reported testing more than twice in the past two years. No data on testing frequency were available for people who use injection drugs.

**Aboriginal people**

- _Ever tested_: After pooling data from three studies, the proportion of Aboriginal people who had ever been tested for HIV was 56%.
- _Recent testing_: In one study, the proportion of Aboriginal youth tested in the past two years was 43%. In a study of Aboriginal people off-reserve, only 13% had been tested in the past year.
- _Testing frequency_: In a study of Aboriginal youth, 25% reported testing more than twice in the past two years. In a study of Aboriginal youth who inject drugs, 31% said they were tested at least once a year.

**Other populations**

- _Ever tested_: After pooling data from two studies, the proportion of federal prison inmates who had ever tested for HIV was 90%. In two studies of the general population, the pooled proportion who had ever tested was 33%. For populations with only one study available, this proportion was as follows: people from African countries (75%), inner city residents (69%), street youth (63%), female primary care patients (56%), transgender individuals (53%), female students (32%), Canadian snowbirds (18%), South Asian students (11%), and young sexually active adults (10%).
- _Recent testing_: In separate studies of transgender individuals and street youth, 20% and 53%, respectively, had been tested for HIV in the past year. In another study, 67% of female sex workers said they had tested
Testing frequency: No information was available on the frequency of testing among prison inmates, the general population, or any other specific populations.

Limitations of the review

This review had several limitations. All studies, except for one, were surveys and relied on self-reported information on HIV testing practices. Self-reported information can be unreliable because study participants may have trouble remembering the information correctly or may not feel comfortable telling the complete truth (for example, participants may tend to say they get tested more often than they actually do).

Most studies (22) recruited participants from venues (bars, community events, needle exchange programs) or did not use a random process to recruit participants. The majority of the studies (15) took place in Ontario. Findings from studies that use venue-based sampling may not be representative of the population that the study wanted to draw conclusions on. For example, the HIV testing practices of gay men recruited from a bar in Toronto may not represent the practices of all gay men in the city. Also, some of the review's findings were based on a small number of studies and, for some testing practices and populations, there were no studies or data available. This highlights the need for further research in order to get a better overall picture of testing practices among different populations in Canada.

Improving the uptake and frequency of HIV testing in Canada

Despite gaps in the research and the above limitations, the review suggests that there is room for improving HIV testing in Canada. In several populations, the proportion that had ever tested for HIV was relatively low, such as among Aboriginal peoples and the general population. Even for populations with high levels of ever having tested for HIV, frequency of HIV testing was lower. For example, the proportion of MSM ever tested for HIV in five pooled studies was high (83%), but less (44%) reported testing for HIV annually in a single study. High frequency of HIV testing is important to diagnose a person as soon as possible after HIV infection.

In the past few years, several guidelines have been released in order to encourage the uptake of HIV testing in Canada. For example, PHAC and the governments of British Columbia and Saskatchewan have released guidelines recommending that the offer of an HIV test be made part of periodic routine medical care. In addition to routine testing, targeted testing of high-risk populations is still encouraged. For example, guidelines generally recommend that populations with a higher burden of HIV, such as MSM and people who use injection drugs, get tested for HIV at least once a year if they are engaging in HIV-related risk behaviours. Although very few studies in this systematic review contained information on testing frequency, the available studies suggest most individuals within these higher burden populations are not tested annually. However, it is important to recognize that not all individuals within a population engage in HIV-related risk behaviours to the same extent; therefore, it is difficult to know what the “optimal” testing frequency should have been.

Front-line service providers can use several strategies to improve HIV testing in Canada. Below are examples of two approaches being used by Canadian health authorities.

Routine testing in hospitals in Vancouver

Since October 2011, the Vancouver STOP Project, a partnership between Providence Health Care and Vancouver Coastal Health, has routinely offered HIV tests in hospitals.

The Programming Connection case study Routine HIV Testing in Acute Care has more information on how the Vancouver STOP Project incorporated the routine offer of HIV testing into four hospitals.

Anonymous, rapid HIV testing in one Ontario correctional facility

Between October 2011 and March 2012, anonymous, rapid HIV testing, coupled with testing for gonorrhea and chlamydia, was offered to inmates in two provincial institutions through the local public health unit.

The Programming Connection case study Pilot to Offer Anonymous, Rapid Point-of-care HIV Testing in Prisons has
more information on how this pilot project was implemented.

**What is a systematic review?**

Systematic reviews are important tools for informing evidence-based programming. A systematic review is a critical summary of the available evidence on a specific topic. It uses a rigorous process to identify all the studies related to a specific research question. Relevant studies can then be assessed for quality and their results summarized to identify and present key findings and limitations. If studies within a systematic review contain numerical data, this data can be combined in strategic ways to calculate pooled estimates. Combining data to produce pooled estimates can provide a better overall picture of the topic being studied.

**Resources**

- **Routine and targeted testing** – *Prevention in Focus*
- **New PHAC testing guide includes recommendations to promote HIV testing during routine medical care** – CATIE news
- **Saskatchewan HIV testing Policy** – Saskatchewan HIV Provincial Leadership Team
- **HIV Screening and Testing Guide** – Public Health Agency of Canada
- **HIV Testing Guidelines for the Province of British Columbia** – Office of the Provincial Health Officer
- **Ontario HIV Testing Frequency Guidelines: Guidance for Counselors and Health Professionals** – AIDS Bureau, Ontario Ministry of Health and Long-Term Care
- **Optimiser le dépistage et le diagnostic de l'infection par le virus de l'immunodéficience humaine** – Institut national de santé publique du Québec

**References**


**About the author(s)**

**James Wilton** is the coordinator of the Biomedical Science of HIV Prevention Project at CATIE. James is currently completing his master’s degree of Public Health in Epidemiology at the University of Toronto and has completed an undergraduate degree in microbiology and immunology at the University of British Columbia.
Disclaimer

Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

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