



HIV Testing and Surveillance Systems in Canada

At a Glance

- Nominal, non-nominal and anonymous HIV testing are available in Canada.
- HIV infection is notifiable in all provinces and territories in Canada.
- Two types of surveillance systems monitor HIV trends in Canada; routine, case-based reporting of HIV & AIDS, and second generation surveillance of key populations.

Introduction

Surveillance is a crucial component in the coordinated response to HIV/AIDS. It allows for a better understanding and identification of trends in the epidemic, which in turn help to inform and increase the efficacy of prevention, treatment and care interventions. Surveillance activities also allow Canada to continue to regularly report on the country's progress on HIV and AIDS indicators, which is an obligation for all member states that signed the United Nations' 2001 Declaration of Commitment on HIV/AIDS.

This *Epi Update* chapter provides an overview of Canada's HIV/AIDS surveillance systems, both routine and enhanced surveillance, and includes information on the types of HIV testing available across the country and the different reporting and data collection methods.

HIV Testing in Canada

Information about HIV testing patterns in the general population, along with information on the profile of people being tested, is important for designing and targeting intervention programs.¹ In 2006, a general population survey of 2,036 Canadians over the age of 15 showed that 32% of respondents had ever been tested for HIV, a slight increase from 27% in 2003.²

Canadians who want to be tested for HIV have up to three different testing options, depending on the province or territory in which the testing takes place: **nominal**, **non-nominal** or **anonymous**. At present, nominal/name-based and non-nominal/non-identifying HIV testing are widely available in Canada; however, anonymous HIV testing is available in only seven provinces.

Nominal/name-based HIV testing

- May be carried out at numerous locations, including clinics and offices of health care providers.
- The health care practitioner ordering the test knows the identity* of the person being tested for HIV.
- The HIV test is ordered using the name of the person being tested.
- Patient information is collected, such as age, sex, city of residence, name of diagnosing health care provider, country of birth, ethnicity, information detailing the HIV-related risk factors of the person being tested and laboratory data. The amount of information collected varies according to the province/territory.
- If the HIV test result is positive, the health care practitioner ordering the test is obligated by law to notify public health officials (within the respective jurisdiction) of the positive test result.

* In rare instances, the true identity of the person being tested for HIV may not be known.

- The test result is recorded in the health care record of the person being tested.

Non-nominal/non-identifying HIV testing

- Similar to nominal/name-based testing with one exception: the HIV test is ordered using a code or the initials of the person being tested (not including the full or partial name).

Anonymous testing

- Usually available at specialized clinics, organized and supported by public health departments and by some health care providers.
- The health care provider ordering the HIV test does not know the identity of the person being tested for HIV.
- The HIV test is carried out using a code. The health care provider ordering the HIV test and the laboratory

carrying out the testing on the blood sample do not know to whom the code belongs.

- Information such as age, sex, HIV-related risk factors and the ethnicity of the person being tested for HIV may be collected during anonymous testing, depending on the province or territory in which the test is ordered or on the test site.
- Test results are not recorded on the health care record of the person being tested. It is only the person being tested who may subsequently decide to give his or her name and include the HIV test result in the medical record.

Table 1 provides information on the availability of different types of testing as well as reporting protocols within each province/territory.

Table 1. Type of HIV testing and reporting protocol by province/territory

Province/territory	Type of HIV testing available	Year in which HIV infection became notifiable	Responsibility for reporting of HIV infection
British Columbia	N, NN*	2003	L, P**
Yukon	N, NN	1995	L, P, RN
Northwest Territories	N, NN	1988	L, P, RN
Nunavut	N, NN	1999	L, P, RN
Alberta	N, NN, A [†]	1998	L, P, NP
Saskatchewan	N, NN, A	1984	L, P, RN
Manitoba	N, NN, A	1985	L, P
Ontario	N, NN, A	1985	L, P, RN, MW
Quebec	N, NN, A	2002	L, P
New Brunswick	N, NN, A	1985	L, P, RN
Nova Scotia	N, NN, A	1985	L, P
Prince Edward Island	N, NN	1988	L, P, RN
Newfoundland and Labrador	N, NN, A [†]	1987	L, P, RN

N: nominal/name-based; NN: non-nominal/non-identifying; L: laboratory; P: physician; RN: registered nurse; NP: nurse practitioner; A: anonymous; MW: midwife

* In BC, reports of non-nominal tests to public health do not include identifying information

** In BC, all positive cases are reported to HIV Surveillance/British Columbia Centre for Disease Control, which then reports the first positive cases to designated nurses in the health service delivery area where the test was ordered.

[†] If someone tests positive for HIV through anonymous testing (AHT), that individual then becomes part of the nominal/name-based system, in which counselling, follow-up care and HIV data reporting are all done nominally.

Availability of Anonymous HIV Testing (AHT) May Increase Testing

As AHT offers the highest degree of confidentiality, it may encourage more people to come forward for HIV testing and counselling.³ Several studies in the United States have shown that AHT programs encourage people to be tested for HIV infection, especially those at high

risk or those who would not volunteer for testing under nominal/name-based or non-nominal/non-identifying circumstances.⁴⁻⁶ In Ontario, from 1992 through the end of 2007, more than 160,000 HIV tests were performed anonymously, accounting for 3.3% of all tests conducted in the province during that period.⁷

Information regarding the status of anonymous HIV testing in Canada is summarized in Table 2.

Table 2. Status of anonymous HIV testing (AHT) by province/territory

Province/territory	Year in which AHT became available	AHT sites	AHT data reported to CCDIC
British Columbia	n/a	n/a	n/a
Yukon	n/a	n/a	n/a
Northwest Territories	n/a	n/a	n/a
Nunavut	n/a	n/a	n/a
Alberta	1992	3	yes*
Saskatchewan	1993	3**	no
Manitoba	2007	2	yes
Ontario	1992	50	yes
Quebec	1987	60+	no
New Brunswick	1998	7†	yes
Nova Scotia	1994	3	no
Prince Edward Island	n/a	n/a	n/a
Newfoundland and Labrador††	n/a	12	yes*

CCDIC: Centre for Communicable Diseases and Infection Control

* If someone tests positive for HIV infection through anonymous HIV testing (AHT), that individual then becomes part of the nominal/name-based system, in which counselling, follow-up care, and HIV data reporting are all done nominally.

** AHT is also available at other sexual health clinics upon request.

† Additional testing sites available in federal/provincial correctional facilities.

†† AHT is available upon request but is not part of the official guidelines for the province.

HIV Infection is Notifiable Across Canada

By 2003, positive HIV test results and AIDS diagnoses had been designated as notifiable* in all Canadian provinces and territories. In most testing situations, laboratories and physicians are responsible for reporting HIV infection, but this varies by province or territory. When an individual tests positive for HIV infection for the first time, nominal/name-based or non-nominal/non-identifying information is forwarded to provincial or territorial public

health officials. This includes demographic data, such as the person's age and sex, risks associated with the transmission of HIV, and laboratory data, such as the date of the person's first positive HIV test. Although HIV infection is not legally notifiable at the national level, notification to PHAC is voluntarily undertaken by all provinces and territories. Positive HIV test reports and reported AIDS cases are provided non-nominally to PHAC. This facilitates the production of national level reports on the state of HIV/AIDS epidemiology in Canada.

* A notifiable disease is one that is considered to be of such importance to public health that its occurrence is required to be reported to public health authorities. (The terms "notifiable" and "reportable" are used interchangeably when discussing HIV/AIDS reporting in Canada.)

HIV Surveillance

There are two types of HIV surveillance systems in Canada. Routine HIV/AIDS case surveillance, which is also known as first-generation surveillance, involves the collection of case reports of HIV and AIDS diagnoses. Enhanced surveillance, also known as second-generation surveillance, entails gathering behavioural information, such as sexual, injecting and testing behaviours in a targeted group of people, in addition to information on each individual's infection status.

Routine surveillance of HIV and AIDS

Reporting and its limitations

There were 21,300 AIDS cases reported to the Public Health Agency of Canada (PHAC) between 1979 and December 31, 2008, and 67,442 positive HIV tests reported between 1985 and the end of December 2008.⁸ The positive HIV test results reported to PHAC are from people who test positive for HIV through nominal, non-nominal or anonymous testing in the provinces and territories and whose results are reported to PHAC by their respective health authority or HIV testing laboratory. An AIDS case report is made when an individual is first given a diagnosis of AIDS by his/her health care provider. For reports on both HIV-positive test results and AIDS diagnoses, the data sent to PHAC do not contain names or individual cases.

It should be mentioned that routine surveillance has significant limitations. Most importantly, it can only capture those individuals who have been tested for HIV and/or been given a diagnosis of an AIDS defining-illness, so the figures presented here do not capture those people living with HIV/AIDS who are unaware that they are infected with HIV. Routine surveillance also has limitations with regard to underreporting, delayed reporting, potential duplicate reporting and reporting of ethnicity status, although these limitations are reduced as much as possible, and caution is exercised when interpreting the data.

Exposure category hierarchy

HIV and AIDS cases are assigned to a single exposure category according to a hierarchy of risk factors. If more than one risk factor is reported, a case is classified as the exposure category listed first (or highest) in the hierarchy. For example, people who inject drugs (IDU) may also be at risk of HIV infection through heterosexual activity. Injecting drug use is accepted as the higher risk activity even though there may also be a risk of HIV infection through sexual activity. The only exception to this is men who report having had sex with men (MSM) and to have also injected drugs. Such cases are classified in the combined exposure category MSM/IDU. For specific details on the different exposure categories, please refer to PHAC's HIV and AIDS Surveillance Reports (accessible at: <http://www.phac-aspc.gc.ca/aids-sida/publication/index-eng.php#surveillance>).

Comments

Increased availability of and accessibility to different types of HIV testing may allow individuals to choose the testing and counselling environment in which they feel most comfortable, thereby encouraging more people to be tested and facilitating the targeting of intervention and treatment programs. PHAC is currently engaged in the development of Comprehensive Guidelines for HIV Testing in Canada, which will provide direction on test planning approaches aiming to increase opportunities for HIV testing among people at risk of HIV infection. The collection of data on positive HIV tests and AIDS diagnoses at both the provincial and national levels allows for monitoring of the epidemics in Canada, which helps to inform programs and policy. However, while routine surveillance provides some data on HIV exposure categories, it provides no information on the specific behaviours that put these groups at risk.

Biological and behavioural surveillance

Background

The *Federal Initiative to Address HIV/AIDS in Canada* identified a need to develop discrete approaches to addressing the epidemic in key populations in Canada. Key populations identified include, but are not limited to, people who inject drugs (IDU); gay, bisexual and other MSM; people from countries where HIV is endemic; women; youth; Aboriginal peoples; prison inmates; and people living with HIV/AIDS.

In line with recommended approaches advocated by the World Health Organization and the Joint United Nations Programme on HIV/AIDS, and as part of the *Federal Initiative to Address HIV/AIDS in Canada*, PHAC monitors trends in HIV prevalence and associated risk behaviours in key populations identified in Canada through second-generation HIV surveillance systems. These surveillance systems are known as the “Track” systems. To date, PHAC has developed and implemented second-generation HIV surveillance systems that focus on IDU and on gay, bisexual, and other men who have sex with men, respectively called the I-Track and the M-Track systems. The E-Track concept, which has a focus on people who originate from countries where HIV is endemic* or those from specific ethnocultural populations, has been successfully piloted in Quebec and is being further developed. Currently under development are two additional “Track” systems: the A-Track (focus on Aboriginal peoples) and the P-Track (focus on persons with HIV infection).

The overall objectives of the I-, M-, E- and A-Track systems are to describe the changing patterns in the prevalence of HIV infections and possibly also incidence, as well as risk behaviour practices and the testing patterns for HIV, hepatitis C and other sexually transmitted and bloodborne infections (STBBIs) in each respective population. The P-Track is envisioned to monitor trends in access to and uptake of care and treatment services.

Methods

The Track systems monitor HIV and associated risk behaviours in Canada by combining behavioural and biological surveillance, and are conducted through periodic, cross-sectional surveys administered at selected urban/semi-urban sites across Canada. Core generic protocols and questionnaires designed to meet the needs of local/provincial and national levels are developed in consultation with research experts in the field and with populations of interest. At the national level, the results enable generation of national level indicators and reporting on international indicators. Protocols and questionnaires are reviewed by the Health Canada/Public Health Agency of Canada research ethics boards (REBs) as well as local REBs for each site.

Participants are primarily recruited using venue-based sampling methods, and participation is voluntary, completely anonymous and requires informed consent. Respondents are limited to participating once during each survey round across all of the sentinel surveillance sites. Information on demographic characteristics, sexual behaviours, drug use, testing for HIV, hepatitis and other STBBIs, and attitudes towards HIV is collected through a self- or interviewer-administered national core questionnaire. Sentinel sites have the option of adding additional site-specific questions to address local needs. A biological specimen, either a finger-prick blood sample or oral fluid sample, is collected; these specimens are tested for antibodies against HIV and hepatitis C virus. Depending on sentinel site prioritization, specimen availability and test validity, specimens may also be tested for syphilis and other STBBIs.

The Track surveys are planned and implemented in partnership with site investigators, local study teams (composed of representatives from local/provincial public health authorities), community advisory committees and other stakeholders.

* List of HIV endemic countries: http://www.phac-aspc.gc.ca/publicat/epiu-aepi/epi-1205/app_a-eng.php

I-Track

I-Track is the national, second-generation surveillance system focused on IDU. This system builds on previous research studies conducted in Canada and was developed in response to the need for a consistent approach in the collection of risk behaviour information across Canada. People who have injected drugs in the past 6 months and who meet the age limit of consent for the given province/territory (age varies by site according to provincial/territorial ethical considerations) are eligible to participate in I-Track.

The pilot phase of I-Track was undertaken between October 2002 and August 2003 at selected urban and semi-urban sites across Canada (Regina, Sudbury, Toronto, Victoria and the SurvUDI network [Province of Quebec and the city of Ottawa]).⁹ The pilot phase demonstrated the feasibility of the sentinel surveillance system and also laid the foundation for undertaking Phase 1 of the I-Track. Phase 1 was completed in seven sites (Regina, Sudbury, Toronto, Victoria, the SurvUDI network, Winnipeg and Edmonton) between October 2003 and May 2005.¹⁰ Phase 2 was completed in 10 sites between 2005 and 2008 (Regina, Sudbury, Toronto, Victoria, Vancouver Northern and Central Interior Islands, Prince George, the SurvUDI network, Kingston, Thunder Bay and Edmonton). Implementation of Phase 3 started in April 2010.

Selected findings from I-Track are presented in the *Epi Update* chapter entitled “HIV/AIDS Among People Who Inject Drugs in Canada.”

M-Track

M-Track is the national, second-generation HIV surveillance system that monitors HIV and related risk behaviours among gay, bisexual, and other men who have sex with men in Canada. This surveillance system also builds upon earlier local research efforts. MSM who

meet the age limit of consent for the given province/territory (age varies by site according to provincial/territorial ethical considerations) are eligible to participate in M-Track.

M-Track was first implemented in Montreal in 2005. Between 2006 and 2007, four additional sites joined M-Track: Toronto, Ottawa, Winnipeg and Victoria. Over 4,500 men participated in M-Track between 2005 and 2007 (Phase 1). In 2008, Vancouver became the most recent site to implement the system, and as of 2009 a total of six sites have participated in M-Track across Canada.

Selected findings from Phase 1 of M-Track are presented in the *Epi Update* chapter entitled “HIV/AIDS Among Gay, Bisexual and Other Men Who Have Sex with Men in Canada.”

Strengths and limitations

Results from the Track surveillance systems are collated from sentinel sites and provide an important national perspective on risk behaviours in key at-risk populations. Track data are collected by cross-sectional surveys and, while it is not possible to examine causality directly, these surveillance data offer a valuable source of information critical to service and prevention programs at all levels: national, provincial and local. In addition, because of the relatively large survey samples, adequate statistical power is available to examine risk behaviours and their associated factors.

Track surveys primarily use venue-based sampling methods to overcome some of the inherent difficulties in accessing hard-to-reach populations. Given this, the surveillance findings may not be representative of the entire target population in Canada (e.g. the I- and M-Track findings are not representative of *all* IDU and MSM in Canada). Underreporting of some risk behaviours may occur because of social desirability biases.

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Mission

To promote and protect the health of Canadians through leadership, partnership, innovation and action in public health.

Public Health Agency of Canada

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