Canada's Progress Towards Ending the HIV Epidemic

2022

Public Health Agency of Canada
Agence de la santé publique du Canada

Canada

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Highlights

In 2022, an estimated 1,848 new HIV infections occurred in Canada, a 15% increase from the estimate for 2020 (1,610 new infections).

- The number of new infections was highest among people aged 30-59 years.
- The proportion of new infections among gay, bisexual and other men who have sex with men continued to decrease, whereas the proportion of new infections among people who inject drugs slightly increased.

An estimated 65,270 people were living with HIV in Canada at the end of 2022. Among those living with HIV, an estimated 89% were diagnosed. Of those diagnosed, 85% were estimated to be on treatment and an estimated 95% of people on treatment had a suppressed viral load.

- Variation in the 95-95-95 targets between provinces / regions demonstrates the need for focus and improvement in the different stages of the HIV care continuum.
- Among the estimated people living with HIV, 74.1% were males, and 25.3% were females.
- Among males living with HIV, progress towards the 95-95-95 targets was similar to the overall population (90%-86%-96%). However, among females, the proportion of those who were diagnosed, on treatment and virally suppressed were lower than the overall population (86%-84%-92%).

HIV/AIDS-related mortality was included in the report for the first time. In 2022, there were 126 deaths with HIV/AIDS listed as the underlying cause, 309 deaths with HIV/AIDS listed as underlying cause or one of the 19 antecedent causes of death, and an estimated 855 total deaths among people living with HIV in Canada.

As a part of the Pan-Canadian STBBI Framework for Action, Canada has set a strategic goal of reducing stigma and discrimination which may create vulnerabilities to sexually transmitted and blood borne infections. Additional information related to HIV prevention and stigma have been included in the report for the first time.

Despite current efforts, Canada has not seen a decrease in new HIV infections in recent years and further work is needed to meet the global 95-95-95 targets. These estimates will be used to measure Canada's progress in meeting the priorities set out in the Government of Canada five-year STBBI action plan, with the goal of accelerating prevention, diagnosis and treatment to reduce the health impacts of STBBI by 2030.

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The Public Health Agency of Canada acknowledges
the Provincial / Territorial public health authorities, other government departments, research and community organizations for their contribution to the national estimates of HIV incidence, prevalence and 95-95-95 targets.

The Public Health Agency of Canada acknowledges
the efforts by First Nations partners in the prevention of HIV infections, the care of people living with HIV, and their contribution in estimating HIV indicators for First Nations communities in Saskatchewan.

The Public Health Agency of Canada acknowledges
the efforts by other communities and advocates representing civil society and other key populations affected by HIV in Canada.

The Public Health Agency of Canada recognizes and appreciates
the invaluable contributions of people living with HIV. Their willingness to participate in data collection, share personal experiences, and provide critical insights significantly enhances our understanding of the epidemic. Their involvement not only enriches the data we collect but also ensures that our strategies and interventions are more effectively tailored to meet the needs of those most affected. Their courage and commitment are vital in our collective effort to advance research, improve public health responses, and ultimately work towards ending the HIV epidemic.

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Introduction

Sexually transmitted and blood borne infections (STBBI) remain a significant health concern in Canada even though they are largely preventable, treatable and in many cases, curable. STBBI impose significant physical, emotional, social and economic costs on individuals, communities, and society. The Pan-Canadian STBBI Framework for Action[1] provides an overarching and comprehensive approach to reduce the impact of STBBI in Canada. Canada has endorsed the Joint United Nations Programme on HIV/AIDS (UNAIDs) and the World Health Organization (WHO) strategies that aim to end HIV/AIDS as a public health concern by 2030[1,2]. The global strategies include the following targets for 2025: 95% of all people living with HIV (PLHIV) know their status, 95% of those diagnosed receive antiretroviral treatment (ART), and 95% of those on treatment achieve viral suppression[3]. When these three targets are achieved, at least 86% (95%x95%x95%) of all people living with HIV (PLHIV) will be virally suppressed[4]. This will limit both the severe health consequences of chronic infection with HIV as well as community transmission. Modelling suggests that achieving these targets by 2025 will enable the world to eliminate the AIDS epidemic by 2030[5]. These documents also include targets related to reducing new infections, deaths, improving access to prevention and harm reduction services, and reducing stigma. The global targets mark the pathway to elimination of the HIV epidemic. Documenting progress is important in the achievement of these goals and an essential component of the Government of Canada STBBI five-year action plan[6].

This report provides an update for 2022 on Canada's progress towards the global elimination targets, incidence and prevalence. Available information on HIV prevention and HIV-related stigma will also be highlighted as they affect key populations and can profoundly impact each stage of the HIV care cascade.

Why monitoring Canada's progress is important

The Government of Canada is committed to measuring the impact of programs and policies as we implement the Government of Canada five-year action plan on STBBI, through monitoring and reporting on STBBI trends and results[6]. These estimates support all partners and stakeholders to have a better understanding of the impact of HIV/AIDS on key populations and where action is needed to reduce the public health impact of HIV and AIDS.

Understanding HIV incidence (the number of new infections occurring during a specific period of time) is fundamental for understanding temporal changes in transmission patterns and is useful for public health decision makers to monitor, strengthen and evaluate the impact of multi-sectoral public health actions. Estimating HIV prevalence (the number of PLHIV - both diagnosed and undiagnosed) is critical for guiding the planning and investment for treatment, care and ongoing support for people living with and affected by HIV. It is also the first step in the HIV care continuum.

The HIV care continuum is a public health model that outlines the steps or stages that people with HIV go through from initial HIV diagnosis to achieving and maintaining viral suppression[7]. The HIV care continuum is useful both on an individual level to assess care outcomes, as well as at the population-level to analyze the proportion of people with HIV who are engaged in each successive step[7]. Typical steps in the care continuum are diagnosis of HIV infection, linkage to HIV care, received or retained in care, and achieving viral suppression.

By establishing the HIV care continuum, one can then use this as a framework for assessing and reporting on progress against the global 95-95-95 targets. The sequential nature of the stages in the continuum, and the associated metrics at each stage (e.g. 95-95-95 targets) allow organizations (e.g. public health, research, community)—on national and regional levels—to identify gaps in care and determine the types of interventions that might help increase the number of people who achieve and maintain viral suppression[8].

How we are monitoring progress in Canada

Since 2018, The Public Health Agency of Canada (PHAC or the Agency) has been collaborating with an expert working group to determine the measures used to assess Canada's progress within the HIV care continuum. Based on a review of measures used internationally, the PHAC expert group recommended evaluating the 95-95-95 targets using a four-stage continuum: Stage 1 – the estimated number of PLHIV; Stage 2 – the number of PLHIV who have been diagnosed; Stage 3 – the number of PLHIV who have been diagnosed and who are on antiretroviral treatment (ART); and Stage 4 – the number of PLHIV on ART who are virally suppressed (Figure 1).

FIGURE 1

Four-stage HIV care continuum framework for Canada

Variables and measures

Standard definitions for each of the HIV care continuum measures were developed and used where possible (Table 1). These definitions, which were agreed to by the expert working group supporting the monitoring of Canada's progress, are aligned with the definitions used by the European Centres for Disease Control (ECDC), the United States Centers for Disease Control and Prevention (USCDC), the Kirby Institute (Australia), and Public Health England (United Kingdom). In some instances, definitions were adapted by jurisdictions to account and adjust for differences in the definitions of "on treatment" and "suppressed viral load".

TABLE 1

Consensus definitions used in Canada's estimates of 95-95-95 measures

Measure	Definition
Estimated number of people living with HIV	The total estimated number of people living with HIV (PLHIV) at the end of 2022 based on a bespoke modelling approach, using the Canadian HIV Modelling Tool[9]. The estimate includes diagnosed and undiagnosed people. Deaths among PLHIV are estimated using data from various sources depending on the province / territory, since vital statistics data only record mortality among persons who died of HIV-related causes. Migration between jurisdictions within Canada, and immigration to Canada from other countries is also included in the total number of PLHIV. Data on in- and out- migration are provided by provinces / territories where possible.
Number; percentage diagnosed 1st 95	Among those estimated to be living with HIV in Canada at the end of 2022, the number and proportion (%) of people who were diagnosed. **Numerator**: Number of people living with diagnosed HIV **Denominator**: Number of PLHIV (both diagnosed and undiagnosed)
Number; percentage who are currently on antiretroviral treatment 2nd 95	Among those living with diagnosed HIV, the number and proportion (%) of people with ≥1 antiretroviral therapy in 2022 (prescribed, dispensed or recorded on patient forms). **Numerator**: Number of people on treatment (≥1 antiretroviral therapy in 2022) **Denominator**: Number of people living with diagnosed HIV
Number; percentage who had a suppressed viral load 3rd 95	Among those on treatment, the number and proportion (%) of people whose last HIV RNA measurement in 2022 was <200 copies/ml. **Numerator**: Number of people with <200 copies/ml on their latest viral load test in 2022 **Denominator**: Number of people on treatment

Data sources

INPUT FOR MODELLING AND HIV CARE CONTINUUM

HIV estimates related to incidence, prevalence and the first 95 target were developed using HIV surveillance data reported by provinces and territories (PTs), estimated deaths among PLHIV, and back-calculation statistical modelling methods. Additional detail on the back-calculation modelling is provided in Appendix 1.

Data sources to estimate deaths among all PLHIV include vital statistics data from Statistics Canada or provincial/territorial vital statistics registries, linked HIV diagnostic and mortality information, national reports of HIV/AIDS deaths, cohort data related PLHIV who are in care, and Canadian research studies.

The development of estimates for the second and third 95 targets required additional information from the provinces and territories, including the following where available:

- HIV surveillance data
- Centralized HIV care program data, including linked treatment and laboratory viral load data
- Provincial antiretroviral drug prescription data linked to HIV laboratory data
- Unlinked data from drug prescription databases, laboratories, and HIV clinics
- Cohorts of diagnosed people engaged in HIV care

Measures were refined through an iterative process with provinces and territories, particularly where adjustments were necessary to account for uncertainty due to incomplete or lack of representative data. The collaborative estimates process is finalized when each jurisdiction validates and approves their own data. The data are then combined to produce national estimates for Canada.

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Estimates published in this report replace all previous estimates published by the Agency concerning HIV incidence, prevalence and 95-95-95 targets in Canada. Assumptions, methods and primary data may have changed for some jurisdictions because our knowledge of the epidemic has improved, and the primary data provided by the provinces/territories (PTs) for use in the model have been refined.

HIV PREVENTION, STIGMA AND MORTALITY

Indicators for the measurement of programs for the primary prevention of HIV are less well-defined than for the HIV care continuum. Therefore, this report draws on currently available data related to HIV prevention (e.g. vertical transmission, pre-exposure prophylaxis (HIV-PrEP) and post-exposure prophylaxis (HIV-PEP)) as a starting point for monitoring progress towards global HIV prevention measures.

Data related to vertical transmission of HIV in Canada comes from the Canadian Perinatal HIV Surveillance Program (CPHSP), which collects national data on infants born to women or other pregnant PLHIV through a sentinel-based, active surveillance system[10]. CPHSP collects data on two groups of children: infants born to HIV positive women in Canada and HIV positive children receiving care at any participating site (whether born in Canada or abroad). These sites represent approximately 95% of the HIV exposed infants born in Canada[10,11].

Annual estimates of people using HIV-PrEP and HIV-PEP for 8 provinces were generated from IQVIA's geographical prescription monitor dataset. Data for the three territories and Alberta are not currently available and therefore have not been presented. Data for British Columbia were provided by the BC Centre for Excellence in HIV/AIDS.

Canadian data on HIV-related stigma is limited, however some national data is available among key population groups most affected by HIV. Data on HIV-related stigma among key populations (Indigenous Peoples, gay, bisexual and other men who have sex with men (GBMSM) and people with recent (past 6 months) history of injection drug use) are collected through the Public Health Agency of Canada's integrated bio-behavioural surveillance system[12,13].

In addition to the available national data, some provincial data on HIV-related stigma are available. In Ontario, the OHTN Cohort Study[14] is a longitudinal study of PLHIV receiving HIV care at 15 clinics across the province. A standardized tool was used to study four types of stigmas: disclosure, concerns about public attitude, self-image, and personalized. Additionally, in British Columbia the STOP HIV/AIDS Program Evaluation (SHAPE) study used the 10-item Berger HIV Stigma Scale to examine the association between the year of an individual's HIV diagnosis and HIV-related stigma scores[15].

To examine national trends in HIV-related mortality we compared the number of deaths with the underlying cause of death listed as HIV/AIDS (ICD-9 codes 279.5 or 279.6; 042-044; ICD-10 codes B20-B24), to the number of deaths with HIV/AIDS listed as either the underlying cause or one of the 19 antecedent causes of death. These data are both from the national vital statistics registry[16], and were compared to the estimated number of deaths among PLHIV provided by provinces and territories from various sources.

Data limitations

Provincial/territorial data sources for the second and third 95 targets vary between jurisdictions. These differences occur due to the diverse methods used for HIV surveillance (e.g. laboratory-based versus case-based) and the ability to link data sources. Some jurisdictions can link datasets related to HIV diagnoses, deaths, treatment, and viral load, which allows those jurisdictions to describe progress through the HIV care continuum at the population level. Other jurisdictions estimate each of the HIV care continuum measures using unlinked data sources (e.g. separate diagnosis, death, treatment, and viral load data) along with an analysis of, and an adjustment for, the inherent limitations for each data source. As a result, caution should be taken when making comparisons between jurisdictions.

For the 2022 HIV estimates, data related to the number of people on treatment and with viral suppression data were not provided by four jurisdictions. To account for this, the total number of PLHIV was adjusted by removing data from these four jurisdictions in the national calculation of the 2nd and 3rd 95 targets.

In some instances, provinces/territories have been grouped into regions (e.g. Atlantic and Territories), or data have been suppressed due to small counts and to reduce the risk of identifying an individual. Estimates by sex were based on binary sex categories assigned at birth (male or female). Information on trans, non-binary and other gender identities is limited.

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Since the data systems, types of data available, and the capacity to link information from various sources vary across jurisdictions, the national measures developed through this process should be interpreted within the context of plausible ranges around each estimate. National estimates reflect inherent uncertainty because of these measurement considerations and limitations.

Data related to HIV-PrEP and HIV-PEP have several limitations.

- Only prescriptions that were acquired from a community pharmacy are included (dispensations from hospital pharmacies, those provided at no cost, and those purchased online are not included).
- The dispensation data cover approximately 60% of all retail pharmacies in Canada. Patient counts from participating pharmacists are projected to the whole population of each province by IQVIA using their proprietary algorithm.
- An algorithm was used to assign a treatment indication to each person prescribed medication for HIV-PrEP or HIV-PEP. Any misclassifications could have produced an over- or under-estimate of the number of people taking this medication.
- Not all dispensed medications are consumed, which could contribute to over-counting of people taking this medication.

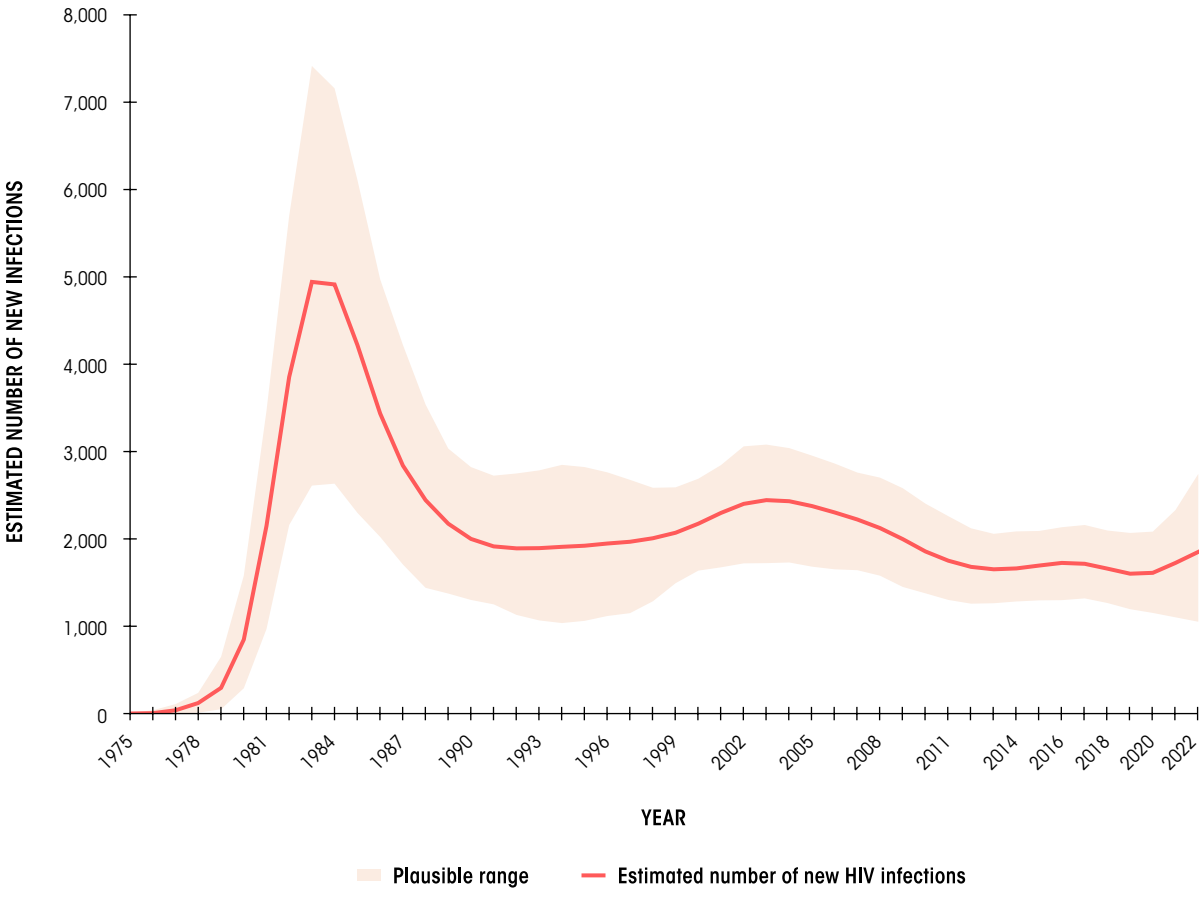
Shining Mountains Metis event where Elders, Knowledge Keepers and youth came together to learn about STBBI. *Red Deer, Alberta*

HIV incidence – Estimated number of new HIV infections in Canada

An estimated 1,848 new infections occurred in Canada in 2022 (plausible range: 1,050-2,740) (Figure 2). This estimate is a 15% increase from the 2020 estimate (1,610 infections). The incidence rate in 2022 was an estimated 4.7 per 100,000 people for the overall Canadian population (plausible range: 2.7 and 7.0 per 100,000 people). This is a slight increase from the 2020 estimate, which was 4.2 per 100,000 people (plausible range: 3.0-5.5 per 100,000 people). In 2022, among females the estimated incidence rate was 3.3 per 100,000 people, and among males the rate was 6.1 per 100,000 people.

FIGURE 2

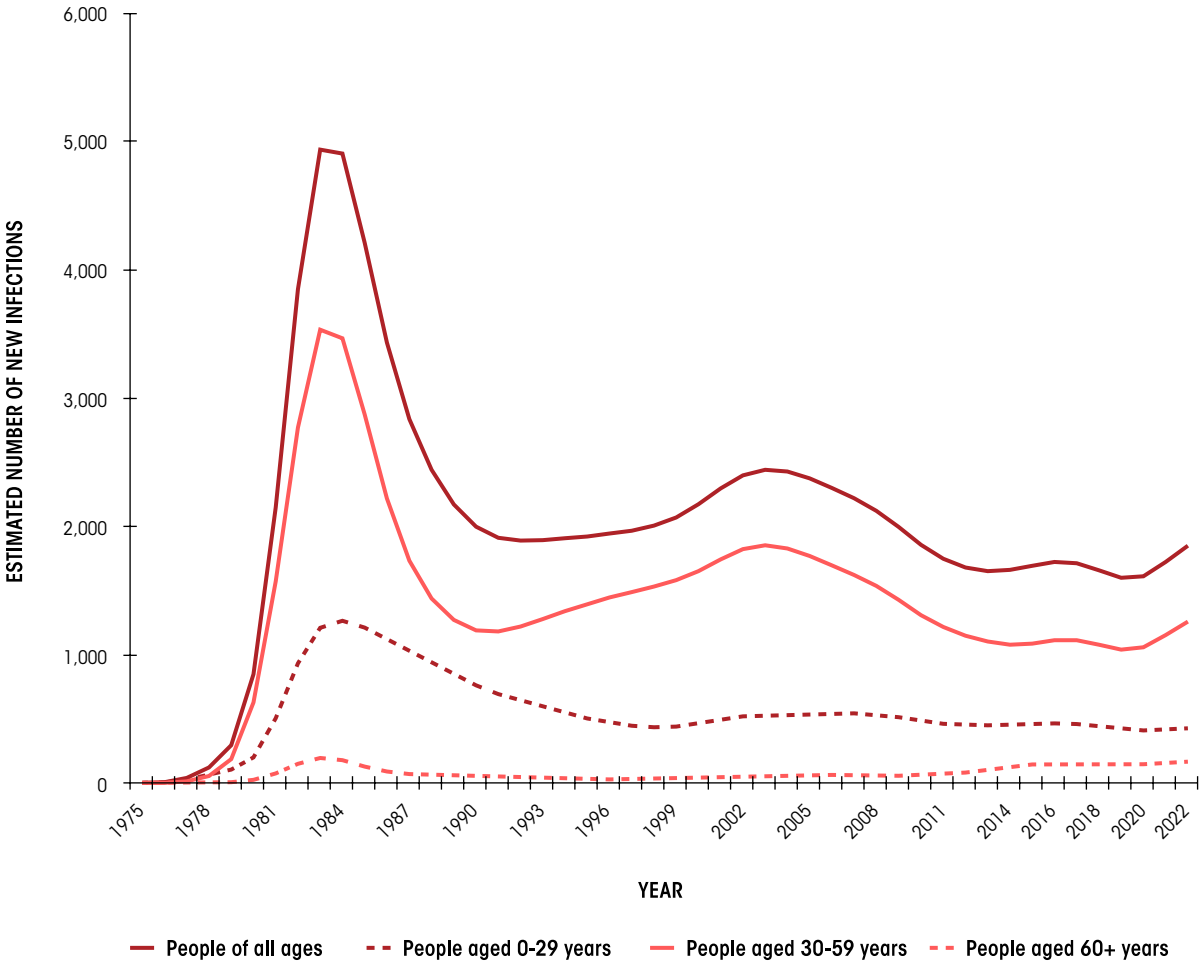
Estimated annual number of new HIV infections (incidence), Canada, 1975-2022 (including plausible ranges)



The annual number of new HIV infections was also estimated by age group (0-29 years, 30-59 years, and 60 years and over). The incidence curve for people aged 30-59 years closely follows overall incidence trend with increases in the mid-1980s and early 2000s (Figure 3). Estimated new infections among those aged 0-29 years increased in the beginning of the epidemic, reached a peak in the mid-1980s, and stabilized after the 1990s. Estimated incidence among people aged 60 years and over has remained relatively low, reaching the highest annual number in the mid-1980s, stabilizing in the late 1980s, and increasing slightly in the past 10 years.

FIGURE 3

Estimated annual number of new infections (incidence) by age group, Canada, 1975 - 2022 (plausible ranges omitted)



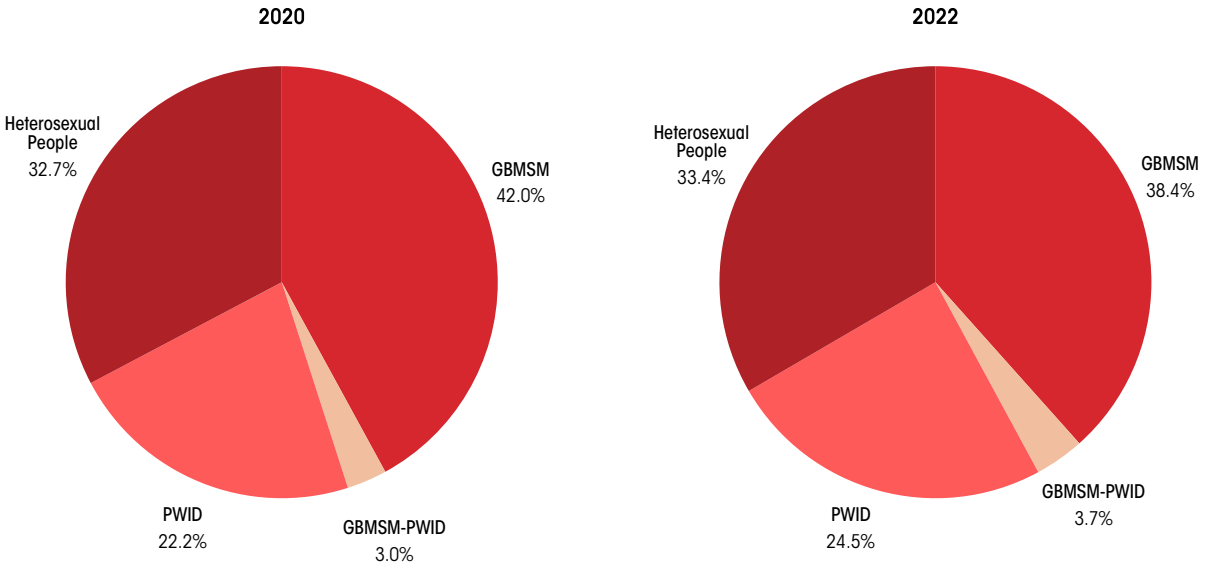
HIV incidence was also estimated within key population groups most affected by HIV in Canada. This includes GBMSM, people who inject drugs (PWID), GBMSM-PWID, and heterosexual people. Definitions for the key populations and type of exposure to HIV are included in Appendix 2.

Among new HIV infections in 2022, an estimated 709 were among GBMSM. This represents 38.4% of all new HIV infections in 2022 (Figure 4, Appendix 3), despite GBMSM representing 3.5% of males aged 15 years and older in Canada[17]. The GBMSM population continues to be over-represented in new HIV infections in Canada and the absolute number of new infections has increased since 2020. However, the proportion of new infections among this population has decreased compared to 2020 (42.0%). In 2022, the estimated HIV incidence rate among sexually active GBMSM who report having anal sex with a man in the past 6-12 months was 187 per 100,000 people.

In 2022, an estimated 453 new infections occurred among PWID, which represents 24.5% of new HIV infections in Canada. The incidence rate among people who have injected drugs within the past 12 months was 494 per 100,000 people in 2022 (plausible range: 272 to 741 per 100,000 people[a]). This is an increase compared to 2020 (22.2% of new infections and rate of 388 per 100,000 people). Calculating an incidence rate among heterosexual people was not possible since a population size estimate (denominator) is not available.

FIGURE 4

Proportion of new HIV infections by key population, Canada, 2020 (n = 1,610) and 2022 (n = 1,848)



[a] National estimated population size (revised and unpublished) of people who have injected drugs in the past 12 months in 2021 (100,300)

Geographical breakdown

The provinces with the highest estimated number of new infections in 2022 were Quebec (522), Ontario (475), and Saskatchewan (283). There is heterogeneity among provinces/territories regarding representation of new infections by key population (Table 2).
The incidence rate of HIV varies across jurisdiction with the highest being Saskatchewan (24 per 100,000 people), Manitoba (19 per 100,000 people) and Quebec (6 per 100,000 people).

TABLE 2

Estimated number of new HIV infections and associated plausible ranges, by key population and province or region, Canada, 2022

Province / Region	Measure	Key Population				
		GBMSM	GBMSM-PWID	PWID	Heterosexual people	Total
British Columbia	Point Estimate [n]	57	4	15	23	99
	Range [n]	25-100	<10	5-30	10-40	40-170
	Percentage [%]	57.6	4.0	15.2	23.2	100
Alberta	Point Estimate [n]	46	9	34	71	160
	Range [n]	20-70	<20	15-50	30-110	90-240
	Percentage [%]	28.8	5.6	21.3	44.4	100
Saskatchewan	Point Estimate [n]	12	4	141	126	283
	Range [n]	5-25	<10	80-210	70-190	170-410
	Percentage [%]	4.2	1.4	49.8	44.5	100
Manitoba	Point Estimate [n]	16	13	185	53	267
	Range [n]	5-30	5-25	100-270	30-80	160-380
	Percentage [%]	6.0	4.9	69.3	19.9	100
Ontario	Point Estimate [n]	260	20	44	151	475
	Range [n]	130-400	10-30	20-65	75-230	240-700
	Percentage [%]	54.7	4.2	9.3	31.8	100
Quebec	Point Estimate [n]	293	17	24	188	522
	Range [n]	180-430	10-30	10-35	110-270	350-750
	Percentage [%]	56.1	3.3	4.6	36.0	100
Atlantic	Point Estimate [n]	24	1	10	5	40
	Range [n]	10-40	<5	5-25	<20	20-70
	Percentage [%]	60.0	2.5	25.0	12.5	100
Territories	Point Estimate [n]	Number not reported to reduce possibility of identifying individuals				2
	Range [n]					<10
	Percentage [%]					100
Canada	Point Estimate [n]	709	68	453	618	1848
	Range [n]	400-1,060	40-100	250-680	350-930	1050-2,740
	Percentage [%]	38.4	3.7	24.5	33.4	100

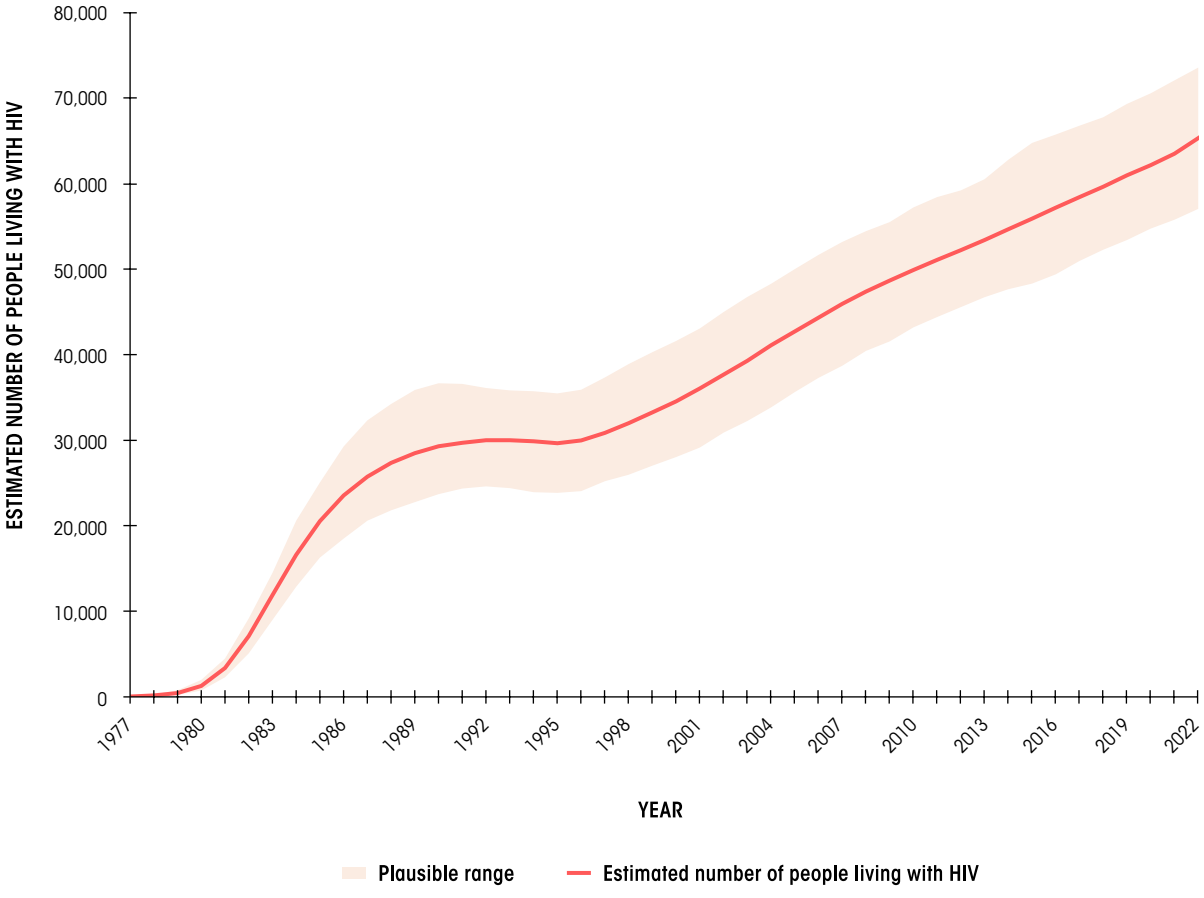
HIV prevalence – Estimated number of people living with HIV in Canada

An estimated 65,270 people were living with HIV at the end of 2022 (plausible range: 57,000-73,500) (Figure 5). This represents a 5.1% increase from the 2020 estimate (62,110 people). Of the estimated 65,270 PLHIV, 50.8% were GBMSM, 13.1% were PWID and 32.3% were heterosexual people. Males represented 74% of PLHIV, whereas females represented 25% (Appendix 3).

In 2022, the estimated HIV prevalence in Canada was 0.17% (plausible range: 0.1% and 0.2%). HIV prevalence among men was 0.25% and 0.08% among women. Estimated prevalence among GBMSM was 5.0% (plausible range: 4.3%-5.6%), 2.2% (plausible range: 1.9%-2.5%) among PWID and 0.9% among people who were incarcerated in federal prisons (data from Correctional Service of Canada).

FIGURE 5

Estimated number of PLHIV (prevalence), Canada, 1977-2022



Geographical breakdown

The provinces with the highest estimated number of PLHIV at the end of 2022 were Ontario (23,172), Quebec (19,101) and British Columbia (9,364). This is expected given these are the three most populous provinces in Canada. The proportion of PLHIV by key population varies across jurisdictions (Table 3).

TABLE 3

Estimated number of PLHIV (prevalence) and associated plausible ranges, by key population and province or region, Canada, 2022

Province / Region	Measure	Key Population					
		GBMSM	GBMSM - PWID	PWID	Heterosexual people	Other	Total
British Columbia	Point Estimate [n]	5,275	230	1,310	2,424	125	9,364
	Range [n]	4,600-6,000	200-260	1,100-1,500	2,100-2,800	100-150	8,200-10,600
	Percentage [%]	56.3	2.5	14.0	25.9	1.3	100
Alberta	Point Estimate [n]	2,035	205	884	2,375	35	5,534
	Range [n]	1,700-2,400	120-290	650-1150	2,100-2,700	20-60	4,800-6,200
	Percentage [%]	36.8	3.7	16.0	42.9	0.6	100
Saskatchewan	Point Estimate [n]	223	72	2,383	991	85	3,754
	Range [n]	190-260	50-100	2,000-2,800	860-1150	60-110	3,200-4,300
	Percentage [%]	5.9	1.9	63.5	26.4	2.3	100
Manitoba	Point Estimate [n]	547	78	712	1,300	25	2,662
	Range [n]	460-640	60-100	600-830	1,100-1,500	10-50	2,300-3,100
	Percentage [%]	20.5	2.9	26.7	48.8	0.9	100
Ontario	Point Estimate [n]	13,649	771	2,007	6,625	120	23,172
	Range [n]	11,800-15,500	670-880	1,750-2,300	5,700-7,600	90-150	20,000-26,400
	Percentage [%]	58.9	3.3	8.7	28.6	0.5	100
Quebec	Point Estimate [n]	10,535	455	1,111	6,850	150	19,101
	Range [n]	9,200-11,900	390-520	950-1,300	6,000-7,700	120-180	16,600-21,600
	Percentage [%]	55.2	2.4	5.8	35.9	0.8	100
Atlantic	Point Estimate [n]	897	29	143	498	34	1,601
	Range [n]	760-1,050	10-50	110-180	420-580	15-60	1,400-1,800
	Percentage [%]	56.0	1.8	8.9	31.1	2.1	100
Territories	Point Estimate [n]	Number not reported to reduce possibility of identifying individuals					82
	Range [n]						50-120
	Percentage [%]						100
Canada	Point Estimate [n]	33,183	1,843	8,573	21,095	576	65,270
	Range [n]	29,000-37,400	1,500-2,200	7,400-9,800	18,300-23,900	450-700	57,000-73,500
	Percentage [%]	50.8	2.8	13.1	32.3	0.9	100

Mortality among PLHIV

According to Statistics Canada, deaths in Canada are registered in two parts: first, the medical certificate of cause of death is completed by a certifier (usually a physician or a nurse); second, a death registration form is completed by the provincial or territorial registrar. Every province and territory have a different death registration form, however a standard medical certificate of cause of death recommended internationally by the World Health Organization is used across all jurisdictions. The medical certificate of cause of death form contains the immediate cause of death, the antecedent causes of death including the underlying cause, as well as other significant conditions contributing to the death. The underlying cause of death is defined by the WHO as the disease or injury that initiated the chain of events leading directly to death or the circumstances of the accident or violence that produced the fatal injury[18].

In most official statistics and research, only the underlying cause of death is considered, despite less than 20% of deaths having only a single reported cause[16]. Multiple cause death data provide information on other diseases listed on the death certificate, on associations among diseases/comorbidities, and on injuries reported when deaths result from an external cause. Although multiple cause death data improve accuracy of reporting on mortality related to HIV/AIDS, it is not a complete picture of all PLHIV who have died either because of HIV/AIDS or other causes, due to under-reporting or reporting delay. For the purposes of these estimates, other sources of data are used to more closely approximate all-cause mortality among all PLHIV. The Public Health Agency of Canada works with each jurisdiction to estimate all-cause mortality among PLHIV. This is a necessary step in estimating the number of people currently living with HIV in Canada.

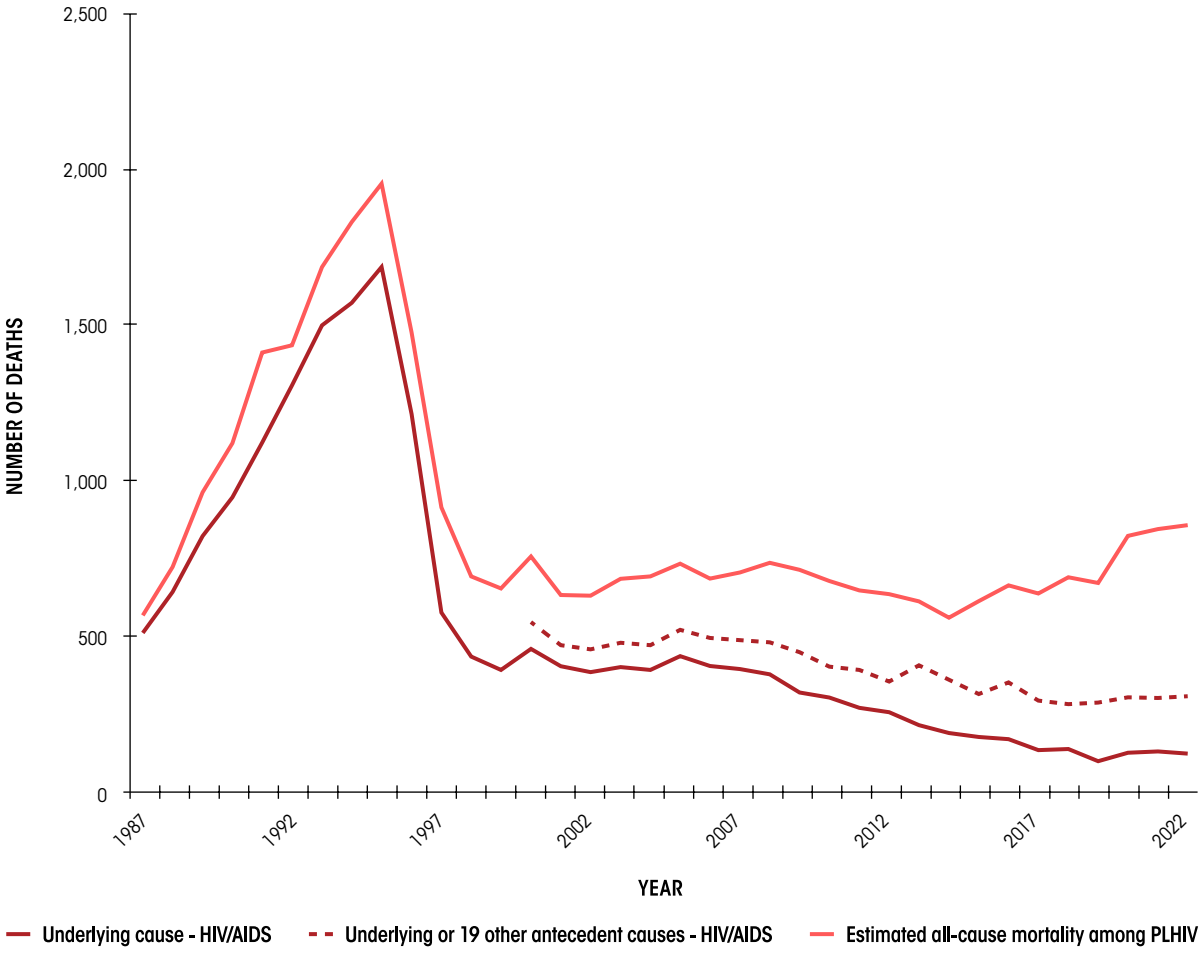
Figure 6 shows a comparison of three different measures of mortality related to HIV in Canada. First, it shows the number of deaths where HIV/AIDS was listed as the underlying cause of death, as reported by Statistics Canada. Second, it shows the number of deaths where HIV/AIDS was listed either as the underlying cause or as one of the 19 antecedent causes of death, also based on data from Statistics Canada. Finally, the figure shows an estimated number of all-cause mortality among PLHIV, adjusting for under-reporting and reporting delays.

In 2022, the number of deaths where HIV/AIDS was listed as either the underlying cause or one of the 19 antecedent causes of death (n = 309), is higher than the number of deaths where HIV/AIDS was the listed as only the underlying cause (n = 126). Expectedly, the estimated total number of deaths among PLHIV in Canada, which accounts for under-reporting and reporting delay, was highest at 855.

In the late 1980s and early 1990s, many PLHIV died from their HIV infection (i.e. HIV was the underlying cause of death). Therefore the vital statistics data on underlying cause of death closely approximated the estimated all-cause mortality among PLHIV, with deaths with the underlying cause listed as HIV/AIDS making up 85-90% of the estimated all-cause mortality. However, after the introduction ART for HIV in the mid 1990s, deaths with HIV/AIDS listed as the underlying cause decreased significantly. Between the late 1990s and early 2000s, deaths with the underlying cause listed as HIV/AIDS made up approximately 60% of the estimated all-cause mortality among PLHIV. In recent years, this decreased to approximately 15%, highlighting the effectiveness of treatment and the importance of comorbidities as competing risks as PLHIV age[19].

FIGURE 6

Number of deaths with HIV/AIDS as the underlying cause, HIV/AIDS as the underlying or one of the 19 antecedent causes, estimated all-cause mortality among PLHIV, Canada, 1987 to 2022*



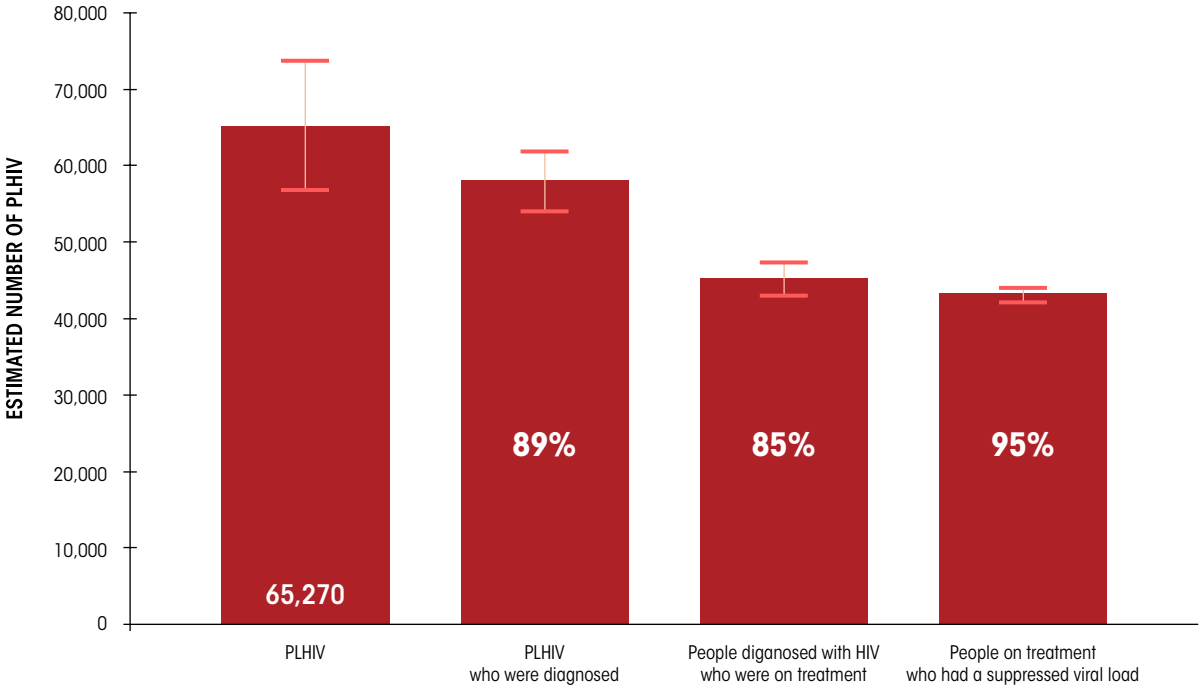
**Statistics Canada has documented up to 20 causes of death since 2000.*

Canada's progress toward meeting the 95-95-95 HIV targets

In Canada at the end of 2022, an estimated 65,270 people were living with HIV (plausible range: 57,000–73,500). Among those living with HIV, an estimated 89% (plausible range: 83%-95%) were diagnosed. Of those diagnosed, 85% were estimated to be on treatment (plausible range: 81%-89%) and an estimated 95% of people on treatment had a suppressed viral load (plausible range: 93%-97%) (Figure 7 and Table 4).

FIGURE 7

Estimated number of PLHIV, and percentage of those diagnosed, on treatment, and virally suppressed, Canada, 2022 (vertical lines represent plausible ranges)



Treatment and viral suppression data were not available from four jurisdictions. To account for these missing data, these four jurisdictions were removed from the denominator in the calculation of the national 2nd and 3rd 95 targets.

TABLE 4

Estimated number and percentage of PLHIV, diagnosed, on treatment, and virally suppressed with plausible ranges, Canada, 2022

Measure	People living with HIV	People living with HIV who were diagnosed	People diagnosed with HIV who were on treatment*	People on treatment who had suppressed viral load*
Estimated Percentage [%]	n/a	89	85	95
Plausible Range [%]	n/a	83-95	81-89	93-97
Estimated Number [n]	65,270	58,220	45,330	43,240
Plausible Range [n]	57,000-73,500	54,170-62,010	42,980-47,220	42,160-43,970

** Treatment and viral suppression data were not available from four jurisdictions. To account for these missing data, these four jurisdictions were removed from the denominator in the calculation of the national 2nd and 3rd 95 targets.*

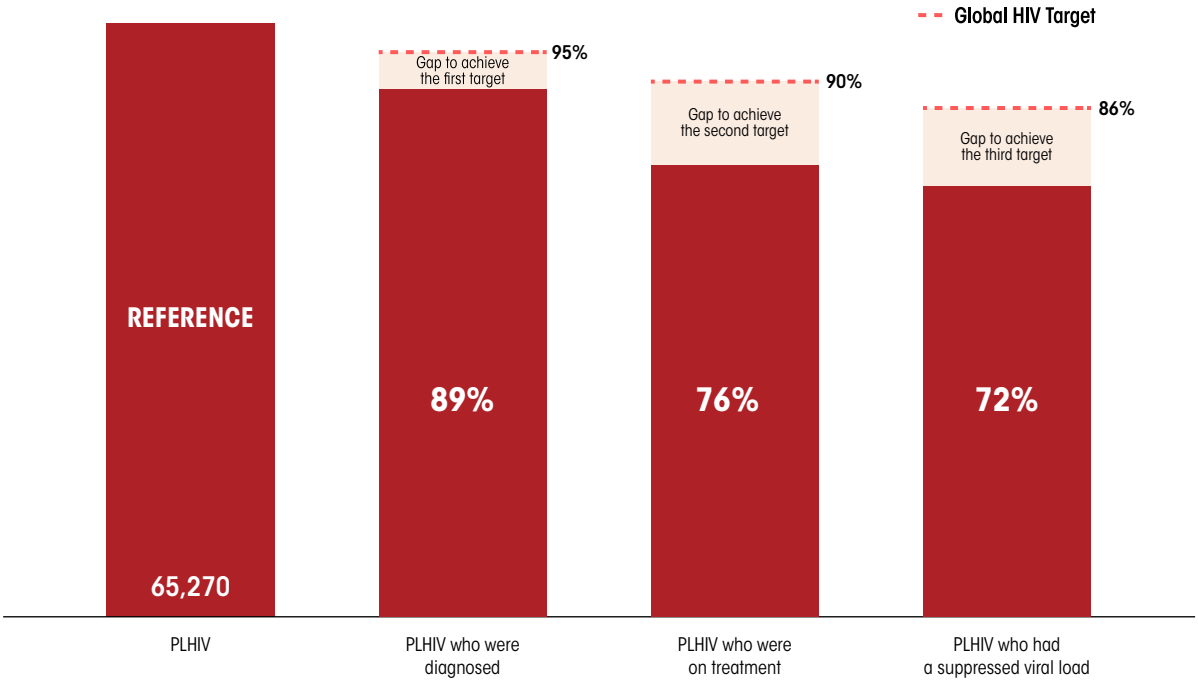
Canada's progress towards achieving the 95-95-95 targets has stalled since 2020. Using current methods and updated data to revise the 2020 estimates, it was estimated that in 2020, 89% (plausible range: 83%-95%) of all PLHIV knew their status, 87% (plausible range: 83%-91%) of those diagnosed were on antiretroviral treatment, and 95% (plausible range: 93%-97%) of those on treatment had a suppressed viral load.

The 95-95-95 targets and the HIV care continuum are two ways of looking at the same data. When we report on the progress towards the 95-95-95 targets, the denominator for each of the 95 targets is different (described in Table 1). The first 95 numerical value is the denominator for the second 95, and the second 95 numerical value is the denominator for the third 95. If we look at the data differently, across the HIV care continuum, the denominator for each step remains the same - all PLHIV. In this approach, when all three 95-95-95 targets are achieved, 90% of all PLHIV will be on ART (95%x95%), and 86% of all PLHIV will be virally suppressed (86%x95%)[4].

Using the care continuum measurement approach, 72% of PLHIV in Canada in 2022 were estimated to have a suppressed viral load; these people would be expected to derive personal health benefits and would not pass on infection sexually, decreasing further HIV transmission, as long as they are virally suppressed (Figure 8).

FIGURE 8

Canada's HIV care continuum, and gaps to meet global elimination targets, 2022

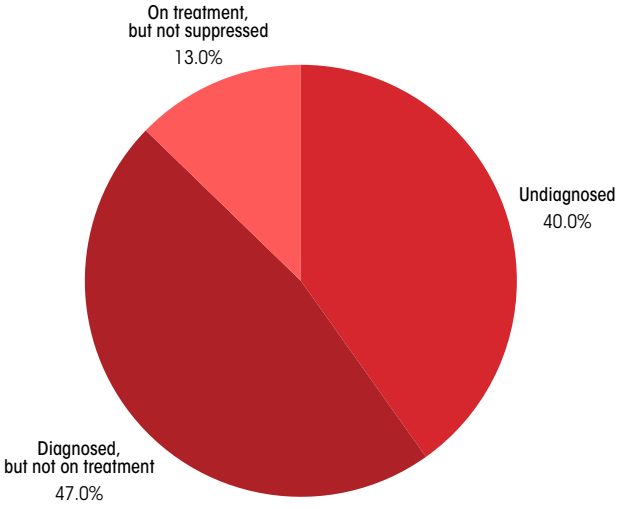


Treatment and viral suppression data were not available from four jurisdictions. To account for these missing data, these four jurisdictions were removed from the denominator.

By using data to better understand who has been missed throughout the care continuum, community and public health programs can be adjusted to improve their reach to PLHIV, then increase the number of people who achieve and maintain viral suppression.

FIGURE 9

People not engaged or represented in the HIV care continuum, 9 jurisdictions in Canada, 2022



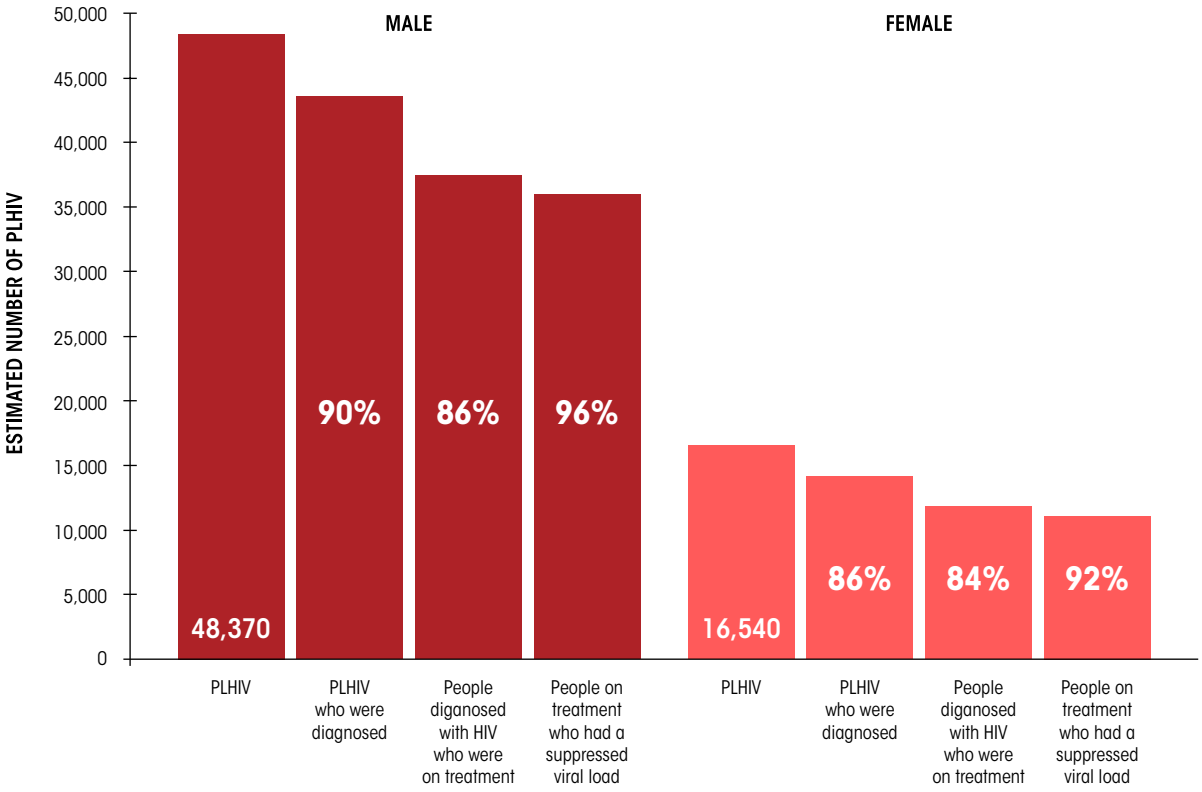
Identifying gaps along the HIV care continuum can help make necessary course corrections to improve prevention and care programs where needed most in Canada. In the nine jurisdictions in Canada where data were available, 16,413 people were not engaged in HIV care continuum (Figure 9). The most significant gaps were among those who were diagnosed but not on treatment (7,729; 47.1%), followed by those who were undiagnosed (6,590; 40.2%), suggesting a need for interventions targeting linkage and retention in care as well as testing, respectively. An estimated 2,092 (12.7%) of people were on treatment, but did not have a suppressed viral load. Individuals missed along the HIV care continuum present an important opportunity to assure better individual health outcomes and to reduce community transmission of HIV.

95-95-95 estimates by sex

In a continued effort to measure progress towards global HIV targets for epidemiologically relevant groups in Canada, the Agency estimates the number of PLHIV by sex, defined as sex assigned at birth, and reports on Canada's progress towards the 95-95-95 targets by sex and by province or region. In Canada at the end of 2022, among the estimated 65,270 PLHIV, 48,370 were males (74.1%), and 16,540 were females (25.3%). Among males living with HIV, an estimated 90% were diagnosed. Among those diagnosed 86% were estimated to be on treatment, and an estimated 96% of those on treatment had a suppressed viral load (Figure 10 and Table 5). Compared to males living with HIV in Canada, females appear to have had lower awareness of infection, as well as treatment and viral suppression levels. Among females living with HIV, an estimated 86% were diagnosed. Of those diagnosed, 84% were estimated to be on treatment, and an estimated 92% of those on treatment had a suppressed viral load (Figure 9 and Table 5).

FIGURE 10

Estimated number and percentage of PLHIV, diagnosed, on treatment, and virally suppressed, males and females, Canada, 2022



Treatment and viral suppression data were not available from four jurisdictions. To account for these missing data, these four jurisdictions were removed from the denominator in the calculation of the national 2nd and 3rd 95 targets.

TABLE 5

Estimated number and percentage of PLHIV, diagnosed, on treatment, and virally suppressed with plausible ranges, males and females, Canada, 2022

Measure	People living with HIV		People living with HIV who were diagnosed		People diagnosed with HIV who were on treatment*		People on treatment who had suppressed viral load*	
	Male	Female	Male	Female	Male	Female	Male	Female
Estimated Percentage [%]	n/a	n/a	90	86	86	84	96	92
Plausible Range [%]	n/a	n/a	84-96	80-92	82-90	80-88	94-98	90-94
Estimated Number [n]	48,370	16,540	43,620	14,250	34,420	10,580	33,150	9,760
Plausible Range [n]	42,000 - 54,800	14,400 - 18,800	39,660 - 46,440	13,230 - 15,550	32,870 - 36,070	10,100 - 11,110	32,350 - 33,730	9,520 - 9,950

** Treatment and viral suppression data were not available from four jurisdictions. To account for these missing data, these four jurisdictions were removed from the denominator in the calculation of the national 2nd and 3rd 95 targets.*

It is estimated that 11,414 males and 4,970 females in the 9 jurisdictions in Canada were not engaged or represented in the continuum of care. For both males and females, the most significant gaps were among those who were diagnosed, but not on treatment (50% for males, and 41% for females), followed by those who were undiagnosed (39% for males and 36% for females).

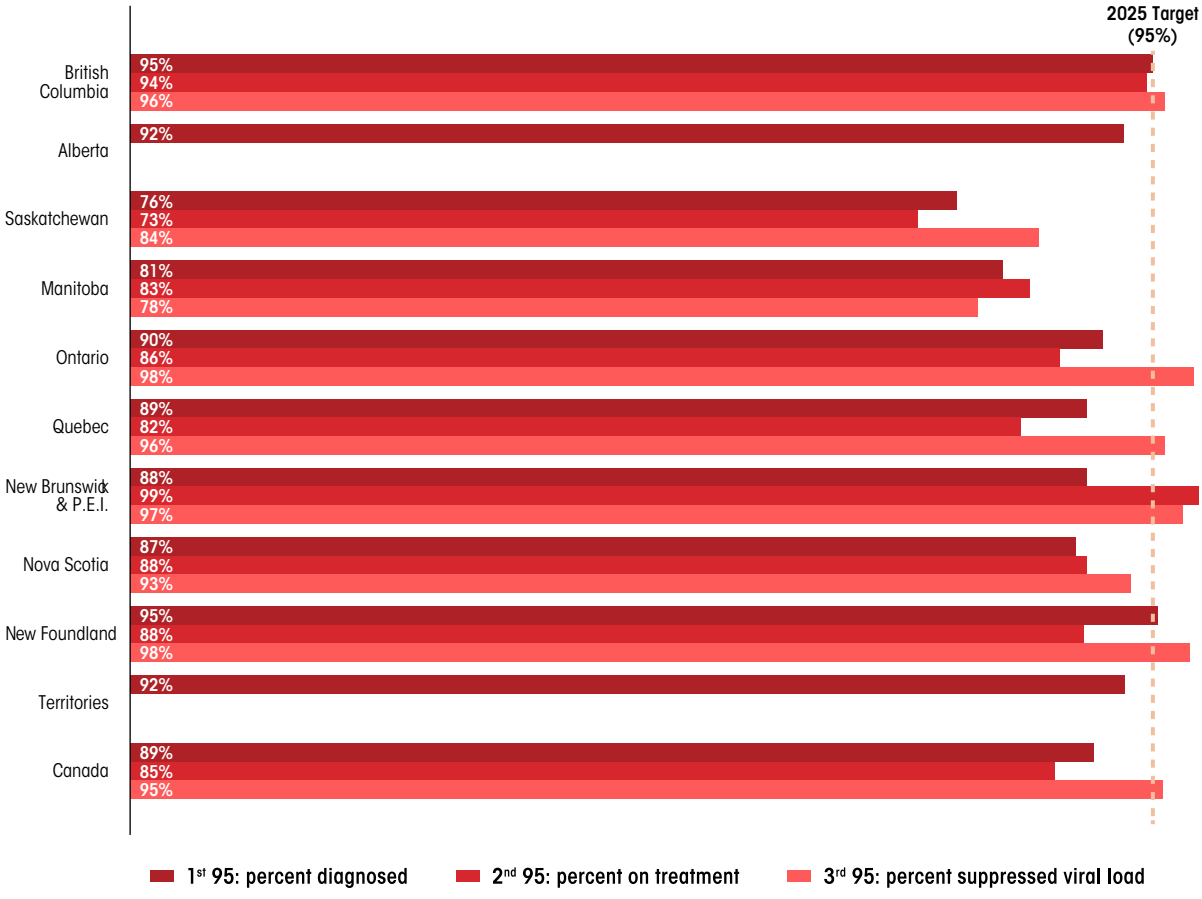
95-95-95 estimates by geography

Routinely assessing not only country-level, but also regional progress towards HIV targets is critical to determining progress. Progress towards the 95-95-95 global targets, across provinces and territories in Canada is presented below. Some jurisdictions have been grouped together because delivery of HIV treatment and care is conducted jointly between two provinces, or because the data are too small to be presented separately.

Two jurisdictions have met the first 95 target, with ≥95% of PLHIV in their region being diagnosed. Most of the other jurisdictions still have progress to make to meet the first 95 target (Figure 11). The proportion of people diagnosed with HIV who were on treatment ranged from 73% to 99%, with one jurisdiction meeting the second 95 target. Five of the jurisdictions met the 3rd 95 target for viral suppression (Figure 11).

FIGURE 11

Estimated number and percentage of PLHIV, diagnosed, on treatment, and virally suppressed, by province or region, at the end of 2022[b]



[b] *Data related to treatment and viral suppression were not provided by four jurisdictions*

95-95-95 estimates among key populations

HIV disproportionately affects certain populations and communities, and progress towards the 95-95-95 targets vary across key populations. Table 6 shows the most recent 95-95-95 estimates among key populations. Updated data for 2022 were provided for people incarcerated in federal correctional facilities, and people living in First Nations communities in Saskatchewan. Data for all other key populations are from previously published reports.

TABLE 6

HIV care continuum targets among key populations, data from 2017-2022

Population	Year of estimate	PLHIV who were diagnosed	PLHIV who were aware of their HIV-positive status	People aware of their HIV-positive status who were on treatment	People on treatment who had a suppressed viral load
People incarcerated in federal correctional facilities (Personal Communication, Correctional Service Canada, June 2024)	2022	n/a	80%[c]	98%	84%
People living in First Nations communities in Saskatchewan[20]	2022	n not presented	n/a	88%	69%
First Nations Peoples in Saskatchewan and Alberta[21]	2018-2020	25	64%	81%	54%
Gay, bisexual and other men who have sex with men (GBMSM) in three urban centres[22, 23, 24, 25, 26]	2017-2019	421	98%	96%	94%
People who inject drugs (PWID)[12]	2017-2019	222	83%	88%	63%
African, Caribbean and Black Community in Ontario[27]	2018	n/a	n/a	83-85%	96-97%

[c] *A person is considered to be aware of their status if they were tested for HIV prior to incarceration, accepted voluntary testing on admission, or were referred for, or requested HIV testing during incarceration. This measure is used to proxy the first 95 indicator for federal correctional facilities, based on currently available data.*

HIV prevention and stigma

HIV prevention is an essential component of the global health strategy to eliminate the HIV epidemic[3]. Combination HIV prevention strategies include structural, biomedical, and behavioural interventions to prevent HIV transmission[28]. In this report, prevention measures focus on data related to HIV vertical transmission, HIV-PrEP and HIV-PEP, two biomedical strategies used in Canada to reduce HIV transmission[28].

Although innovations in HIV prevention, testing and treatment have generally led to better individual and population health outcomes among Canadians[1], stigma and discrimination experienced by PLHIV continue to be pervasive issues that undermine HIV elimination efforts. HIV-related stigma and discrimination can include experiences of avoidance, social rejection, verbal and physical abuse, denial of health or social services, and loss of employment and education, among many others[29]. These experiences can have adverse impacts at each stage of the HIV care cascade, as they can impede an individual's access to HIV services, adherence to treatment and retention in care[29].

> **"I want to be heard; I want them to hear my voice. And I want to be a part of my health care. I deserve to actually be a part of it, because it's about me[30]**

Vertical transmission of HIV in Canada

In 2022, 239 infants were perinatally exposed to HIV and there were six new perinatal HIV infections in children born in Canada. The proportion of women and other pregnant PLHIV who received antiretroviral therapy (ART) during pregnancy in 2022 was 96%. In 2022, of the six infants experiencing perinatal HIV transmission, three were born to mothers who received some or partial ART. Two of the infants were born to mothers who did not receive any ART, and one was born to a mother where use of ART could not be confirmed. Additional data are included in the annual HIV surveillance report[31].

HIV-PrEP and HIV-PEP

HIV-PREP

HIV-PrEP involves antiretroviral medication that is taken either on-demand or continuously before HIV exposure[32]. The use of HIV-PrEP in Canada is increasing each year. The annual prevalence of HIV-PrEP use was 43 per 100,000 people in 2018 and increased to 89 per 100,000 people in 2022. Annual estimated HIV-PrEP use prevalence varies across the country (Table 7).

TABLE 7

Annual estimated HIV-PrEP use prevalence (per 100,000 people), by province, 2014-2022

Province	2014	2015	2016	2017	2018	2019	2020	2021	2022
Manitoba	1	1	1	3	7	15	14	16	30
New Brunswick	0	0	9	13	18	23	22	26	32
Newfoundland	0	0	1	2	8	17	19	23	26
Nova Scotia	0	0	9	18	27	39	44	37	48
Ontario	2	4	11	22	45	64	69	82	97
Prince Edward Island	0	0	0	3	42	30	38	56	64
Quebec	3	9	17	28	39	50	55	62	75
Saskatchewan	0	0	1	4	29	65	69	67	69
British Columbia	n/a	n/a	n/a	n/a	64	95	97	109	132
Overall HIV-PrEP use prevalence [9 provinces 2019 – 2022]	2*	5*	11*	21*	43	61	64	74	89

Note: HIV-PrEP IQVIA data unavailable for Alberta and the Territories.
** 8 provinces included in overall rate.*

In 2022:

- 98% of HIV-PrEP was used by males and 2% by females.
- HIV-PrEP use was highest in those aged 30–39 years.
- 54% of HIV-PrEP prescriptions were paid for by private insurance, 43% by public insurance, 1% out of pocket and 1% by combined private and public insurance.
- 47% of HIV-PrEP prescriptions were provided by primary care physicians, 16% by physician specialists and 37% by other practitioners (e.g. physician specialty unknown, nurse practitioners).

HIV-PEP

HIV-PEP involves the use of antiretroviral medications taken for 28 days immediately following a potential high-risk HIV exposure[32]. The annual prevalence of HIV-PEP use was 29 per 100,000 people in 2018 and increased to 41 per 100,000 people in 2022 (Table 8).

TABLE 8

Annual estimated HIV-PEP use prevalence (per 100,000 people), by province, 2018-2022

Province	2018	2019	2020	2021	2022
Manitoba	20	45	43	53	67
New Brunswick	14	12	16	13	15
Newfoundland	6	9	15	12	12
Nova Scotia	27	22	35	31	30
Ontario	20	26	29	24	24
Prince Edward Island	0	27	2	21	27
Quebec	46	55	47	58	63
Saskatchewan	51	74	75	85	94
Overall HIV-PEP use prevalence	29	37	32	38	41

In 2022:

- 62% of HIV-PEP was used by males, and 38% by females.
- HIV-PEP use was highest in those aged 30–39 and 20–29 years (88 and 86 per 100,000 people respectively)
- 44% of HIV-PEP prescriptions were paid for by private insurance, 41% by public insurance, and 15% were paid for out of pocket.
- 54% of HIV-PEP prescriptions were provided by primary care physicians, 19% by physician specialists and 27% by other practitioners (e.g. physician specialty unknown, nurse practitioners).

HIV-related stigma

Data from the tracks biobehavioural surveys among key populations showed that:

- Among participants from the Tracks survey of PWID (Phase 4, 2017-2019) who were aware of their HIV-positive status, 45.3% reported they avoided HIV services in the past 12 months because of stigma and discrimination[12]. Tracks survey implemented by First Nations in Saskatchewan and Alberta (2018-2020) asked the same question, however results were not published due to a small number of responses.
- Among Canadian participants from the European Men-who-have-sex-with-men Internet Survey (EMIS-2017)[13]: 1.5% had experienced physical abuse, including being punched, kicked, beaten or hit; 22.1% had experienced verbal abuse, including insults; and 31.9% had experienced intimidation, including being stared at or intimidated - because someone knew or presumed they were attracted to men.

Data from the OHTN Cohort Study[14] showed that:

- 91.5% of participants indicated that they had experienced any type of stigma.
  - Disclosure concerns were most commonly reported at 83.9%, followed by concerns about public attitude (65.9%), self-image (43.5%) and personalized stigma (36.8%).
  - Of these participants who experienced any type of stigma, 11% also reported having experienced discrimination within the healthcare system.
- Among priority populations receiving HIV treatment, stigma experiences were highest in the African, Caribbean and Black (ACB) population (96.5%), followed by women (95.6%) and GBMSM (90.5%).

The STOP HIV/AIDS Program Evaluation (SHAPE) examined the association between the year of an individual's HIV diagnosis and HIV-related stigma scores. Researchers found that there was no difference in experiences of HIV-related stigma among those with recent diagnoses, compared to those diagnosed early in the AIDS epidemic[15].

> **"The MIELS-QC counsellor helped a member to change doctors because of the stigma they had been subjected to by the last one. They are an HIV-positive GBMSM person who contracted chlamydia. Their family doctor had a judgemental attitude towards them and their sexual practices, rather than a welcoming one, since they were already living with HIV. The counsellor helped this person take the necessary steps to change doctors and supported them in finding a health professional that would be accepting and has a prevention approach rather than a stigmatizing one. As a result, this person was able to obtain the treatment they needed, without feeling judged.**

Discussion

The national HIV estimates report for 2022 provides updated insight into the trends of HIV in Canada. In 2022, an estimated 1,848 new infections occurred in Canada and HIV incidence has been increasing since 2014. At the end of 2022, an estimated 65,270 people were living with HIV in Canada. HIV treatment has reduced HIV-related mortality, and new infections are occurring at a rate greater than the number of deaths, resulting in an increase in the overall number of PLHIV in Canada. This trend will likely continue to increase and result in an increased demand for HIV-related care and treatment.

Among the 65,270 PLHIV in Canada, an estimated 89% were diagnosed, 85% of those diagnosed were on treatment, and 95% of those on treatment were virally suppressed. Canada's path towards elimination of HIV as a public health concern by 2030 has stalled. While Canada continues to succeed with respect to people having a suppressed viral load once on treatment (3rd 95), it falls short on the diagnostic (1st 95) and treatment (2nd 95) targets for 2025. These data highlight the need for a stronger and more inclusive response to effective HIV services to reduce the ongoing transmission of HIV infection.

Canada's stalled progress on meeting the 95-95-95 HIV targets may be the result of several interrelated and complex factors. This includes the COVID-19 pandemic and the subsequent reduction in access to HIV prevention, testing and treatment services[33]. Intersecting health challenges such as socio-economic complexities, geographical location, health status, misinformation about HIV and HIV-related stigma can result in barriers to accessing HIV care and adherence to treatment. Although innovations in HIV prevention, testing and treatment have led to better individual and population health outcomes among Canadians, stigma and discrimination experienced by PLHIV continue to be pervasive issues that threaten to undermine HIV elimination efforts. As a part of the Pan-Canadian STBBI Framework for Action, Canada has set a strategic goal of reducing stigma and discrimination that create vulnerabilities to STBBI[1]. A multi-disciplinary and collaborative approach where HIV programs are integrated and linked to care is required for HIV prevention and treatment services to be available for all Canadians that need it. Identifying and removing barriers so that Canadians have equitable access will require systematic change within the healthcare system. This will require the collaboration of many key partners, including PLHIV, key populations, governments, communities, academia, researchers, and health-care providers[1].

Despite current efforts, Canada has not seen a decrease in new HIV infections in recent years and further work is needed to meet the global 95-95-95 targets. The agency will continue to work closely with provinces and territories to improve the ability to measure and assess progress towards ending the HIV epidemic[6]. These estimates will be used to measure Canada's progress in meeting the priorities set out in the Government of Canada five-year STBBI action plan, with the goal of accelerating prevention, diagnosis and treatment to reduce the health impacts of STBBI by 2030.

Participants at the Dr. Peter Centre. *Vancouver, British Columbia*

Appendix 1. Additional detail related to Canada's modelling method

REFERENCE

Yan, Ping; Zhang, Fan; and Wand, Handan (2011). Using HIV Diagnostic Data to Estimate HIV Incidence: Method and Simulation. Statistical Communications in Infectious Diseases: Vol. 3: Iss. 1, Article 6.

The statistical modelling method that was used to estimate the number of new HIV infections in Canada is based on a back-calculation method that combines HIV and AIDS diagnostic data (from national routine HIV/AIDS surveillance) with data on the proportions of recent infections among newly diagnosed individuals (from specialized recent infection laboratory testing algorithms). The model estimates the time trend in the number of past HIV infections, up until the present time (2022 in this case) since surveillance data can only record the date of diagnosis and not the date of infection (which is some time before diagnosis). From this trend in past HIV infections, the model then projects forward to calculate the expected number of HIV diagnoses (using a mathematical formulation of the time between HIV infection and diagnosis based on the recent-infection algorithm data and model assumptions). The back-calculation method used for incidence estimation in Canada is similar to methods used in the European Union, the USA, and Australia. Once the time trend in past HIV infections has been estimated, cumulative HIV incidence is calculated by adding up the incidence estimates for all years up to and including the most recent year (2022 in this case). Prevalence for the most recent year is then calculated as the cumulative incidence minus estimated total mortality among HIV infected people. For this, total mortality needs to be estimated (using data from Statistics Canada, provincial/territorial vital statistics, national reports of AIDS deaths, and Canadian research studies) since vital statistics data only record mortality among people who died of HIV-related causes. Note that there are additional details not discussed here, such as accounting for HIV cases who had been previously diagnosed, who were likely infected in another province/territory or country, or who migrated out of the province/territory.

Appendix 2. Key population definitions

APPENDIX 2

Key populations used for the national estimates of HIV incidence and prevalence

Key population	Type of exposure
Gay, bisexual, and other men who have sex with men [GBMSM]	Exposure during male-to-male sexual contact
People who inject drugs [PWID]	Exposure during the use of injection drugs
GBMSM-PWID	Exposure during either male-to-male sex and/or the use of injection drugs (used in instances where both exposures were reported for one person)
Heterosexual people	Exposure during heterosexual sex
Other	People who were exposed during: receipt of transfusion of blood or clotting factor, perinatal exposure, or occupational exposure

In previous reports, the heterosexual category was separated into an "endemic" group (people born in a so-called HIV-endemic country, mainly sub-Saharan Africa, and the Caribbean) and a "nonendemic" group (born elsewhere). This separation is no longer considered appropriate, for reasons of increasing data incompleteness. The Public Health Agency of Canada is working with communities and with provinces and territories to find ways to better reflect the HIV situation in these communities.

Appendix 3. National HIV incidence and prevalence tables

APPENDIX 3 - HIV INCIDENCE

Estimated number of new HIV infections and associated plausible ranges in Canada in 2022 and 2020, by key population, and sex.

Measure	2022					2020				
	GBMSM	GBMSM - PWID	PWID	Heterosexual people	Other	GBMSM	GBMSM - PWID	PWID	Heterosexual people	Other
Point Estimate [n]	709	68	453	618	<5	677	49	357	527	<5
Range* [n]	400-1,060	40-100	250-680	350-930	0-10	470-890	30-70	240-480	360-700	0-10
Percentage [%]	38.4	3.7	24.5	33.4	<0.2	42.0	3.0	22.2	32.7	<0.2

Measure	2022			2020		
	Female	Male	Total	Female	Male	Total
Point Estimate [n]	656	1,192	1,848	553	1,057	1,610
Range* [n]	360-980	660-1,770	1,050-2,740	380-730	730-1,390	1,150-2,080
Percentage [%]	35.5	64.5	100.0	34.3	65.7	100.0

** Range estimates are rounded to the nearest ten.*

APPENDIX 3 - HIV PREVALENCE

Estimated number of PLHIV and associated plausible ranges in Canada at the end of 2022 and 2020, by key population, and sex.

Measure	2022					2020				
	GBMSM	GBMSM - PWID	PWID	Heterosexual people	Other	GBMSM	GBMSM - PWID	PWID	Heterosexual people	Other
Point Estimate [n]	33,183	1,843	8,573	21,095	576	31,571	1,766	8,235	19,957	581
Range* [n]	29,000-37,400	1,500-2,200	7,400-9,800	18,300-23,900	450-700	27,700-35,500	1,500-2,100	7,200-9,300	17,500-22,500	500-670
Percentage [%]	50.8	2.8	13.1	32.3	0.9	50.8	2.8	13.3	32.1	0.9

Measure	2022			2020		
	Female	Male	Total	Female	Male	Total
Point Estimate [n]	16,544	48,368	65,270	15,169	46,740	62,110
Range* [n]	14,400-18,800	42,000-54,800	57,000-73,500	12,300-17,500	41,100-53,100	54,700-70,500
Percentage [%]	25.3	74.1	100.0	24.4	75.3	100.0

** Range estimates are rounded to the nearest ten.*

Appendix 4. Canada's progress towards global HIV elimination targets, 2022

APPENDIX 4

Canada's progress towards HIV elimination targets outlined in the 2022-2030 Global Health Sector Strategy on STBBI

Indicator	2025 Target	2022 Estimate
Number of people newly infected with HIV per 1000 uninfected population per year	0.05/1,000 people 5/100,000 people	0.05/1,000 people 5/100,000 people
Number of children 0-14 years of age newly infected with HIV per year	Additional data needed	
Number of people dying from HIV/related causes per year	Global target only. Domestic target needed.	309
Percentage of people living with HIV who know their HIV status	95%	89%
Percentage of people who know their HIV-positive status are accessing antiretroviral therapy	95%	85%
Percentage of people receiving treatment, who have suppressed viral loads	95%	95%
Number of needles- or syringes distributed per person who injects drugs (as part of a comprehensive harm reduction programme)	200	Additional data needed
Stigma and discrimination - percentage of people living with HIV who experience stigma and discrimination	Less than 10%	Additional data needed
Late-stage disease – percentage of people starting antiretroviral therapy with a CD4 count of less than 200 cells/mm3 (or stage III or IV)	20%	Additional data needed

References

1 Public Health Agency of Canada. Reducing the health impact of sexually transmitted and blood-borne infections in Canada by 2030: A pan-Canadian STBBI framework for action. 2018 July 9.

2 UNAIDS, United Nations General Assembly. Political Declarations on HIV and AIDS: Ending inequities and getting on track to end AIDS by 2030. 2021 June 8; Agenda item 10 (74th Plenary Meeting).

3 World Health Organization. Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022-2030. 2022.

4 UNAIDS. Understanding measures of progress towards the 95-95-95 HIV testing, treatment and viral suppression targets. 2024; Available at: https://www.unaids.org/en/resources/documents/2024/progress-towards-95-95-95. Accessed May 28, 2024.

5 Stover J, Glaubius R, Teng Y, Kelly S, Brown T, Hallett TB, et al. Modeling the epidemiological impact of the UNAIDS 2025 targets to end AIDS as a public health threat by 2030. PLoS Med 2021;18(10):1–21.

6 Public Health Agency of Canada. Government of Canada's Sexually transmitted and blood-borne infections (STBBI) Action plan 2024-2030. Public Health Agency of Canada 2024 February: 1-58.

7 Bekker LG, Montaner J, Ramos C, Sherer R, Celletti F, Cutler B, et al. IAPAC guidelines for optimizing the HIV care continuum for adults and adolescents. J Int Assoc Providers AIDS Care 2015;14(Supplement 1):S3–S34.

8 HIV.gov. HIV Care Continuum. 2022; Available at: https://www.hiv.gov/federal-response/policies-issues/hiv-aids-care-continuum. Accessed May 28, 2024.

9 Yan P, Zhang F, Wand H. Using HIV Diagnostic Data to Estimate HIV Incidence: Method and Simulation. Statistical Communications in Infectious Disease 2011;3(1):1–28.

10 Canadian Pediatric & Perinatal HIV/AIDS Research Group. Canadian Perinatal HIV Surveillance Program. 2024; Available at: https://www.cparg.ca/surveillance-bull-cphsp.html. Accessed January 10, 2024.

11 Public Health Agency of Canada. HIV in Canada: Surveillance Report to December 31, 2020. 2023 January:25-26.

12 Tarasuk J, Zhang J, Lemyre A, Cholette F, Bryson M, Paquette D. National findings from the Tracks survey of people who inject drugs in Canada, Phase 4, 2017-2019. Canada Communicable Disease Report 2020 May;46(5):138–148.

13 Brogan N, Paquette D, Lachowsky N, Blais M, Brennan I, Hart T, et al. Canadian results from the European men-who-have-sex-with-men Internet survey (EMIS-2017). Canadian Communicable Disease Report 2019 November;45(11):271-282.

14 OHTN Cohort Study. HIV Stigma. Ontario HIV Treatment Network 2024.

15 Tam C, Wang L, Salters K, Moore D, Wesseling T, Grieve S, et al. Evaluating experiences of HIV-related stigma among people living with HIV diagnosed in different treatment eras in British Columbia, Canada. AIDS Care Psychol Socio-Med Asp AIDS HIV 2024;36(2):238–247.

16 Statistics Canada. Vital statistics death database: Multiple cause of death file 2000-2016.

17 Sorge J, Colyer S, Cox J, Kroch A, Lachowsky N, Popovic N, et al. Estimation of the population size of gay, bisexual and other men who have sex with men in Canada, 2020. CCDR 2023 November 1;49(11 - 12):465–476.

18 Statistics Canada. Canadian Vital Statistics: Death Database: Data Dictionary and User Guide. 2020.

19 Pelchen-Matthews A, Ryom L, Borges AH, Edwards S, Duvivier C, Stephan C, et al. Aging and the evolution of comorbidities among HIV-positive individuals in a European cohort. AIDS 2018;32(16):2405–2416.

20 First Nations and Inuit Health Branch & Northern Inter-Tribal Health Authority. 2023 Progress report on HIV in Saskatchewan First Nations Communities. Indigenous Services Canada 2023 September 27.

21 Lydon-Hassen K, Jonah L, Mayotte L, Hrabowy A, Graham B, Missens B, et al. Summary findings from Tracks surveys implemented by First Nations in Saskatchewan and Alberta, Canada, 2018-2020. Can Commun Dis Rep 2022 Apr 6;48(4):146–156.

22 Engage. Advances in HIV research are changing how we understand HIV transmission, prevention, and treatment. Available at: https://www.engage-men.ca/.

23 Moore DM, Cui Z, Skakoon-Sparling S, Sang J, Barath J, Wang L, et al. Characteristics of the HIV cascade of care and unsuppressed viral load among gay, bisexual and other men who have sex with men living with HIV across Canada's three largest cities. J Int AIDS Soc 2021 Apri;24(4).

24 Lambert G, Cox J, Messier-Peet M, Apelian H, Moodie E. Engage Montréal, Portrait of the sexual health of men who have sex with men in Greater Montréal, Cycle 2017-2018, Highlights. Direction régionale de santé publique, CIUSSS du Centre-Sud-de-l'Île-de-Montréal 2019 January.

25 Hart TA, Skakoon-Sparling S, Tavangar F, Parlette A, Barath J, Sang J, et al. Engage Toronto: Portrait of the health and wellbeing of gay, bisexual and other men who have sex with men in the Greater Toronto Area. Ryerson University and the University of Toronto 2021 March.

26 Sang JM, Lachowsky NJ, Lal A, Wang L, Barath J, Jollimore J, et al. Momentum II Health Study—Vancouver site of the National Engage Study: Portrait of the health and wellbeing of gay, bisexual and other men who have sex with men in Metro Vancouver. BC Centre for Excellence in HIV/AIDS 2021 February.

27 Ontario HIV Epidemiology and Surveillance initiative. A snapshot of HIV diagnoses and the HIV care cascade among African, Caribbean and Black people in Ontario. 2022; Available at: https://www.ohesi.ca/a-snapshot-of-hiv-diagnoses-and-the-hiv-care-cascade-among-african-caribbean-and-black-people-in-ontario/.

28 Pan American Health Organization, World Health Organization. Combination HIV Prevention. Available at: https://www.paho.org/en/topics/combination-hiv-prevention. Accessed September 11, 2024.

29 UNAIDS. Evidence for eliminating HIV-related stigma and discrimination. Joint United Nations Programme on HIV/AIDS 2020.

30 Heidebrecht L, Iyer S, Laframboise SL, Madampage C, King A. "Every One of Us Is a Strand in That Basket": Weaving Together Stories of Indigenous Wellness and Resilience from the Perspective of Those with Lived and Living Experience with HIV/Hepatitis C Virus. J Assoc Nurses AIDS Care 2022;33(2):189–201.

31 Public Health Agency of Canada. HIV in Canada, surveillance report to December 31, 2022. 2024; Available at: https://www.canada.ca/en/public-health/services/publications/diseases-conditions/hiv-canada-surveillance-report-december-31-2022.html. Accessed September 12, 2024.

32 Tan DHS, Hull MW, Yoong D, Tremblay C, O'Byrne P, Thomas R, et al. Canadian guideline on HIV pre-exposure prophylaxis and nonoccupational postexposure prophylaxis. CMAJ 2017;189(47):E1448–E1458.

33 Public Health Agency of Canada. Survey on the impact of COVID-19 on access to STBBI - related services, including harm reduction services, for people who use drugs or alcohol in Canada. Government of Canada 2023 February 16;ISBN 978-0-660-46611-8.