

HIV care cascade in Ontario: Linkage to care, in care, on antiretroviral treatment, and virally suppressed, 2020



About OHESI

The Ontario HIV Epidemiology and Surveillance Initiative (OHESI) is a collaboration involving the AIDS and HepC Programs, Ministry of Health (MOH), Public Health Ontario (PHO), the Public Health Agency of Canada (PHAC), and the Ontario HIV Treatment Network (OHTN) Applied Epidemiology Unit (AEU). The objectives of OHESI are to analyze, monitor and disseminate knowledge products on the epidemiology of HIV in Ontario. OHESI is a vital partnership that supports Ontario's ongoing ability to assess the impact of policy directions and HIV related program initiatives.

The success of the partnership would not be possible without the strategic, technical and resource contributions of all the partners. OHESI also receives ongoing advice from a community advisory committee: people working in the community-based HIV service sector and HIV clinics whose input helps ensure that OHESI reports and other products support collective efforts and impact in neighborhoods, communities and organizations across the province.

Background

In 2013-2014, the OHTN set up the OHTN Applied Epidemiology Unit (AEU), under a funding agreement with the MOH, to support ongoing production of epidemiological information to support Ontario's response to HIV.

In 2014-2015, the OHTN AEU initiated the Ontario HIV Epidemiology and Surveillance Initiative (OHESI) and continues to provide administrative and technical support for the partnership.

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Overview

Antiretroviral therapy (ART) for HIV suppresses the virus to the point where it is undetectable, cannot cause as much damage to the person's immune system, and cannot be passed to a sexual partner (undetectable = untransmittable). People with HIV diagnosed early in the course of infection, started on therapy, and achieving undetectable viral suppression, can now lead long lives in good health, free of the fear of passing on the virus.

In 2014, recognizing the critical role of ART in both treating and preventing HIV, UNAIDS made supporting people with HIV through the stages of the care cascade diagnosis, linkage to care and treatment and viral suppression a global priority. To measure progress towards this goal, UNAIDS established the 90-90-90 targets: by 2020, 90% of all people living with HIV would be diagnosed, 90% of all people diagnosed with HIV infection would be on ART, and 90% of all people receiving ART would be virally suppressed.

If all three 90-90-90 targets were met, then 81% of all people living with HIV would be on ART and 73% would be virally suppressed.

In its 2016 strategy, Ontario endorsed the UNAIDS 2020 90-90-90 targets and began monitoring its HIV care cascade. This report provides the most complete province-wide cascade estimates for people living with diagnosed HIV in Ontario in 2020. It includes a breakdown of the HIV care cascade by sex, age, and health region. In future reports, we will estimate relative to the UNAIDS 2030 targets of 95-95-95.

This report also describes the HIV care cascade among people living with diagnosed HIV. The number of Ontarians living with diagnosed HIV has increased steadily over time meaning more people require HIV care. HIV care has become less complicated however, with newer well-tolerated effective antiretroviral agents that often require only a single doctor's visit per year. The increase in the number of Ontarians with HIV is due to a combination of longer life expectancy for people on treatment (fewer deaths) and people living with HIV being newly diagnosed (ongoing transmission) or moving to Ontario – an average 831 people living with HIV per year since 2011 are either diagnosed with HIV in Ontario or move to Ontario aware of their status.

Progress as of 2020

UNAIDS 90-90-90 targets

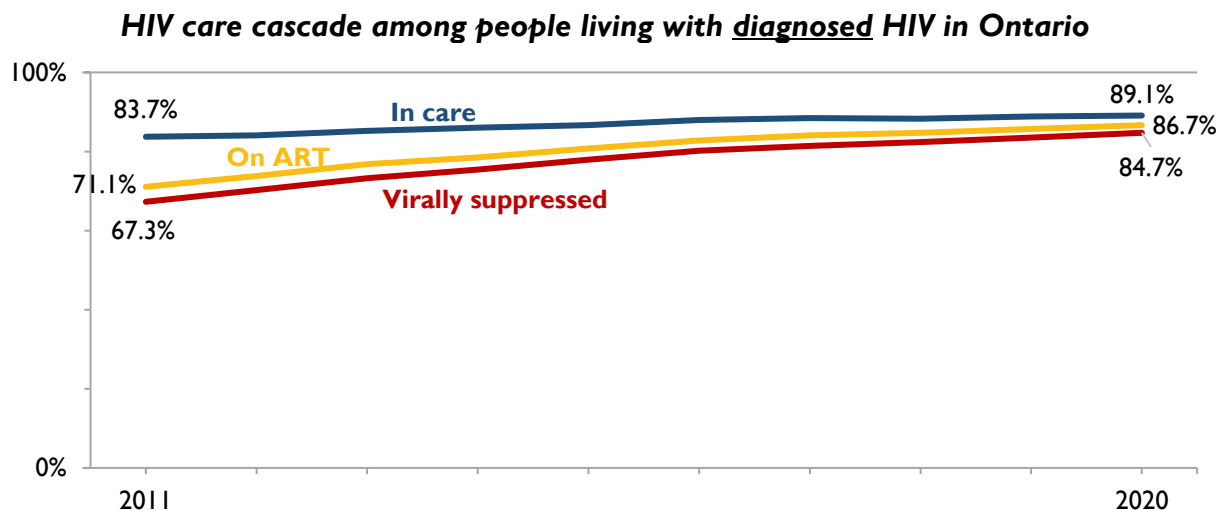
Ontario has made progress towards meeting the 90-90-90 targets. In 2020, of the estimated 22,461 people living with HIV in Ontario¹, an estimated 89.0% or 19,990 had been diagnosed, 86.7% of those diagnosed were on ART, and 97.8% of those on ART were virally suppressed. This compares to 2018 where cascade targets were lower amongst the estimated 21,564 people living with HIV in Ontario: about 88.5% or 19,082 had been diagnosed, 84.7% of those diagnosed were on ART, and 97.3% of those on ART were virally suppressed².

¹ The estimate of 22,461 people living with HIV in Ontario reported here is slightly different from what the Public Health Agency of Canada (PHAC) describe (23,380, in the report "[Estimates of HIV incidence, prevalence and Canada's progress on meeting the 90-90-90 HIV targets, 2020](#)"). This is because these two estimates reflect two different methodologies. See [Number of people living with HIV: two different numbers from two different methodologies](#) for more information.

² These numbers represent updated estimates and will therefore not match those in OHESI's previous [2018 Care Cascade report](#).

In 2020, despite progress made, it is estimated that of people living with HIV in Ontario, there were shortfalls of approximately 225 people diagnosed to achieve the first target (90% of all people living with HIV diagnosed), and approximately 870 people on ART to achieve the second target (90% of all people diagnosed with HIV on ART). However, Ontario exceeded the 2020 target for the third 90: once in care and on treatment, the vast majority (97.8%) of Ontarians living with HIV achieved viral suppression.

Care cascade among people living with diagnosed HIV



Ontario has seen steady improvements in the number of people engaged in the care cascade over time. Between 2011 to 2020, as depicted above, among the total number of people diagnosed with HIV:

- the percent in care increased from 83.7% to 89.1%
- the percent on ART increased from 71.1% to 86.7%
- the percent virally suppressed increased from 67.3% to 84.7%.

Ontario has also been able to reduce the time from HIV diagnosis to linkage to care and viral suppression. Between 2010 and 2019, the percent of newly diagnosed individuals who:

- linked to care within one month of diagnosis increased from 51.2% to 66.5% while the percent linked within three months increased from 83.3% to 86.4%.
- achieved viral suppression within three months of diagnosis increased from 7.8% to 42.6% while the percent who achieved viral suppression within six months of diagnosis increased from 28.5% to 73.2%.

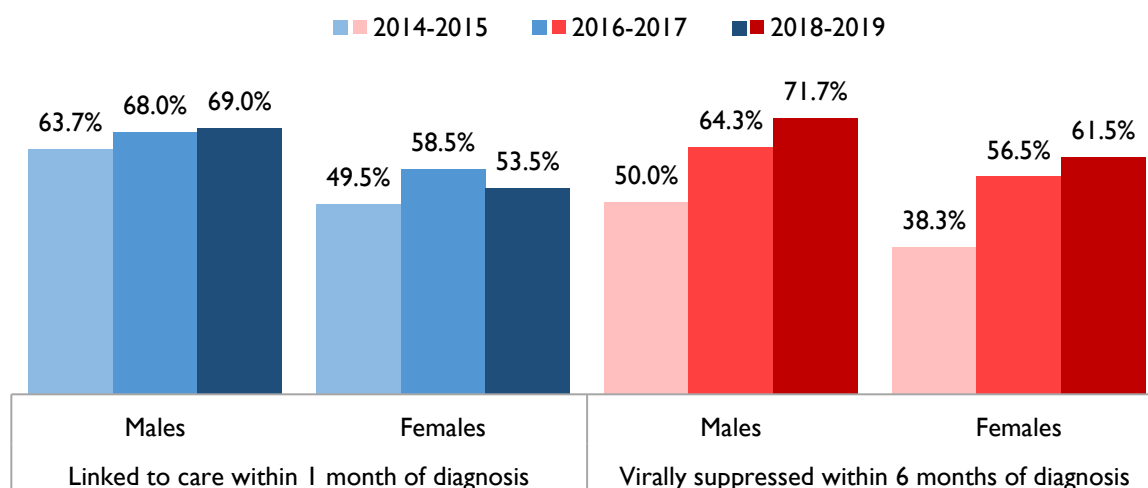
Key Findings

Of the estimated 22,461 people living with HIV in Ontario in 2020¹, an estimated 89.0% or 19,990 had been diagnosed. This number includes people diagnosed for the first-time in Ontario as well as people diagnosed elsewhere who moved to Ontario.

Higher proportions of males are linked to care and become virally suppressed within 1 and 6 months of diagnosis, respectively, than females

Of the 19,990 Ontarians living with diagnosed HIV in 2020, almost 8 of 10 (78.2%) were male and about 2 of 10 (21.8%) were female. Among those diagnosed with HIV, males were slightly more likely than females to be in care (89.4% vs 88.9%), on ART (87.2% vs 85.8%) and virally suppressed (85.4% vs 83.1%).

Linkage to care and viral suppression among people newly diagnosed with HIV in Ontario



As depicted above, compared to females, a greater proportion of males are linked to care within 1 month of diagnosis and a greater proportion become virally suppressed within 6 months of diagnosis. The proportion of newly diagnosed males linked to care within one month increased from 63.7% to 69.0% between 2014-2015 and 2018-2019, compared to an increase from 49.5% to 53.5% for females. The difference between males and females narrows however when looking at proportions linked to care within three months of diagnosis (85.8% vs. 82.6%, respectively [not depicted]). The proportion virally suppressed within six months increased from 50.0% to 71.7% for males, and from 38.3% to 61.5% for females.

A smaller proportion of younger people achieve viral suppression by 6 months compared to older age groups

Younger age groups (especially those under age 35) were less likely to be in care, on treatment or virally suppressed than their older counterparts. In 2018-2019, 58.7% of those aged <25 years newly diagnosed with HIV were virally suppressed within 6 months of diagnosis, compared to 69.3%-80.6% in all other age groups.

¹ The estimate of 22,461 people living with HIV in Ontario reported here is slightly different from what the Public Health Agency of Canada (PHAC) describe (23,380, in the report "[Estimates of HIV incidence, prevalence and Canada's progress on meeting the 90-90-90 HIV targets, 2020](#)"). This is because these two estimates reflect two different methodologies. See [Number of people living with HIV: two different numbers from two different methodologies](#) for more information.

People in the Northern health region have the lowest cascade metrics compared to other health regions

In 2018-2019, compared to other health regions, the Northern region had the lowest proportions of people newly diagnosed with HIV linked to care and virally suppressed: only 38.3% were linked to care within 1 month of diagnosis compared to 57.3%-88.5% in other health regions; and only 25.5% were virally suppressed within 6 months of diagnosis compared to 60.9%-84.6% in other regions. In 2020, only 74.3% of all people living with diagnosed HIV in the Northern region were virally suppressed compared to 82.7% to 86.8% in other regions.

Next Steps

At the 2020 deadline for the 90-90-90 targets, at least eight countries had fully met them, and another 11 reached at least 73% viral load suppression among all people living with HIV¹. In response, the UNAIDS Global AIDS Strategy 2021-2026 set more ambitious 95-95-95 targets, with a focus on reducing inequities among people living with HIV².

The challenges for Ontario now in terms of meeting or exceeding the 95-95-95 targets are to: 1) reach the estimated 11% of people living with HIV who are undiagnosed (approximately 2,471 people), link them to care, and support them to stay in care and start and stay on treatment; 2) reach and support the estimated 13.3% of people with HIV who have been diagnosed but are either not in care or are in care but not on treatment (approximately 2,667 people); and 3) ensure all people diagnosed with HIV benefit from HIV treatment, regardless of sex, age or where they live in the province.

¹Global AIDS Update 2021: Confronting Inequalities, UNAIDS. Accessed 4/19/2022

https://www.unaids.org/sites/default/files/media_asset/2020_global-aids-report_en.pdf

²Global AIDS Strategy 2021-2026; Accessed 3/26/2021

https://www.unaids.org/sites/default/files/media_asset/global-AIDS-strategy-2021-2026_en.pdf

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Introduction

For people living with HIV, being on antiretroviral treatment (ART) and having a suppressed viral load improves health and prevents HIV transmission. We also know that people have the best health outcomes when diagnosed early and start ART right away. To achieve and maintain a suppressed viral load, people living with HIV need to be diagnosed, linked to and retained in high quality HIV clinical care¹, and have sustained access to and adhere to ART. These successive steps are known collectively as the HIV care cascade.

2020 UNAIDS 90-90-90 Targets

- 90% of all people living with HIV will know their HIV status.
- 90% of all people diagnosed with HIV will receive ART.
- 90% of all people receiving ART will have viral suppression.

If all three 90-90-90 targets are met, 81% of **all** people living with HIV would be on ART and 73% of **all** people living with HIV would be virally suppressed.

In 2014, UNAIDS made supporting people with HIV through the stages of the care cascade a global priority. To measure progress towards this goal, UNAIDS recommended the 90-90-90 targets: by 2020, 90% of all people living with HIV would be diagnosed, 90% of all people diagnosed with HIV infection would be on ART, and 90% of all people receiving ART would be virally suppressed. If all three 90-90-90 targets were met, then 81% of all people living with HIV would be on ART and 73% would be virally suppressed. At the 2020 deadline, Canada had 87% of people living with HIV who had been diagnosed, 85% of people diagnosed were on ART, and 94% of people on ART were virally suppressed². While Canada did not meet all of the 90-90-90 targets, at least eight countries had fully achieved the targets as of the 2020 deadline, and another 11 had reached 73% viral load suppression among all people living with HIV³. In response, the UNAIDS Global AIDS Strategy 2021-2026 set more ambitious 95-95-95 targets, with a focus on reducing inequities among people living with HIV⁴.

Ontario measures the HIV care cascade as a means to monitor health outcomes for people living with HIV and HIV transmission. The data used to report on the HIV care cascade comes from two sources:

- The Public Health Ontario Laboratory built an HIV datamart to support the linkage of diagnostic and viral load data, essential to produce cascade indicators. These data allow us to

¹HIV care guidelines developed for Ontario recommend that “comprehensive HIV care should be provided by an interdisciplinary team of HIV-knowledgeable professionals who can offer integrated care and wellness as well as appropriate and timely linkage or referral to other health and social services.” The guidelines also note that “physicians providing HIV care should be highly knowledgeable and experienced in the management of HIV infection” and that physicians who do not have this experience “should consult with an HIV-experienced physician.”

² Estimates of HIV incidence, prevalence and Canada’s progress on meeting the 90-90-90 HIV targets Accessed 9/12/2022 <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/summary-estimates-hiv-incidence-prevalence-canadas-progress-90-90-90.html>

³Global AIDS Update 2021: Confronting Inequalities, UNAIDS. Accessed 4/19/2022 https://www.unaids.org/sites/default/files/media_asset/2020_global-aids-report_en.pdf

⁴Global AIDS Strategy 2021-2026; Accessed 3/26/2021 https://www.unaids.org/sites/default/files/media_asset/global-AIDS-strategy-2021-2026_en.pdf

estimate the total number of people living with diagnosed HIV in Ontario, the number in care, the number on treatment, and the number virally suppressed.

- The Public Health Agency of Canada (PHAC) uses modelling (based on Ontario data sources) to estimate the total number of people living with HIV in Ontario (both diagnosed and undiagnosed), as well as the undiagnosed fraction.

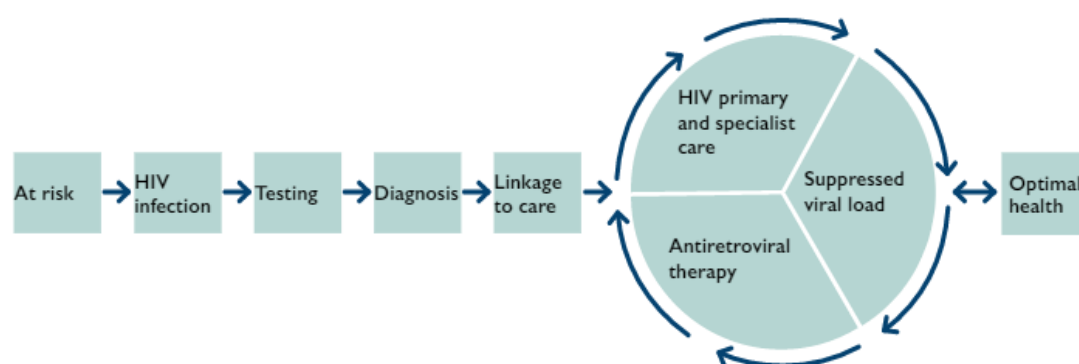
This report includes data between 2000 and 2020 inclusive. The analyses of time from diagnosis to linkage to care and viral suppression are for people diagnosed in 2019, whose subsequent HIV care visits and viral load tests may have occurred in 2020.

This report shows that engagement in Ontario's HIV cascade has improved over time. The percent of people with diagnosed HIV who are in care, on ART, and virally suppressed have all increased, suggesting that they are living longer and healthier lives. Viral suppression is key to preventing transmission of HIV and will lead to decreased HIV transmission within the province. While monitoring the HIV care cascade indicators for individuals living with HIV is an important way to assess progress, our larger goal includes work to monitor and optimize quality of life and broader determinants of health for this population.

Why look at patterns in engagement in care, antiretroviral treatment, and viral suppression?

- To maintain and improve health and reduce the risk of new HIV transmissions, it is important for people living with HIV to be diagnosed, in care, on ART, and virally suppressed (see Figure i).
- Understanding cascade trends can help measure the impact of HIV care and monitor progress toward meeting UNAIDS targets (see below).
- Identifying gaps can inform program/policy and help the care system prioritize interventions to improve engagement in the HIV care cascade.
- Although being in care, on ART, and virally suppressed are important for health and well-being, they do not necessarily reflect overall quality of life for a person living with HIV. Optimal health requires additional supports outside of HIV care alone with a focus on culturally safe and appropriate facilitation. In particular, holistic approaches which include a balanced focus on physical, emotional, spiritual and social wellbeing is important alongside more traditional methods of assessing health.

Figure i. The HIV prevention, engagement, and care cascade



About the Data

Where do these data come from?

- Data in this report comes from the Public Health Ontario (PHO) Laboratory, which conducts all HIV diagnostic and viral load (VL) testing for the province – with a few small exceptions.
- PHO Laboratory's HIV diagnostic and VL databases were combined and used to determine people with diagnosed HIV who are living in Ontario during any calendar year. For information on how this determination is made, see the **Technical notes**.
- All information in the PHO Laboratory databases is confidential, and only de-identified aggregate data is shared with OHESI partners for inclusion in this report.
- Estimates of the undiagnosed fraction and the total number of people living with HIV were carried out by Public Health Agency of Canada (PHAC) using data obtained from PHO Laboratory.

What are some of the strengths of these data and our analytical approach?

- For each cascade indicator, a “Main” estimate is calculated, along with an “Upper” and/or “Lower” estimate, where applicable. The “Main” estimate represents the best estimate for the cohort. However, as there is no widespread consensus on how some indicators should be defined, “Upper” and “Lower” estimates are also calculated in order to reflect the impact of different definitions and create a range of possible values. These estimates are calculated using more or less conservative definitions for an indicator. For some indicators, there were no feasible “Upper” and/or “Lower” definitions that could be applied.
- Counts and proportions of individuals meeting certain metrics (being linked to care reaching an undetectable VL) within different measurements of time are reported to illustrate the efficiency of HIV care in Ontario.

What are some of the limitations of this report?

- An important limitation is that the lack of linked data to estimate prevalence among people with diagnosed HIV prevents the estimate of total prevalence and undiagnosed fraction among subpopulations by gender, age, or priority population.
- Where possible, a range of values were calculated for each cascade indicator to highlight the uncertainty involved in measuring the cascade.

Data and Figures

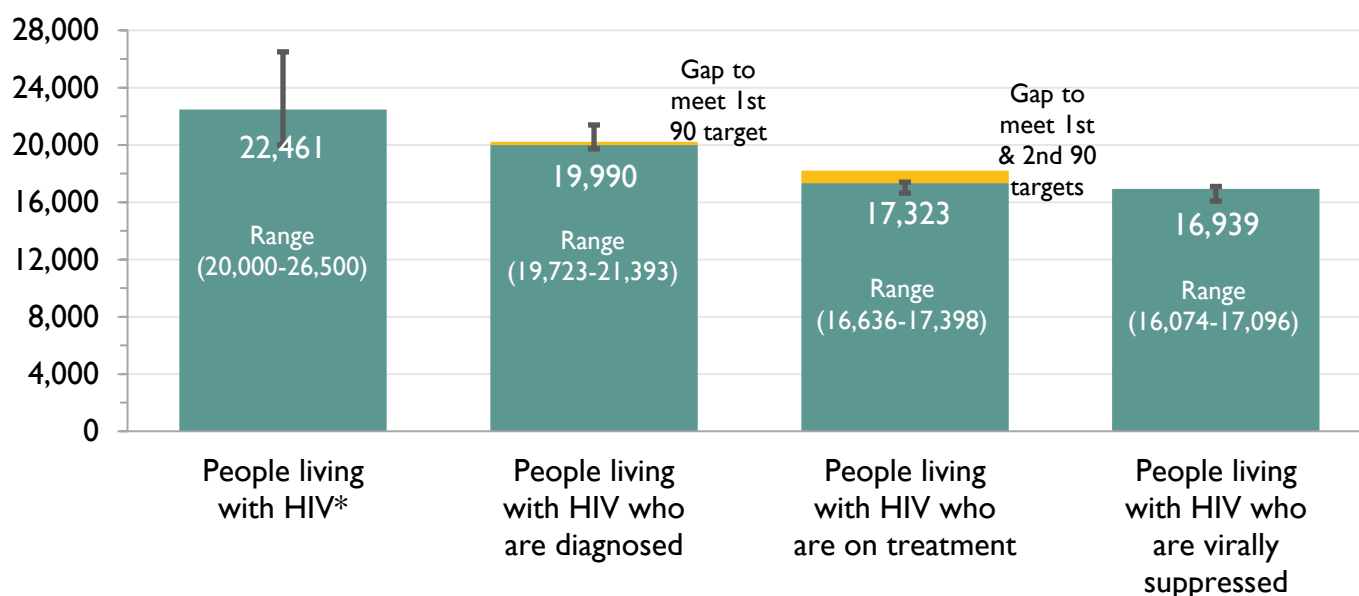
This section highlights trends in cascade indicators for people in Ontario living with diagnosed HIV. Each figure is accompanied by estimates for the most recent year available, along with a brief description of trends over time. See the **Appendices** for **Indicator definitions** and **Data tables** containing the underlying data for the figures.

Notes: The Public Health Agency of Canada estimates the number of people living with HIV, including those undiagnosed, using a customized modelling technique. This number is adjusted by OHESI to align with our methods and PHO Laboratory data. The adjusted number falls within PHAC's estimate range and represents the best point estimate for Ontario.

The “Main” estimates represent the best estimate for that indicator and is displayed as a solid line in the figures. “Upper” and “Lower” estimates were calculated when possible in order to reflect the impact of different definitions (i.e. more/less conservative) and provide a range of possible values (displayed as a shaded region in the figures). For some indicators, there were no feasible “Upper” and/or “Lower” definitions that could be applied.

I. Cascade Summary

Figure I.1 Number of people living with HIV in Ontario engaged in the steps of the care cascade, 2020

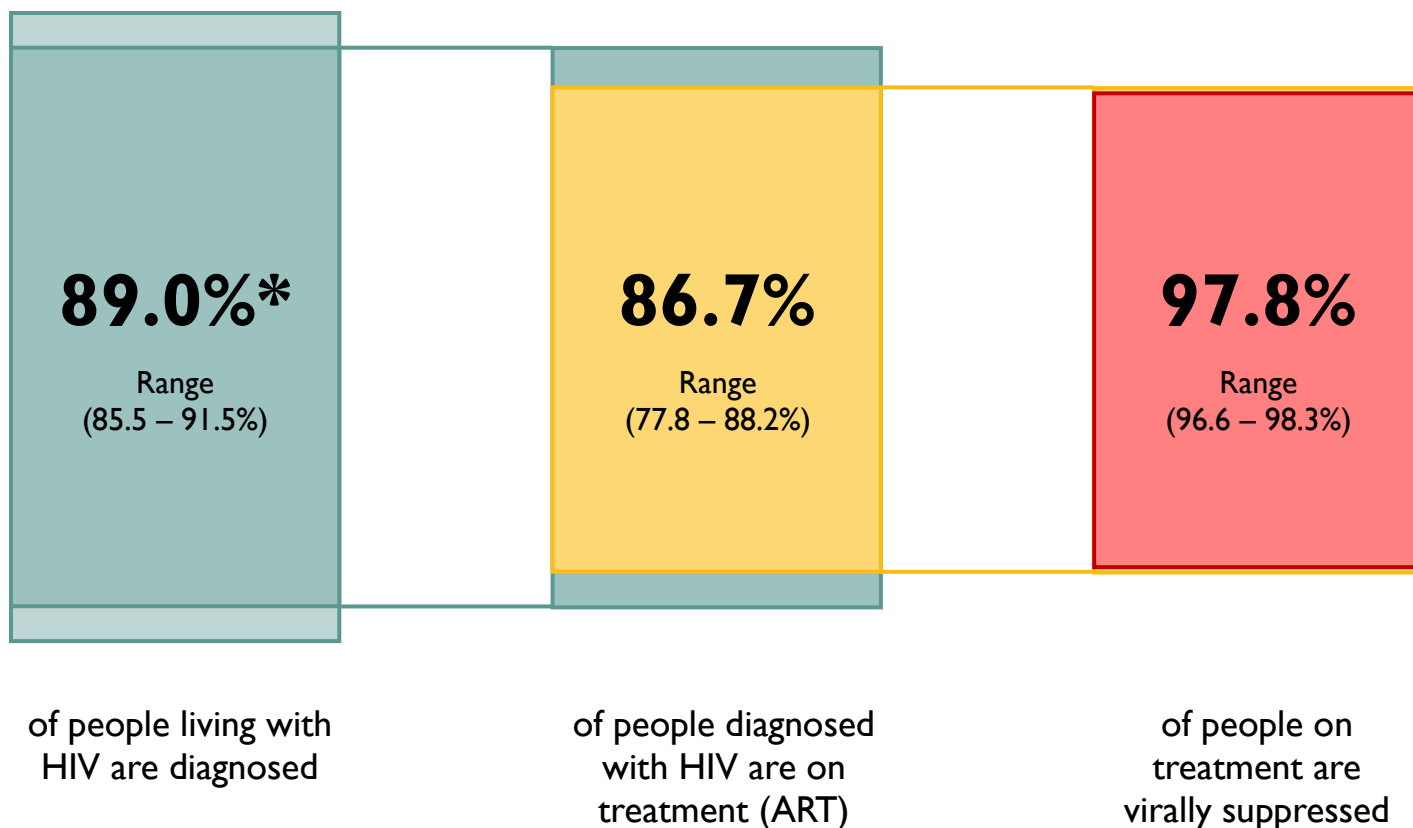


Snapshot

In 2020, the total number of people living with HIV in Ontario was estimated to be 22,461 (PHAC estimate: 23,380), including people who have not yet been diagnosed. An estimated 19,990 people had been diagnosed – 225 people short of the first 90; 17,323 people with diagnosed HIV were on treatment – 870 people short of meeting the first and second 90s; and 16,939 people with diagnosed HIV were virally suppressed – with no gap to meet the first, second and third 90s.

Notes: *The main estimate of the number of people living with HIV (22,461) is produced using inputs from both the Public Health Agency of Canada (PHAC) and the Public Health Ontario (PHO) Laboratory. The range of number of people living with HIV provided by PHAC. All other estimates provided by the Public Health Ontario Laboratory. Error bars represent the ranges possible using low and high estimates. See **Technical notes** for more information including methods and an explanation of why the number of people living with HIV is different here than that [reported by PHAC elsewhere](#). See **Table I.1** for underlying data.

Figure 1.2 UNAIDS 90-90-90 Estimates, Ontario, 2020

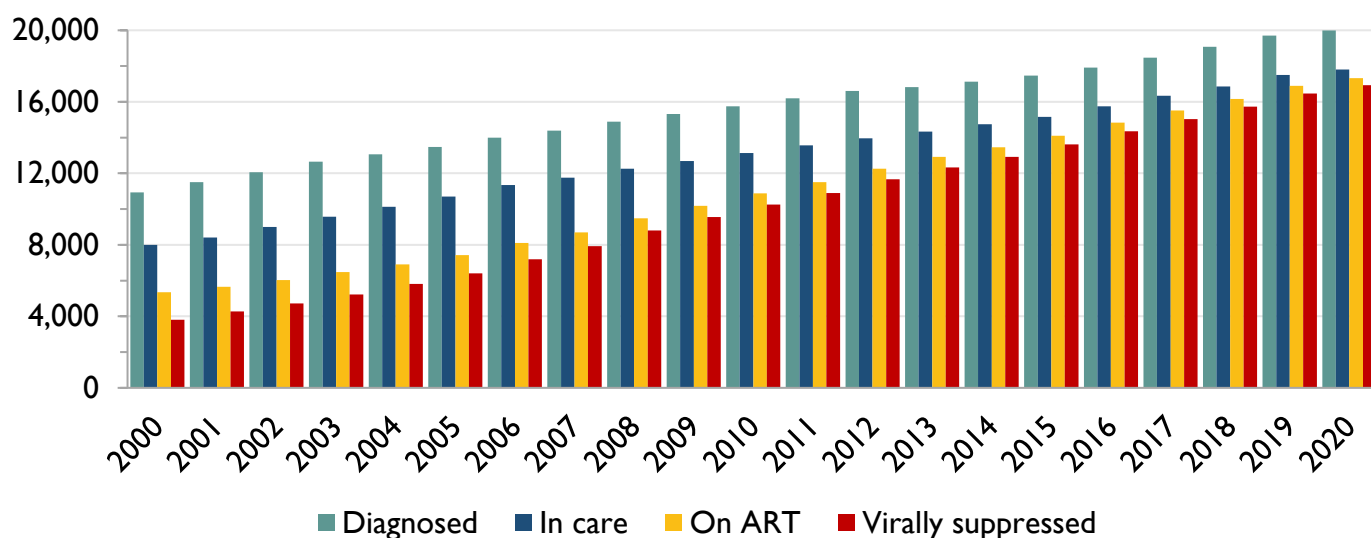


Snapshot

In 2020, the first 90, or the percentage of people living with HIV who were diagnosed was 89.0%, meaning that an estimated 11.0% of people in Ontario living with HIV were undiagnosed. The undiagnosed fraction is produced based on modelling of the prevalence of HIV, and of the estimated number of people who have been diagnosed with HIV and are living in Ontario done by the Public Health Agency of Canada. The second 90, the percentage of people diagnosed who were on treatment, was 86.7%. The third 90, the percentage of people on treatment who were virally suppressed, was 97.8%.

Notes: *The proportion of people living with HIV that were diagnosed was provided by the Public Health Agency of Canada (PHAC), with inputs from the Public Health Ontario (PHO) Laboratory. All other estimates are provided by the PHO Laboratory. See **Technical notes** for more information. See **Table 1.2** for underlying data.

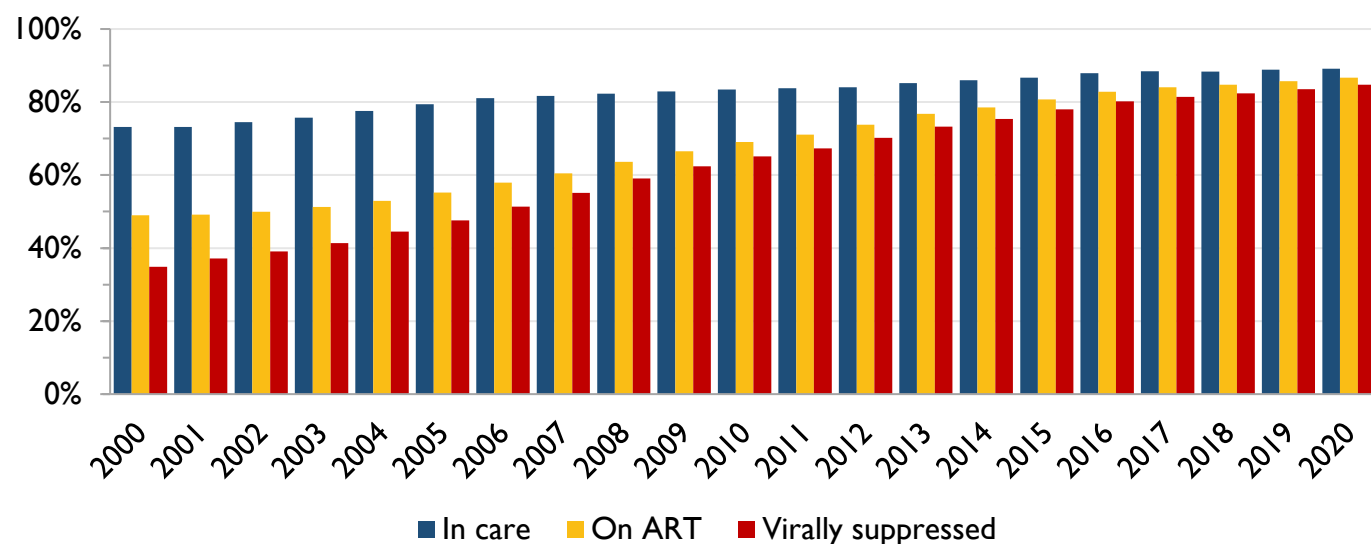
Figure 1.3 Number of people living with diagnosed HIV in Ontario engaged in the cascade, 2000 to 2020



Snapshot

The number of people engaged in each cascade step has increased over time. Between 2000 and 2020, the number who were diagnosed increased from 10,937 to 19,990, the number in care increased from 8,006 to 17,811, the number on ART increased from 5,357 to 17,323, and the number suppressed increased from 3,814 to 16,939.

Figure 1.4 Percent of people living with diagnosed HIV in Ontario engaged in the cascade, 2000 to 2020



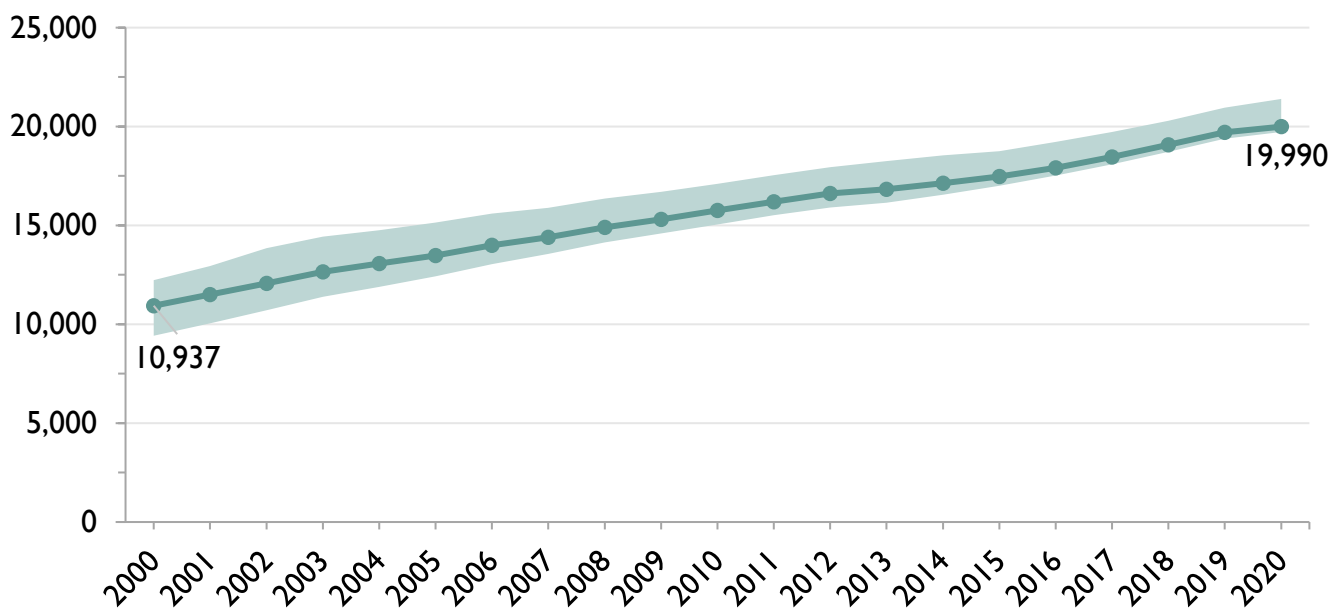
Snapshot

There has been a greater increase in the percent of people virally suppressed relative to the percent in care or on ART. Between 2000 and 2020, the percent in care increased from 73.2% to 89.1%, the percent on ART increased from 49.0% to 86.7%, and the percent virally suppressed increased from 34.9% to 84.7%.

Notes: Individuals missing ART information are assumed to be 'On ART' if virally suppressed. Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information. See **Table 2.1**, **Table 3.1**, **Table 4.1**, and **Table 5.1** for underlying data.

2. Diagnosed

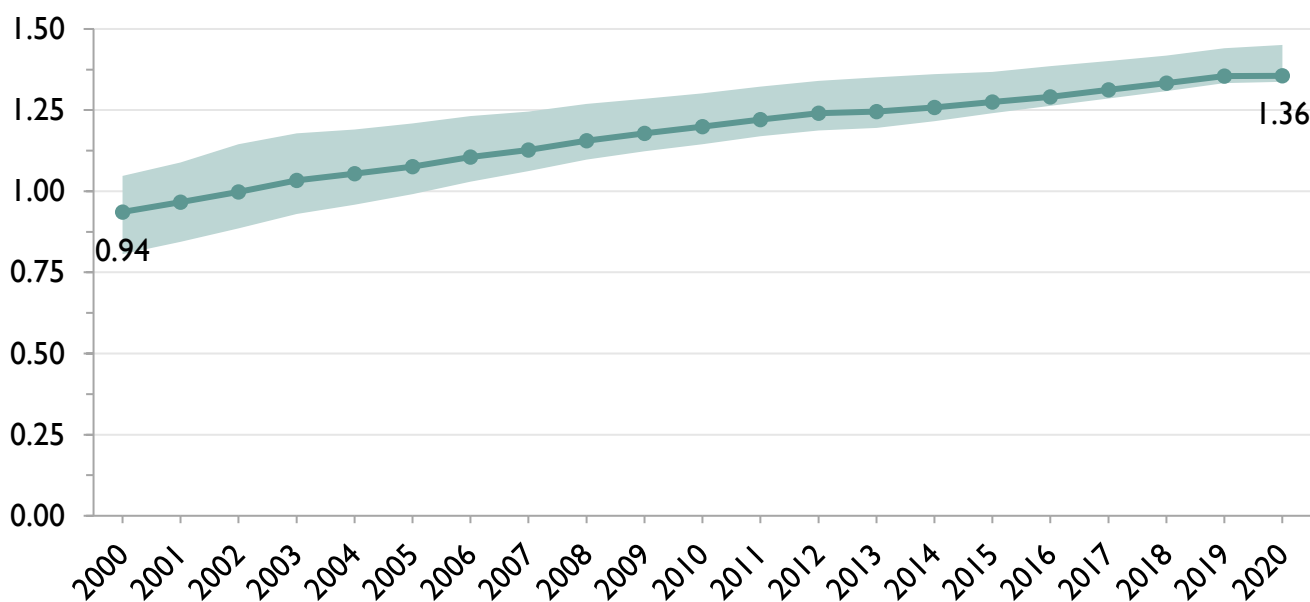
Figure 2.1 Number of people living with diagnosed HIV in Ontario, 2000 to 2020



Snapshot

The number of people living with diagnosed HIV in Ontario increased from 10,937 in 2000 (range 9,420 to 12,233) to 19,990 (range 19,723 to 21,393) in 2020.

Figure 2.2 Rate of people living with diagnosed HIV in Ontario per 1,000 population, 2000 to 2020



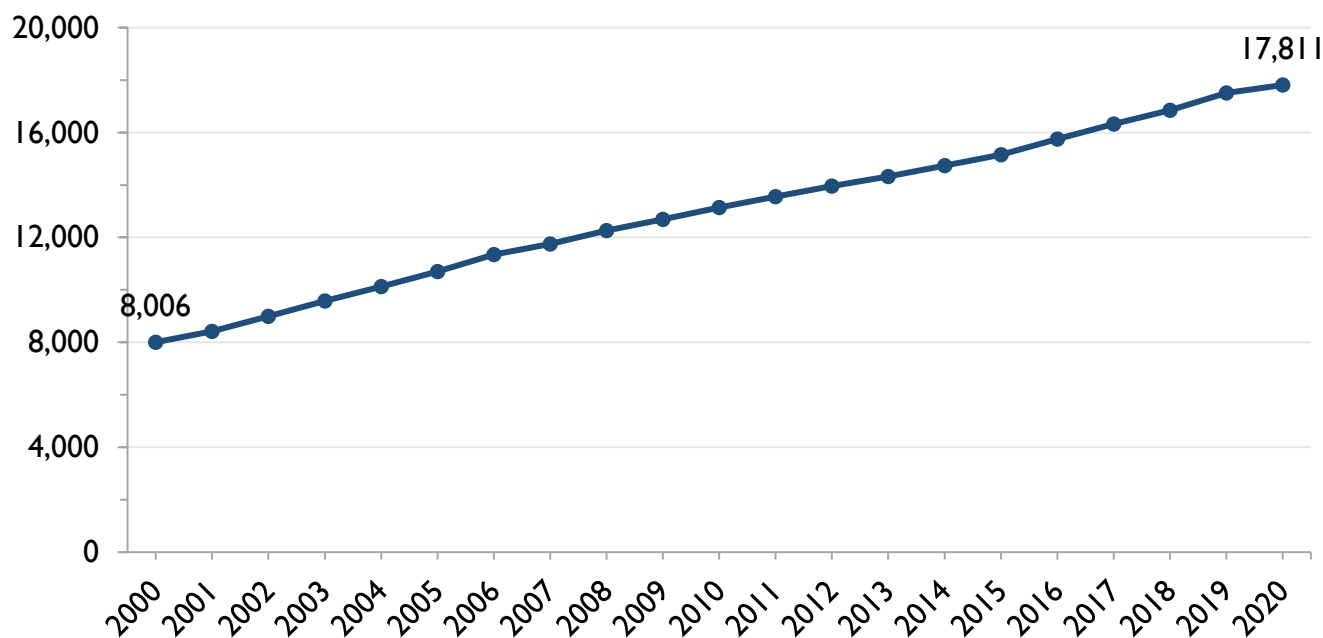
Snapshot

The rate of people living with diagnosed HIV in Ontario per 1,000 population increased from 0.94 in 2000 (range 0.81 to 1.05) to 1.36 (range 1.34 to 1.45) in 2020.

Notes: Solid line represents main estimate and shaded area represents range of estimates. Data provided by Public Health Ontario Laboratory. Rates calculated using [Statistics Canada population estimates](#) for all ages, accessed 11/05/2021. See **Technical notes** for definitions and more information. See **Table 2.1** and **Table 2.2** for underlying data.

3. Linkage to care and in care

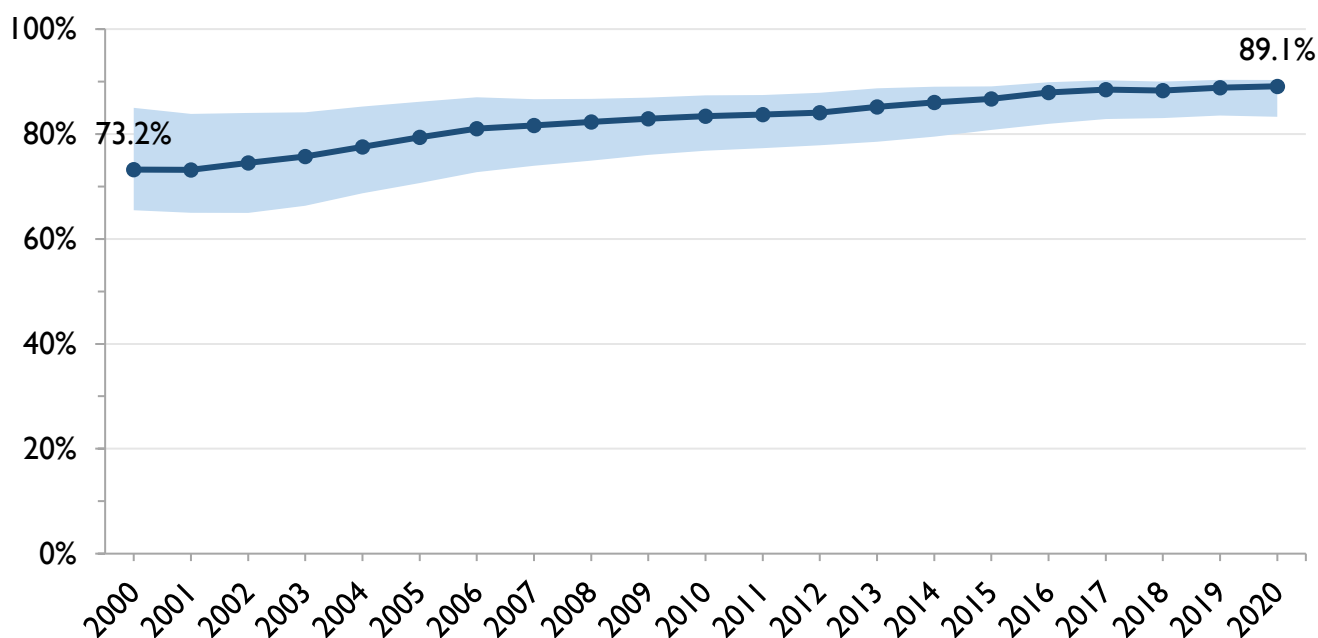
Figure 3.1 Number of people living with diagnosed HIV in Ontario who are in care, 2000 to 2020



Snapshot

The number of people in care increased from 8,006 in 2000 to 17,811 in 2020.

Figure 3.2 Percent of people living with diagnosed HIV in Ontario who are in care, 2000 to 2020

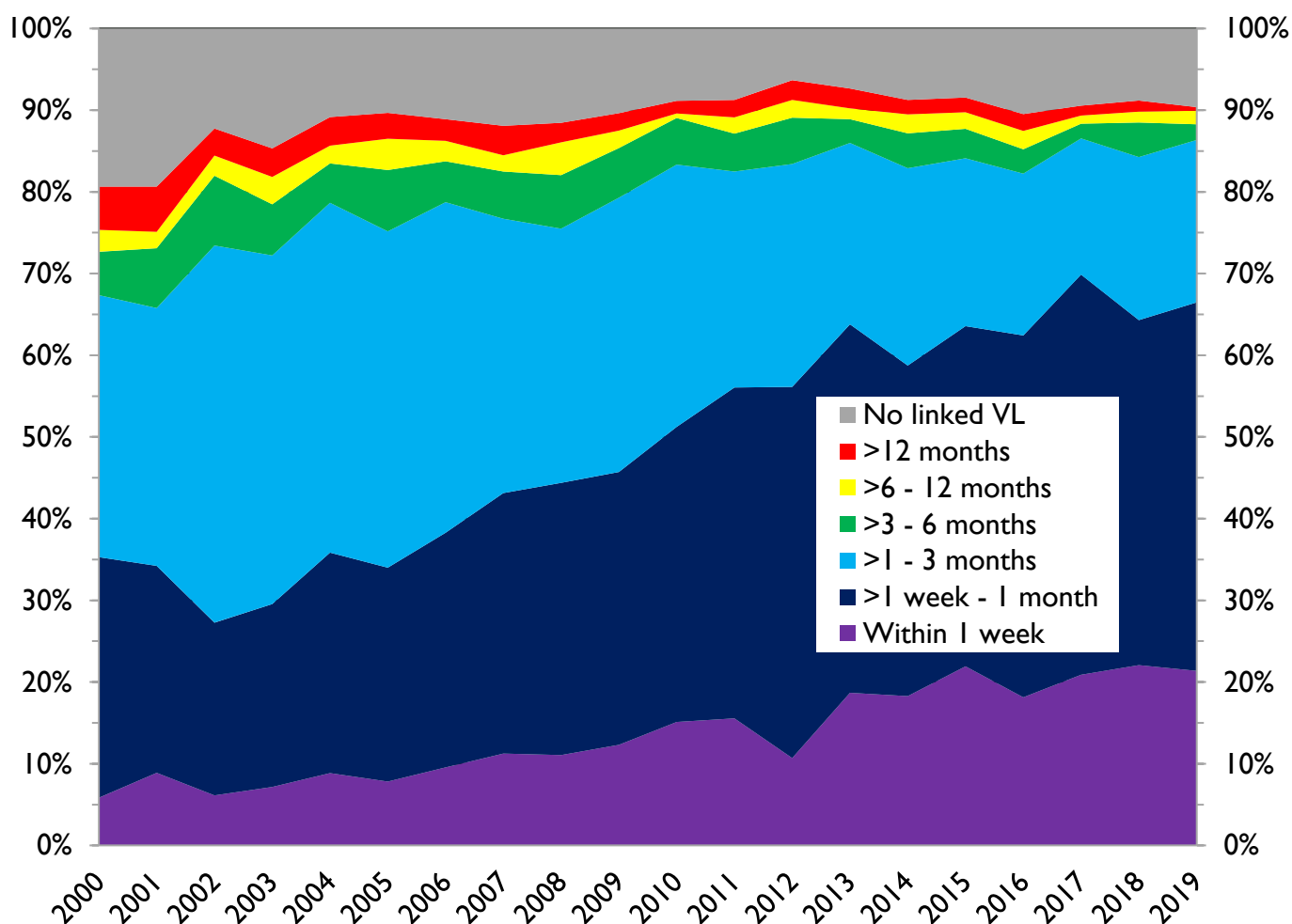


Snapshot

The percent of people with diagnosed HIV who are in care increased from 73.2% in 2000 (range 65.4% to 85.0%) to 89.1% in 2020 (range: 83.3% to 90.3%).

Notes: Solid line represents main estimate and shaded area represents range of estimates. Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information. See **Table 3.1** for underlying data.

Figure 3.3 Time from HIV diagnosis to linkage to care for people newly diagnosed with HIV in Ontario (nominally), 2000 to 2019



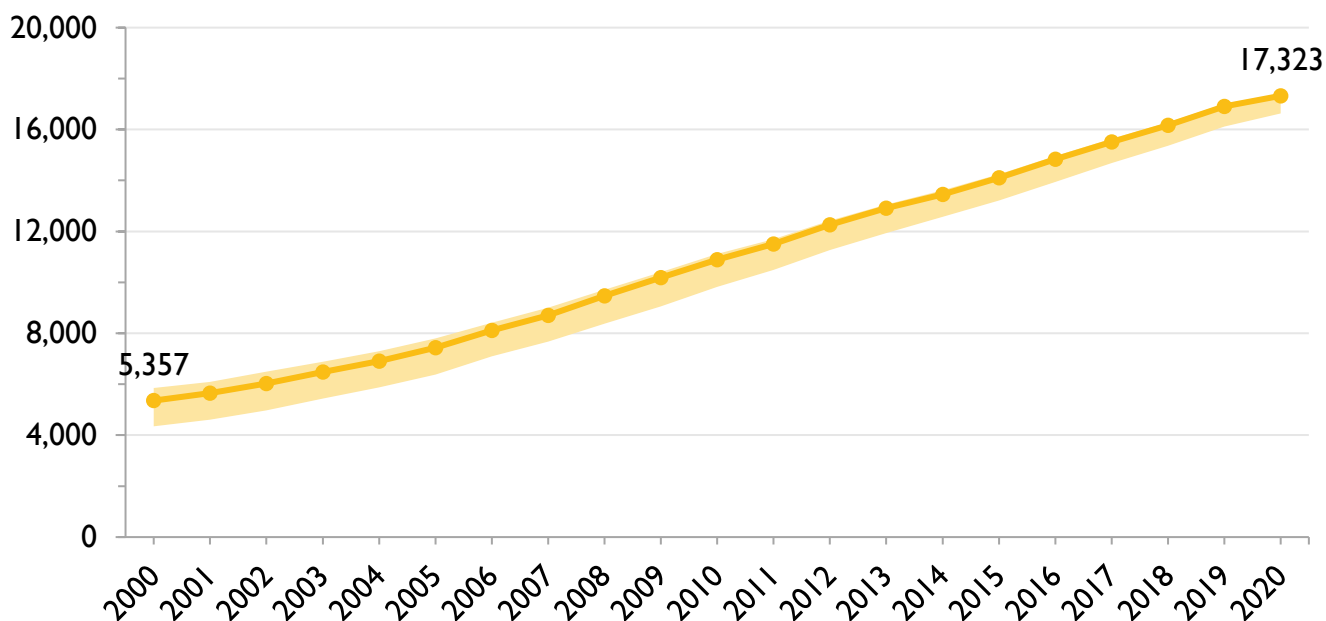
Snapshot

The percent of newly diagnosed people linked to care within one week of diagnosis increased from 5.8% in 2000 to 21.4% in 2019. In 2019, another 69% were linked to care: 45.1% within 1 month, 19.9% within 1-3 months, 1.9% within 3-6 months, 1.7% within 6-12 months, and 0.4% more than 12 months after diagnosis. 9.6% had no linked viral load test result.

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information. See **Table 3.2** for underlying data.

4. On antiretroviral treatment (ART)

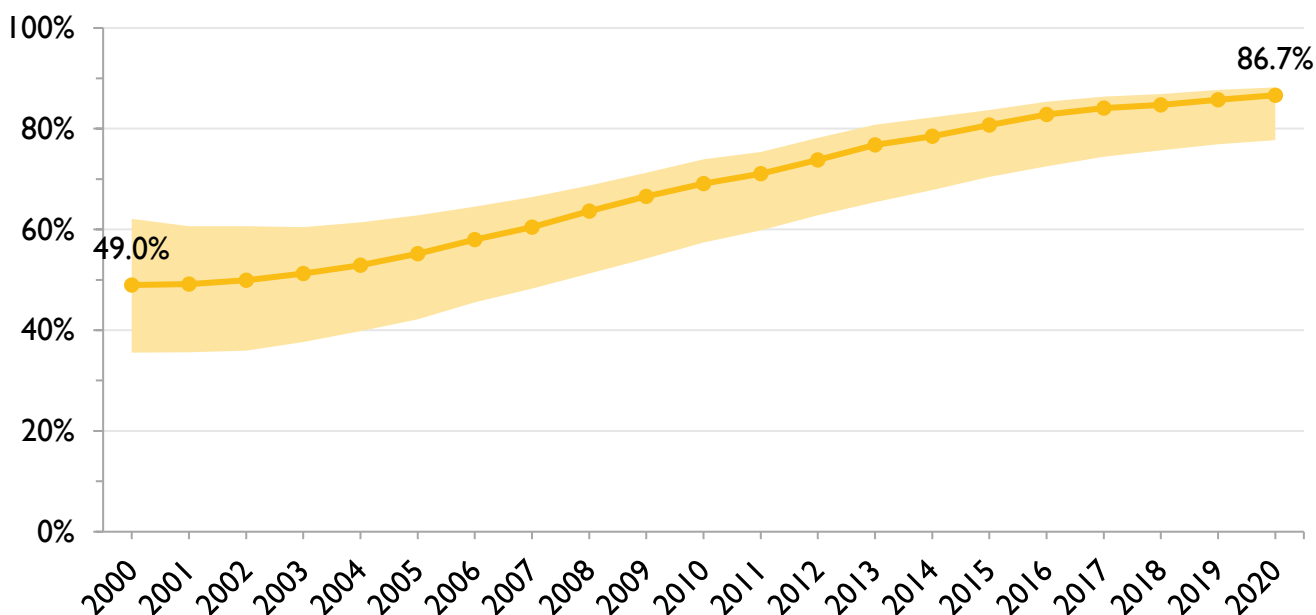
Figure 4.1 Number of people living with diagnosed HIV in Ontario who are on ART, 2000 to 2020



Snapshot

The number of people with diagnosed HIV who are on ART increased from 5,357 in 2000 (range: 4,348 to 5,848) to 17,323 (range: 16,636 to 17,398) in 2020.

Figure 4.2 Percent of people living with diagnosed HIV in Ontario who are on ART, 2000 to 2020

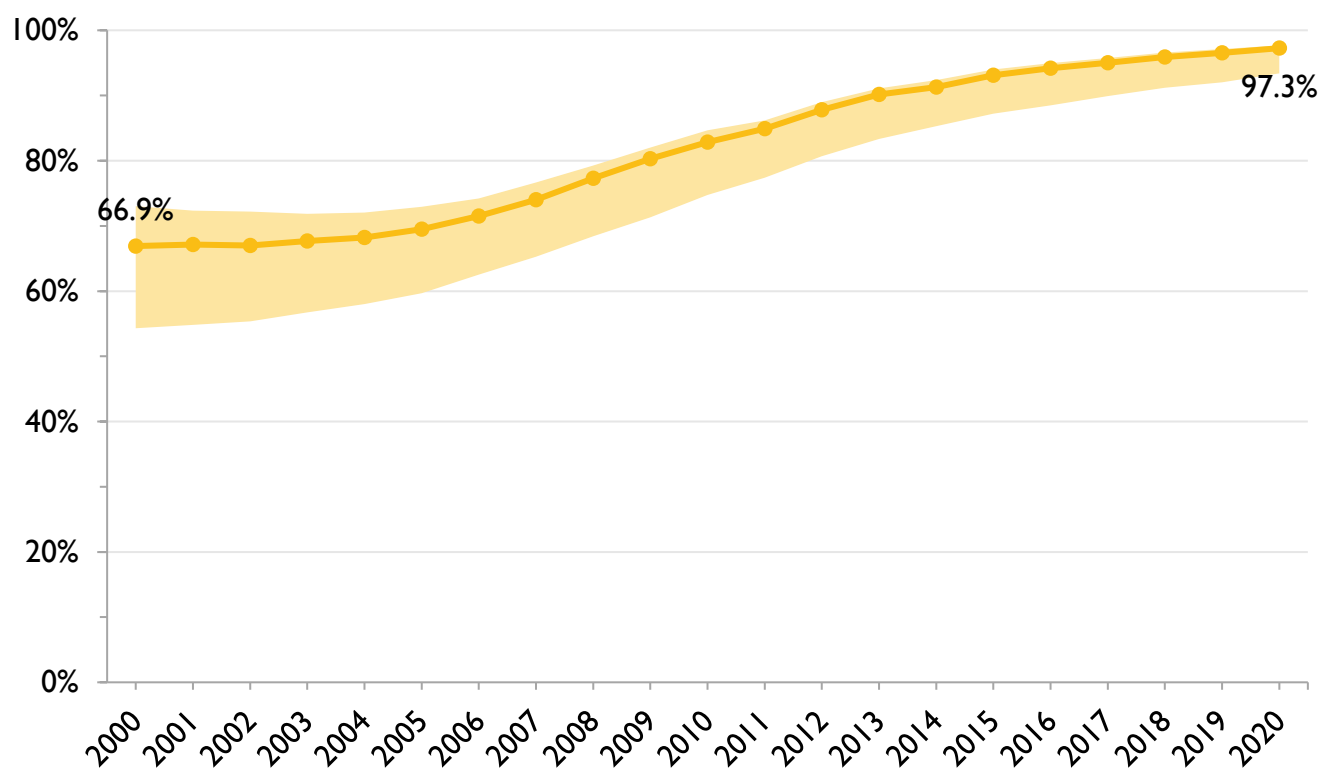


Snapshot

The percent of people with diagnosed HIV who are on ART increased from approximately 50% in the early 2000s to 86.7% in 2020.

Notes: Solid line represents main estimate and shaded area represents range of estimates. Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information. See **Table 4.1** for underlying data.

Figure 4.3 Percent of people living with diagnosed HIV in Ontario in care who are on ART, 2000 to 2020



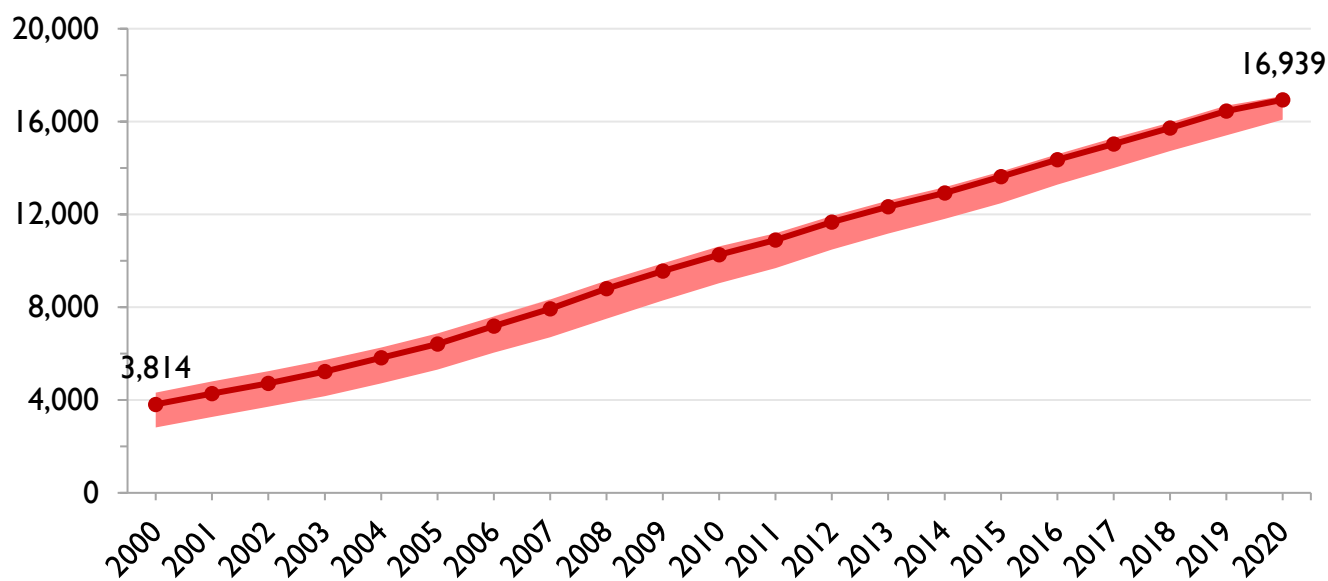
Snapshot

The percent of people in care who are on ART increased from approximately 67% in the early 2000s to 97.3% in 2020. These data indicate that, once people are engaged in care, they are highly likely to be on ART.

Notes: Solid line represents main estimate and shaded area represents range of estimates. Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information. See **Table 4.2** for underlying data.

5. Virally suppressed

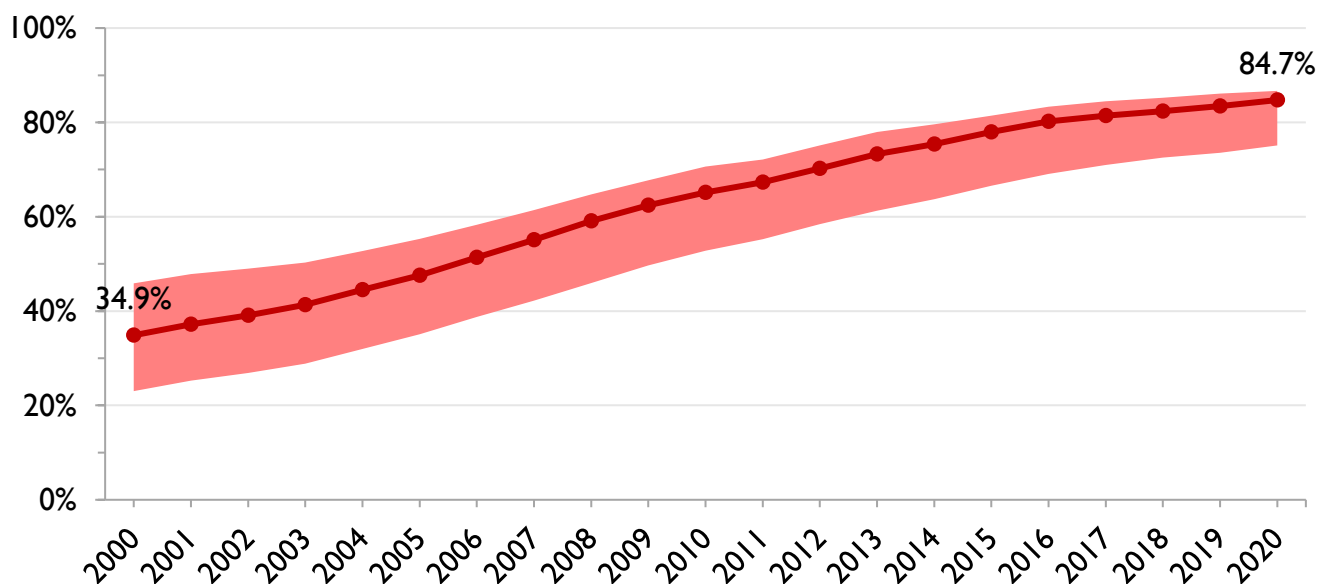
Figure 5.1 Number of people living with diagnosed HIV in Ontario who are virally suppressed, 2000 to 2020



Snapshot

The number of people who are virally suppressed increased from 3,814 in 2000 (range: 2,818 to 4,319) to 16,939 in 2020 (range: 16,074 to 17,096).

Figure 5.2 Percent of people living with diagnosed HIV in Ontario who are virally suppressed, 2000 to 2020

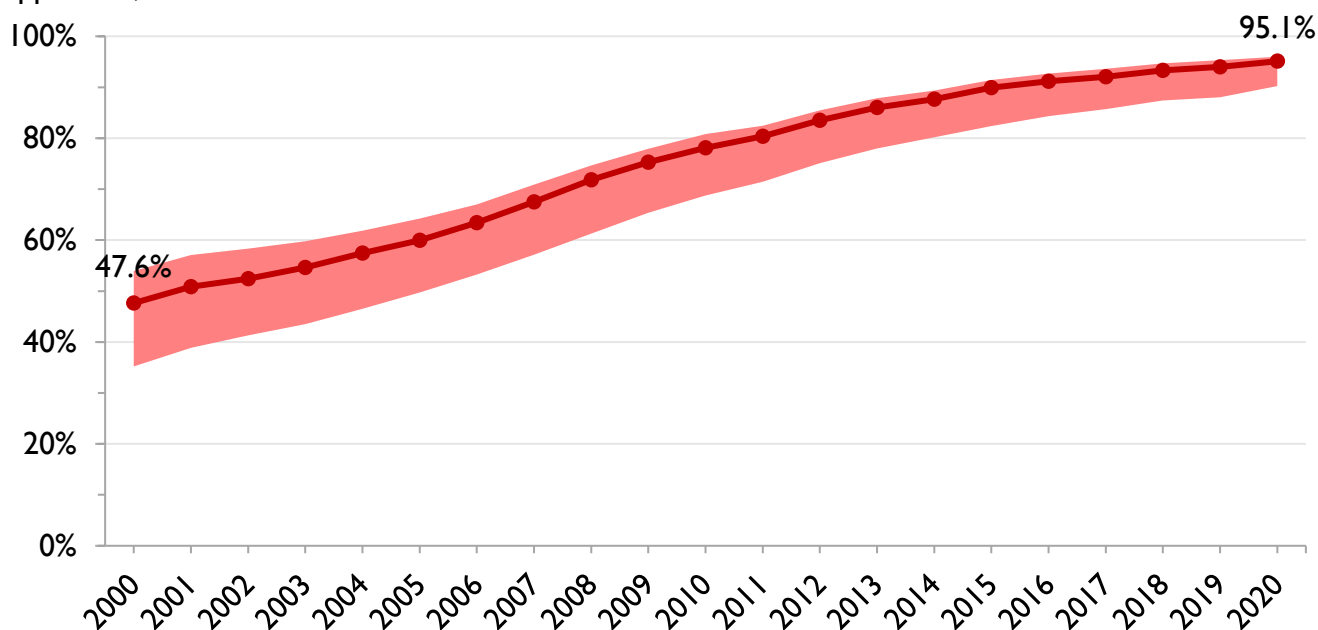


Snapshot

The percent of people with diagnosed HIV who are virally suppressed increased from 34.9% in 2000 (range: 23.0% to 45.8%) to 84.7% in 2020 (range: 75.1% to 86.7%).

Notes: Solid line represents main estimate and shaded area represents range of estimates. Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information. See **Table 5.1** for underlying data.

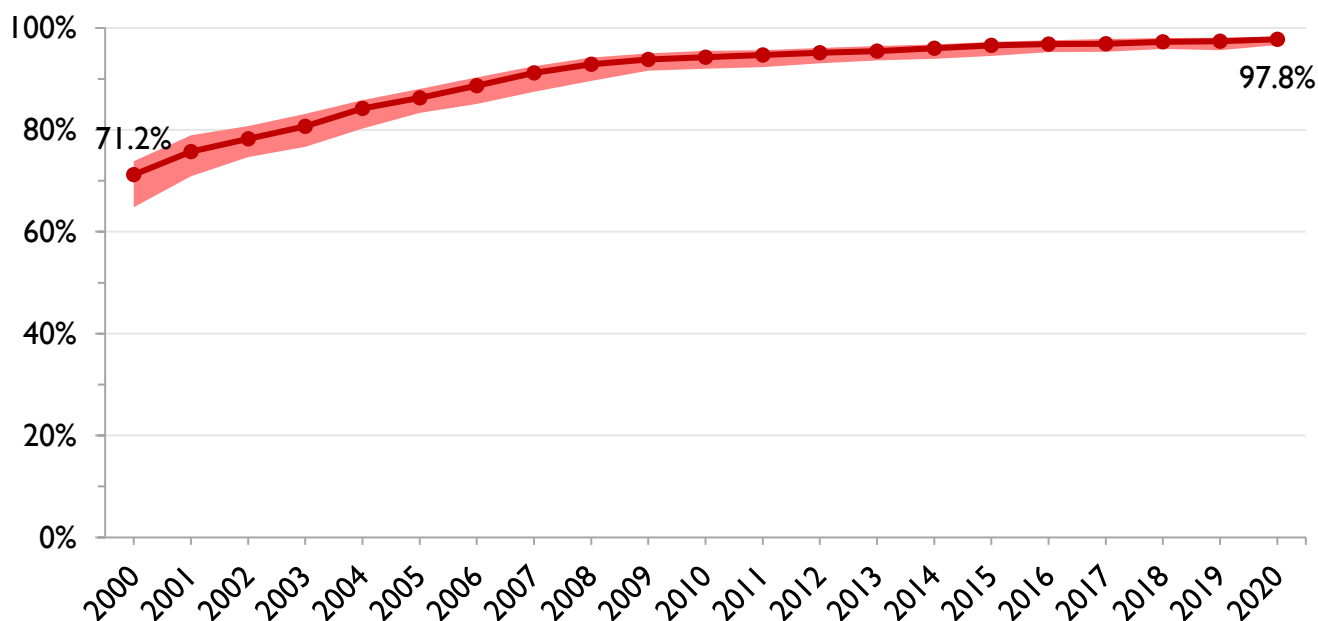
Figure 5.3 Percent of people living with diagnosed HIV in Ontario who are in care who are virally suppressed, 2000 to 2020



Snapshot

The percent of people with diagnosed HIV in care who are virally suppressed increased from 47.6% in 2000 (range: 35.2% to 53.9%) to 95.1% in 2020 (range: 90.2% to 96.0%).

Figure 5.4 Percent of people living with diagnosed HIV in Ontario on ART who are virally suppressed, 2000 to 2020

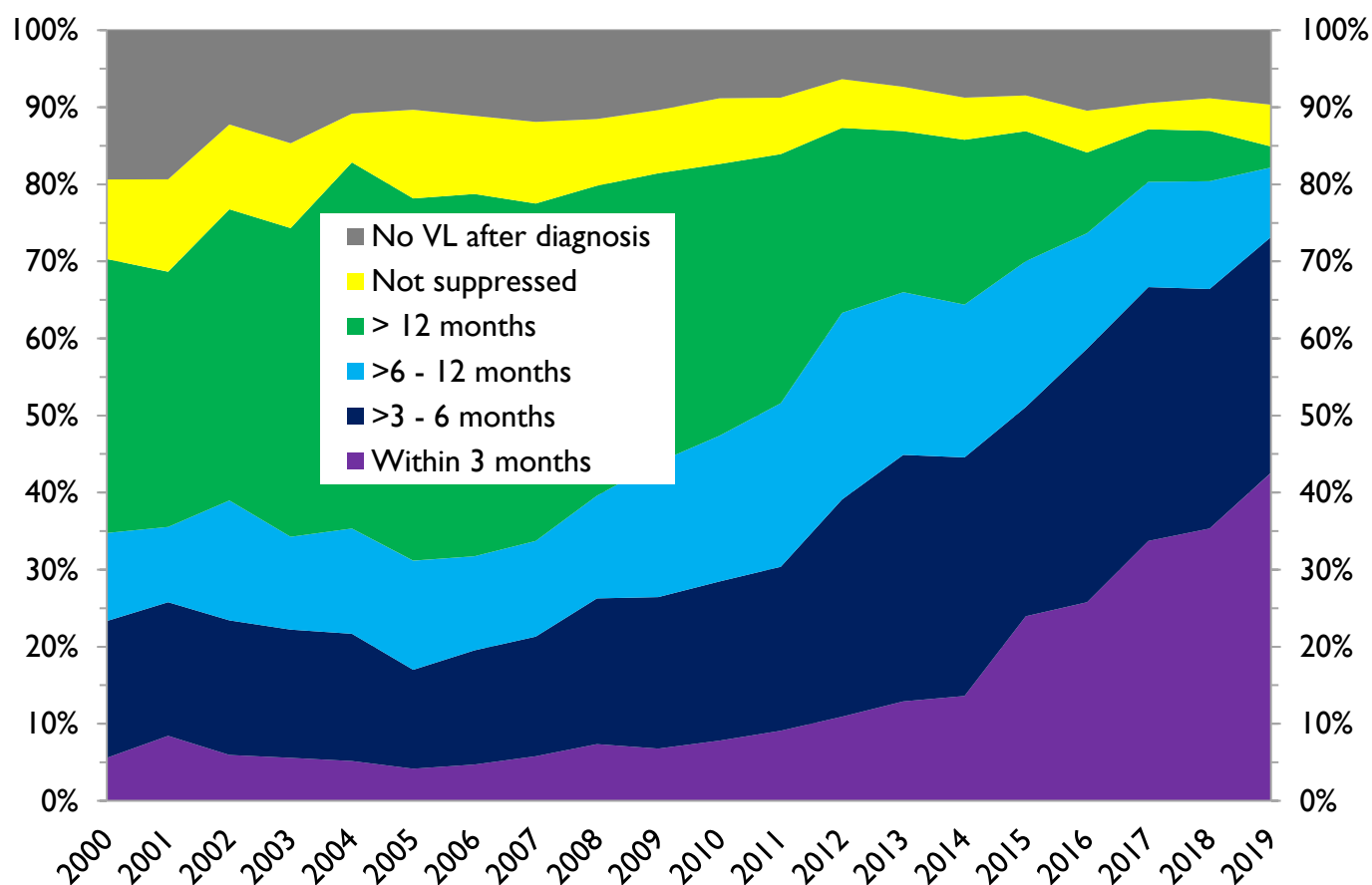


Snapshot

The percent of people on ART who are virally suppressed increased from 71.2% in 2000 (range: 64.8% to 73.9%) to 97.8% in 2020 (range: 96.6% to 98.3%).

Notes: Solid line represents main estimate and shaded area represents range of estimates. Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information. See **Table 5.2** and **Table 5.3** for underlying data.

Figure 5.5 Time from HIV diagnosis to viral suppression for people newly diagnosed with HIV in Ontario (nominally), 2000 to 2019



Snapshot

The percent of newly diagnosed people who are virally suppressed within three months of diagnosis was approximately 5% in the early and mid-2000s and increased to 42.6% in 2019. In addition, in 2019, another 30.6% of newly diagnosed people were virally suppressed within 3-6 months, 9.0% within 6-12 months, and 2.7% more than 12 months after diagnosis. An estimated 5.5% did not achieve viral suppression, and 9.6% had no viral load test after diagnosis (i.e. did not engage in care in Ontario).

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information. See **Table 5.4** for underlying data.

6. Cascade breakdowns by sex, age, and health region

The numbers shown in this section represent our “main” estimates.

By sex

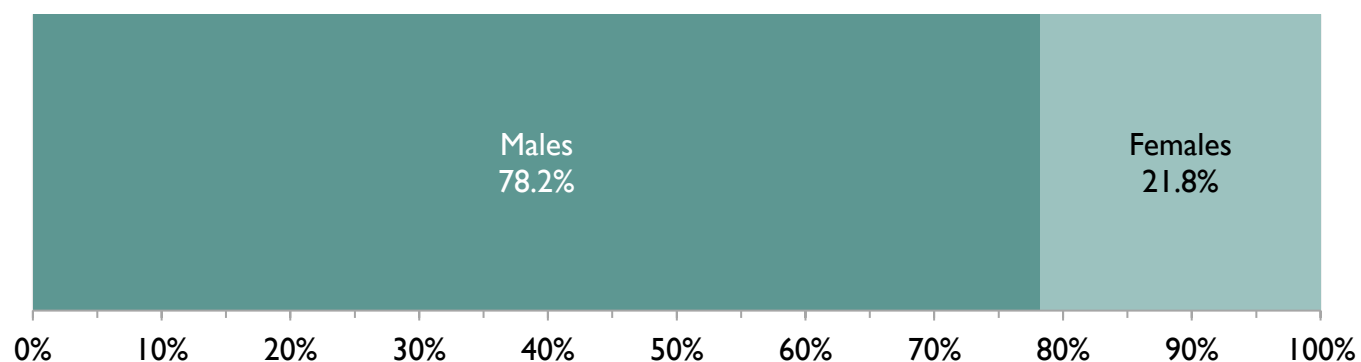
Figure 6.1 Number of people living with diagnosed HIV in Ontario, overall and by sex, 2020



Snapshot

In 2020, 15,419 of the 19,990 people living with diagnosed HIV in Ontario were males, and 4,288 were females.

Figure 6.2 Proportion of people living with diagnosed HIV in Ontario, by sex (where reported), 2020

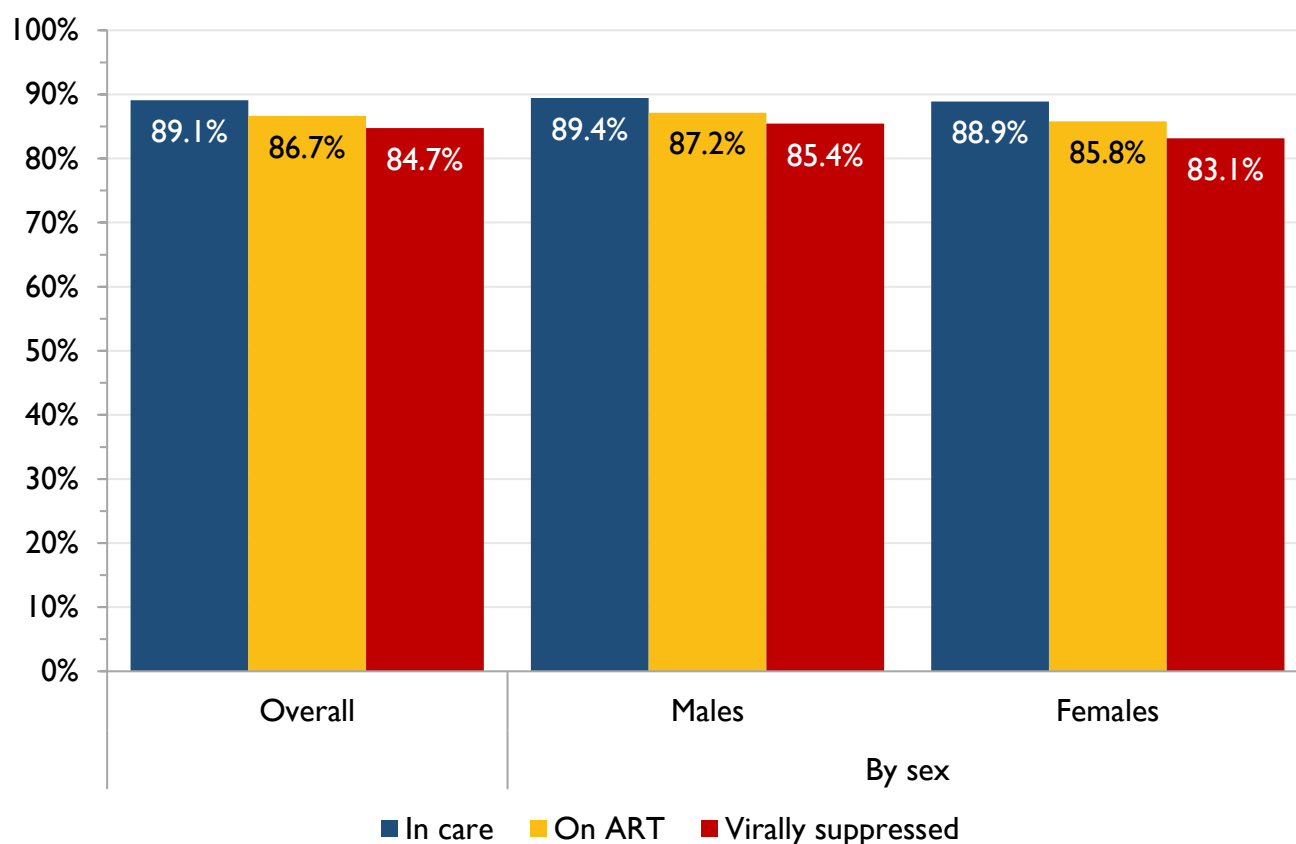


Snapshot

In 2020, where sex was reported, 78.2% of people living with diagnosed HIV in Ontario were male, and 21.8% were female.

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for 1.4% of people living with diagnosed HIV in Ontario in 2020. See **Technical notes** for definitions and more information. See **Table 6.1** for underlying data.

Figure 6.3 Percent of people with living with diagnosed HIV in Ontario engaged in the cascade, overall and by sex, 2020

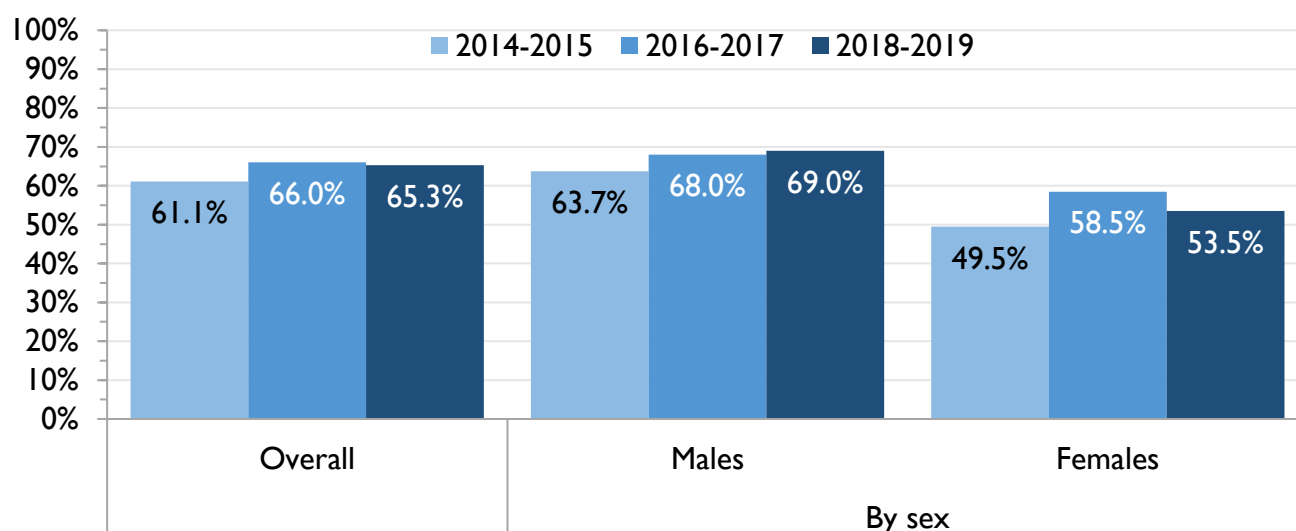


Snapshot

In 2020, 89.4% of males living with diagnosed HIV in Ontario were in care, 87.2% were on ART, and 85.4% were virally suppressed, while 88.9% of females living with diagnosed HIV in Ontario were in care, 85.8% were on ART, and 83.1% were virally suppressed.

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for 1.4% of people living with diagnosed HIV in Ontario in 2020. See **Technical notes** for definitions and more information. See **Table 6.1** for underlying data.

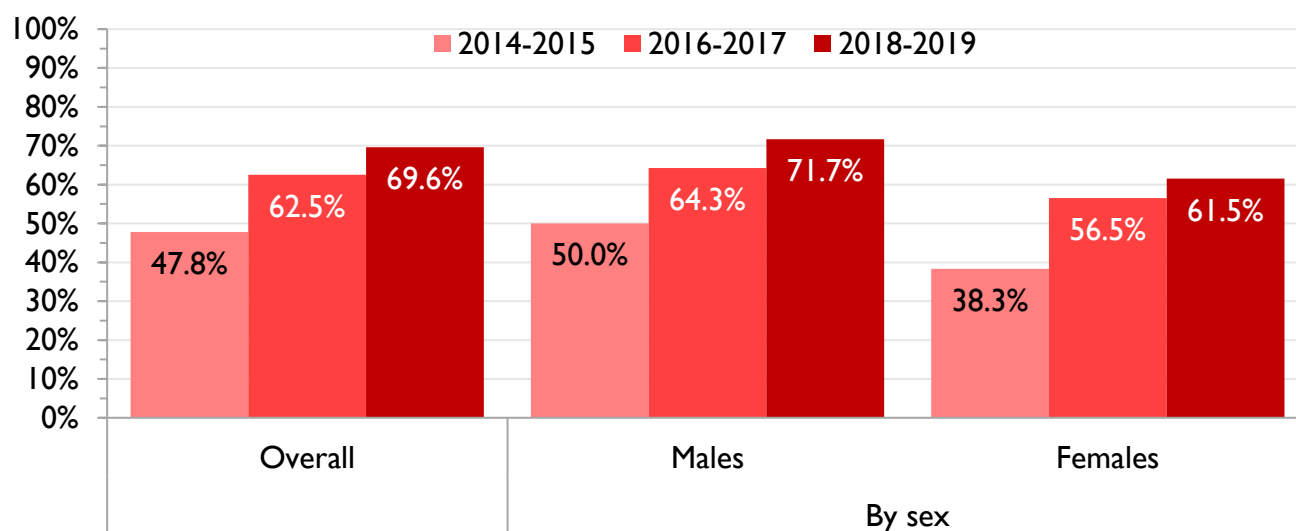
Figure 6.4 Percent of people newly diagnosed with HIV in Ontario (nominally) linked to care within one month of diagnosis, overall and by sex, 2014-2015 to 2018-2019



Snapshot

The proportion of males newly diagnosed with HIV that were linked to care within one month of diagnosis increased from 63.7% in 2014-2015 to 69.0% in 2018-2019. Among females, 49.5% were linked to care within one month in 2014-2015, 58.5% in 2016-2017, and 53.5% in 2018-2019. 85.8% of males and 82.6% of females were linked to care within 3 months of diagnosis in 2018-2019. 9.0% of males and 10.3% of females did not link to care at all in 2018-2019 (included in the denominator).

Figure 6.5 Percent of people newly diagnosed with HIV in Ontario (nominally) who achieved viral suppression within six months of diagnosis, overall and by sex, 2014-2015 to 2018-2019



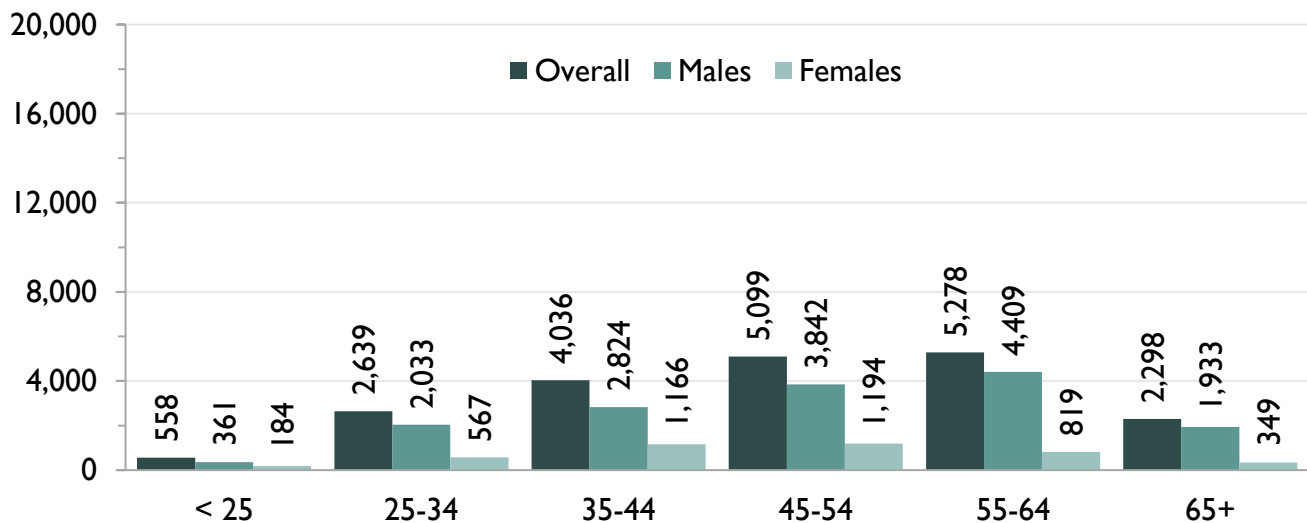
Snapshot

Among males, the proportion of those newly diagnosed with HIV that were virally suppressed within six months increased from 50.0% in 2014-2015 to 71.7% in 2018-2019. Among females, this proportion increased from 38.3% in 2014-2015 to 61.5% in 2018-2019. 9.0% of males and 10.3% of females did not link to care at all in 2018-2019 (included in the denominator).

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for an average 1.0% of people newly diagnosed with HIV in Ontario between 2014-2015 and 2018-2019. See **Technical notes** for definitions and more information. See **Table 6.2** for underlying data.

By age

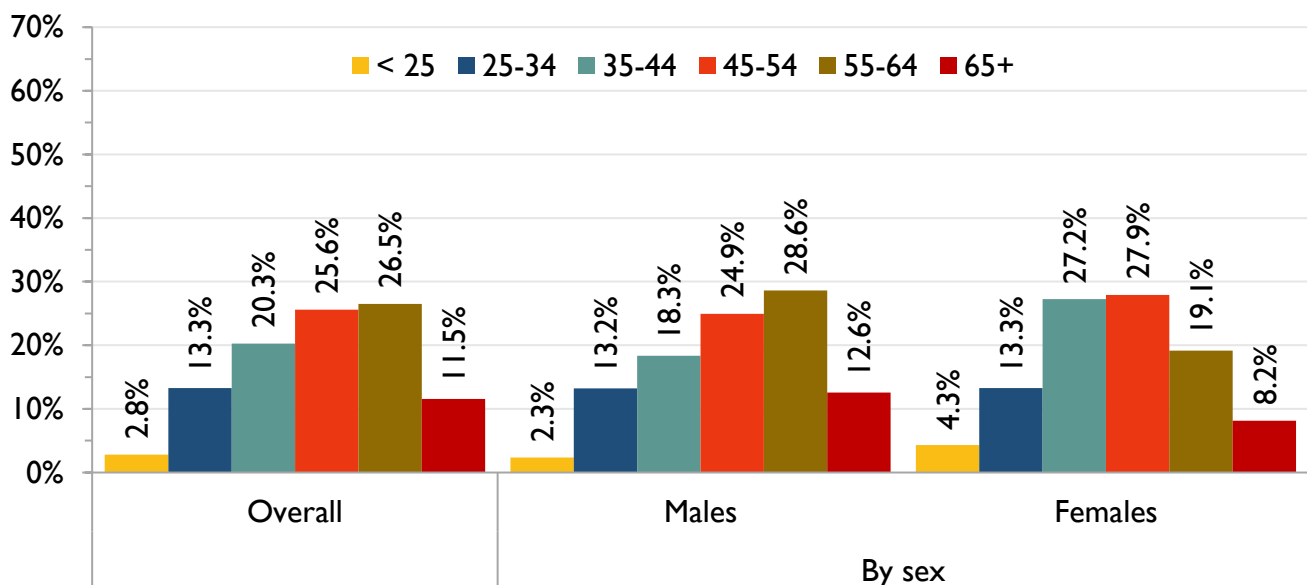
Figure 6.6 Number of people living with diagnosed HIV in Ontario, by age; overall, males, and females, 2020



Snapshot

In 2020, those aged 55-64 made up the largest number of people living with diagnosed HIV in Ontario overall and among males, while those aged 45-54 made up the largest number among females.

Figure 6.7 Proportion of people living with diagnosed HIV in Ontario, by age; overall, males, and females, 2020

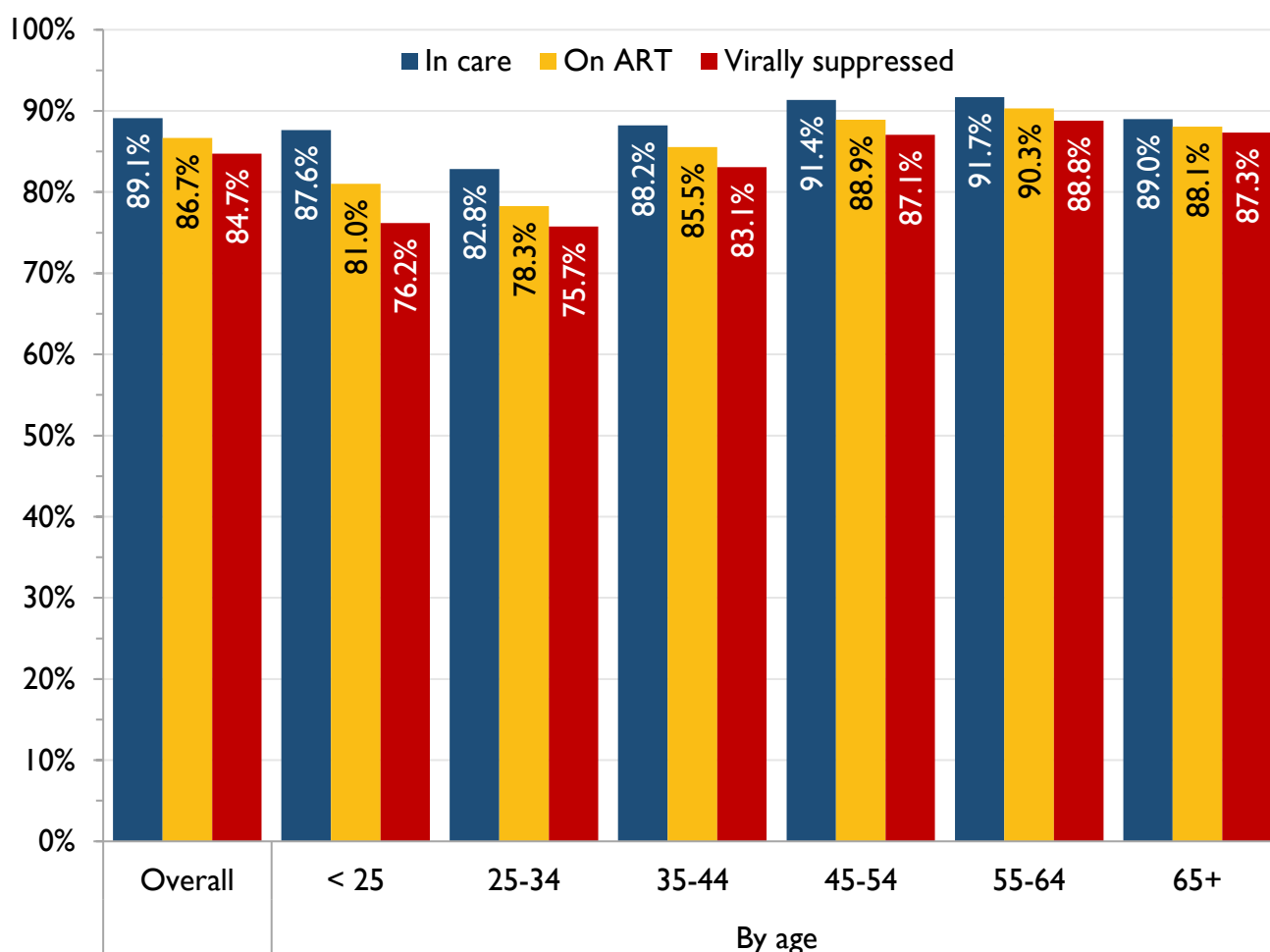


Snapshot

In 2020, the distribution of males living with diagnosed HIV in Ontario skewed toward older age groups (53.6% were aged 45-64), while females had a more symmetrical distribution (55.2% were aged 35-54). The median age of males living with diagnosed HIV was 52, while it was 46 for females.

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for 1.4% of people living with diagnosed HIV in Ontario in 2020; age was not reported for <1%. See **Technical notes** for definitions and more information. See **Table 6.3** for underlying data.

Figure 6.8 Percent of people living with diagnosed HIV in Ontario engaged in the cascade, by age, 2020

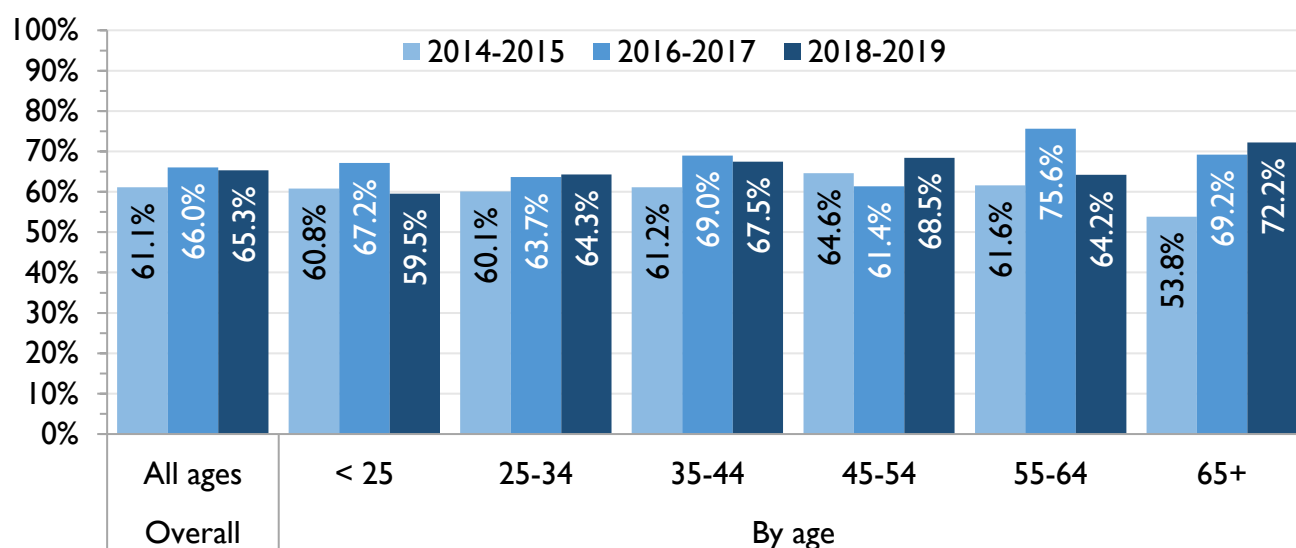


Snapshot

In 2020, among people living with diagnosed HIV in Ontario, older age groups had higher proportions of cascade metrics compared to those aged less than 35.

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for 1.4% of people living with diagnosed HIV in Ontario in 2020; age was not reported for <1%. See **Technical notes** for definitions and more information. See **Table 6.3** for underlying data.

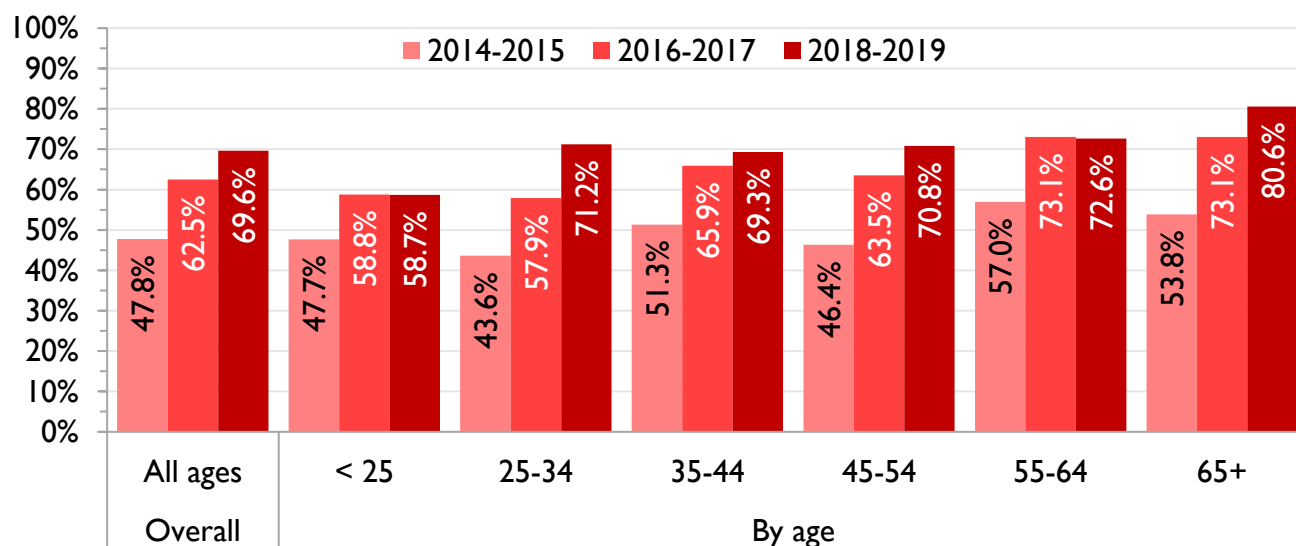
Figure 6.9 Percent of people newly diagnosed with HIV in Ontario (nominally) linked to care within one month of diagnosis, overall and by age, 2014-2015 to 2018-2019



Snapshot

Between 2014-2015 and 2018-2019, the proportion of people newly diagnosed with HIV that were linked to care within one month of diagnosis increased in all age groups except those aged <25. The greatest increase occurred in those aged 65+ (from 53.8% to 72.2%), while those aged <25 saw little change. 9.2% of people newly diagnosed with HIV did not link to care at all in 2018-2019 (included in the denominator).

Figure 6.10 Percent of people newly diagnosed with HIV in Ontario (nominally) who achieved viral suppression within six months of diagnosis, overall and by age, 2014-2015 to 2018-2019



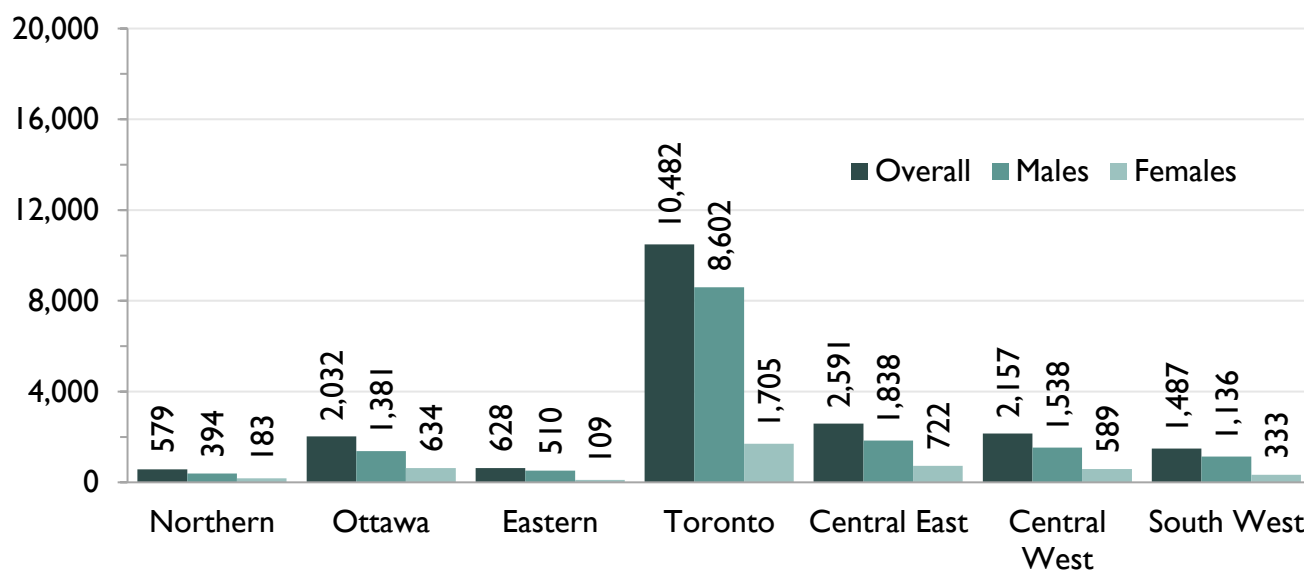
Snapshot

The proportion of people newly diagnosed with HIV that were virally suppressed within six months of diagnosis increased for all age groups between 2014-2015 and 2018-2019. Those aged 25-34 saw the largest increase, from 43.6% to 71.2%, followed by those aged 65+, from 53.8% to 80.6%. 9.2% of people newly diagnosed with HIV did not link to care at all in 2018-2019 (included in the denominator).

Notes: Data provided by Public Health Ontario Laboratory. Age was not reported for <1.0% of people newly nominally diagnosed with HIV between 2014-2015 and 2018-2019. See **Technical notes** for definitions and more information. See **Table 6.4** for underlying data.

By health region

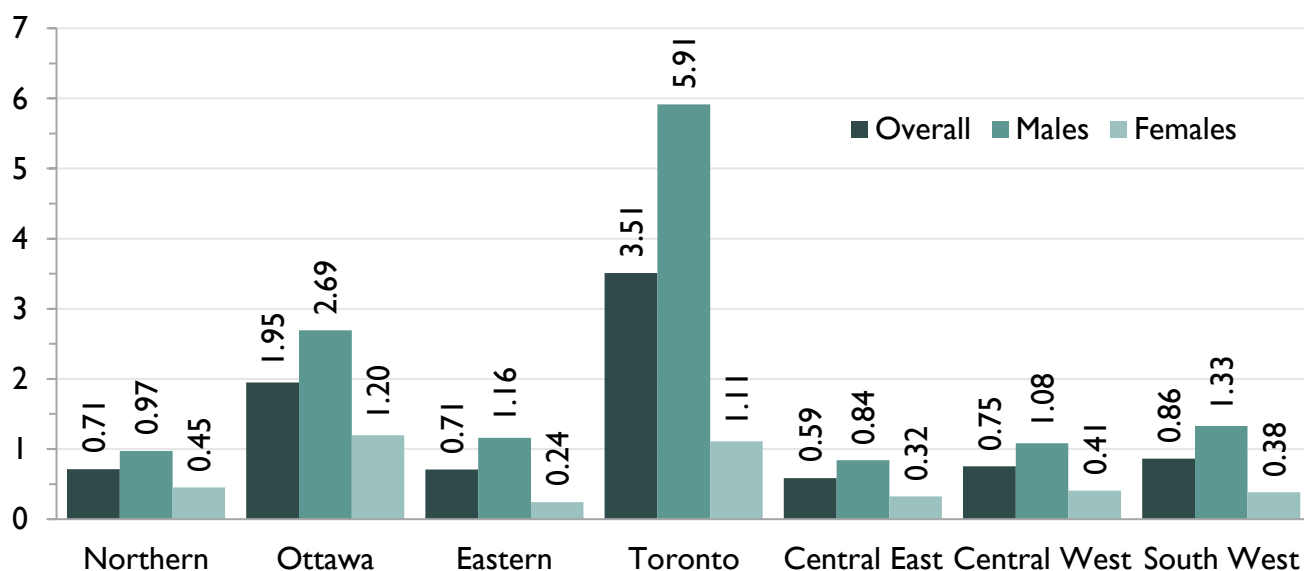
Figure 6.11 Number of people living with diagnosed HIV in Ontario, by health region; overall, males, and females, 2020



Snapshot

In 2020, Toronto had the largest number of people living with diagnosed HIV in Ontario among both males (8,602) and females (1,705), followed by Central East (1,838 males and 722 females).

Figure 6.12 Rate of people living with diagnosed HIV per 1,000 population in Ontario, by health region; overall, males, and females, 2020

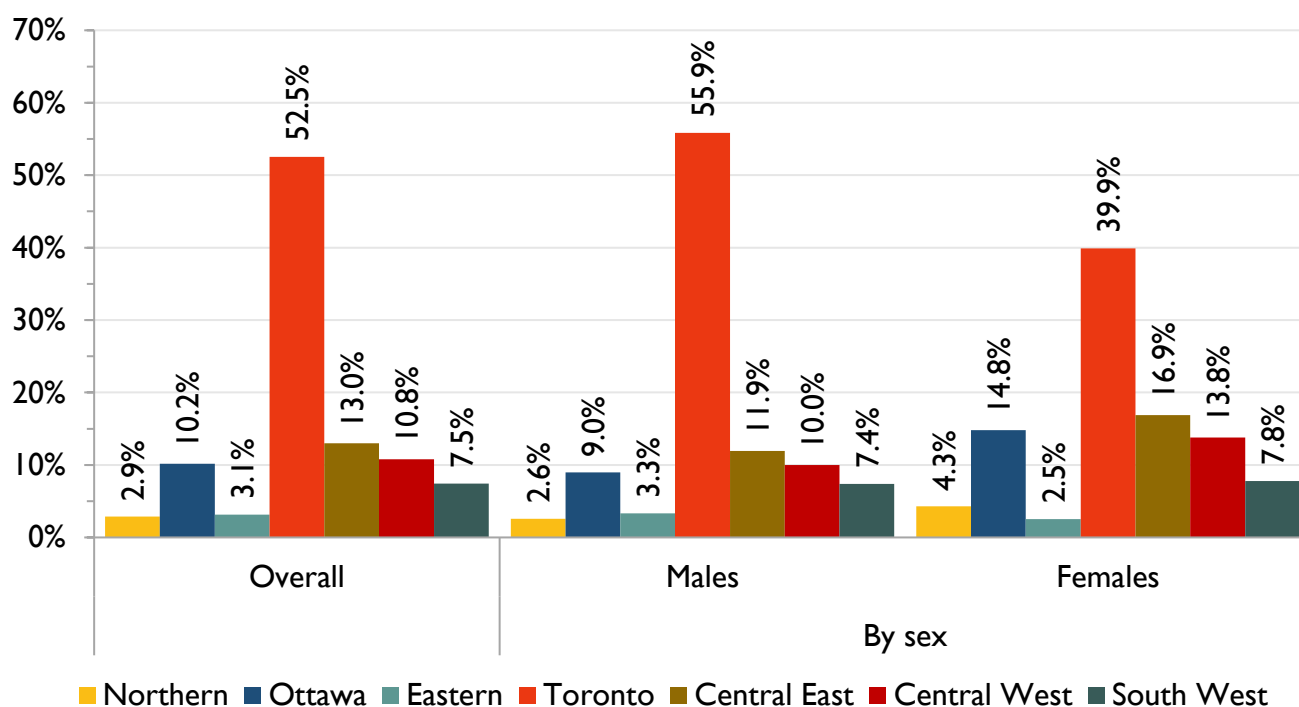


Snapshot

In 2020, Toronto had the highest rate of people living with diagnosed HIV per 1,000 population in Ontario among males (5.91) and Ottawa had the highest number among females (1.20).

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for 1.4% of people living with diagnosed HIV in Ontario in 2020; health region was not reported or reported as outside Ontario for <1%. See **Technical notes** for definitions and more information. See **Table 6.5** and **Table 6.6** for underlying data.

Figure 6.13 Proportion of people living with diagnosed HIV in Ontario, by health region; overall, males, and females, 2020

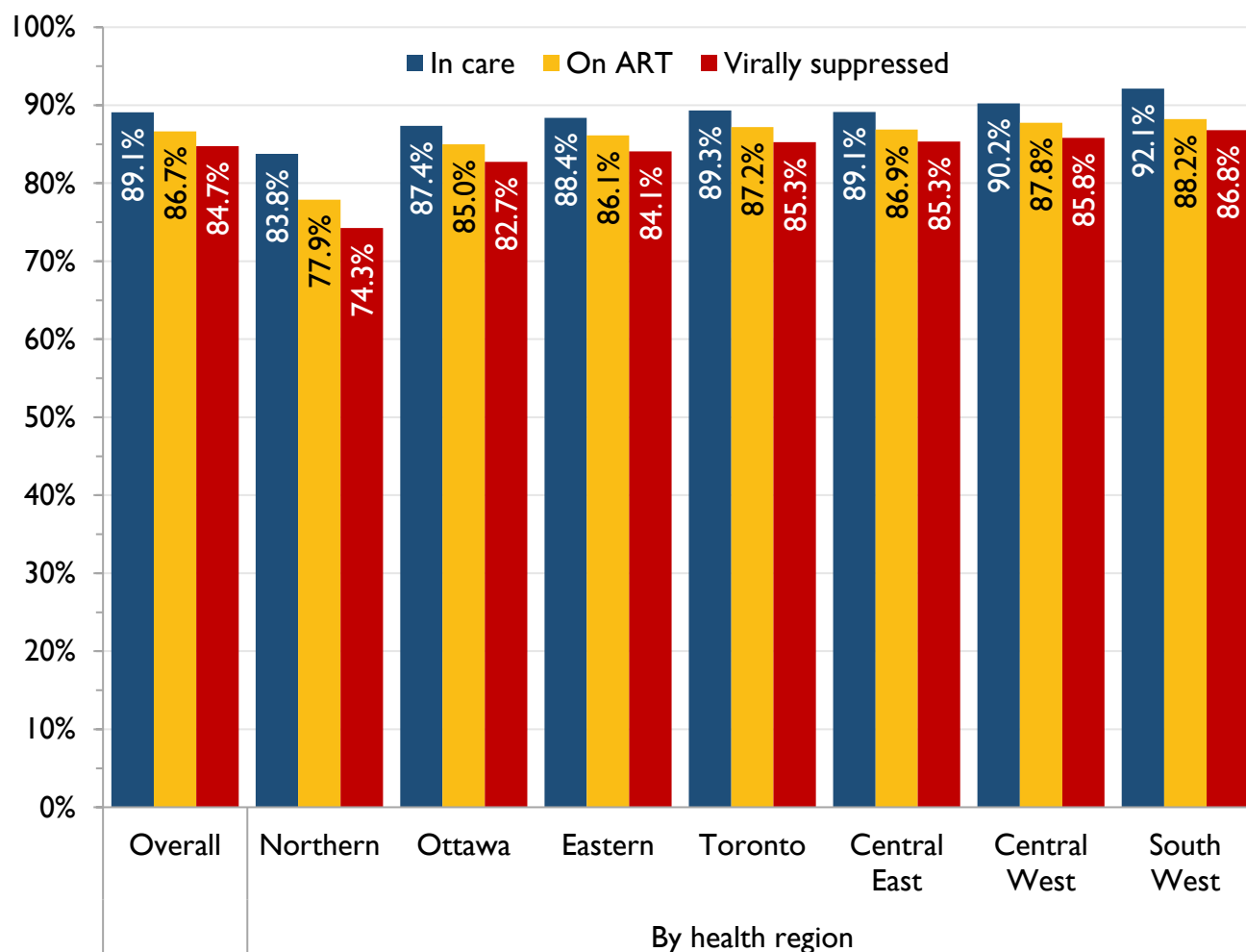


Snapshot

In 2020, the majority of males with diagnosed HIV living in Ontario were in Toronto region (55.9%) and no other region made up more than 12%. Whereas among females, Toronto region made up 39.9% and Ottawa, Central East, and Central West made up larger proportions than among males.

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for 1.4% of people living with diagnosed HIV in Ontario in 2020; health region was not reported or reported as outside Ontario for <1%. See **Technical notes** for definitions and more information. See **Table 6.5** for underlying data.

Figure 6.14 Percent of people living with diagnosed HIV in Ontario engaged in the cascade, by health region, 2020

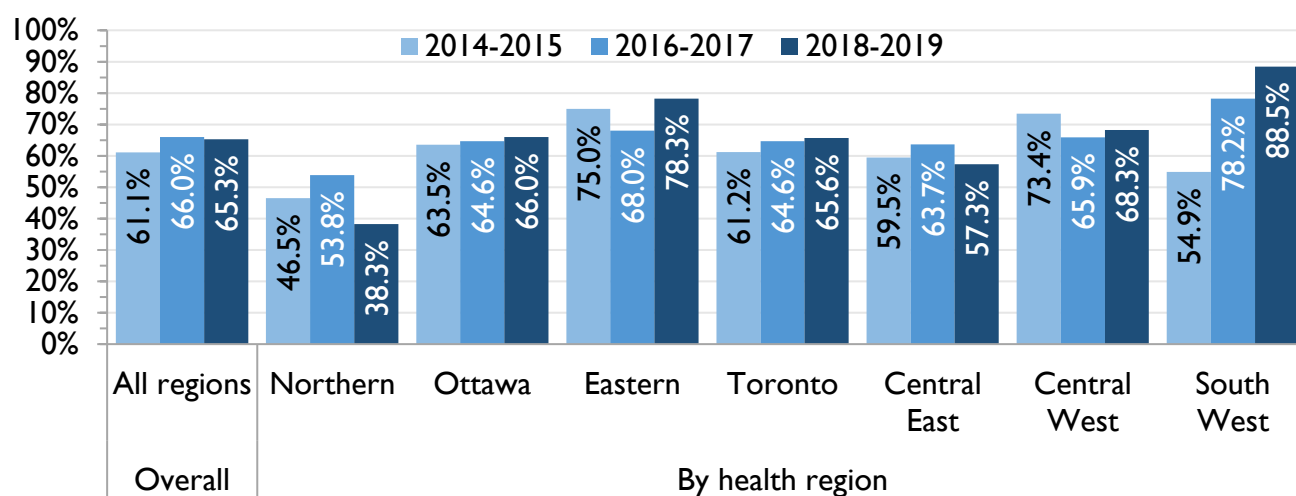


Snapshot

In 2020, the South West region had the highest proportions of cascade metrics among people with diagnosed HIV living in Ontario while the Northern region had the lowest.

Notes: Data provided by Public Health Ontario Laboratory. Health region was not reported or reported as outside Ontario for <1% of people living with diagnosed HIV in Ontario in 2020. See **Technical notes** for definitions and more information. See **Table 6.5** for underlying data.

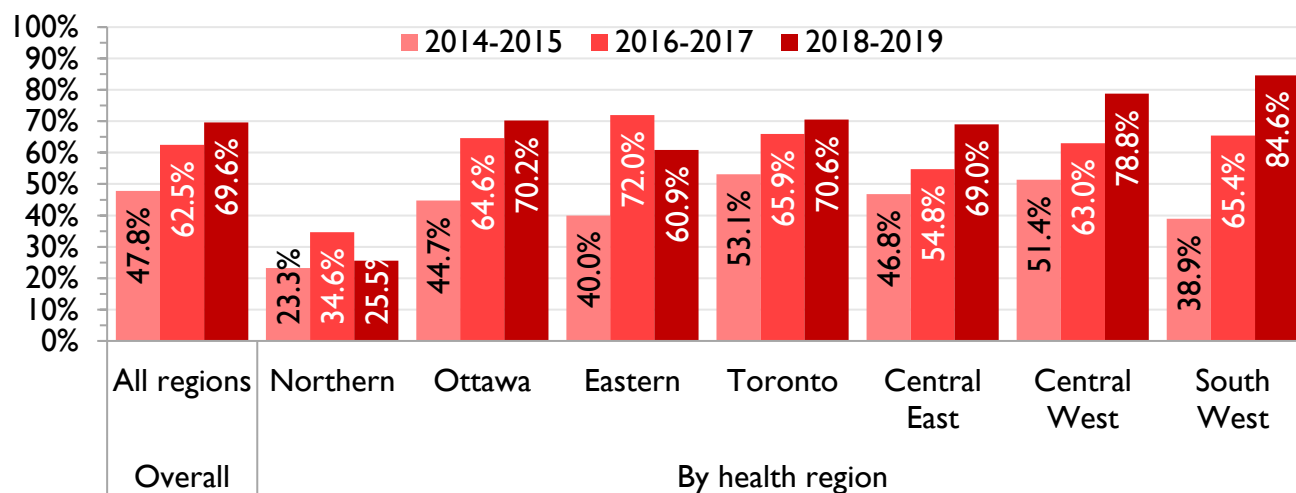
Figure 6.15 Percent of people newly diagnosed with HIV in Ontario (nominally) linked to care within one month of diagnosis, overall and by health region, 2014-2015 to 2018-2019



Snapshot

Between 2014-2015 and 2018-2019, the proportion of people newly diagnosed with HIV that were linked to care within one month of diagnosis increased for South West region (from 54.9% to 88.5%), decreased for Northern region (from 46.5% to 38.3%), and had little change for the other regions. 9.2% of people newly diagnosed with HIV did not link to care at all in 2018-2019 (included in the denominator).

Figure 6.16 Percent of people newly diagnosed with HIV in Ontario (nominally) who achieved viral suppression within six months of diagnosis, overall and by health region, 2014-2015 to 2018-2019



Snapshot

The proportion of people newly diagnosed with HIV that were virally suppressed within six months of diagnosis increased for all regions between 2014-2015 and 2018-2019. South West region saw the largest change, from 38.9% to 84.6%. Northern region had smaller proportions virally suppressed by six months than all regions (25.5% in 2018-2019 compared to 65.3% overall) and saw less change over time. 9.2% of people newly diagnosed with HIV did not link to care at all in 2018-2019 (included in the denominator).

Notes: Data provided by Public Health Ontario Laboratory. Health region was not reported or reported as outside Ontario for an average of 1.4% of people newly nominally diagnosed with HIV in Ontario between 2014-2015 and 2018-2019. See **Technical notes** for definitions and more information. See **Table 6.7** for underlying data.

Appendices

I. Technical notes

Data sources

Modelling of the total number of people living with HIV and the undiagnosed fraction

The Public Health Agency of Canada (PHAC) conducts modelling of HIV incidence and prevalence every two years for Canada, including modelling at the provincial level. For Ontario, this modelling is carried out using data obtained from Public Health Ontario on the cumulative number of diagnosed cases of HIV in Ontario, and an estimated number of deaths among people living with HIV. The Canadian modelling method is described in [Estimates of HIV Incidence, Prevalence and Canada's Progress on Meeting the 90-90-90 HIV Targets, 2020, published in 2022](#)¹. The statistical modelling is based on a back-calculation method that combines HIV and AIDS diagnostic data, with data on proportions of recent infections from laboratory testing algorithms. This method is similar to methods used in the European Union, the USA, and Australia. In order to calculate an accurate number of people living with HIV in Ontario, alternate data sources were used to account for mortality and out-migration. Mortality estimates were calculated using data obtained from the Institute for Clinical Evaluative Sciences, and out-migration was estimated based on individuals lost to care in Ontario. The diagnosed fraction is calculated by dividing the estimated number of people who are diagnosed and alive in Ontario by the estimated prevalence estimate from the model.

HIV Datamart

Information in this report comes from the HIV Datamart housed at the Public Health Ontario (PHO) Laboratory. PHO Laboratory conducts centralized HIV diagnostic and VL testing for Ontario, and maintains databases that contain information on the vast majority of such testing in the province. These databases were integrated to form the HIV Datamart. In the datamart, a person's diagnostic and VL test records are linked using patient identifiers. However, it is not possible to link non-nominal HIV-positive diagnostic tests (coded, anonymous) to VL tests, as no identifying information is available to facilitate linkage.

All information in the HIV Datamart is confidential, and only de-identified aggregate data is shared with OHESI partners for inclusion in this report.

The HIV diagnosis and VL databases used to create the datamart are described in further detail below:

HIV diagnosis database (1985 to 2020)

The HIV diagnosis database contains records for all individuals who have had an HIV-positive diagnostic test result in Ontario. This includes people who were diagnosed with HIV for the first time in Ontario, as well as people who were diagnosed elsewhere and migrated to

¹ Accessed, 8/04/2022; <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/estimates-hiv-incidence-prevalence-canada-meeting-90-90-90-targets-2020.html>

Ontario and tested again. PHO Laboratory conducts the vast majority of HIV testing in Ontario. In Ontario, individuals testing for HIV may use either their full name (nominal) or test without a name at designated HIV testing clinics (anonymous). Anonymous testing is a form of non-nominal testing.

HIV viral load database (1996 to 2020)

VL testing was implemented in 1996 and the database at PHO Laboratory contains records for all individuals who have had a VL test in Ontario. In addition to VL test results, the database contains information from the VL test requisition form (completed by the provider), including most recent CD4 count and whether the patient is on ART at the time of testing. Providers complete the information on ART on approximately 81% of VL test requisition forms. All VL tests in the database were conducted nominally.

Estimation of people living with diagnosed HIV in Ontario

The determination of people living with diagnosed HIV in Ontario, was created using the integrated HIV Datamart. Individuals are included as diagnosed in Ontario if they have:

1. At least one confirmed positive HIV diagnostic test (both nominal and non-nominal) (i.e., reactive Western Blot, detection of HIV viral nucleic acid, p24 antigen confirmed by neutralization assay, Geenius [lateral flow]), **and/or**
2. At least one HIV VL test above the threshold of detection, **and/or**
3. At least one HIV VL test below the threshold of detection and no obvious evidence of being a HIV-negative person

Individuals with record of a VL test only (no linked nominal HIV-positive diagnostic test) are included in the cohort, with one exception. Individuals with no confirmed HIV-positive diagnostic test and all undetectable VL test results **do not** enter the cohort if they have evidence of being HIV-negative (i.e. record of a nominal HIV-negative diagnostic test after, on the same day as, or within 30 days before their last undetectable VL test); these individuals are likely HIV-negative people receiving a VL test for diagnostic purposes. 2,257 individuals were excluded from the cohort for this reason.

A total of 53,892 people in the HIV Datamart met at least one of the three above criteria.

4. **and** have not been administratively lost to follow-up (LTFU) after two years for VL tests and unlinked non-nominal diagnoses, seven years for unlinked nominal diagnoses.

To determine who is living in Ontario during a calendar year a number of loss to follow-up rules are applied. For individuals with confirmed diagnostic tests which are not linked to a viral load test, they are assumed in the province for 2 years if the diagnostic test was non-nominal and 7 years if the unlinked diagnostic test was nominal. For those diagnostic tests that are linked to VL tests, individuals are removed if they have no record of a VL test for more than 3 consecutive years, and no VL test at a later date (referred to as administratively LTFU). This is 3 years despite the 2-year LTFU criteria, because the last VL test is “carried forward” into the subsequent year, and the lack of VL test in the subsequent 2 years constitute the 2-year LTFU criteria. These individuals are removed to account for potential death or migration out of the province. If an LTFU individual has a subsequent VL test in later years, they re-enter the cohort and are counted as being a diagnosed person living in Ontario during the years in which they were in a gap in care. The 2-year LTFU criteria was selected given that

this would include most individuals who are in a *known* gap in care (i.e. individuals with no VL test in one or more consecutive years, but a VL test in later years). Between 2000 and 2020, the median duration of known gaps in care was 1.4 years. After application of the LTFU criteria, there were 19,990 diagnosed people living with HIV in the cohort at the end of 2020. See **Analysis** section below for more details on how the LTFU criteria was applied.

Individuals with a confirmed nominal HIV-positive diagnostic test but no linked VL test records were considered administratively LTFU after seven years.

Note: In sensitivity analyses, the LTFU criteria is extended to four years. See the **Indicator definitions** section below for more information.

Individuals with newly diagnosed HIV

The HIV Datamart was also used to identify the subset of individuals who were diagnosed with HIV for the first time in Ontario (i.e., were not individuals who were diagnosed outside the province and migrated to Ontario and tested again). This sample is used to measure time from HIV diagnosis to linkage to care and viral suppression.

Individuals are defined as newly diagnosed if they have record of a nominal HIV-positive diagnostic test and no evidence of being previously diagnosed. Individuals were considered to have evidence of being previously diagnosed if their first VL test after diagnosis was suppressed and/or their first suppressed VL test was within 30 days after diagnosis. Individuals without a VL test after a nominal HIV-positive diagnostic test were included; individuals were considered not linked to care if they did not have a VL test more than 30 days after their diagnosis. Unlike the inclusion criteria for the overall Ontario HIV Laboratory Cohort, individuals with a VL test only (no linked HIV-positive diagnostic test) are not included as being newly diagnosed, as a diagnosis date is needed to measure time to care and suppression.

Overall, 11,851 individuals had a nominal HIV-positive diagnostic test between 2000 and 2019. Of these, 1,165 (9.8%) were excluded because they had evidence of being previously diagnosed. The remaining 10,686 are included as individuals newly diagnosed with HIV.

Analysis

We used the cohort to calculate the number of individuals each year meeting the cascade indicator definitions for diagnosed, in care, on ART, and virally suppressed (See **Indicator definitions**). The denominator used to calculate the percent of individuals in each stage per year varied by cascade stage. We used the individuals with newly diagnosed HIV to calculate time from HIV diagnosis to linkage to care and viral suppression.

An individual in the Ontario HIV Laboratory Cohort is considered to be a person with diagnosed HIV who is living in Ontario until administratively lost to follow-up, defined as having had no viral load test for three or more consecutive years and no viral load test in later years. This is 3 years despite the 2-year LTFU criteria, because the last VL test is “carried forward” into the subsequent year, and the lack of VL test in the subsequent 2 years constitute the 2-year LTFY criteria. This is done to account for possible migration or death. For example, if a diagnosed individual had a VL test in 2011, but no viral load test for the next four years, they would be considered in care for 2011 and 2012 (their

2011 VL test result would be carried forward to 2012) and they are included in the analysis as diagnosed with HIV but not in care for the subsequent two years (i.e. 2013 and 2014). For 2015 and onward, they are removed from the cohort. However, if this individual re-engages in care in the future (e.g. 2018) and has another VL test, they would be included in the analysis for all the years in which they were in a gap in care (i.e. 2012 to 2017 inclusive). During this gap in care, the individual is included in the analysis as diagnosed with HIV but **not** in care, **not** on ART, and **not** virally suppressed.

For each cascade indicator, a “Main” estimate is calculated, along with an “Upper” and/or “Lower” estimate, where applicable. The “Main” estimate represents the best estimate for the cohort. However, as there is no widespread consensus on how some indicators should be defined, “Upper” and “Lower” estimates are also calculated in order to reflect the impact of different definitions and create a range of possible values. These estimates are calculated using more or less conservative definitions for an indicator. For some indicators, there were no feasible “Upper” and/or “Lower” definitions that could be applied.

The analysis in this report is limited to VL tests conducted January 1st, 2000 or later. VL testing was implemented in Ontario in 1996, and took time to be scaled up and become a routine part of HIV care. Therefore, we only consider VL data from 2000 onwards to be of sufficient quality to be a good indicator of engagement in HIV care.

The analyses of time from diagnosis to linkage to care and viral suppression further exclude the year 2020, as many individuals diagnosed in this year do not have a full two years of follow-up data (i.e., until the end of 2020) for analysis.

Number of people living with HIV: two different numbers from two different methodologies

The main estimate of the number of people living with HIV described in this report (22,461 in 2020; **Figure 1.1**) is slightly different from what the Public Health Agency of Canada (PHAC) described in their report (23,380, in the report “[Estimates of HIV incidence, prevalence and Canada’s progress on meeting the 90-90-90 HIV targets, 2020](#)”). The estimate produced by PHAC used statistical modelling based on a back-calculation method described within their report. These methods are also used to produce the estimated proportion of people living with HIV in Ontario that are diagnosed (i.e. diagnosed fraction, 89.0% in 2020), which is included in this OHESI report. OHESI’s estimated number of people living with HIV in Ontario is produced by considering the estimated number of people living with diagnosed HIV in Ontario provided by the Public Health Ontario (PHO) Laboratory (19,990; range 19,723 to 21,393) to constitute the 89.0% (provided by PHAC) of all people living with HIV. $19,990 \div X = 0.89$; $X = 22,461$. The range of number of people living with HIV described in this report (20,000 – 26,500) was produced and provided by PHAC, via their aforementioned methods. Given that OHESI’s estimated number falls within this range, we are reassured in our methods described above.

The range of proportion of people living with HIV that are diagnosed (85.5% - 91.5%; **Figure 1.2**), was calculated by dividing the main and upper estimates of people with diagnosed HIV per the PHO Laboratory (19,990 and 21,393, respectively; **Figure 2.1**) by the number of people living with HIV as estimated by PHAC (23,380).

Limitations and assumptions

HIV prevalence and undiagnosed fraction

- The modelling relies on a number of data sources and on the accuracy of the data inputs. An accurate number of annual cases due to local transmission is critical to calculating incidence. Sensitivity analyses and comparisons to other methods were done to ensure the most accurate prevalence estimate.
- Prevalence estimates require accurate mortality counts for all people living with HIV and out-migration estimates, in order to accurately estimate the number of diagnosed and living in the province at any particular moment in time.

HIV Datamart and estimation of people living with diagnosed HIV

- The datamart was generated using data extracted from laboratory information systems constructed for clinical purposes. The completion of this data is reliant on healthcare providers completing the test requisitions.
- While the estimation of people living with HIV in Ontario represents our best province-wide understanding of the cascade among diagnosed people with HIV in Ontario, representativeness may be limited by the inability to directly account for deaths and migration out of the province (see **Diagnosed** section below for more details on these limitations).

Cascade indicators

Diagnosed

- If a diagnosed individual does not have a VL test in a given year, it is not possible to determine the reason (e.g. migration out of the province, death or actual disengagement from care) from the laboratory data. To account for possible migration or death, individuals are removed from the cohort (administratively LTFU) if they had no record of a VL test for more than three consecutive years. However, it is possible that some of these individuals are still living in the province (but not connected to care), and therefore the number of individuals in the cohort may be lower than the actual number living with diagnosed HIV in the province. If a person administratively LTFU subsequently re-engages in care, they are re-entered into the cohort and counted as being a diagnosed person living with HIV but not in care, on ART, or virally suppressed in all years since their last VL test. This may be accurate; however, it is not possible to rule out that the individual migrated out of Ontario for these years and then returned.
- The inclusion of non-nominal positive HIV diagnoses from the cohort may mean the number of people with diagnosed HIV is overestimated. Many people diagnosed non-nominally end up receiving either a nominal HIV-positive diagnostic test or a nominal VL test when they enter care and would therefore be double counted.
- We extended the LTFU criteria to four years to create an “Upper” estimate of the number diagnosed (and a “Lower” estimate of the percent of diagnosed individuals in care, on ART, and suppressed) and explore the potential impact of the above limitations.

Newly diagnosed

- The number of newly diagnosed individuals included in the analyses of time to linkage to care and viral suppression is likely an underestimate of the actual number of newly diagnosed individuals in the province. The newly diagnosed sample excludes non-nominal HIV-positive diagnostic tests and does not include individuals with record of a VL test only (no linked nominal HIV-positive diagnostic test). This means individuals diagnosed non-nominally are not included in these analyses unless they received a nominal HIV diagnostic test at entrance to care.

Linkage to and in care

- It is assumed that having a single VL test in a given calendar year means that a person is in care, and having no VL test means a person is not in care. This may not reflect an individual's actual state of engagement in care. For example, a health provider may recommend less frequent VL testing for a patient who has been virally suppressed for several years, which may lead to an underestimate of the number of people in care.

On antiretroviral treatment

- When a person receives a VL test, a provider fills out a test requisition form and sends it to the laboratory along with a blood sample for testing. The VL test form records information on whether the person getting tested is on ART. However, this information is missing for about 17 to 20% of VL tests each year. To reduce the impact of this missing data, conservative assumptions on ART status are made for requisitions with missing information. Individuals with missing treatment information are assumed to be on ART if they have a suppressed VL on their **last** test in the calendar year, while unsuppressed individuals with missing treatment data are assumed to be off. Since some unsuppressed individuals with missing treatment information may actually be on treatment, the number on ART is likely underestimated.
- We created “Upper” and “Lower” estimates of the counts of individuals on ART. Individuals with missing treatment information and a suppressed VL on **any** VL test in the calendar year were included in the “Upper” estimate, while individuals with missing treatment information and a suppressed VL on **all** VL tests in the calendar year were included in the “Lower” estimate.
- If a person in the cohort does not have a VL test in a given year, they are assumed to be **not** on ART for that year, which may also underestimate the number on ART.

Virally suppressed

- An individual is considered to be virally suppressed if they have a suppressed VL on their **last** VL in a calendar year. This may over- or underestimate the number of virally suppressed individuals. We created “Upper” and “Lower” estimates of the counts of virally suppressed individuals. Individuals with a suppressed VL on **any** VL test in the calendar year were included in the “Upper” estimate, while individuals with a suppressed VL on **all** VL tests in the calendar year were included in the “Lower” estimate.
- If a person in the cohort does not have a VL test in a given year, they are assumed to be **not** virally suppressed for that year, which may underestimate the number suppressed.
- To calculate the percent of people on ART who are virally suppressed, individuals with missing treatment information are assumed to be on ART if they have a suppressed VL on their **last** VL test in the calendar year while unsuppressed individuals with missing treatment data are assumed to be off ART. Since some unsuppressed individuals with missing treatment information may actually be on treatment, the number on ART is likely underestimated, and the proportion of them who are virally suppressed is likely overestimated. Also, people in the cohort may be better monitored than those not included in the cohort, leading to an overestimate of this percent.

Indicator definitions

Living with HIV

Estimate	“Living with HIV” definition
PHAC	Estimated using the Public Health Agency of Canada (PHAC) back calculation method. Inputs into the model include: annual first-time diagnoses, recency data, annual deaths among people living with HIV (OHIP) and estimated outmigration (OHIP). ¹
Main	Adjusted PHAC number based on PHO Laboratory diagnosed number using the HIV datamart.
Range	Range estimated by PHAC using above methodology ¹

Diagnosed

Estimate	“Diagnosed” definition
Main	Nominal or non-nominal HIV-positive diagnostic test and/or HIV viral load test*, and not administratively lost to follow-up after two years for viral load tests and unlinked non-nominal diagnoses, seven years for unlinked nominal diagnoses
Upper	Nominal or non-nominal HIV-positive diagnostic test and/or HIV viral load test*, and not administratively lost to follow-up after four years for viral load tests and unlinked non-nominal diagnoses, seven years for unlinked nominal diagnoses
Lower	Nominal or non-nominal HIV-positive diagnostic test and/or HIV viral load test*, and not administratively lost to follow-up after two years for viral load tests, seven years for unlinked nominal diagnoses. Unlinked non-nominal diagnoses are excluded.

*Individuals with no nominal HIV-positive diagnostic test and all undetectable VL tests were not included if they had evidence of being HIV-negative (i.e. record of a nominal HIV-negative diagnostic test after, on the same day as, or within 30 days before their last undetectable VL test).

Diagnosed fraction

Estimate	“Diagnosed” definition	“Living with HIV” denominator used for calculating percent of individuals diagnosed
Main	Provided by PHAC (89.0%) using described methods ¹	NA
Upper	Diagnosed (Main estimate)	The number of people living with HIV as estimated by PHAC (23,380) ¹
Lower	Diagnosed (Upper estimate)	The number of people living with HIV as estimated by PHAC (23,380) ¹

Newly diagnosed

Estimate	“Newly diagnosed” definition
Main	Nominal HIV-positive diagnostic test and no evidence of being previously diagnosed (i.e. first VL after diagnosis not suppressed, or first suppressed VL test was not within 30 days after diagnosis)

¹Estimates of HIV incidence, prevalence and Canada’s progress on meeting the 90-90-90 HIV targets, 2020. See [Number of people living with HIV: two different numbers from two different methodologies](#) for more information.

In care (among people with diagnosed HIV)

Estimate	“In care” definition	“Diagnosed” denominator used for calculating percent of individuals in stage per year
Main	At least one VL test in two calendar years*	Diagnosed (Main estimate)
Upper	At least one VL test in two calendar years*	Diagnosed (Lower estimate)
Lower	At least one VL test in two calendar years*	Diagnosed (Upper estimate)

*Values in the previous calendar year forwarded to the next calendar year if no VL test in the next calendar year.

Linkage to care (among people newly diagnosed with HIV)

Estimate	“Linkage to care” definition	“Newly diagnosed” denominator used for calculating percent of individuals in stage per year
Main	Number of months from HIV diagnosis to first VL test	Newly diagnosed (Main estimate)

On ART (among people with diagnosed HIV)

Estimate	“On ART” definition	“Diagnosed” denominator used for calculating percent of individuals in stage per year
Main	Documented on ART or VL less than 200 copies/mL last VL test	Diagnosed (Main estimate)
Upper	Documented on ART or VL less than 200 copies/mL any VL test	Diagnosed (Lower estimate)
Lower	Documented on ART or VL less than 200 copies/mL all VL tests	Diagnosed (Upper estimate)

On ART (among people in care)

Estimate	“On ART” definition	“In care” denominator used for calculating percent of individuals in stage per year
Main	Documented on ART or VL less than 200 copies/mL last VL test	At least one VL test
Upper	Documented on ART or VL less than 200 copies/mL any VL test	At least one VL test
Lower	Documented on ART or VL less than 200 copies/mL all VL tests	At least one VL test

Virally suppressed (among people with diagnosed HIV)

Estimate	“Virally suppressed” definition	“Diagnosed” denominator used for calculating percent of individuals in stage per year
Main	VL less than 200 copies/mL on last VL test	Diagnosed (Main estimate)
Upper	VL less than 200 copies/mL on any VL test	Diagnosed (Lower estimate)

Lower	VL less than 200 copies/mL on all VL tests	Diagnosed (Upper estimate)
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Virally suppressed (among people with diagnosed HIV in care)

Estimate	“Virally suppressed” definition	“In care” denominator used for calculating percent of individuals in stage per year
Main	VL less than 200 copies/mL on last VL test	At least one VL test
Upper	VL less than 200 copies/mL on any VL test	At least one VL test
Lower	VL less than 200 copies/mL on all VL tests	At least one VL test

Virally suppressed (among people with diagnosed HIV on ART)

Estimate	“Virally suppressed” definition	“On ART” denominator used for calculating percent of individuals in stage per year
Main	VL less than 200 copies/mL on last VL test	Documented on ART or VL less than 200 copies/mL last VL test
Upper	VL less than 200 copies/mL on any VL test	Documented on ART or VL less than 200 copies/mL any VL test
Lower	VL less than 200 copies/mL on all VL tests	Documented on ART or VL less than 200 copies/mL all VL tests

*Percent of those on with diagnosed HIV on ART that were virally suppressed is calculated differently than percent of those with diagnosed HIV and the percent of those with diagnosed HIV in care.

Time to viral suppression (among people newly diagnosed with HIV)

Estimate	“Time to VL suppression” definition	“Newly diagnosed” denominator used for calculating percent of individuals in stage per year
Main	Number of months from HIV diagnosis to first suppressed VL (less than 200 copies/mL)	Newly diagnosed (main estimate)

Definitions

Administrative lost to follow-up (LTFU)

An individual in the Ontario HIV Laboratory Cohort is considered to be a person with diagnosed HIV who is living in Ontario until administratively lost to follow-up, defined as having had no viral load test for more than 3 consecutive years and no viral load test in later years. This is 3 years despite the 2-year LTFU criteria, because the last VL test is “carried forward” into the subsequent year, and the lack of VL test in the subsequent 2 years constitute the 2-year LTFY criteria. Individuals lost to follow-up are assumed to have died or migrated out of the province, and are removed from the cohort. Based on the constraints of this definition, a diagnosed individual who is actually living in Ontario would be removed from the cohort if they haven’t had a VL test in more than three years. If this individual goes on to have a viral load test in the future, they are re-entered into the cohort. In additional analyses, the lost to follow-up criteria is increased to four years.

Health regions

Groupings of public health units that have historically been used in HIV epidemiology and surveillance reports. There are seven health regions: Northern, Ottawa, Eastern, Toronto, Central East, Central West and Southwest. See **Health regions** more information on these groupings and boundaries.

HIV datamart

An integrated data platform composed of Public Health Ontario Laboratory’s diagnostic and viral load testing databases. Within the datamart, diagnostic and viral load test records are linked together for the same person (however, linkage is not possible for non-nominal HIV-positive diagnostic tests).

HIV-positive diagnostic test

Defined as a blood sample that has initially tested reactive on a screening test (either at the laboratory or on a point-of-care / rapid test), and has been confirmed as HIV-positive by a separate test (lateral flow immunoassay, Western Blot, p24 antigen confirmatory test, or polymerase chain reaction for children <18 months). HIV-positive diagnostic tests in the HIV Datamart include people who were diagnosed with HIV for the first ever time in Ontario, as well as people who were diagnosed HIV-positive elsewhere and moved to Ontario and tested again.

Newly HIV diagnosed

Individuals in the HIV Datamart who received their first ever HIV-positive diagnosis in Ontario (i.e. were not diagnosed elsewhere and then moved to Ontario and tested again). Individuals are considered newly diagnosed in Ontario if they have record of a nominal HIV-positive diagnostic test and no evidence of being previously diagnosed (i.e. no indication of a repeat test, no detectable viral load test or CD4 count before their diagnosis date, first VL after diagnosis not suppressed).

Nominal HIV testing

A type of HIV diagnostic testing where the test requisition form contains the name of the individual being tested. Nominal HIV tests can be linked to viral load tests in the HIV datamart using patient identifiers.

Non-nominal HIV testing

A type of HIV diagnostic testing where the test requisition form does not contain the name of the individual being tested. Historically there were two types of non-nominal testing in Ontario: anonymous and coded. The lack of identifying information means that it is not possible to link non-nominal HIV-positive diagnostic tests to previous diagnostic tests and viral load tests within the HIV datamart.

Test requisition

Along with each HIV diagnostic and viral load test, a test requisition form is completed. It is filled out by the provider who conducted the test and collects information on the individual being tested. The viral load test requisition form collects information on whether the individual is on antiretroviral treatment at the time of testing and most recent CD4 cell count.

Abbreviations

ART = Antiretroviral therapy

LTFU = Lost to follow up

OHESI = Ontario HIV Epidemiology and Surveillance Initiative

PHO = Public Health Ontario

PWID = People who use injection drugs

VL = viral load

Health regions

Individuals who receive an HIV diagnostic test are assigned to a geographic region based on their residence or, if not reported, the address of the ordering provider. Approximately 27% of diagnoses are missing information on address of residence in 2020 and assigned based on provider address.

Ontario can be divided geographically by health region or public health units (PHU).

These are defined below:

- Health regions – Groupings of PHUs that have historically been used in HIV epidemiology and surveillance reports. See the following page for health region breakdowns.
- Public health unit – A health agency that provides health promotion and disease prevention programs. There are currently (2022) 34 PHUs in Ontario and each has its own unique geographical boundary. This is different from previous years where there were 36 PHUs (2017 and before). The change reflects the Oxford PHU being combined with the Elgin-St. Thomas PHU to form the new 'Southwestern' PHU. It also reflects Huron and Perth being combined. The larger health regions did not change from previous reports.

Groupings of public health units for each health region

Toronto health region

- Toronto

Ottawa health region

- Ottawa

Northern health region

- Algoma
- North Bay Parry Sound
- Northwestern
- Porcupine
- Sudbury
- Thunder Bay
- Timiskaming

Eastern health region

- Eastern Ontario
- Hastings and Prince Edward Counties
- Kingston, Frontenac, Lennox & Addington
- Leeds, Grenville and Lanark
- Renfrew

Central East health region

- Durham
- Haliburton, Kawartha, Pine Ridge
- Peel
- Peterborough
- Simcoe Muskoka
- York

Central West health region

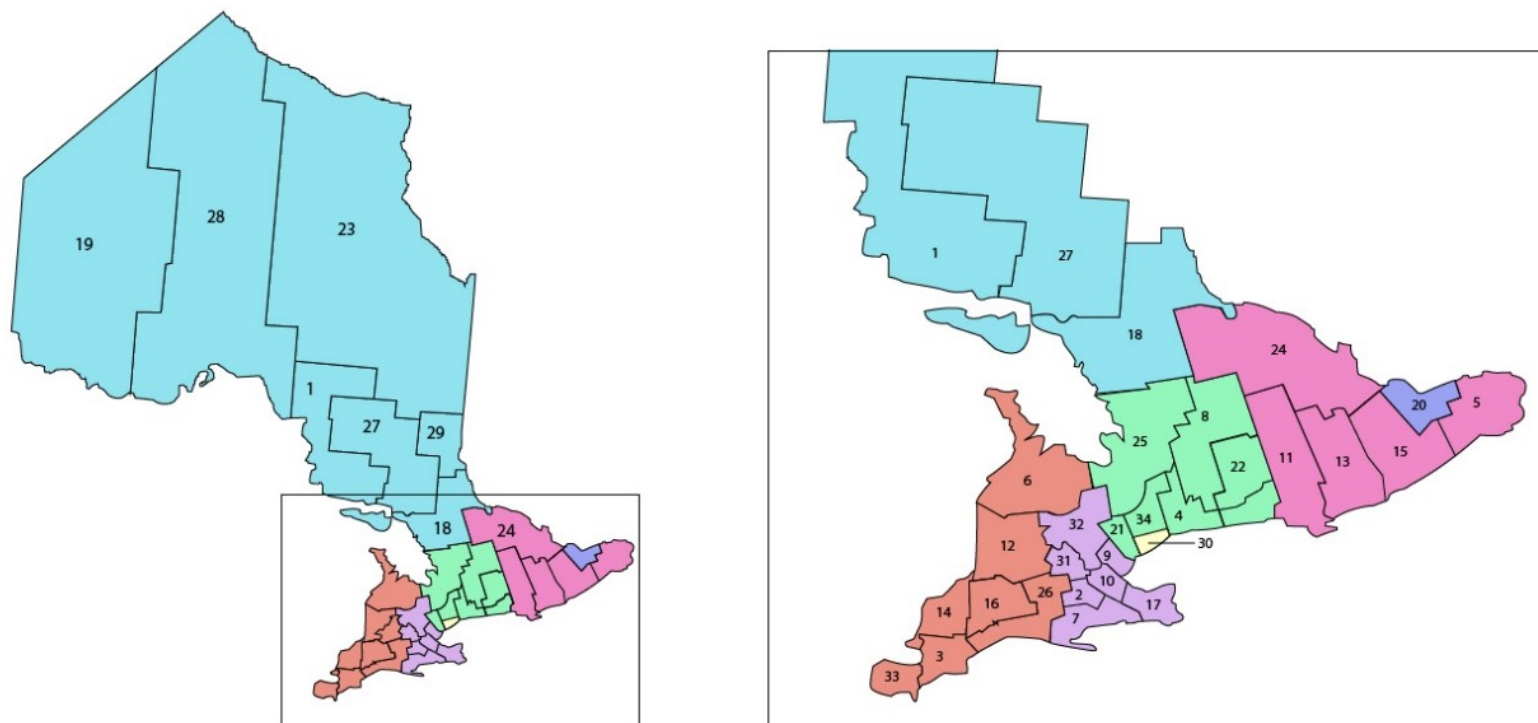
- Brant
- Haldimand-Norfolk
- Halton
- Hamilton
- Niagara
- Waterloo
- Wellington-Dufferin-Guelph

South West health region

- Grey Bruce
- Huron / Perth
- Chatham-Kent
- Lambton
- Middlesex-London
- Southwestern (Oxford, Elgin and St. Thomas)
- Windsor-Essex

Health regions map

Figure ii. Geographic map of health region and public health unit boundaries in 2020.



Public health units (map legend)

- | | | | |
|--|--|---------------------------|------------------------------------|
| 1. Algoma | 10. Hamilton | 18. North Bay Parry Sound | 28. Thunder Bay |
| 2. Brant | 11. Hastings and Prince Edward
Counties | 19. Northwestern | 29. Timiskaming |
| 3. Chatham-Kent | 12. Huron / Perth | 20. Ottawa | 30. Toronto |
| 4. Durham | 13. Kingston, Frontenac,
Lennox & Addington | 21. Peel | 31. Waterloo |
| 5. Eastern Ontario | 14. Lambton | 22. Peterborough | 32. Wellington-Dufferin-
Guelph |
| 6. Grey Bruce | 15. Leeds, Grenville and Lanark
Ridge | 23. Porcupine | 33. Windsor-Essex |
| 7. Haldimand-Norfolk | 16. Middlesex-London | 24. Renfrew | 34. York |
| 8. Haliburton, Kawartha, Pine
Ridge | 17. Niagara | 25. Simcoe Muskoka | |
| 9. Halton | | 26. Southwestern | |
| | | 27. Sudbury | |

Note: Map created using Statistics Canada boundary files

2. Data tables

This section of the report contains the data tables for the figures found in the **Data and Figures** section of the report.

Note: All indicators have a “Main” estimate, and some have an “Upper” and/or “Lower” estimate. The “Main” estimate represents the best estimate for that indicator. “Upper” and “Lower” estimates were calculated when possible, in order to reflect the impact of different definitions (i.e. more/less conservative) and provide a range of possible values. For some indicators, there were no feasible “Upper” and/or “Lower” definitions that could be applied.

1. Cascade Summary

Table 1.1 Number of people living with HIV in Ontario engaged in the steps of the care cascade, 2020

Indicator	Main estimate	Upper estimate	Lower estimate	Gap to meet 90-90-90 target
People living with HIV*	22,461	26,500	20,000	-
People living with HIV, who are diagnosed	19,990	21,393	19,723	0 – 492
People living with HIV, who are on treatment	17,323	17,398	16,636	795 – 1,557
People living with HIV, who are virally suppressed	16,939	17,096	16,074	0 – 300

Table 1.2 90-90-90 Estimates Ontario, 2020

Indicator	Main estimate	Upper estimate	Lower estimate
People living with HIV, who are diagnosed, 1st 90	89.0%	91.5%	85.5%
People diagnosed with HIV, who are on treatment, 2nd 90	86.7%	88.2%	77.8%
People on treatment who are virally suppressed, 3rd 90	97.8%	98.3%	96.6%

Notes: *The main estimate of the number of people living with HIV (22,461) is produced using inputs from both the Public Health Agency of Canada (PHAC) and the Public Health Ontario (PHO) Laboratory. The range of number of people living with HIV and proportions of people living with HIV who are diagnosed provided by PHAC, with inputs from the PHO Laboratory. All other estimates are provided by the PHO Laboratory. See **Technical notes** for more information including methods and an explanation of why the number of people living with HIV is different here than that [reported by PHAC elsewhere](#).

2. Diagnosed

Table 2.1 Number of people living with diagnosed HIV in Ontario, 2000 to 2020

Year	Main estimate	Upper estimate	Lower estimate
	Included until administratively lost to follow-up after 2 years for HIV viral load tests and non-nominal confirmed HIV diagnostic tests, 7 years for unlinked nominal confirmed HIV diagnostic tests.	Included until administratively lost to follow-up after 4 years for viral load tests and non-nominal confirmed HIV diagnostic test, 7 years for unlinked nominal confirmed HIV diagnostic tests.	Included until administratively lost to follow-up after 2 years for HIV viral load tests, 7 years for unlinked nominal confirmed HIV diagnostic tests. Non-nominal confirmed HIV diagnostic tests excluded.
2000	10,937	12,233	9,420
2001	11,503	12,947	10,038
2002	12,068	13,843	10,706
2003	12,651	14,434	11,383
2004	13,068	14,748	11,883
2005	13,474	15,143	12,418
2006	13,992	15,589	13,039
2007	14,392	15,893	13,559
2008	14,895	16,356	14,139
2009	15,311	16,698	14,599
2010	15,756	17,100	15,040
2011	16,193	17,536	15,508
2012	16,611	17,939	15,895
2013	16,822	18,248	16,152
2014	17,136	18,533	16,552
2015	17,472	18,753	17,009
2016	17,909	19,220	17,521
2017	18,461	19,715	18,095
2018	19,082	20,296	18,725
2019	19,712	20,958	19,384
2020	19,990	21,393	19,723

Notes: Data provided by Public Health Ontario Laboratory. Rates calculated using [Statistics Canada population estimates](#) for all ages, accessed 11/05/2021. See **Technical notes** for definitions and more information.

Table 2.2 Number of people living with diagnosed HIV in Ontario per 1,000 population, 2000 to 2020

Year	Population of Ontario (all ages)	Main estimate	Upper estimate	Lower estimate
2000	11,683,290	0.94	0.81	1.05
2001	11,897,534	0.97	0.84	1.09
2002	12,094,174	1.00	0.89	1.14
2003	12,245,039	1.03	0.93	1.18
2004	12,391,421	1.05	0.96	1.19
2005	12,528,663	1.08	0.99	1.21
2006	12,661,878	1.11	1.03	1.23
2007	12,764,806	1.13	1.06	1.25
2008	12,883,583	1.16	1.10	1.27
2009	12,998,345	1.18	1.12	1.28
2010	13,135,778	1.20	1.14	1.30
2011	13,261,381	1.22	1.17	1.32
2012	13,390,632	1.24	1.19	1.34
2013	13,510,781	1.25	1.20	1.35
2014	13,617,553	1.26	1.22	1.36
2015	13,707,118	1.27	1.24	1.37
2016	13,875,394	1.29	1.26	1.39
2017	14,070,141	1.31	1.29	1.40
2018	14,308,697	1.33	1.31	1.42
2019	14,544,701	1.36	1.33	1.44
2020	14,745,712	1.36	1.34	1.45

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information.

3. Linkage to care and in care

Table 3.1 Number and percent of people living with diagnosed HIV in Ontario who are in care, 2000 to 2020

Year	Main Estimate			Upper estimate			Lower Estimate		
	In care (≥1 VL, Numerator)	Diagnosed “Main estimate” (Denominator)	%	In care (≥1 VL, Numerator)	Diagnosed “Lower estimate” (Denominator)	%	In care (≥1 VL, Numerator)	Diagnosed “Upper estimate” (Denominator)	%
2000	8,006	10,937	73.2%	8,006	9,420	85.0%	8,006	12,233	65.4%
2001	8,417	11,503	73.2%	8,417	10,038	83.9%	8,417	12,947	65.0%
2002	8,993	12,068	74.5%	8,993	10,706	84.0%	8,993	13,843	65.0%
2003	9,577	12,651	75.7%	9,577	11,383	84.1%	9,577	14,434	66.4%
2004	10,132	13,068	77.5%	10,132	11,883	85.3%	10,132	14,748	68.7%
2005	10,695	13,474	79.4%	10,695	12,418	86.1%	10,695	15,143	70.6%
2006	11,341	13,992	81.1%	11,341	13,039	87.0%	11,341	15,589	72.8%
2007	11,751	14,392	81.6%	11,751	13,559	86.7%	11,751	15,893	73.9%
2008	12,256	14,895	82.3%	12,256	14,139	86.7%	12,256	16,356	74.9%
2009	12,691	15,311	82.9%	12,691	14,599	86.9%	12,691	16,698	76.0%
2010	13,139	15,756	83.4%	13,139	15,040	87.4%	13,139	17,100	76.8%
2011	13,560	16,193	83.7%	13,560	15,508	87.4%	13,560	17,536	77.3%
2012	13,964	16,611	84.1%	13,964	15,895	87.9%	13,964	17,939	77.8%
2013	14,329	16,822	85.2%	14,329	16,152	88.7%	14,329	18,248	78.5%
2014	14,738	17,136	86.0%	14,738	16,552	89.0%	14,738	18,533	79.5%
2015	15,150	17,472	86.7%	15,150	17,009	89.1%	15,150	18,753	80.8%
2016	15,748	17,909	87.9%	15,748	17,521	89.9%	15,748	19,220	81.9%
2017	16,331	18,461	88.5%	16,331	18,095	90.3%	16,331	19,715	82.8%
2018	16,850	19,082	88.3%	16,850	18,725	90.0%	16,850	20,296	83.0%
2019	17,510	19,712	88.8%	17,510	19,384	90.3%	17,510	20,958	83.5%
2020	17,811	19,990	89.1%	17,811	19,723	90.3%	17,811	21,393	83.3%

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information.

Table 3.2 Number and percent of people newly diagnosed with HIV in Ontario who are linked to care within a certain period of time after HIV diagnosis, 2000 to 2019

Year	Total newly diagnosed (Denominator)	Linked to care (Numerator)												No linked VL	
		Within 1 week		>1 week - 1 month		>1 - 3 months		>3 - 6 months		>6 - 12 months		>12 months			
		n	%	n	%	n	%	n	%	n	%	n	%	n	%
2000	377	22	5.8%	111	29.4%	121	32.1%	20	5.3%	10	2.7%	20	5.3%	73	19.4%
2001	450	40	8.9%	114	25.3%	142	31.6%	33	7.3%	9	2.0%	25	5.6%	87	19.3%
2002	572	35	6.1%	121	21.2%	264	46.2%	49	8.6%	14	2.4%	19	3.3%	70	12.2%
2003	572	41	7.2%	128	22.4%	244	42.7%	36	6.3%	19	3.3%	20	3.5%	84	14.7%
2004	600	53	8.8%	162	27.0%	257	42.8%	29	4.8%	13	2.2%	21	3.5%	65	10.8%
2005	600	47	7.8%	157	26.2%	247	41.2%	45	7.5%	23	3.8%	19	3.2%	62	10.3%
2006	640	61	9.5%	184	28.8%	259	40.5%	32	5.0%	16	2.5%	17	2.7%	71	11.1%
2007	605	68	11.2%	193	31.9%	203	33.6%	35	5.8%	12	2.0%	22	3.6%	72	11.9%
2008	624	69	11.1%	208	33.3%	194	31.1%	41	6.6%	25	4.0%	15	2.4%	72	11.5%
2009	560	69	12.3%	187	33.4%	188	33.6%	34	6.1%	12	2.1%	12	2.1%	58	10.4%
2010	576	87	15.1%	208	36.1%	185	32.1%	33	5.7%	3	0.5%	9	1.6%	51	8.9%
2011	560	87	15.5%	227	40.5%	148	26.4%	26	4.6%	11	2.0%	12	2.1%	49	8.8%
2012	458	49	10.7%	208	45.4%	125	27.3%	26	5.7%	10	2.2%	11	2.4%	29	6.3%
2013	450	84	18.7%	203	45.1%	100	22.2%	13	2.9%	6	1.3%	11	2.4%	33	7.3%
2014	514	94	18.3%	208	40.5%	124	24.1%	22	4.3%	12	2.3%	9	1.8%	45	8.8%
2015	497	109	21.9%	207	41.6%	102	20.5%	18	3.6%	10	2.0%	9	1.8%	42	8.5%
2016	535	97	18.1%	237	44.3%	106	19.8%	16	3.0%	12	2.2%	11	2.1%	56	10.5%
2017	498	104	20.9%	244	49.0%	83	16.7%	9	1.8%	5	1.0%	6	1.2%	47	9.4%
2018	521	115	22.1%	220	42.2%	104	20.0%	22	4.2%	7	1.3%	7	1.3%	46	8.8%
2019	477	102	21.4%	215	45.1%	95	19.9%	9	1.9%	8	1.7%	2	0.4%	46	9.6%

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information.

4. On antiretroviral treatment (ART)

Table 4.1 Number and percent of people living with diagnosed HIV in Ontario who are on ART, 2000 to 2020

Year	Main Estimate			Upper Estimate			Lower Estimate		
	On ART (Numerator)	Diagnosed (Denominator)	%	On ART (Numerator)	Diagnosed (Denominator)	%	On ART (Numerator)	Diagnosed (Denominator)	%
	Documented on ART or virally suppressed on last VL test in the calendar year	Diagnosed “Main” Estimate		Documented on ART or virally suppressed on any VL test in the calendar year	Diagnosed “Lower” Estimate		Documented on ART or virally suppressed on all VL tests in the calendar year	Diagnosed “Upper” Estimate	
2000	5,357	10,937	49.0%	5,848	9,420	62.1%	4,348	12,233	35.5%
2001	5,651	11,503	49.1%	6,088	10,038	60.6%	4,614	12,947	35.6%
2002	6,027	12,068	49.9%	6,492	10,706	60.6%	4,977	13,843	36.0%
2003	6,480	12,651	51.2%	6,883	11,383	60.5%	5,433	14,434	37.6%
2004	6,914	13,068	52.9%	7,299	11,883	61.4%	5,876	14,748	39.8%
2005	7,433	13,474	55.2%	7,802	12,418	62.8%	6,382	15,143	42.1%
2006	8,109	13,992	58.0%	8,415	13,039	64.5%	7,094	15,589	45.5%
2007	8,699	14,392	60.4%	9,009	13,559	66.4%	7,671	15,893	48.3%
2008	9,475	14,895	63.6%	9,714	14,139	68.7%	8,383	16,356	51.3%
2009	10,188	15,311	66.5%	10,406	14,599	71.3%	9,051	16,698	54.2%
2010	10,887	15,756	69.1%	11,121	15,040	73.9%	9,819	17,100	57.4%
2011	11,511	16,193	71.1%	11,688	15,508	75.4%	10,494	17,536	59.8%
2012	12,258	16,611	73.8%	12,425	15,895	78.2%	11,265	17,939	62.8%
2013	12,917	16,822	76.8%	13,053	16,152	80.8%	11,938	18,248	65.4%
2014	13,454	17,136	78.5%	13,612	16,552	82.2%	12,572	18,533	67.8%
2015	14,106	17,472	80.7%	14,238	17,009	83.7%	13,214	18,753	70.5%
2016	14,830	17,909	82.8%	14,958	17,521	85.4%	13,938	19,220	72.5%
2017	15,519	18,461	84.1%	15,634	18,095	86.4%	14,680	19,715	74.5%
2018	16,163	19,082	84.7%	16,275	18,725	86.9%	15,362	20,296	75.7%
2019	16,902	19,712	85.7%	17,008	19,384	87.7%	16,114	20,958	76.9%
2020	17,323	19,990	86.7%	17,398	19,723	88.2%	16,636	21,393	77.8%

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information.

Table 4.2 Number and percent of people living with diagnosed HIV in Ontario in care who are on ART, 2000 to 2020

Year	Main Estimate			Upper Estimate			Lower Estimate		
	On ART (Numerator)	In care (Denominator)	%	On ART (Numerator)	In care (Denominator)	%	On ART Numerator)	In care (Denominator)	%
	Documented on ART or virally suppressed on last VL test in the calendar year	At least one VL		Documented on ART or virally suppressed on any VL test in the calendar year	At least one VL		Documented on ART or virally suppressed on all VL tests in the calendar year	At least one VL	
2000	3,814	8,006	34.9%	4,319	8,006	45.8%	2,818	8,006	23.0%
2001	4,278	8,417	37.2%	4,805	8,417	47.9%	3,271	8,417	25.3%
2002	4,717	8,993	39.1%	5,244	8,993	49.0%	3,717	8,993	26.9%
2003	5,229	9,577	41.3%	5,723	9,577	50.3%	4,164	9,577	28.8%
2004	5,822	10,132	44.6%	6,265	10,132	52.7%	4,715	10,132	32.0%
2005	6,413	10,695	47.6%	6,868	10,695	55.3%	5,317	10,695	35.1%
2006	7,191	11,341	51.4%	7,601	11,341	58.3%	6,037	11,341	38.7%
2007	7,931	11,751	55.1%	8,331	11,751	61.4%	6,711	11,751	42.2%
2008	8,801	12,256	59.1%	9,150	12,256	64.7%	7,510	12,256	45.9%
2009	9,557	12,691	62.4%	9,888	12,691	67.7%	8,292	12,691	49.7%
2010	10,260	13,139	65.1%	10,620	13,139	70.6%	9,031	13,139	52.8%
2011	10,897	13,560	67.3%	11,181	13,560	72.1%	9,687	13,560	55.2%
2012	11,664	13,964	70.2%	11,935	13,964	75.1%	10,485	13,964	58.4%
2013	12,326	14,329	73.3%	12,588	14,329	77.9%	11,178	14,329	61.3%
2014	12,921	14,738	75.4%	13,173	14,738	79.6%	11,813	14,738	63.7%
2015	13,624	15,150	78.0%	13,850	15,150	81.4%	12,485	15,150	66.6%
2016	14,358	15,748	80.2%	14,598	15,748	83.3%	13,279	15,748	69.1%
2017	15,035	16,331	81.4%	15,291	16,331	84.5%	13,998	16,331	71.0%
2018	15,724	16,850	82.4%	15,955	16,850	85.2%	14,729	16,850	72.6%
2019	16,457	17,510	83.5%	16,686	17,510	86.1%	15,411	17,510	73.5%
2020	16,939	17,811	84.7%	17,096	17,811	86.7%	16,074	17,811	75.1%

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information.

5. Virally suppressed

Table 5.1 Number and percent of people living with diagnosed HIV in Ontario who are virally suppressed, 2000 to 2020

Year	Main Estimate			Upper Estimate			Lower Estimate		
	VL suppressed (Numerator)	Diagnosed (Denominator)	%	VL suppressed (Numerator)	Diagnosed (Denominator)	%	VL suppressed (Numerator)	Diagnosed (Denominator)	%
	VL less than 200 copies per ml on last VL test in the calendar year	Diagnosed “Main” Estimate		VL less than 200 copies per ml on any VL test in the calendar year	Diagnosed “Lower” Estimate		VL less than 200 copies per ml on all VL tests in the calendar year	Diagnosed “Upper” Estimate	
2000	3,814	10,937	34.9%	4,319	9,420	45.8%	2,818	12,233	23.0%
2001	4,278	11,503	37.2%	4,805	10,038	47.9%	3,271	12,947	25.3%
2002	4,717	12,068	39.1%	5,244	10,706	49.0%	3,717	13,843	26.9%
2003	5,229	12,651	41.3%	5,723	11,383	50.3%	4,164	14,434	28.8%
2004	5,822	13,068	44.6%	6,265	11,883	52.7%	4,715	14,748	32.0%
2005	6,413	13,474	47.6%	6,868	12,418	55.3%	5,317	15,143	35.1%
2006	7,191	13,992	51.4%	7,601	13,039	58.3%	6,037	15,589	38.7%
2007	7,931	14,392	55.1%	8,331	13,559	61.4%	6,711	15,893	42.2%
2008	8,801	14,895	59.1%	9,150	14,139	64.7%	7,510	16,356	45.9%
2009	9,557	15,311	62.4%	9,888	14,599	67.7%	8,292	16,698	49.7%
2010	10,260	15,756	65.1%	10,620	15,040	70.6%	9,031	17,100	52.8%
2011	10,897	16,193	67.3%	11,181	15,508	72.1%	9,687	17,536	55.2%
2012	11,664	16,611	70.2%	11,935	15,895	75.1%	10,485	17,939	58.4%
2013	12,326	16,822	73.3%	12,588	16,152	77.9%	11,178	18,248	61.3%
2014	12,921	17,136	75.4%	13,173	16,552	79.6%	11,813	18,533	63.7%
2015	13,624	17,472	78.0%	13,850	17,009	81.4%	12,485	18,753	66.6%
2016	14,358	17,909	80.2%	14,598	17,521	83.3%	13,279	19,220	69.1%
2017	15,035	18,461	81.4%	15,291	18,095	84.5%	13,998	19,715	71.0%
2018	15,724	19,082	82.4%	15,955	18,725	85.2%	14,729	20,296	72.6%
2019	16,457	19,712	83.5%	16,686	19,384	86.1%	15,411	20,958	73.5%
2020	16,939	19,990	84.7%	17,096	19,723	86.7%	16,074	21,393	75.1%

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information.

Table 5.2 Number and percent of people living with diagnosed HIV in Ontario in care who are virally suppressed, 2000 to 2020

Year	Main Estimate			Upper Estimate			Lower Estimate		
	VL suppressed (Numerator)	In care (Denominator)	%	VL suppressed (Numerator)	In care (Denominator)	%	VL suppressed (Numerator)	In care (Denominator)	%
	VL less than 200 copies per ml on last VL test in the calendar year	At least one VL		VL less than 200 copies per ml on any VL test in the calendar year	At least one VL		VL less than 200 copies per ml on all VL tests in the calendar year	At least one VL	
2000	3,814	8,006	47.6%	4,319	8,006	53.9%	2,818	8,006	35.2%
2001	4,278	8,417	50.8%	4,805	8,417	57.1%	3,271	8,417	38.9%
2002	4,717	8,993	52.5%	5,244	8,993	58.3%	3,717	8,993	41.3%
2003	5,229	9,577	54.6%	5,723	9,577	59.8%	4,164	9,577	43.5%
2004	5,822	10,132	57.5%	6,265	10,132	61.8%	4,715	10,132	46.5%
2005	6,413	10,695	60.0%	6,868	10,695	64.2%	5,317	10,695	49.7%
2006	7,191	11,341	63.4%	7,601	11,341	67.0%	6,037	11,341	53.2%
2007	7,931	11,751	67.5%	8,331	11,751	70.9%	6,711	11,751	57.1%
2008	8,801	12,256	71.8%	9,150	12,256	74.7%	7,510	12,256	61.3%
2009	9,557	12,691	75.3%	9,888	12,691	77.9%	8,292	12,691	65.3%
2010	10,260	13,139	78.1%	10,620	13,139	80.8%	9,031	13,139	68.7%
2011	10,897	13,560	80.4%	11,181	13,560	82.5%	9,687	13,560	71.4%
2012	11,664	13,964	83.5%	11,935	13,964	85.5%	10,485	13,964	75.1%
2013	12,326	14,329	86.0%	12,588	14,329	87.8%	11,178	14,329	78.0%
2014	12,921	14,738	87.7%	13,173	14,738	89.4%	11,813	14,738	80.2%
2015	13,624	15,150	89.9%	13,850	15,150	91.4%	12,485	15,150	82.4%
2016	14,358	15,748	91.2%	14,598	15,748	92.7%	13,279	15,748	84.3%
2017	15,035	16,331	92.1%	15,291	16,331	93.6%	13,998	16,331	85.7%
2018	15,724	16,850	93.3%	15,955	16,850	94.7%	14,729	16,850	87.4%
2019	16,457	17,510	94.0%	16,686	17,510	95.3%	15,411	17,510	88.0%
2020	16,939	17,811	95.1%	17,096	17,811	96.0%	16,074	17,811	90.2%

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information.

Table 5.3 Number and percent of people living with diagnosed HIV in Ontario on ART who are virally suppressed, 2000 to 2020

Year	Main Estimate			Upper Estimate			Lower Estimate		
	VL suppressed (Numerator)	On ART (Denominator)	%	VL suppressed (Numerator)	On ART (Denominator)	%	VL suppressed (Numerator)	On ART (Denominator)	%
	VL less than 200 copies per ml on last VL test in the calendar year	Documented on ART or virally suppressed on last VL test in the calendar year		VL less than 200 copies per ml on any VL test in the calendar year	Documented on ART or virally suppressed on any VL test in the calendar year		VL less than 200 copies per ml on all VL tests in the calendar year	Documented on ART or virally suppressed on all VL tests in the calendar year	
2000	3,814	5,357	71.2%	4,319	5,848	73.9%	2,818	4,348	64.8%
2001	4,278	5,651	75.7%	4,805	6,088	78.9%	3,271	4,614	70.9%
2002	4,717	6,027	78.3%	5,244	6,492	80.8%	3,717	4,977	74.7%
2003	5,229	6,480	80.7%	5,723	6,883	83.1%	4,164	5,433	76.6%
2004	5,822	6,914	84.2%	6,265	7,299	85.8%	4,715	5,876	80.2%
2005	6,413	7,433	86.3%	6,868	7,802	88.0%	5,317	6,382	83.3%
2006	7,191	8,109	88.7%	7,601	8,415	90.3%	6,037	7,094	85.1%
2007	7,931	8,699	91.2%	8,331	9,009	92.5%	6,711	7,671	87.5%
2008	8,801	9,475	92.9%	9,150	9,714	94.2%	7,510	8,383	89.6%
2009	9,557	10,188	93.8%	9,888	10,406	95.0%	8,292	9,051	91.6%
2010	10,260	10,887	94.2%	10,620	11,121	95.5%	9,031	9,819	92.0%
2011	10,897	11,511	94.7%	11,181	11,688	95.7%	9,687	10,494	92.3%
2012	11,664	12,258	95.2%	11,935	12,425	96.1%	10,485	11,265	93.1%
2013	12,326	12,917	95.4%	12,588	13,053	96.4%	11,178	11,938	93.6%
2014	12,921	13,454	96.0%	13,173	13,612	96.8%	11,813	12,572	94.0%
2015	13,624	14,106	96.6%	13,850	14,238	97.3%	12,485	13,214	94.5%
2016	14,358	14,830	96.8%	14,598	14,958	97.6%	13,279	13,938	95.3%
2017	15,035	15,519	96.9%	15,291	15,634	97.8%	13,998	14,680	95.4%
2018	15,724	16,163	97.3%	15,955	16,275	98.0%	14,729	15,362	95.9%
2019	16,457	16,902	97.4%	16,686	17,008	98.1%	15,411	16,114	95.6%
2020	16,939	17,323	97.8%	17,096	17,398	98.3%	16,074	16,636	96.6%

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information.

Table 5.4 Number and percent of people newly diagnosed with HIV in Ontario who are virally suppressed within a certain period of time after HIV diagnosis, 2000 to 2019

Year	Main Estimate												
	Newly diagnosed (Denominator)	Time to viral suppression (VL less than 200 copies per ml) (Numerator)											
	Newly diagnosed "Main" Estimate	Within 3 months	>3 - 6 months		>6 - 12 months		>12 months		Not suppressed		No VL after diagnosis		
2000	377	21	5.6%	67	17.8%	43	11.4%	134	35.5%	39	10.3%	73	19.4%
2001	450	38	8.4%	78	17.3%	44	9.8%	149	33.1%	54	12.0%	87	19.3%
2002	572	34	5.9%	100	17.5%	89	15.6%	216	37.8%	63	11.0%	70	12.2%
2003	572	32	5.6%	95	16.6%	69	12.1%	229	40.0%	63	11.0%	84	14.7%
2004	600	31	5.2%	99	16.5%	82	13.7%	285	47.5%	38	6.3%	65	10.8%
2005	600	25	4.2%	77	12.8%	85	14.2%	282	47.0%	69	11.5%	62	10.3%
2006	640	30	4.7%	95	14.8%	78	12.2%	301	47.0%	65	10.2%	71	11.1%
2007	605	35	5.8%	94	15.5%	75	12.4%	265	43.8%	64	10.6%	72	11.9%
2008	624	46	7.4%	118	18.9%	83	13.3%	251	40.2%	54	8.7%	72	11.5%
2009	560	38	6.8%	110	19.6%	98	17.5%	210	37.5%	46	8.2%	58	10.4%
2010	576	45	7.8%	119	20.7%	109	18.9%	203	35.2%	49	8.5%	51	8.9%
2011	560	51	9.1%	119	21.3%	119	21.3%	181	32.3%	41	7.3%	49	8.8%
2012	458	50	10.9%	129	28.2%	111	24.2%	110	24.0%	29	6.3%	29	6.3%
2013	450	58	12.9%	144	32.0%	95	21.1%	94	20.9%	26	5.8%	33	7.3%
2014	514	70	13.6%	159	30.9%	102	19.8%	110	21.4%	28	5.4%	45	8.8%
2015	497	119	23.9%	135	27.2%	94	18.9%	84	16.9%	23	4.6%	42	8.5%
2016	535	138	25.8%	176	32.9%	80	15.0%	56	10.5%	29	5.4%	56	10.5%
2017	498	168	33.7%	164	32.9%	68	13.7%	34	6.8%	17	3.4%	47	9.4%
2018	521	184	35.3%	162	31.1%	73	14.0%	34	6.5%	22	4.2%	46	8.8%
2019	477	203	42.6%	146	30.6%	43	9.0%	13	2.7%	26	5.5%	46	9.6%

Notes: Data provided by Public Health Ontario Laboratory. See **Technical notes** for definitions and more information.

6. Cascade breakdowns by sex, age, and health region

Table 6.1 HIV care cascade, overall and by sex, Ontario, 2020

Indicator	Overall	Males	Females
Number of people living with diagnosed HIV	19,990	15,419	4,288
Percent of people living with diagnosed HIV	100%	78.2%*	21.8%*
Number of people living with diagnosed HIV in care	17,811	13,789	3,812
Of those living with diagnosed HIV, percent in care	89.1%	89.4%	88.9%
Number of people living with diagnosed HIV on ART	17,323	13,440	3,678
Of those living with diagnosed HIV, percent on ART	86.7%	87.2%	85.8%
Number of people living with diagnosed HIV who were virally suppressed	16,939	13,172	3,565
Of those living with diagnosed HIV, percent who were virally suppressed	84.7%	85.4%	83.1%

Notes: Data provided by Public Health Ontario Laboratory. *Where sex was reported. Sex was not reported or otherwise specified for 1.4% of people living with diagnosed HIV in Ontario in 2020. See **Technical notes** for definitions and more information.

Table 6.2 Number of people newly diagnosed with HIV in Ontario (nominally), and percent linked to care within one month of diagnosis and virally suppressed within six months, overall and by sex, 2014-2015 to 2018-2019

2015 to 2016-2017

		Total number newly diagnosed	Linked to care within one month of HIV diagnosis		Virally suppressed within six months of HIV diagnosis	
			Number	Percent	Number	Percent
Overall	2014-2015	1011	618	61.1%	483	47.8%
	2016-2017	1033	682	66.0%	646	62.5%
	2018-2019	998	652	65.3%	695	69.6%
Males	2014-2015	816	520	63.7%	408	50.0%
	2016-2017	820	558	68.0%	527	64.3%
	2018-2019	774	534	69.0%	555	71.7%
Females	2014-2015	188	93	49.5%	72	38.3%
	2016-2017	200	117	58.5%	113	56.5%
	2018-2019	213	114	53.5%	131	61.5%

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for an average 1.0% of people newly diagnosed with HIV in Ontario between 2014-2015 and 2018-2019. 7.7% of males newly nominally diagnosed and 11.7% of females did not link to care at all in 2014-2015, 9.4% of males and 11.0% of females in 2016-2017, and 9.0% of males and 10.3% of females in 2018-2019 (those not linked to care are included in the denominator here). See **Technical notes** for definitions and more information.

Table 6.3 HIV care cascade, by age, Ontario, 2020

		<25	25-34	35-44	45-54	55-64	65+
Number of people living with diagnosed HIV (row percent)	Overall	558 (2.8%)	2,639 (13.3%)	4036 (20.3%)	5,099 (25.6%)	5,278 (26.5%)	2,298 (11.5%)
	Males	361 (2.3%)	2,033 (13.2%)	2,824 (18.3%)	3,842 (24.9%)	4,409 (28.6%)	1,933 (12.6%)
	Females	184 (4.3%)	567 (13.3%)	1,166 (27.2%)	1,194 (27.9%)	819 (19.1%)	349 (8.2%)
Number of people living with diagnosed HIV in care		489	2,186	3,561	4,659	4,840	2,045
Of those living with diagnosed HIV, percent in care		87.6%	82.8%	88.2%	91.4%	91.7%	89.0%
Number of people living with diagnosed HIV on ART		452	2,066	3,452	4,533	4,767	2,024
Of those living with diagnosed HIV, percent on ART		81.0%	78.3%	85.5%	88.9%	90.3%	88.1%
Number of people living with diagnosed HIV who were virally suppressed		425	1,999	3,353	4,439	4,687	2,007
Of those living with diagnosed HIV, percent who were virally suppressed		76.2%	75.7%	83.1%	87.1%	88.8%	87.3%

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for 1.4% of people living with diagnosed HIV in Ontario in 2020; age was not reported for <1%. See **Technical notes** for definitions and more information.

Table 6.4 Number of people newly diagnosed with HIV in Ontario (nominally), and percent linked to care within one month of diagnosis and virally suppressed within six months, overall and by age, 2014-2015 to 2018-2019

		Total number newly diagnosed	Linked to care within one month of HIV diagnosis		Virally suppressed within six months of HIV diagnosis	
			Number	Percent	Number	Percent
Overall	2014-2015	1011	618	61.1%	483	47.8%
	2016-2017	1033	682	66.0%	646	62.5%
	2018-2019	998	652	65.3%	695	69.6%
<25	2014-2015	153	93	60.8%	73	47.7%
	2016-2017	131	88	67.2%	77	58.8%
	2018-2019	126	75	59.5%	74	58.7%
25-34	2014-2015	328	197	60.1%	143	43.6%
	2016-2017	347	221	63.7%	201	57.9%
	2018-2019	361	232	64.3%	257	71.2%
35-44	2014-2015	224	137	61.2%	115	51.3%
	2016-2017	261	180	69.0%	172	65.9%
	2018-2019	212	143	67.5%	147	69.3%
45-54	2014-2015	192	124	64.6%	89	46.4%
	2016-2017	189	116	61.4%	120	63.5%
	2018-2019	168	115	68.5%	119	70.8%
55-64	2014-2015	86	53	61.6%	49	57.0%
	2016-2017	78	59	75.6%	57	73.1%
	2018-2019	95	61	64.2%	69	72.6%
65+	2014-2015	26	14	53.8%	14	53.8%
	2016-2017	26	18	69.2%	19	73.1%
	2018-2019	36	26	72.2%	29	80.6%

Notes: Data provided by Public Health Ontario Laboratory. Age was not reported for <1.0% of people newly nominally diagnosed with HIV between 2014-2015 and 2018-2019. 8.6% of people newly nominally diagnosed did not link to care at all in 2014-2015, 10.0% in 2016-2017, and 9.2% in 2018-2019 (those not linked to care are included in the denominator here). See **Technical notes** for definitions and more information.

Table 6.5 HIV care cascade, by health region, Ontario, 2020

		Northern	Ottawa	Eastern	Toronto	Central East	Central West	South West
Number of people living with diagnosed HIV (row percent)	Overall	579 (2.9%)	2,032 (10.2%)	628 (3.1%)	10,482 (52.5%)	2,591 (13.0%)	2,157 (10.8%)	1,487 (7.5%)
	Males	394 (2.6%)	1,381 (9.0%)	510 (3.3%)	8,602 (55.9%)	1,838 (11.9%)	1,538 (10.0%)	1,136 (7.4%)
	Females	183 (4.3%)	634 (14.8%)	109 (2.5%)	1,705 (39.9%)	722 (16.9%)	589 (13.8%)	333 (7.8%)
Number of people living with diagnosed HIV in care		485	1,775	555	9,363	2,309	1,946	1,370
Of those living with diagnosed HIV, percent in care		83.8%	87.4%	88.4%	89.3%	89.1%	90.2%	92.1%
Number of people living with diagnosed HIV on ART		451	1,727	541	9,140	2,251	1,893	1,312
Of those living with diagnosed HIV, percent on ART		77.9%	85.0%	86.1%	87.2%	86.9%	87.8%	88.2%
Number of people living with diagnosed HIV who were virally suppressed		430	1,681	528	8,939	2,211	1,851	1,291
Of those living with diagnosed HIV, percent who were virally suppressed		74.3%	82.7%	84.1%	85.3%	85.3%	85.8%	86.8%

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for 1.4% of people living with diagnosed HIV in Ontario in 2020; health region was not reported or reported as outside Ontario for <1%. See **Technical notes** for definitions and more information.

Table 6.6 Number of people living with diagnosed HIV per 1,000 population in Ontario, by health region; overall, males, and females, 2020

		Northern	Ottawa	Eastern	Toronto	Central East	Central West	South West
Number of people living with diagnosed HIV	Overall	579	2,032	628	10,482	2,591	2,157	1,487
	Males	394	1,381	510	8,602	1,838	1,538	1,136
	Females	183	634	109	1,705	722	589	333
Population size (all ages)	Overall	810,181	1,043,130	886,339	2,988,408	4,418,693	2,864,816	1,722,447
	Males	404,469	512,619	440,043	1,454,341	2,190,616	1,420,972	856,388
	Females	405,712	530,511	446,296	1,534,067	2,228,077	1,443,844	866,059
Number of people living with diagnosed HIV per 1,000 population	Overall	0.71	1.95	0.71	3.51	0.59	0.75	0.86
	Males	0.97	2.69	1.16	5.91	0.84	1.08	1.33
	Females	0.45	1.20	0.24	1.11	0.32	0.41	0.38

Notes: Data provided by Public Health Ontario Laboratory. Sex was not reported or otherwise specified for 1.4% of people living with diagnosed HIV in Ontario in 2020; health region was not reported or reported as outside Ontario for <1%. See **Technical notes** for definitions and more information.

Table 6.7 Number of people newly diagnosed with HIV in Ontario (nominally), and percent linked to care within one month of diagnosis and virally suppressed within six months, overall and by health region, 2014-2015 to 2018-2019

		Total number newly diagnosed	Linked to care within one month of HIV diagnosis		Virally suppressed within six months of HIV diagnosis	
			Number	Percent	Number	Percent
Overall	2014-2015	1011	618	61.1%	483	47.8%
	2016-2017	1033	682	66.0%	646	62.5%
	2018-2019	998	652	65.3%	695	69.6%
Northern	2014-2015	43	20	46.5%	10	23.3%
	2016-2017	26	14	53.8%	9	34.6%
	2018-2019	47	18	38.3%	12	25.5%
Ottawa	2014-2015	85	54	63.5%	38	44.7%
	2016-2017	82	53	64.6%	53	64.6%
	2018-2019	47	31	66.0%	33	70.2%
Eastern	2014-2015	20	15	75.0%	8	40.0%
	2016-2017	25	17	68.0%	18	72.0%
	2018-2019	23	18	78.3%	14	60.9%
Toronto	2014-2015	467	286	61.2%	248	53.1%
	2016-2017	458	296	64.6%	302	65.9%
	2018-2019	489	321	65.6%	345	70.6%
Central East	2014-2015	158	94	59.5%	74	46.8%
	2016-2017	157	100	63.7%	86	54.8%
	2018-2019	171	98	57.3%	118	69.0%
Central West	2014-2015	109	80	73.4%	56	51.4%
	2016-2017	138	91	65.9%	87	63.0%
	2018-2019	104	71	68.3%	82	78.8%
South West	2014-2015	113	62	54.9%	44	38.9%
	2016-2017	133	104	78.2%	87	65.4%
	2018-2019	104	92	88.5%	88	84.6%

Notes: Data provided by Public Health Ontario Laboratory. Health region was not reported or reported out of province for an average of 1.4% of people newly nominally diagnosed with HIV in Ontario between 2014-2015 and 2018-2019. 8.6% of people newly nominally diagnosed did not link to care at all in 2014-2015, 10.0% in 2016-2017, and 9.2% in 2018-2019 (those not linked to care are included in the denominator here). See **Technical notes** for definitions and more information.