HIV tests in Ontario, 2021

About OHESI

The Ontario HIV Epidemiology and Surveillance Initiative (OHESI) is a collaboration involving the HIV and Hepatitis C 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 program initiatives in the provincial "HIV/AIDS Strategy to 2026: Focusing Our Efforts - Changing the Course of the HIV Prevention, Engagement and Care Cascade in Ontario."

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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We acknowledge the members of the OHESI Champions Committee for their review of this report.

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Date of publication

October 12, 2023

Suggested citation

Ontario HIV Epidemiology and Surveillance Initiative. *HIV tests in Ontario, 2021*. Toronto, Ontario, October 12, 2023.

Summary

The Ontario HIV Epidemiology and Surveillance Initiative reports on HV testing for the province, in order to monitor our testing programs and ensure HIV testing is accessible for those at risk of acquiring HIV. Below are the key findings in HIV testing patterns for 2021.

Number of HIV tests began recovering in 2021

In 2021, access to many health services, including HIV testing, began recovering from the disruption caused by the COVID-19 pandemic. After a sharp decrease of 26.1% in 2020 (500,517) compared to 2019 (677,243), the number of HIV tests [1] increased by 22.0% to in 2021 (610,493). However, the number of HIV tests in 2021 did not reach its previous pre-pandemic peak, which occurred in 2019.

Note: this number does not include tests done as part of the HIV prenatal testing program. Prenatal HIV tests are analyzed and reported separately in Section 9 from routine diagnostic HIV testing[2].

Testing increased in all health regions

Although the number of HIV tests and the HIV test rate per 1,000 people increased in all seven health regions for both males and females between 2020 and 2021, the increase in testing was not distributed evenly across all regions. Compared to 2019, the number of HIV tests in 2021 remained 14% to 19% lower in Eastern, Toronto and Ottawa regions, but was less than 5% lower in Central West and Central East. Central East surpassed its 2019 peak of number of tests in 2021 in males. As in prior years, the HIV test rate per 1,000 people was highest in Toronto followed by Ottawa – even though the number of tests has not yet completely recovered – and the Eastern Region continued to have the lowest testing rates.

Largest increases in testing were among people in their 20s

The HIV test rate per 1,000 people increased for both males and females across all age groups in 2021 compared to 2020 with one exception: females aged 15 to 19 years. The largest increases in the number of HIV test occurred among people in their 20s. The number of tests in males aged 20 to 24 and 25 to 29 surpassed the 2019 pre-pandemic levels while the number in females aged 25 to 29 almost reached their 2019 pre-pandemic levels.

Drop in anonymous testing continued

Over the last decade, the vast majority of HIV tests have been conducted through standard testing programs using patient name (nominal testing). In the last decade, nominal HIV tests have accounted for an increasing proportion of tests: 90.9% in 2012 and 98.3% in 2021. Between 2012 and 2019, the number of tests conducted anonymously was fairly stable at ~16,000 per year. However, in 2020 (the first year of the COVID-19 pandemic), the number of anonymous tests dropped by 67.8% and, in 2021, it fell another 6.6% to 4,958. As a result, anonymous testing accounted for only 0.8% of HIV testing in

[1] Does not include HIV tests with previous evidence of HIV; that is, it excludes people who already knew their HIV status at the time of their first positive nominal diagnostic test in Ontario. Please refer to section 5 of the appendix for more details.
[2] The number of pregnant people who received a prenatal HIV test in Ontario was essentially unchanged in 2021 (138,029) compared to 2020 (138,228).

2021 – down from ~3.8% in the first half of the decade. The decrease was mainly due to the fact that most anonymous testing sites are operated by public health sexual health clinics – many of which were closed during the COVID-19 pandemic when staff were re-assigned to COVID-related programs and services.

Distribution of tests by HIV exposure category remained consistent

In 2021, only about 20% of HIV test requisitions had information on risk factor or exposure category completed (28% completed average between 2017 and 2021). However, among that 20%, the distribution of HIV tests by HIV exposure category remained largely consistent with the previous four years. This trend indicates that all HIV exposure groups were accessing HIV testing similarly in 2021 as they had been in previous years. Where HIV exposure category was reported, the most frequently reported exposure category was males then females reporting heterosexual contact with no identified risk[3] followed by males reporting male-to-male sexual contact, and males and females reporting injection drug use (IDU). Between 2017 and 2021, the proportion of males reporting heterosexual contact with no identified risk decreased over time (from 64% to 54%) while the proportion reporting male-to-male sexual contact increased (31% to 40%). The proportion of both males and females reporting injection drug has increased slightly over time.

Greatest proportion of tests submitted by family doctors

In 2021, the majority of HIV tests in Ontario were ordered by family doctors/other clinics/labs[4] (221,246) followed by immigration clinics[5] (161,143), other health care facilities (73,414) and HIV treating physicians/clinics (67,740). This pattern is consistent with past years although the proportion of HIV tests ordered by immigration physicians/clinics has increased in 2021 while the proportion HIV tests ordered by family doctors/other clinics/labs decreased in 2020 and 2021 and the proportion ordered by HIV treating physicians/clinics, hospitals and other health care facilities remained relatively stable. The main change in submitters was the marked drop in the number of tests ordered by sexual health clinics/public health units over the past two years (from 66,513 in 2019 to 22,768 in 2021) due to these clinics not operating at capacity during the COVID-19 pandemic. In 2021, Family doctors/ other clinics/labs also identified the largest number of first-time diagnoses[6] (140) followed by HIV treating physicians (126), hospitals (69), sexual health clinics (64) and immigration clinics (52).

[3] "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male.

[4] Family doctors/other clinics/labs includes physicians who are not classified as HIV treating physicians or immigration physicians, clinics that are not classified as any of the preceding submitter types, and laboratories that are not in a hospital site. "Other health care facilities" includes fertility clinics, school-based wellness centres, mental/addiction health clinics, and long-term care/retirement facilities.

[5] HIV testing is required for all clients 15 years of age and older undergoing a Canadian Immigration Medical Examination (IME). Changes in immigration policies can affect the number of migrations and therefore the number of tests coming from the immigration process. Immigration, Refugees and Citizenship Canada reports on policy changes and notices (https://www.canada.ca/en/immigration-refugees-citizenship/news/notices.html).

[6] Frist-time HIV diagnoses do not include diagnoses with previous evidence of HIV; that is, it excludes people who already knew their HIV status at the time of their first positive nominal diagnostic test in Ontario.

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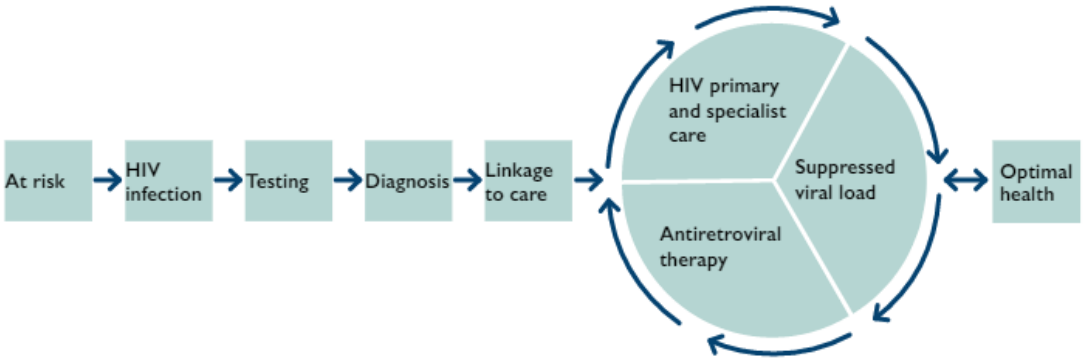
Introduction

Why look at patterns in HIV testing?

- HIV testing is an early step in the HIV prevention, engagement and care cascade (Figure i) and critical for people living with HIV to know their status and be linked to care and treatment. HIV testing is also an important gateway to services for people at high risk who test HIV-negative.
- Testing is closely tied to the 2020 UNAIDS 90-90-90 target of 90% of all people living with HIV knowing their HIV status (see box below). Whereas previous AIDS targets sought to achieve incremental progress in the response, the aim in the post-2015 era is the end of the AIDS epidemic by 2030.
- Trends in HIV testing can be useful for measuring the success of HIV testing initiatives and for interpreting trends in new HIV diagnoses.
- HIV test positivity can provide insight into which sub-populations have a higher risk of HIV.
- This report includes information on the number of HIV tests with no previous evidence of HIV in Ontario. It does NOT include information on the number of unique individuals tested. As a result, testing trends may reflect changes in both the number of times individuals test in a year (e.g. people taking HIV pre-exposure prophylaxis [PrEP] usually test four times per year) as well as the total number of unique people who are tested.

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



What's in this report?

- The number, proportion and rate of HIV testing in Ontario is reported by key metrics such as sex (male/female), age (5-year categories), test type (nominal/anonymous), exposure category, geographic region in Ontario and submitter type. Test positivity (the number of first-time HIV diagnoses divided by the number of HIV tests[7]) is also reported.
- The number and proportion of HIV tests by transgender identity and race/ethnicity is also reported among those tests which were submitted via the 2018 and on HIV test requisitions. Data on transgender identity and race/ethnicity were not collected on previous versions of the HIV test requisition form which are still submitted.

[7] Does not include HIV tests with previous evidence of HIV; that is, it excludes people who already knew their HIV status at the time of their first positive nominal diagnostic test in Ontario. Please refer to section 5 of the appendix for further explanations of HIV tests with previous evidence of HIV. Also does not include HIV-negative tests as part of the prenatal testing program.

- The number of pregnant people who received a prenatal HIV test (as part of an ongoing HIV testing program offered to all pregnant individuals) and its ratio to births is reported. HIV-negative tests that are part of this program are not included in total HIV tests counts unless specified.
- Due to the impact of the COVID-19 pandemic first affecting Ontario in 2020, this report focuses on the changes in HIV testing between both pre-pandemic (2012-2019) trends compared to 2021 and 2020 vs 2021 trends.
- This report uses a categorization of HIV exposure categories which focus on behavioural risk factors as opposed to identity. More information can be found in the HIV exposure categories section of the Appendices.
- Point-of-care (POC) testing data is not included in this report (as per previous reports) and will be included as an addendum at a later date.

About the Data

Where do these data come from?

- Data in this report come from Public Health Ontario (PHO) Laboratory, which conducts centralized HIV diagnostic testing for the province. Data on the annual number of pregnant people in Ontario was provided by the Better Outcomes Registry & Network (BORN).
- When someone is tested for HIV in Ontario, the health care provider ordering the test (e.g. a physician, nurse, HIV counselor) fills out an HIV test requisition that is sent with the clinical specimen to PHO. The requisition collects information on the individual being tested for HIV, including their age, sex, geographic location and HIV risk factors.
- When a test is HIV-positive, a PHO's Laboratory Enhancement Program (LEP) form is sent to the health care provider who ordered the test to collect more information on the individual tested. LEP data in this report is only used to determine which positive HIV tests were from individuals with Previous evidence of HIV (PEH) so that they could be excluded (i.e. this report will focus on first-time HIV diagnoses). An additional 1,190 tests were performed in 2021 for individuals who had PEH (806 males, 366 females, 18 unknown sex). Since 2009, the LEP form has collected information on race/ethnicity, country of birth, and test history (data that is also collected on the HIV test requisition as of 2018).
- In February 2018, PHO implemented a revised HIV test requisition that collects additional information on transgender identity, race/ethnicity, and country of birth. This report includes data on transgender identity and race/ethnicity from the subset of HIV tests that were submitted using this revised requisition. Uptake of the revised requisition has been increasing since its introduction but remains low (33.4% of all tests in 2019, 39.8% in 2020 and 56.3% in 2021).
- Prenatal HIV tests are part of an ongoing HIV testing program offered to all pregnant individuals as part of their prenatal care. Prenatal HIV testing results are represented separately in this report (Section 9). They are not included in the number of HIV tests or population test rates in this report. However, to calculate HIV test positivity, HIV-positive prenatal tests are included in the numerator while HIV-negative prenatal tests are not included in the denominator. From 2012 to 2021, the annual number of HIV-positive prenatal tests ranged from 2 to 10 (where no previous evidence of HIV infection was reported).

What are the strengths of these data and our approach to presenting it?

- This report uses a new categorization of HIV exposure categories which focus on behavioural risk factors as opposed to identity. More information can be found in the HIV exposure categories section of the Appendices.

- The vast majority of HIV diagnostic testing conducted by health care providers in Ontario is done by PHO and therefore included in this report.
- Age and sex data on the test requisition are very complete; 0.27% of diagnoses missing age in 2021 and 2.2% of diagnoses missing sex in 2021. Approximately 14% of diagnoses are missing information on address of residence in 2021 and assigned based on provider address, leaving 0.04% of tests with unknown health region in 2021.
- Trends in HIV tests are presented as numbers and, where possible, as an HIV test rate (i.e. the number of tests per 1,000 people). While the number of tests is influenced by the size of the underlying population (i.e. greater population = greater number of tests), rates take population size into account and remove it as a possible explanatory factor for any observed differences over time or between populations.
- Counts of HIV tests in this report exclude positive HIV tests from individuals with previous evidence of HIV. This is true for the calculation of HIV test positivity as well. We report on HIV tests from individuals without Previous evidence of HIV (PEH) to better understand local transmission in Ontario and, therefore, which populations might be at most risk and benefit most from prevention activities. More information on First-time HIV diagnoses and exclusion of HIV tests with previous evidence of HIV can be found in the appendices.

What are the limitations of the data summarized in this report?

- In this report, HIV tests are broken down by HIV exposure category, which are meant to represent an individual's most likely risk of HIV infection based on risk factors documented on the HIV test requisition. The HIV response in Ontario focuses on key populations or populations most affected by HIV, which are a combination of risk factors (e.g. male-to-male sexual contact, injection drug use), country of birth, and race/ethnicity (e.g. white, Black). As information on race/ethnicity and country of birth were not available on test requisitions up to and including part of 2018 and uptake of the HIV test requisition version which asks about race/ethnicity is increasing but remains at only 56% in 2021, we are unable to report on key populations here. While this report uses a new categorization of HIV exposure categories which focus on behavioural risk factors as opposed to identity, HIV exposure categories do not capture the burden of HIV in communities. More information on HIV exposure categories can be found in the appendices.
- Risk factor information which is used to assign HIV exposure categories is missing or indicated as "none" on approximately 80% of test requisitions. With the limited response, it is not possible to determine if these results are representative of tests overall and results should be interpreted through this lens.
- If information is more likely to be missing for one specific HIV exposure category than others (e.g. injection drug use), that exposure category may be underrepresented in the data and could introduce bias into the findings.
- Tests are reported as a rate per 1,000 people. It is possible that an individual may test more than once per year, (especially as HIV pre-exposure prophylaxis (PrEP) use is increasing and requires multiple tests per year) and, therefore, the number of unique individuals tested is likely lower than the total number of tests. Also, males are more likely to be taking PrEP and may be more likely than females to test more than once in a given year (OHTN PrEP report).
- While counts of HIV tests in this report exclude positive HIV tests from individuals with PEH as determined by the 'HIV testing history' and 'previous test information' sections on the test requisition and LEP forms, it is likely these are undercounts as these sections have missing data and/or may not be filled out correctly. This may influence the positivity rates reported. More information on First-time HIV diagnoses and exclusion of HIV tests with previous evidence of HIV can be found in the appendices.

- Data on transgender identity and race/ethnicity are reported from a subset of the total HIV tests where the revised HIV test requisition was used. HIV tests using this requisition made up approximately 55% of all HIV tests in 2021, 39% in 2020 and 33% in 2019. Due to this incomplete uptake of the HIV test requisition thus far, these findings may not be representative of all HIV tests in Ontario in these years.

Data and Figures

The figures in this section describe trends in HIV testing overall and by sex, age, test type, HIV exposure category, health region, and HIV test submitter type. Prenatal HIV testing as part of the prenatal screening program is reported separately. Supplemental information on gender and race/ethnicity from the subset of tests submitted with the 2018 and on HIV test requisition are also described. In general, each page contains one to two figures and each figure is accompanied by a brief description of findings and/or trends.

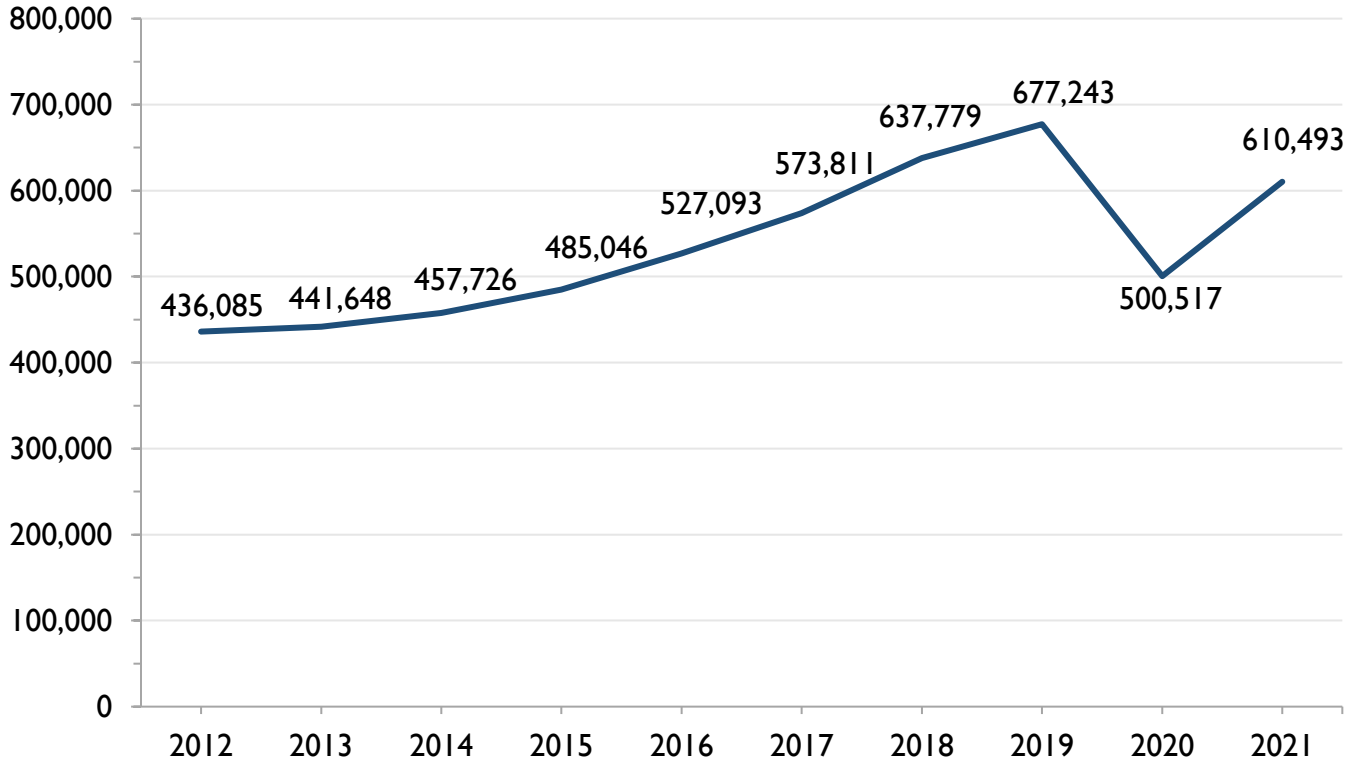
Negative prenatal HIV tests are not included in sections 1 through 8 (an average of approximately 136,000 pregnant people received an HIV test each year between 2012 and 2021). See the Prenatal HIV testing ***section (section 9) for information about prenatal HIV tests.***

See Appendices for more information on the data source and how these numbers were calculated, and Data Tables section for all the numbers underlying the figures.

1. Overall

In 2021, 610,493 HIV tests were conducted in Ontario – equivalent to an HIV test rate of 41.2 tests per 1,000 people. Prior to 2020, the number and rate of HIV tests per capita had been increasing year over year since 2012, before falling by approximately one quarter in 2020 compared to 2019. In 2021, both the number and the rate of HIV tests per capita increased by slightly over 20%, although neither metric reached their previous pre-COVID-19 pandemic peaks in 2019. The overall HIV test positivity reached a new low in 2021 at 0.08% - i.e. for every 10,000 tests, approximately 8 were positive for HIV (a first-time HIV diagnosis).

Figure 1.1 Number of HIV tests, Ontario, 2012 to 2021



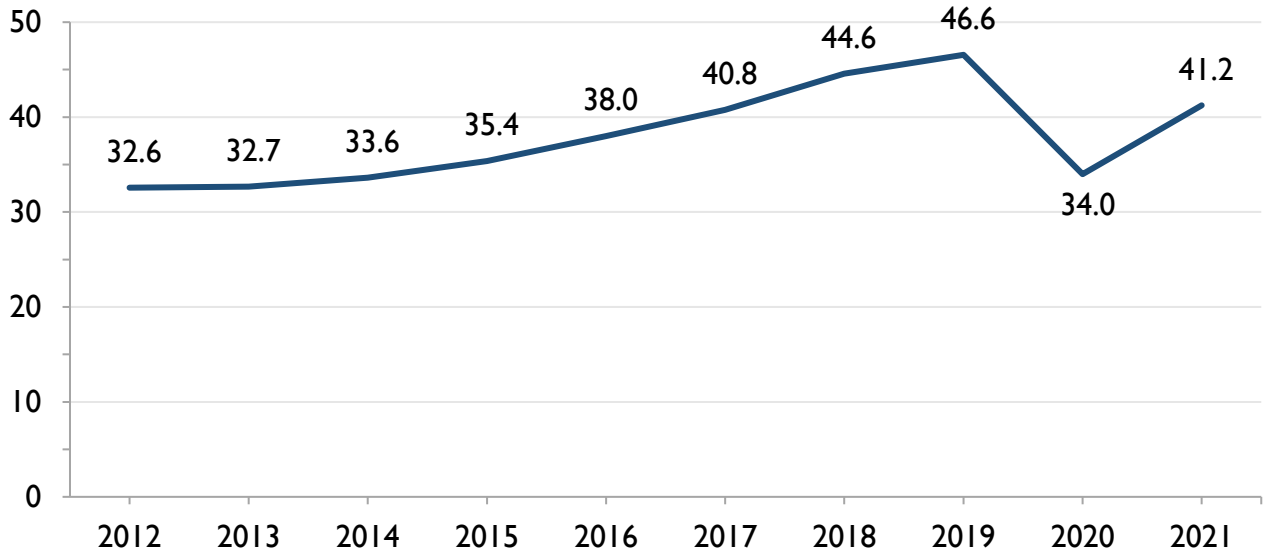
Snapshot

610,493 HIV tests were conducted in 2021, a 22.0% increase from 500,517 in 2020 but a 9.9% decrease from 677,243 in 2019. Prior to 2020, the annual number of HIV tests had been gradually increasing since 2012.

Negative prenatal HIV tests are not included in these numbers (an average of approximately 136,000 pregnant people received an HIV test each year between 2012 and 2021).

Notes: Data provided by Public Health Ontario Laboratory. See Appendices for more information. See **Table 1.1** for underlying data.

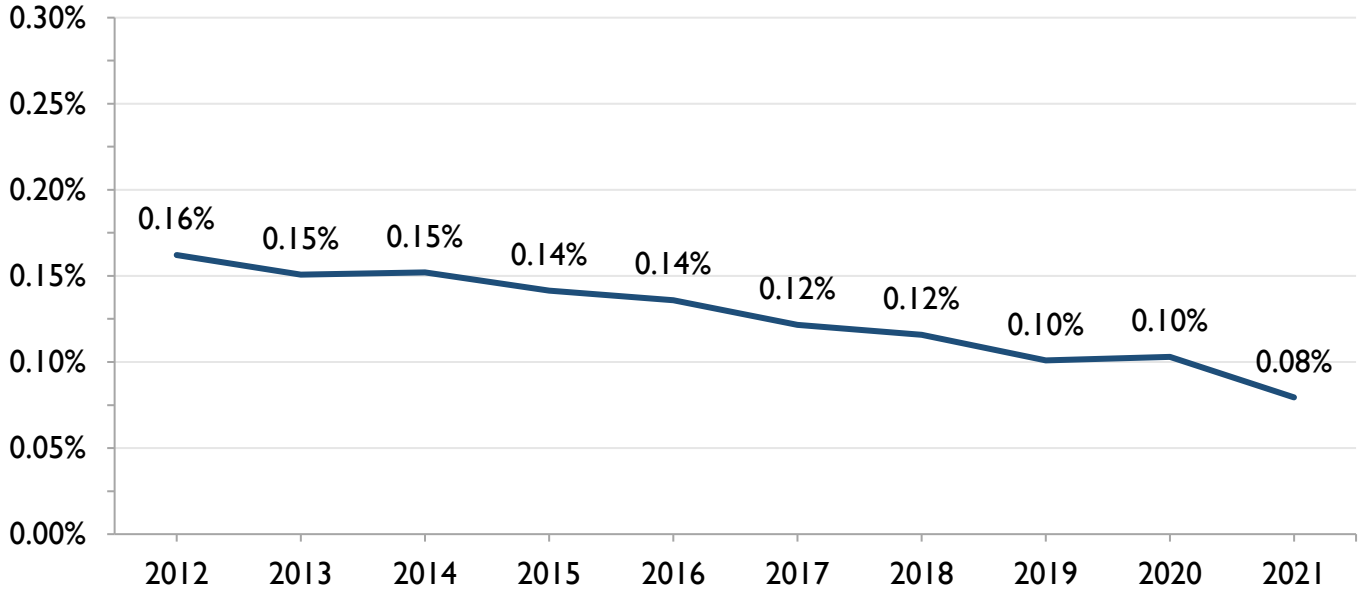
Figure 1.2 HIV test rate per 1,000 people, Ontario, 2012 to 2021



Snapshot

The HIV test rate was 41.2 tests per 1,000 people in 2021, a 21.2% increase from 34.0 in 2020 but a 11.6% decrease from 46.6 in 2019. Prior to 2020, the HIV test rate had been gradually increasing since 2012.

Figure 1.3 HIV test positivity, Ontario, 2012 to 2021



Snapshot

The proportion of HIV tests that were first-time HIV diagnoses (HIV test positivity) was 0.08% in 2021. The HIV test positivity has been steadily decreasing over the past 10 years from 0.16% in 2012.

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. See Appendices for more information. Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. See **Table 1.1** for underlying data.

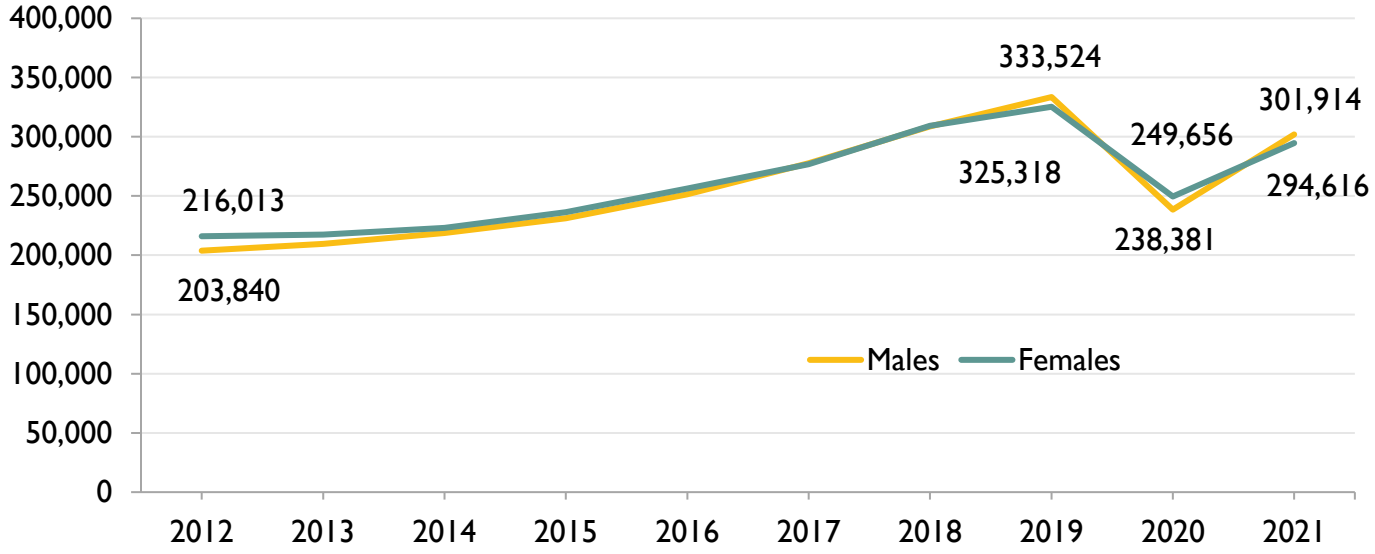
2. By sex

This section describes trends in HIV testing by male and female sex. In February 2018, PHO implemented a revised HIV test requisition that collects information on transgender identity. As only 56% of HIV tests in 2021 were submitted using the HIV test requisition that asks about gender and therefore, data pertaining to transgender identity is presented separately in **Figure 8.1**.

In 2021 compared to 2020, both the number and rate of HIV tests per capita increased for both males (~26% increase) and females (~18% increase). Males made up a slight majority (50.6%, 301,914 tests) of HIV tests in 2021 (prenatal HIV tests excluded). HIV test positivity decreased by 18% in males and by 36% in females in 2021 compared to 2019, and both reached a new low (0.126% for males and 0.033% for females) in 2021. The HIV test positivity has consistently been three to five times higher among males than females, and this trend continued in 2021.

Negative prenatal HIV tests are not included in these numbers (an average of approximately 136,000 pregnant people received an HIV test each year between 2012 and 2021). See the Prenatal HIV testing section (section 9) for information about prenatal HIV tests.

Figure 2.1 Number of HIV tests by sex, Ontario, 2012 to 2021



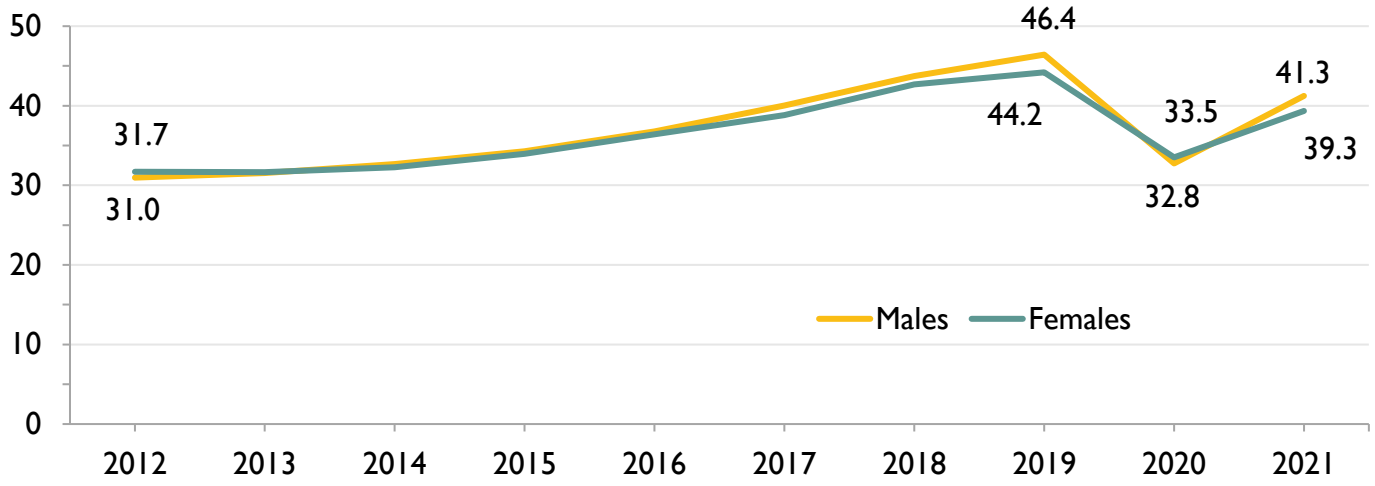
Snapshot

In 2021, for both males and females, the number of HIV tests conducted increased from 2020 but remained below their previous 2019 peak. For males, the number of HIV tests increased by 26.7% from 238,381 in 2020 to 301,914 in 2021, after decreasing from a high of 333,524 in 2019. For females, the number of HIV tests increased by 18.0% from 249,656 in 2020 to 294,616 in 2021, after decreasing from a high of 325,318 in 2019. Between 2012 and 2019, there was a greater increase in the number of HIV tests in males compared to females (but more HIV tests were conducted in females in 2012 through 2016). Since 2017, the greater number of HIV tests has alternated each year to be males then females, with males having a greater number of HIV tests in 2021.

Negative prenatal HIV tests are not included in these numbers (an average of approximately 136,000 pregnant people received an HIV test each year between 2012 and 2021).

Notes: Data provided by Public Health Ontario Laboratory. Tests with unreported sex not included (approximately 2-3% each year). See Appendices for more information. See **Table 2.1** for underlying data.

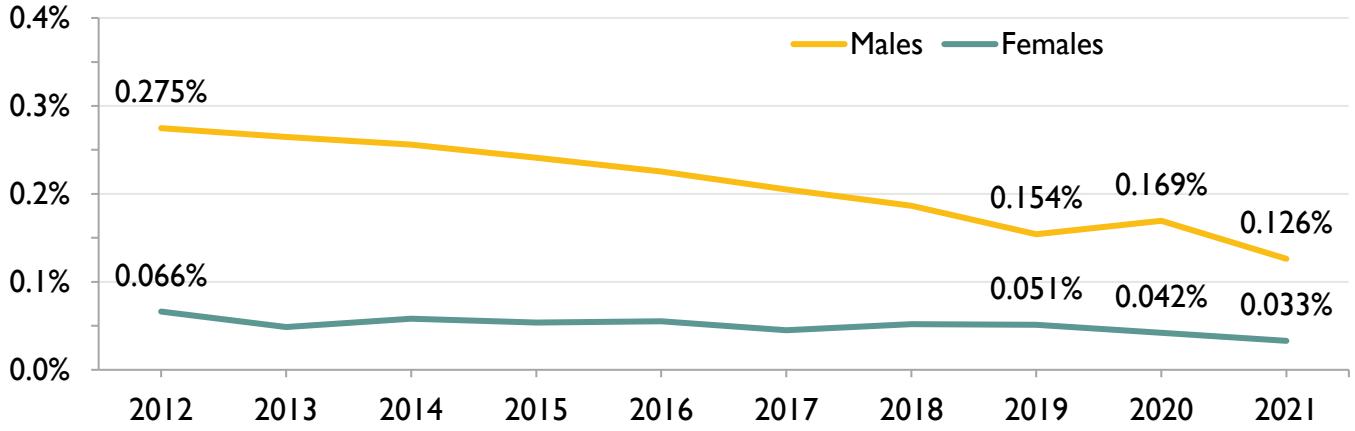
Figure 2.2 HIV test rate per 1,000 people by sex, Ontario, 2012 to 2021



Snapshot

In 2021, the HIV test rate per 1,000 people increased from 2020 for both males and females. For males, the HIV test rate per 1,000 people increased by 25.9% from 32.8 in 2020 to 41.3 in 2021. Between 2012 and 2019, the HIV test rate among males had been increasing year over year to peak at 46.4 in 2019. For females, the HIV test rate per 1,000 people increased by 19.1% from 33.5 in 2020 to 39.3 in 2021. Between 2012 and 2019, the HIV test rate among females had been increasing year over year to peak at 44.2 in 2019. In 2012 and 2013, the HIV test rate among males was lower than among females; however, beginning in 2014 through 2021 (with the exception of 2020), the HIV test rate was higher among males than females. Negative prenatal HIV tests are *not* included in these numbers.

Figure 2.3 HIV test positivity by sex, Ontario, 2012 to 2021



Snapshot

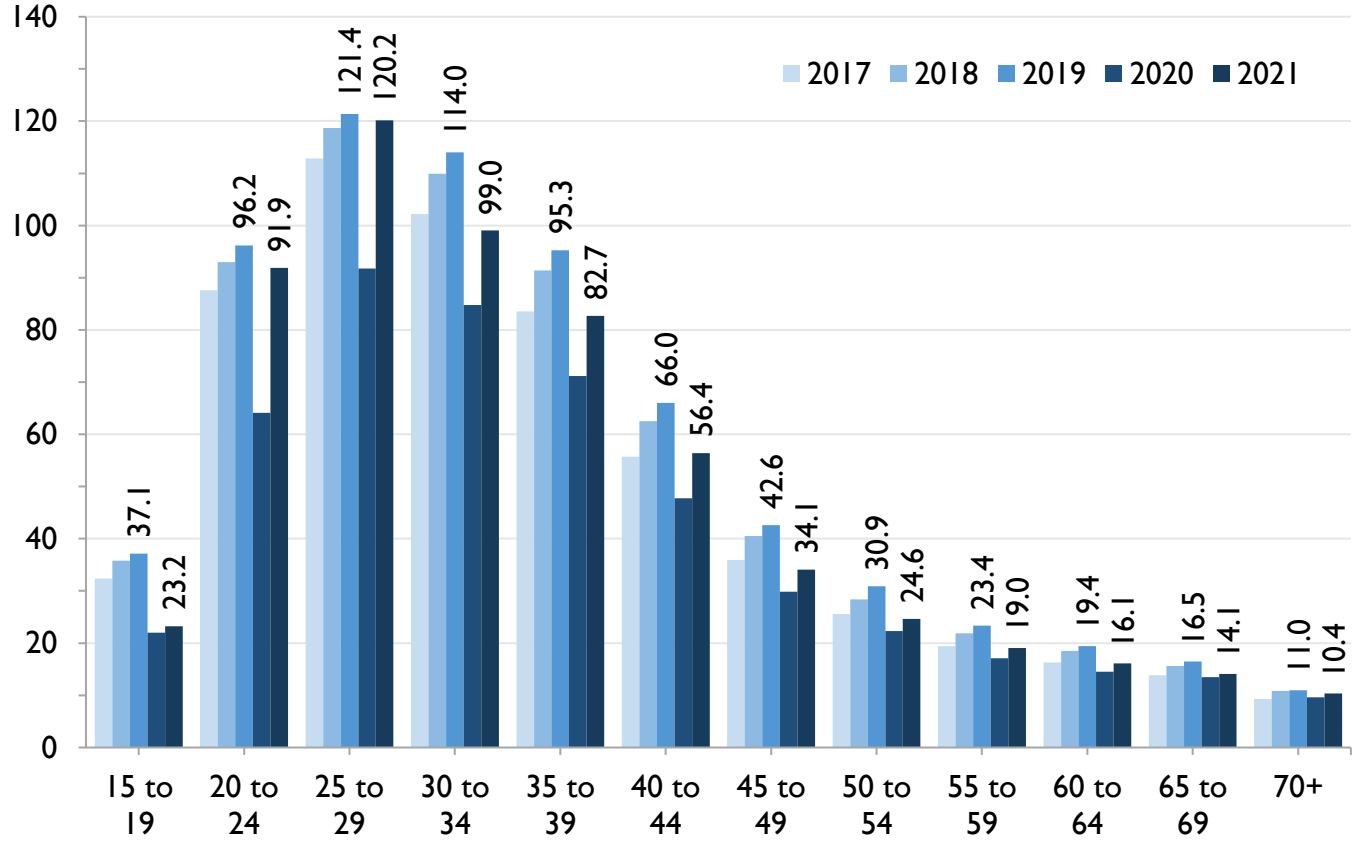
In 2021 the HIV test positivity decreased among males to 0.126% from 0.169% in 2020, and among females it decreased to 0.033% in 2021 from 0.042% in 2020. The HIV test positivity was 4 times higher for males than females in 2021. Between 2012 and 2021, the overall HIV test positivity trend was a decrease by more than half) among males (with a slight increase noted in 2020). Among females, the HIV test positivity trend has been stable between 2012 and 2019, followed by a 36% decrease between 2019 and 2021. Negative prenatal HIV tests are *not* included in these numbers.

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. Tests with unreported sex not included (approximately 2-3% each year). Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. See Appendices for more information. See **Table 2.1** and **Table 2.2** for underlying data.

3. By age

For both males and females, the HIV test rate per capita increased in 2021 from 2020 among all age groups (except females aged 15-19) after a considerable decrease in 2020. The largest increase in 2021 (relative to 2020) was among the 20 to 24 age category, followed by the 25 to 29 age category, for both males and females. Only the HIV test rate among males aged 20 to 24 and 25 to 29 years reached and surpassed their previous peaks in 2019. The distribution across age categories of HIV tests and test rate per 1,000 people was similar in 2021 compared to 2020 and 2019 for both males and females. HIV test positivity generally increased with increasing age groups in 2021, as they did in 2020, with peak rates among those aged 50 to 54 for males and 55 to 59 for females.

Figure 3.1 HIV test rate per 1,000 people by age, Ontario, 2017 to 2021



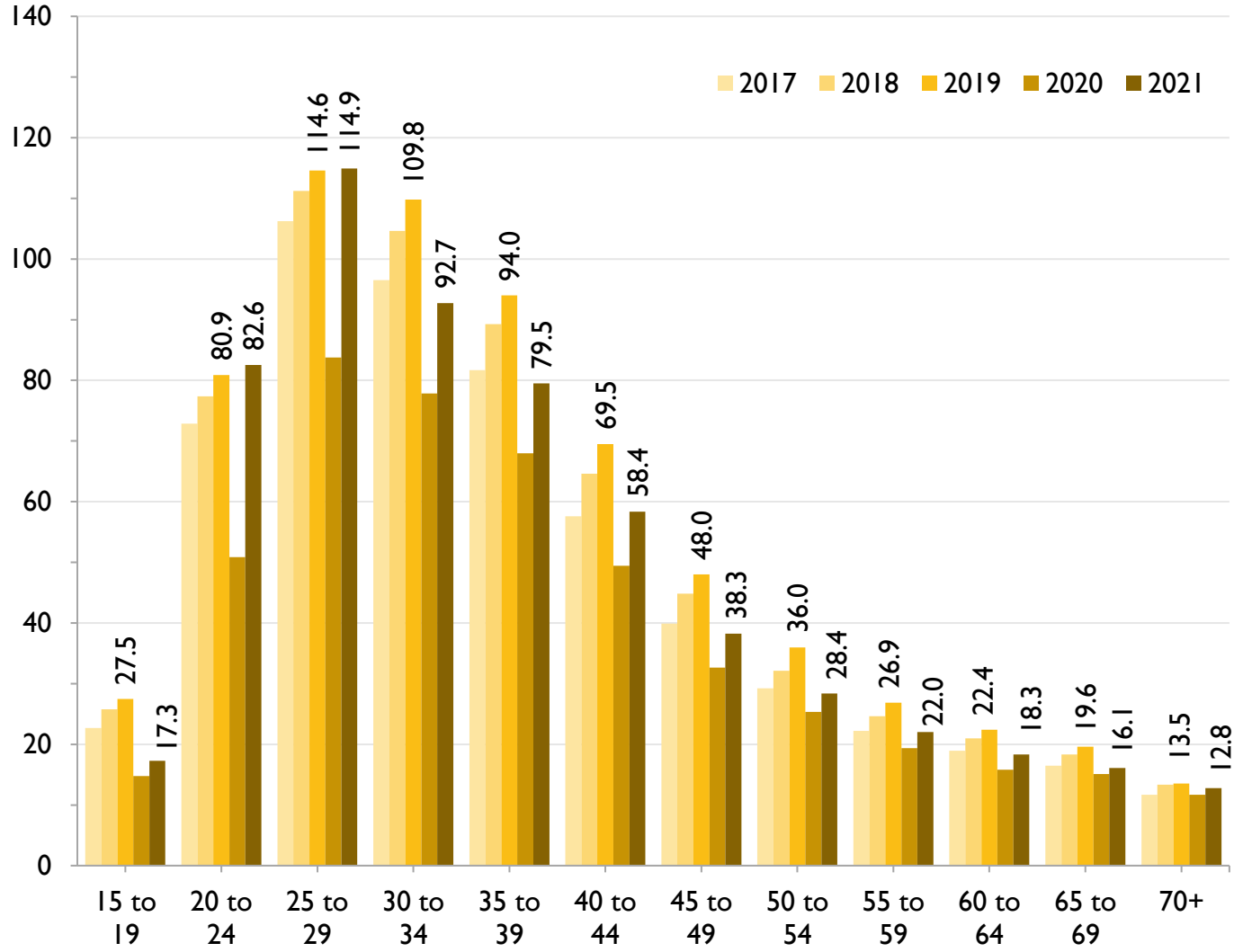
Snapshot

Between 2020 and 2021, the HIV test rate per 1,000 people increased for all age groups, with the largest absolute and relative increases in the 20 to 24 age category (43%), followed by the 25 to 29 age category (31%).

Although HIV test rates increased in all age categories in 2021 compared to 2020, only rates in the 20 to 24 and 25 to 29 year categories reached their 2019 pre-pandemic levels. While the majority of age categories continued to see a 13-20% decrease in HIV testing rates in 2021 compared to 2019, those in the 15 to 19 age category saw the largest decrease (37%),.

Notes: Data provided by Public Health Ontario Laboratory. Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. Tests with unreported age were not included (less than 0.5%). See Appendices for more information. See **Table 3.1** for underlying data.

Figure 3.2 HIV test rate per 1,000 people by age, males, Ontario, 2017 to 2021

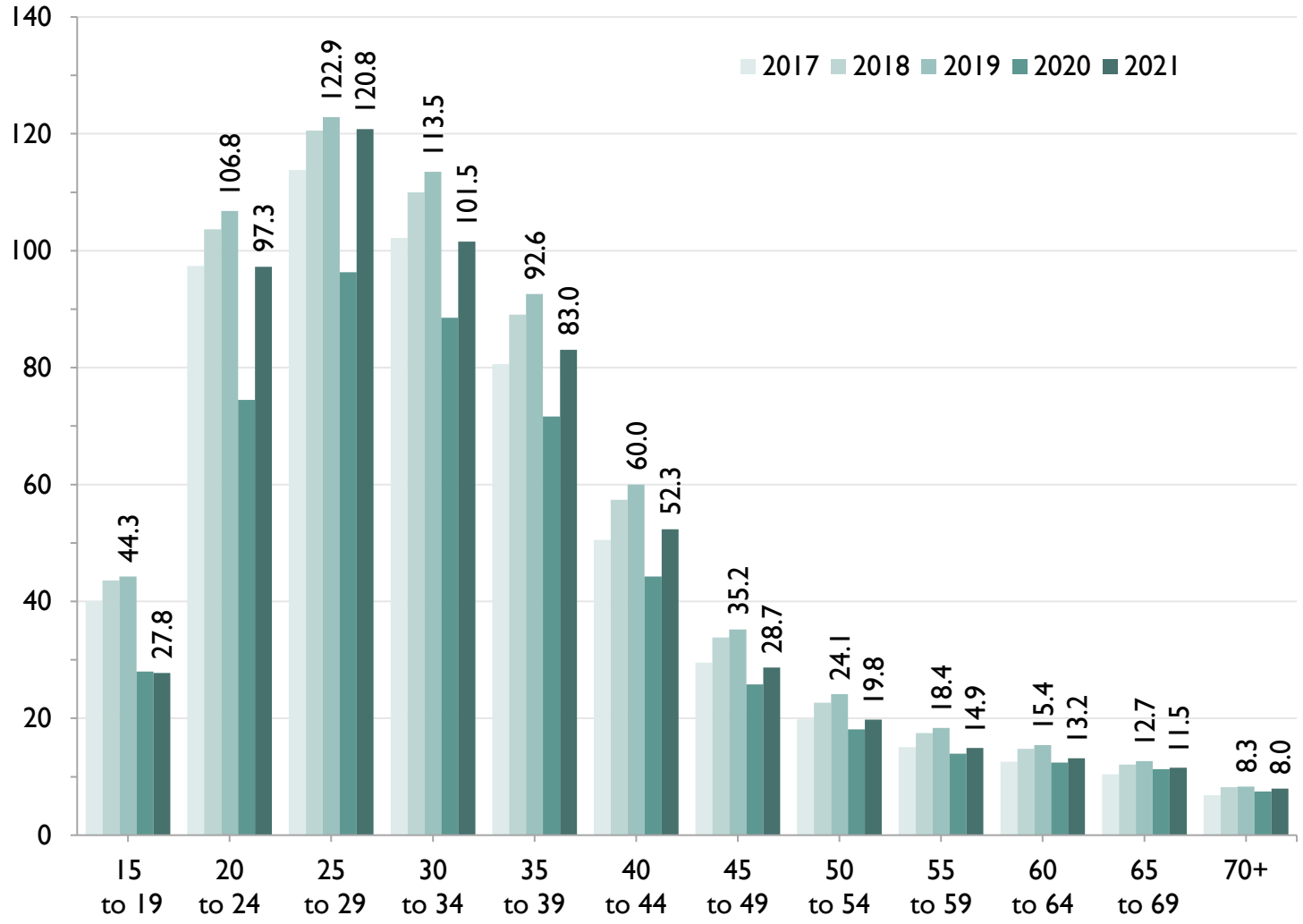


Snapshot

Between 2020 and 2021, the HIV test rate per 1,000 people in males increased for all age groups. The largest absolute and relative increase was in the 20 to 24 age category, followed by the 25 to 29 age category. In 2021, the HIV test rates in the 20 to 24 and 25 to 29 age categories slightly surpassed their pre-pandemic peaks in 2019. Other age categories saw modest recovery from the decrease observed in 2020, but were still below peak 2019 rates with males aged 15 to 19 years continuing the largest relative decrease (a 37% decrease) in 2021 compared to 2019.

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV not included. Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. Tests with unreported age were not included (less than 0.5%). See Appendices for more information. See **Table 3.2** and **Table 3.3** for underlying data.

Figure 3.3 HIV test rate per 1,000 people by age, females, Ontario, 2017 to 2021

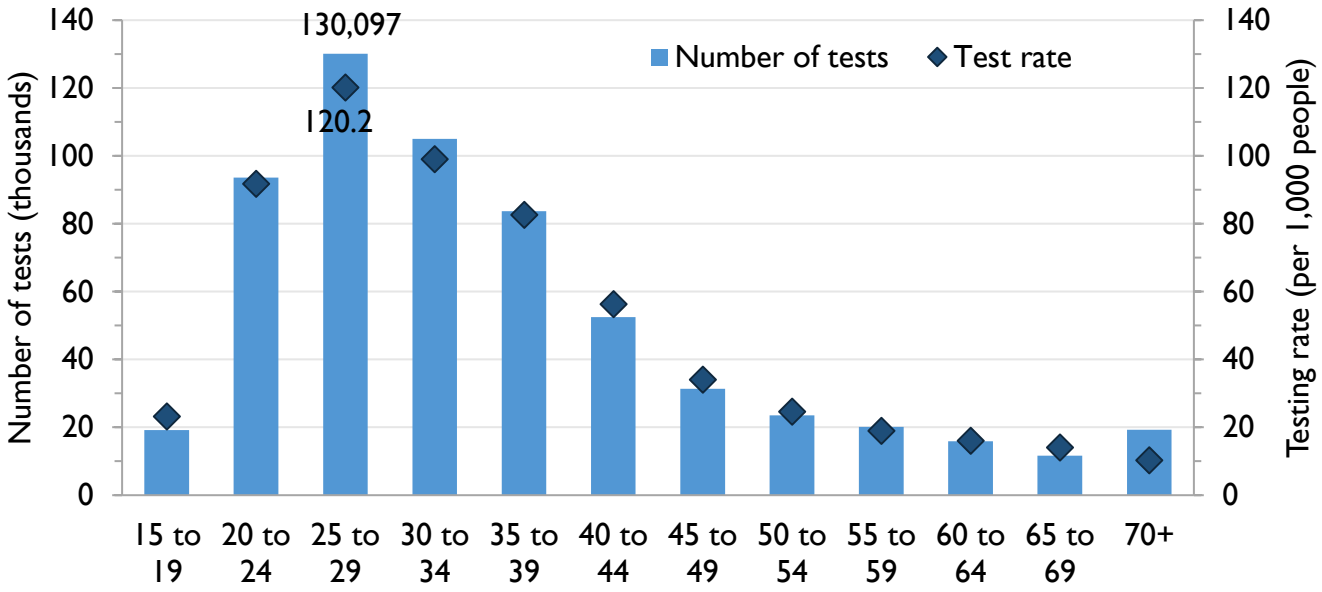


Snapshot

Between 2020 and 2021, the HIV test rate per 1,000 people in females increased for all age groups (except for the 15 to 19 age category which decreased by 0.9%), with the largest increases in females aged 20 to 29. The largest relative increase in the HIV test rate was in the 20 to 24 age category (31%), followed by the 25 to 29 age category (25%). The largest absolute increase was in the 25 to 29 age category (25%), followed by the 20 to 24 age category (23%). Despite the increase in most age categories, none of the HIV test rates in 2021 reached their previous peaks in 2019 – females aged 25 to 29 age group were the closest (only 2% below 2019 peak rate in 2021).

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV not included. Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. Tests with unreported age were not included (less than 0.5%). See Appendices for more information. See **Table 3.2** and **Table 3.3** for underlying data.

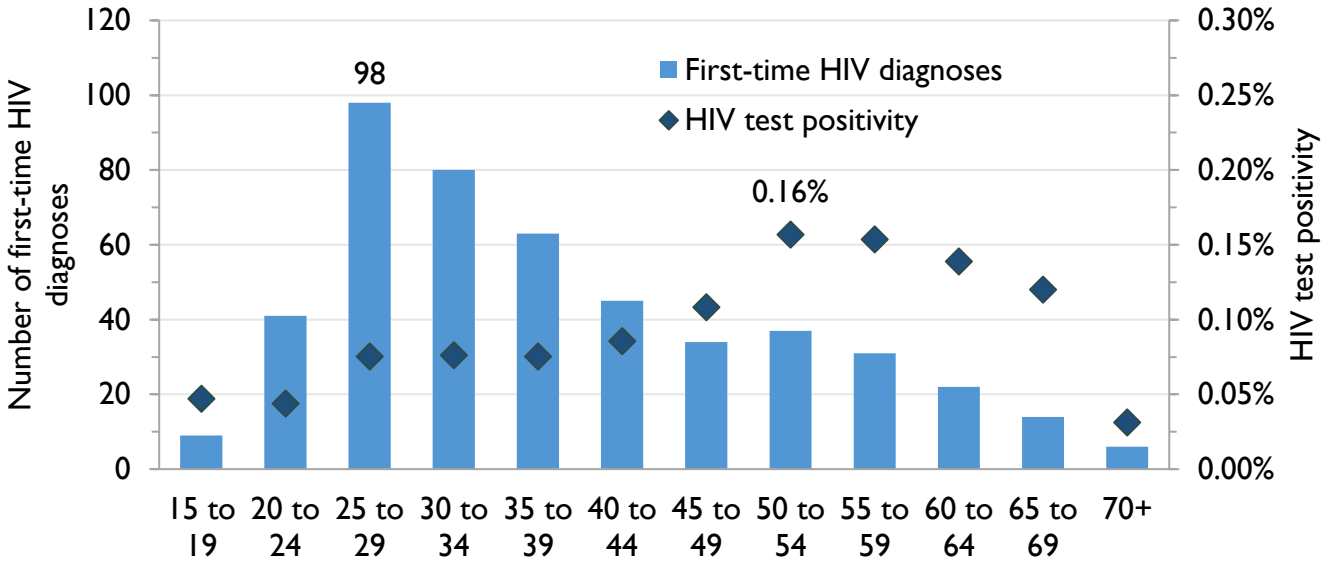
Figure 3.4 Number of HIV tests and HIV test rate per 1,000 people by age, Ontario, 2021



Snapshot

In 2021, the number of HIV tests and the HIV test rate were highest in the 25 to 29 age category (130,097 and 120.2 per 1,000 people, respectively). This pattern is consistent with that seen in 2020 and 2019.

Figure 3.5 Number of first-time HIV diagnoses and HIV test positivity by age, Ontario, 2021

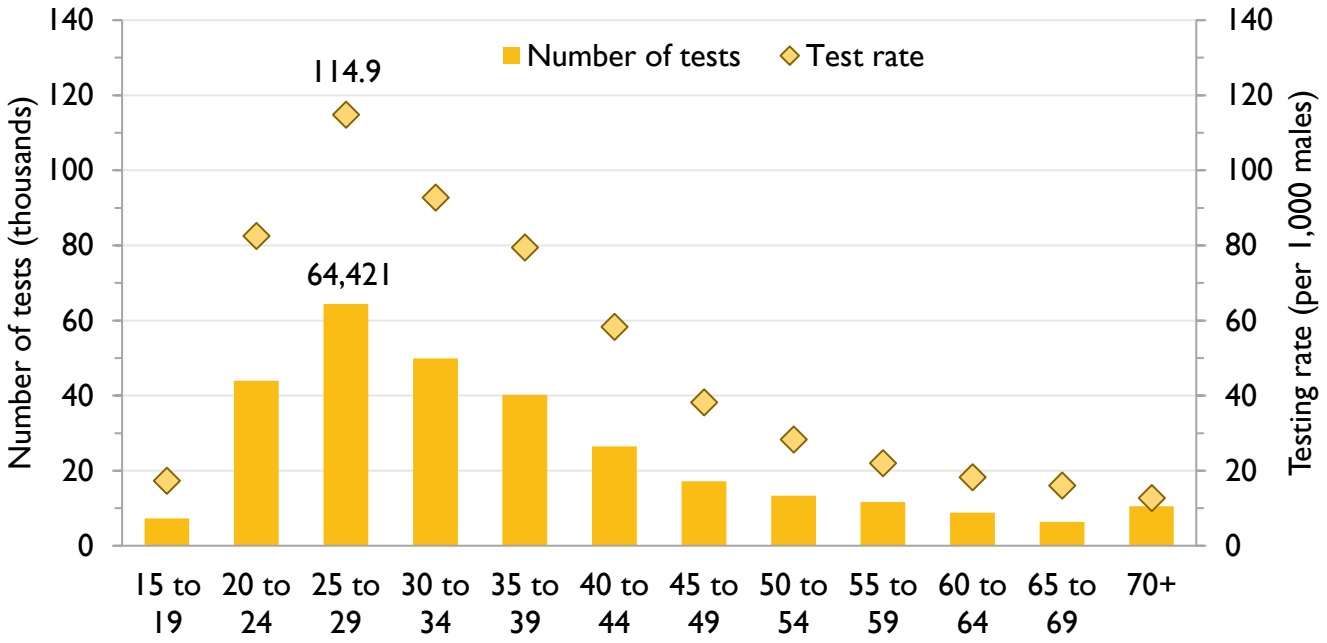


Snapshot

In 2021, the number of first-time HIV diagnoses was highest in the 25 to 29 age category (98), which is different from 2020 where the highest number was observed in the 30 to 34 age category (105) (data not shown). In 2021, the HIV test positivity was relatively stable among the 25 to 44 age categories, followed by an increase in the 45-49 age category and another increase in the 50 to 54 age category where it peaked at 0.16%. The test positivity then began to decrease in the age 55 to 59 category and older.

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. Tests with unreported age were not included (less than 0.5%). See Appendices for more information. See Table 3.4 and Table 3.5 for underlying data.

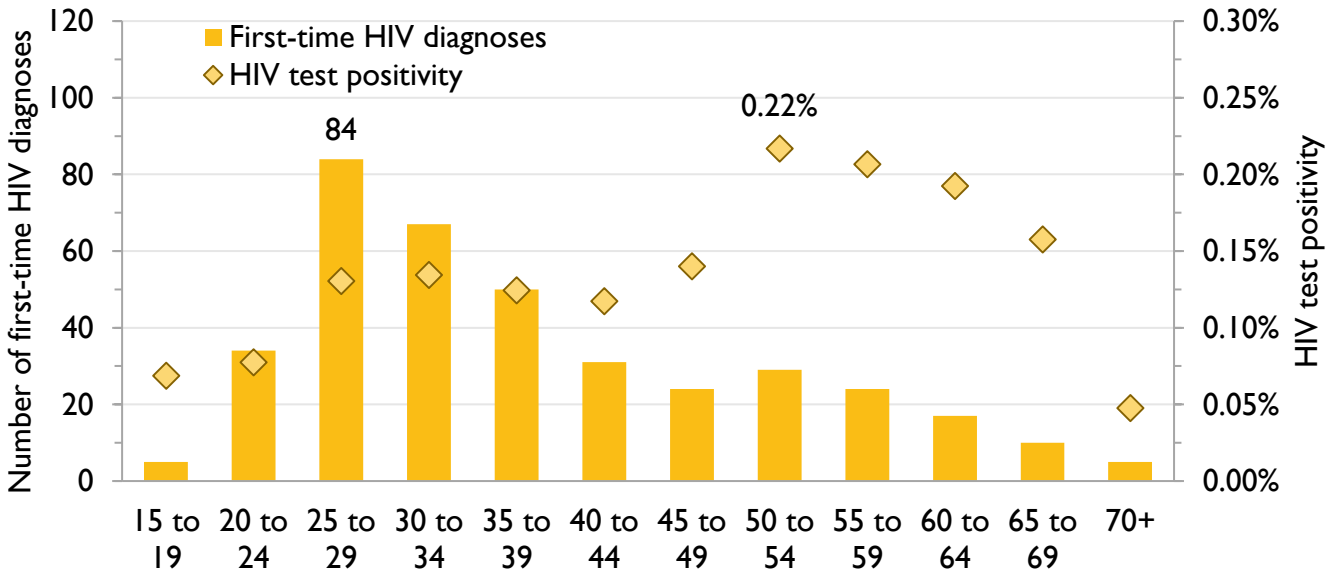
Figure 3.6 Number of HIV tests and HIV test rate per 1,000 people by age, males, Ontario, 2021



Snapshot

In 2021, the number of HIV tests and the HIV test rate were highest in the 25 to 29 age category (64,421 and 114.9 per 1,000 people, respectively). This pattern is consistent with that seen in 2020 and 2019.

Figure 3.7 Number of first-time HIV diagnoses and HIV test positivity by age, males, Ontario, 2021

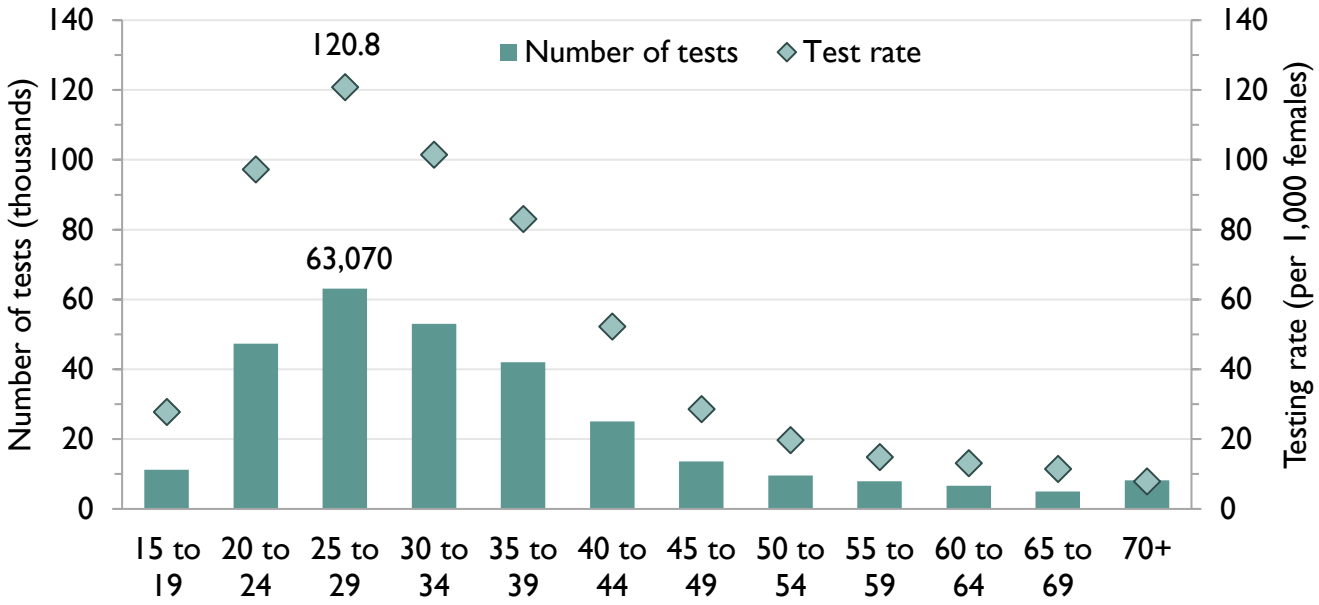


Snapshot

In 2021, the number of first-time HIV diagnoses was highest in the 25 to 29 age category (84), which is different from 2020 where the highest number was observed in the 30 to 34 age category (85). In 2021, the HIV test positivity fluctuated between 0.12% and 0.14% among males in the 25 to 49 age categories and was highest among males between 50 and 64 years . See **Figure 3.10** for an illustration of HIV test positivity among males over time.

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. Tests with unreported age were not included (less than 0.5%). See Appendices for more information. See **Table 3.4** and **Table 3.5** for underlying data.

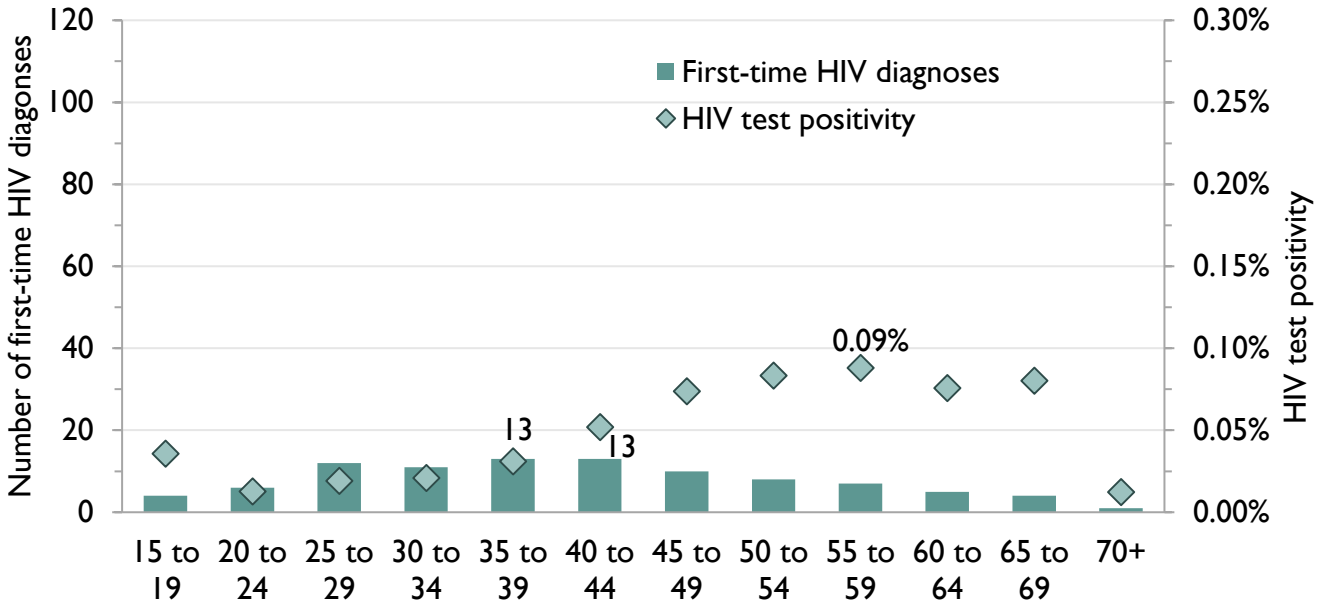
Figure 3.8 Number of HIV tests and HIV test rate per 1,000 people by age, females, Ontario, 2021



Snapshot

In 2021, the number of HIV tests and the HIV test rate were highest in the 25 to 29 age category (63,070 and 120.8 per 1,000 people, respectively). This pattern is consistent with that seen in 2020 and 2019.

Figure 3.9 Number of first-time HIV diagnoses and HIV test positivity by age, females, Ontario, 2021



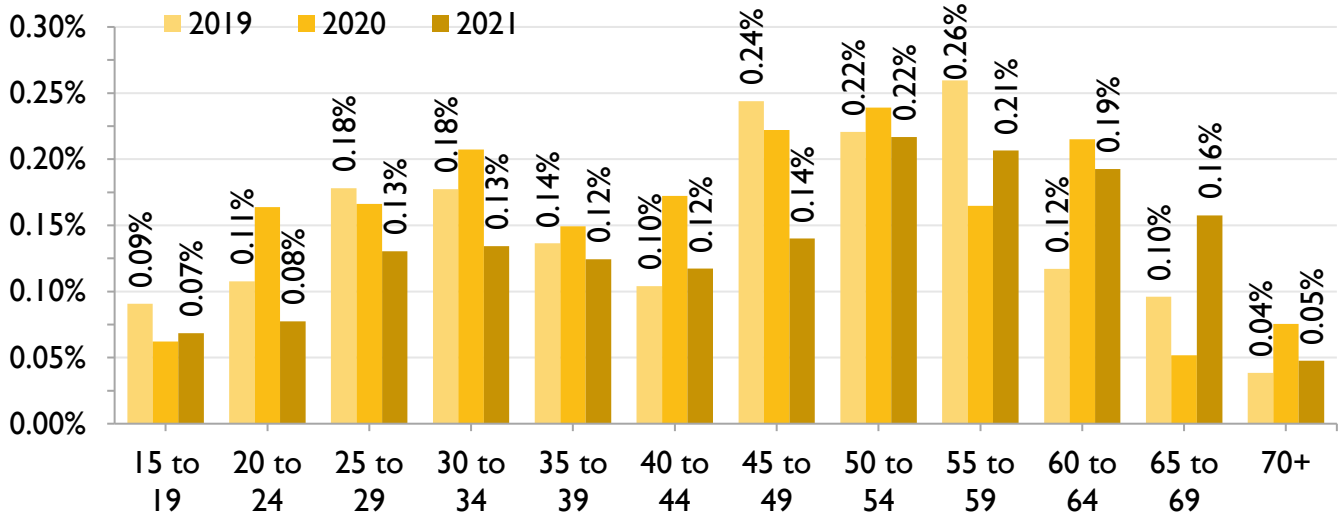
Snapshot

In 2021, the number of first-time HIV diagnoses was highest in the 35 to 39 and 40 to 44 age categories (both 13) which was different from 2020 where the highest number was observed in the 25 to 29 and 30 to 34 age categories (both 20). The HIV test positivity generally increased with age, and was highest among those aged 55 to 59 (0.09%). See

Figure 3.11 for an illustration of HIV test positivity among females over time.

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. Tests with unreported age were not included (less than 0.5%). See Appendices for more information. See **Table 3.4** and **Table 3.5** for underlying data.

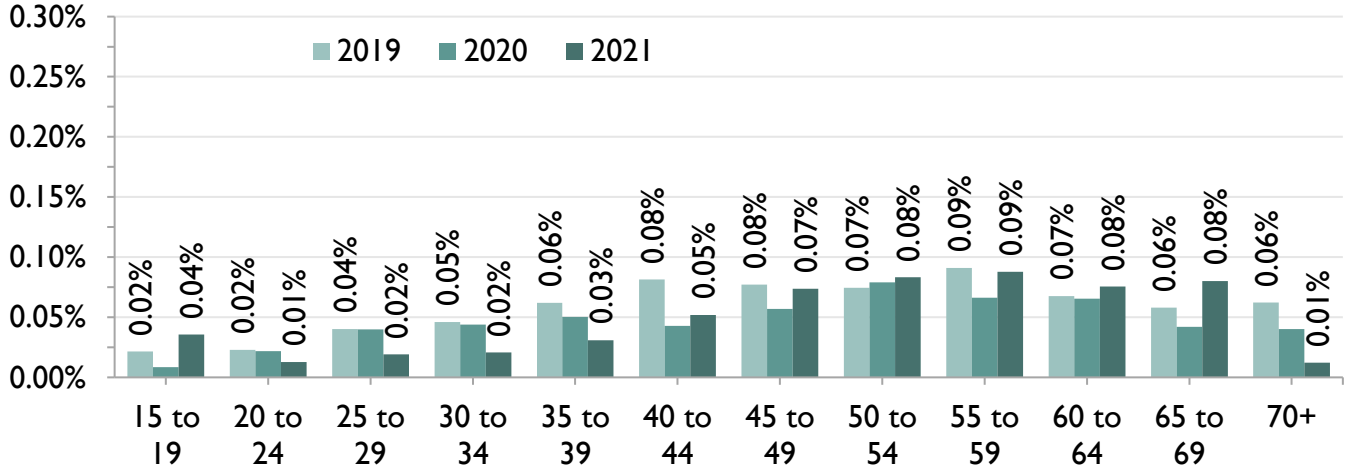
Figure 3.10 HIV test positivity by age, males, Ontario, 2019 to 2021



Snapshot

In 2021, compared to 2020, the HIV test positivity decreased among males in all age groups except for the 15 to 19 (increased by 10.4%) and 65 to 69 (increased by 204.1%) age categories. The most notable decreases were seen among males aged 20 to 24 (decreased by 52.7%), 45 to 49 (decreased by 37.0%), 70+ (decreased by 37.0%), and 30 to 34 (decreased by 35.3%). Compared to 2019, males from the 60 to 64 and 65 to 69 age categories had a significant increase (both 64.0%) in 2021. A continuous decreasing trend between 2019 and 2021 was observed in the 25 to 29 (from 0.18% to 0.13%) and 45 to 49 (from 0.24% to 0.14%) age categories.

Figure 3.11 HIV test positivity by age, females, Ontario, 2019 to 2021



Snapshot

In 2021, compared to 2020, the HIV test positivity notably decreased among females aged 25 to 29, 30 to 34, 35 to 39 and 70+), and notably increased among females aged 65 to 69. Compared to 2019, the test positivity among females in 2021 increased by 65.5% in the 15 to 19 age category and by 37.8% in the 65 to 69 age category. A decreasing trend between 2019 and 2021 was observed in the 30 to 34, 35 to 39, and 70+ age categories, while an increasing trend was observed in the 50 to 54 age category.

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. Tests with unreported age were not included (less than 0.5%). See Appendices for more information. See **Table 3.6** and **Table 3.7** for underlying data.

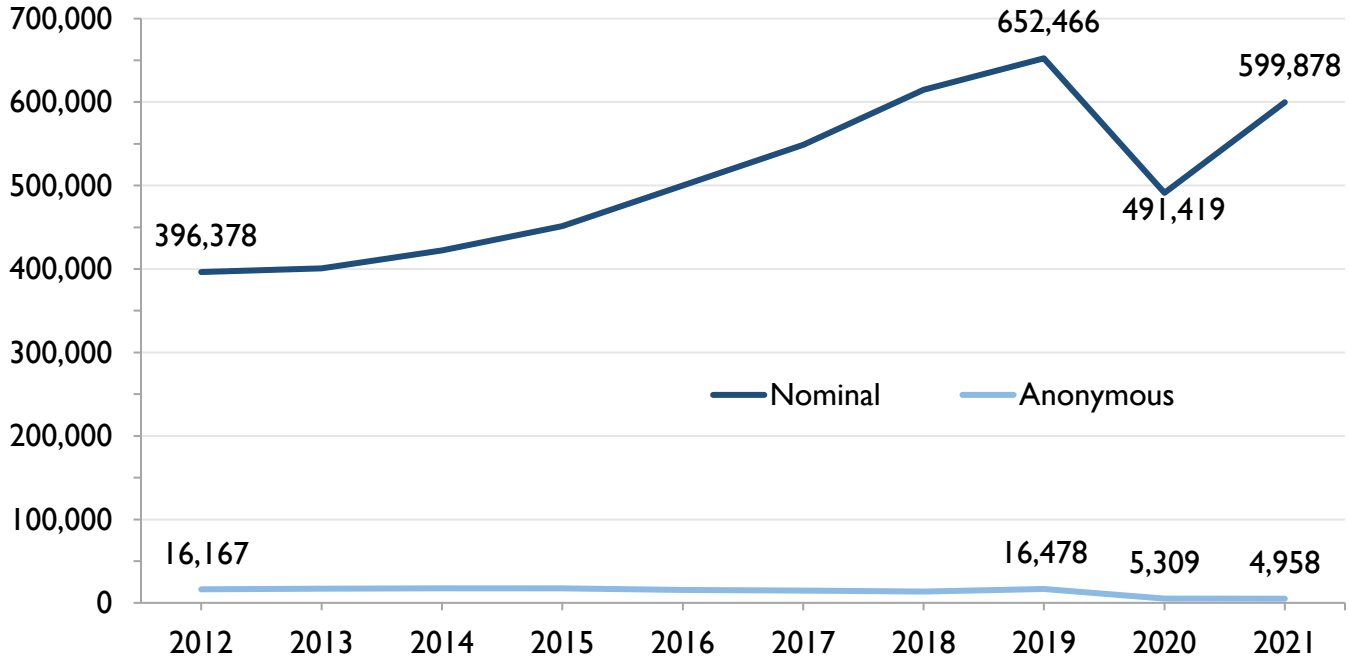
4. By test type

The number of nominal HIV tests in 2021 increased from 2020 by 22.0%, following a decrease of 28.5% in 2020 compared to 2019, related to the COVID-19 pandemic. Despite the increase in 2021 relative to 2020, the total number of nominal HIV tests had not yet reached the peak observed in 2019.

The number of anonymous HIV tests in 2021 continued to decrease from 2020 by 6.6%, following a decrease of 67.8% in 2020 compared to 2019 owing to continued impacts to sexual health clinics that offered anonymous testing during COVID-19. Anonymous HIV tests made up 0.8% of all HIV tests in 2021, a decrease from 1.1% in 2020 and 2.4% in 2019. The number of anonymous HIV tests among males had been relatively stable over time and decreased considerably in 2020 whereas the number among females had already been decreasing gradually over time. Both males and females saw a similar relative decrease in the number of anonymous tests in 2021 compared to 2019 (71% among males and 65% among females)

The anonymous HIV test positivity decreased by 35.6% among males to 0.67% in 2021 compared to 2020, and the test positivity was 24.1% higher than its record low of 0.54% in 2019. The anonymous HIV test positivity among females was lower in 2021 (0.18%) compared to 2019 (0.25%). The nominal HIV positivity remained stable between 2019 and 2021 for both males and females.

Figure 4.1 Number of HIV tests by test type, Ontario, 2012 to 2021

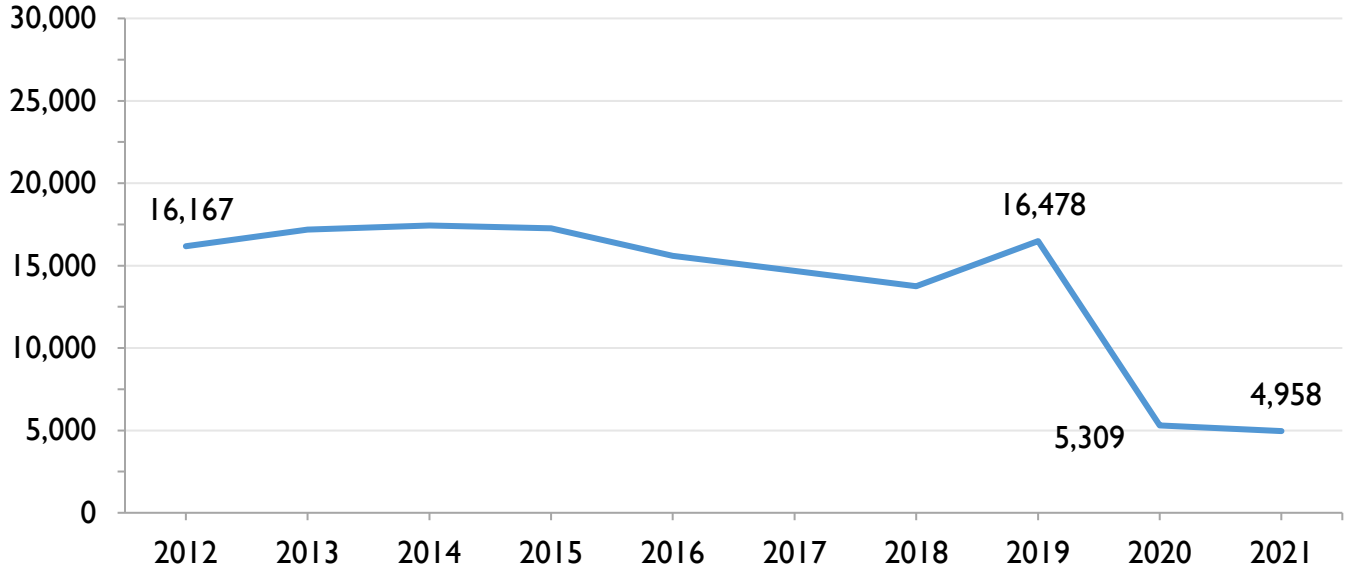


Snapshot

The number of nominal HIV tests increased by 22.0% to 599,878 in 2021, after a decline from 491,419 in 2020 but still 8.1% lower than its peak of 652,466 in 2019.

Notes: Data provided by Public Health Ontario Laboratory. See Appendices for more information. See **Table 4.1** for underlying data.

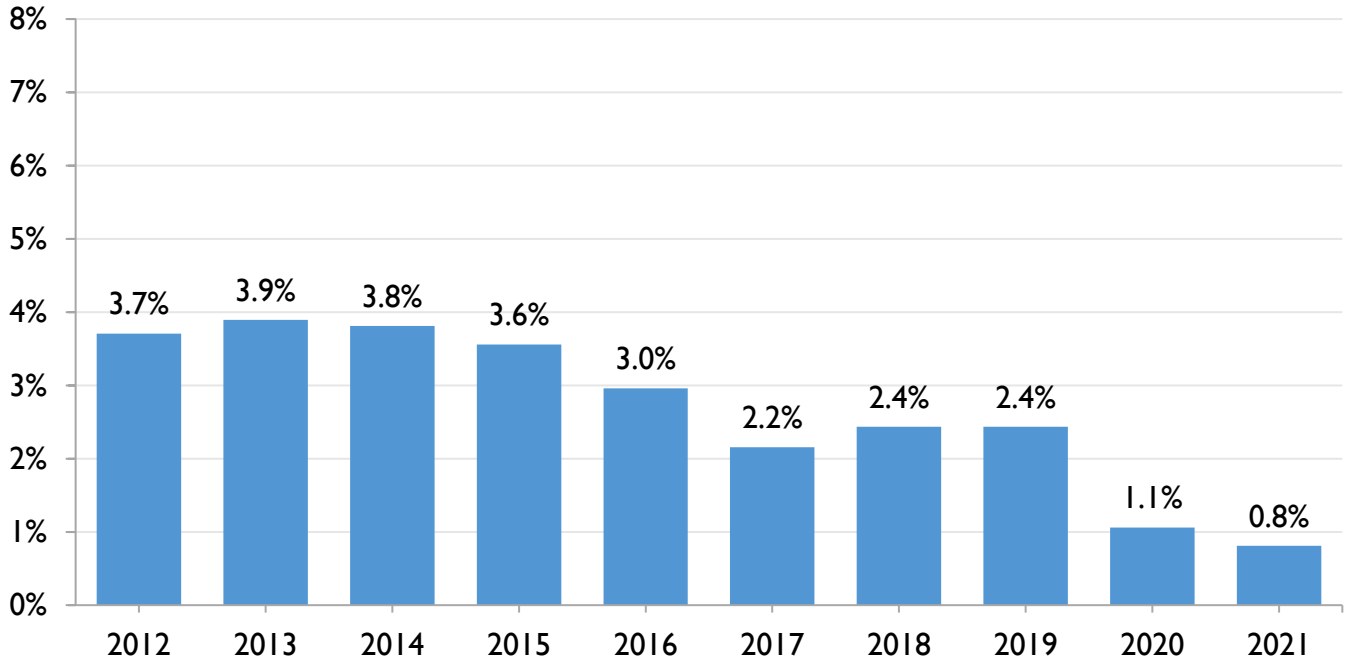
Figure 4.2 Number of anonymous HIV tests, Ontario, 2012 to 2021



Snapshot

There was an overall decreasing trend in the number of anonymous HIV tests between 2012 (16,167) and 2021 (4,958) despite a one-year notable increase in 2019 (16,478).

Figure 4.3 Percent of HIV tests that were anonymous HIV tests, Ontario, 2012 to 2021

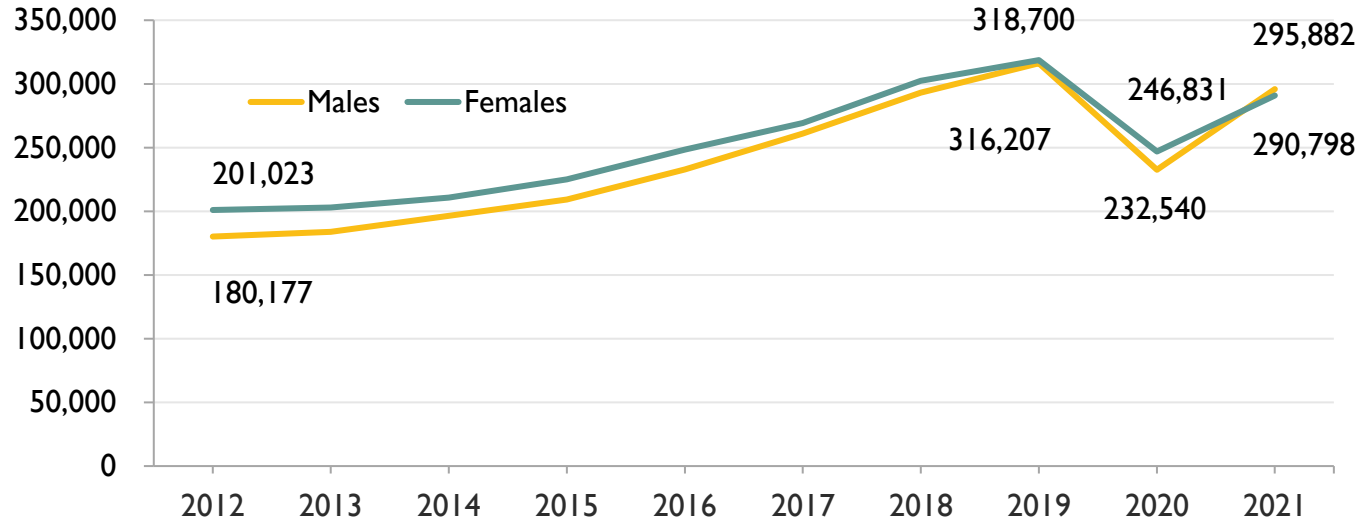


Snapshot

There was an overall decreasing trend in the proportion of HIV tests that were anonymous between 2012 (3.7%) and 2021 (0.8%). The proportion of HIV tests that were anonymous was relatively stable between 2012 and 2015 before gradually declining between 2016 to 2021.

Notes: Data provided by Public Health Ontario Laboratory. See Appendices for more information. See **Table 4.1** and **Table 4.3** for underlying data.

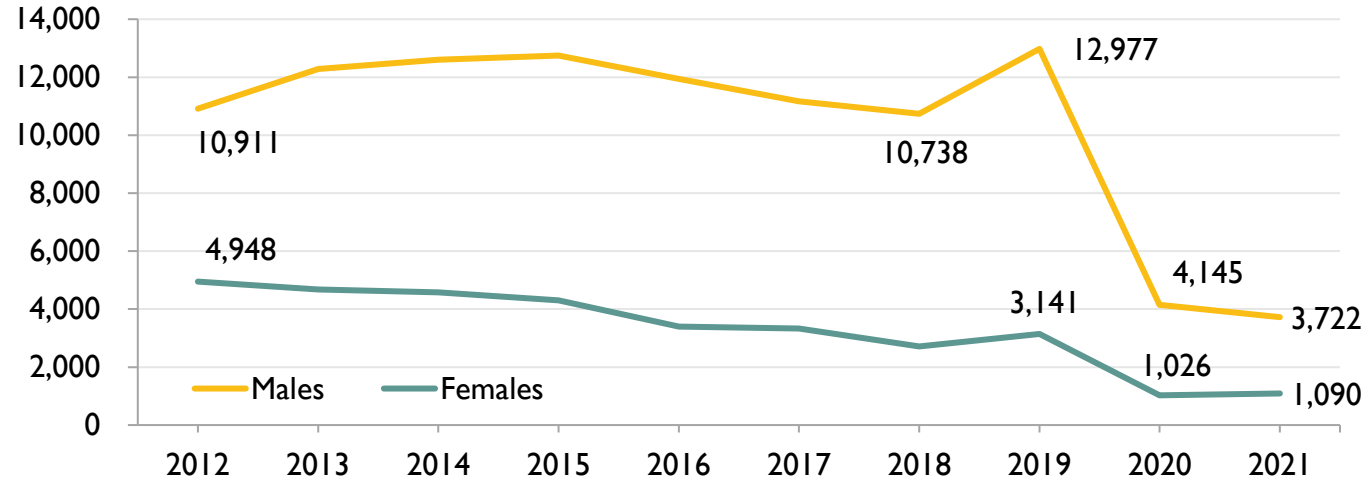
Figure 4.4 Number of nominal HIV tests by sex, Ontario, 2012 to 2021



Snapshot

In 2021, the number of nominal HIV tests increased compared to 2020 for both males and females but remained below peak 2019 levels. Among males, after a peak of 316,207 in 2019, the number of nominal HIV tests decreased by 26.5% to 232,540 in 2020 and then increased by 27.2% to 295,882 in 2021. Among females, after a peak of 318,700 in 2019, the number of nominal HIV tests decreased by 22.6% to 246,831 in 2020 and then increased by 17.8% to 290,798 in 2021. The number of nominal tests among males was consistently lower than among females between 2012 and 2020 and higher in in 2021.

Figure 4.5 Number of anonymous HIV tests by sex, Ontario, 2012 to 2021

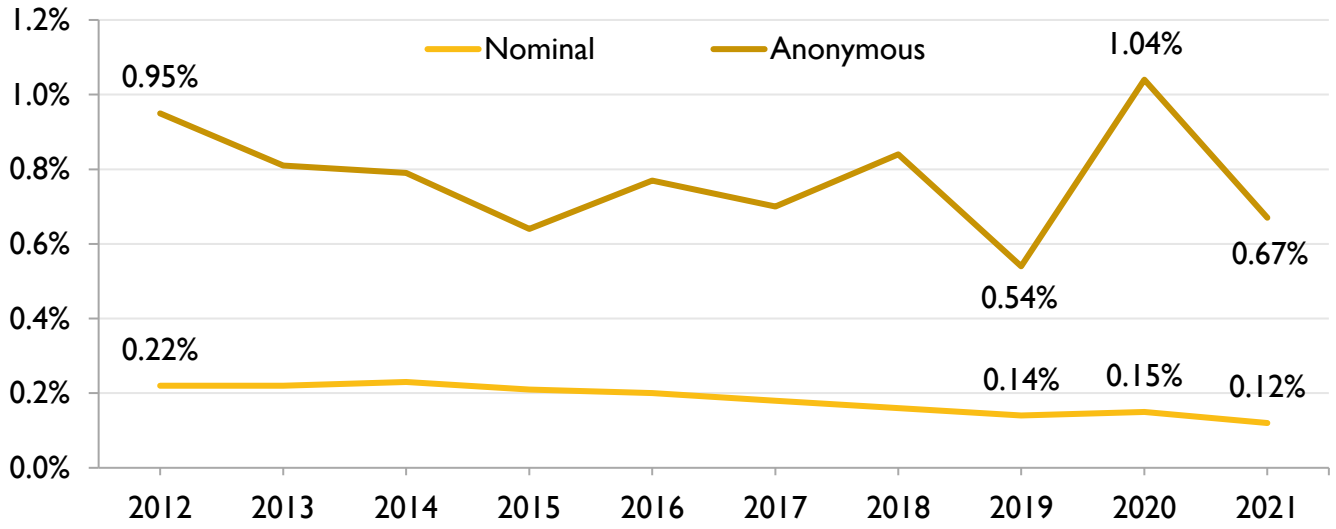


Snapshot

In 2021, the number of anonymous HIV tests conducted continued to be well below the range in 2012 to 2019. Among males, the number of anonymous HIV tests decreased by 10.2% from 4,145 in 2020 (4,145) and 2021(3,722), were lower than the peak observed in 2019 (12,977). Among females, the number of anonymous HIV tests increased by 6.2% from 1,026 in 2020 to 1,090 in 2021, after gradually decreasing from a peak of 4,948 in 2012. The ratio of anonymous HIV tests among males vs. females decreased from 4.1 in 2019 and 4.0 in 2020 to 3.4 in 2021.

Notes: Data provided by Public Health Ontario Laboratory. Tests with unreported sex not included (approximately 2-3% each year). See Appendices for more information. See **Table 4.2** for underlying data.

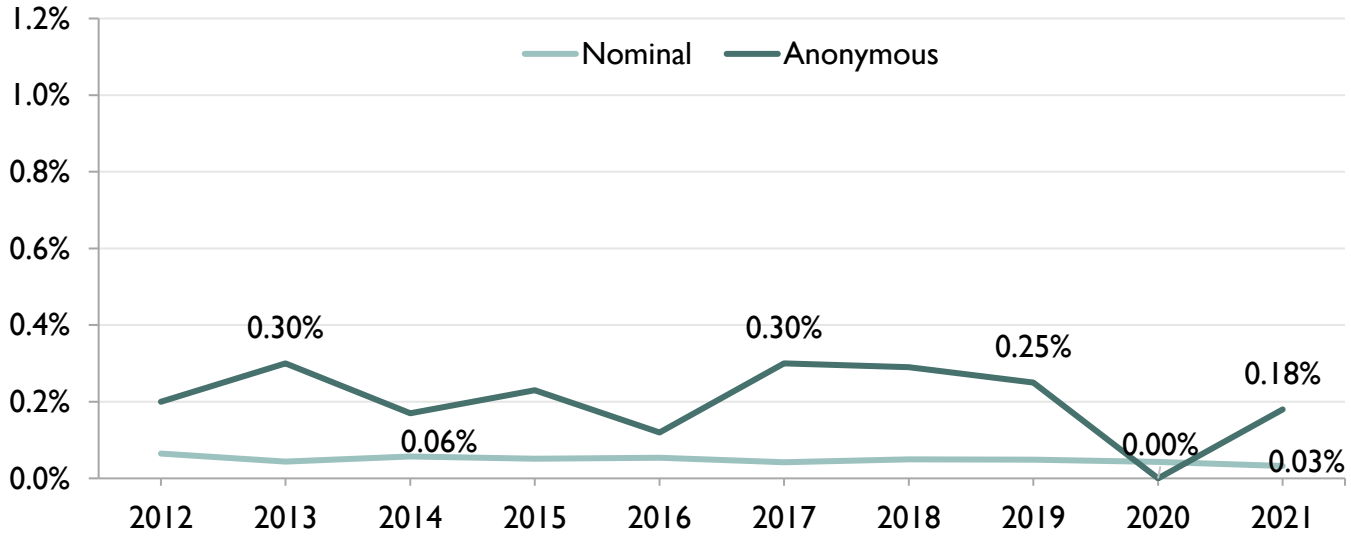
Figure 4.6 HIV test positivity by test type, males, Ontario, 2012 to 2021



Snapshot

The nominal and anonymous HIV test positivity among males were variable year to year, but had been slowly decreasing since 2012 until 2019. The HIV test positivity of anonymous HIV tests among males was 0.67% in 2021, 1.04% in 2020, and0.54% in 2019. The HIV test positivity of nominal HIV tests among males decreased from 0.15% in 2020 to 0.12% in 2021, after a slight increase from 0.14% in 2020. While anonymous HIV tests had the highest test positivity, the vast majority (74%-92%) of first-time HIV diagnoses came from nominal HIV tests between 2012 and 2021.

Figure 4.7 HIV test positivity by test type, females, Ontario, 2012 to 2021



Snapshot

In 2021 among females, the HIV test positivity of anonymous HIV tests was 0.18% a decrease from a test positivity of 0.25% in 2019. There were no tests that reported being a first-time HIV diagnosis among female anonymous testers in 2020. The HIV test positivity of nominal HIV tests among females has been stable from 2012 to 2021.

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. See Appendices for more information. See **Table 4.4** and **Table 4.5** for underlying data.

5. By exposure category

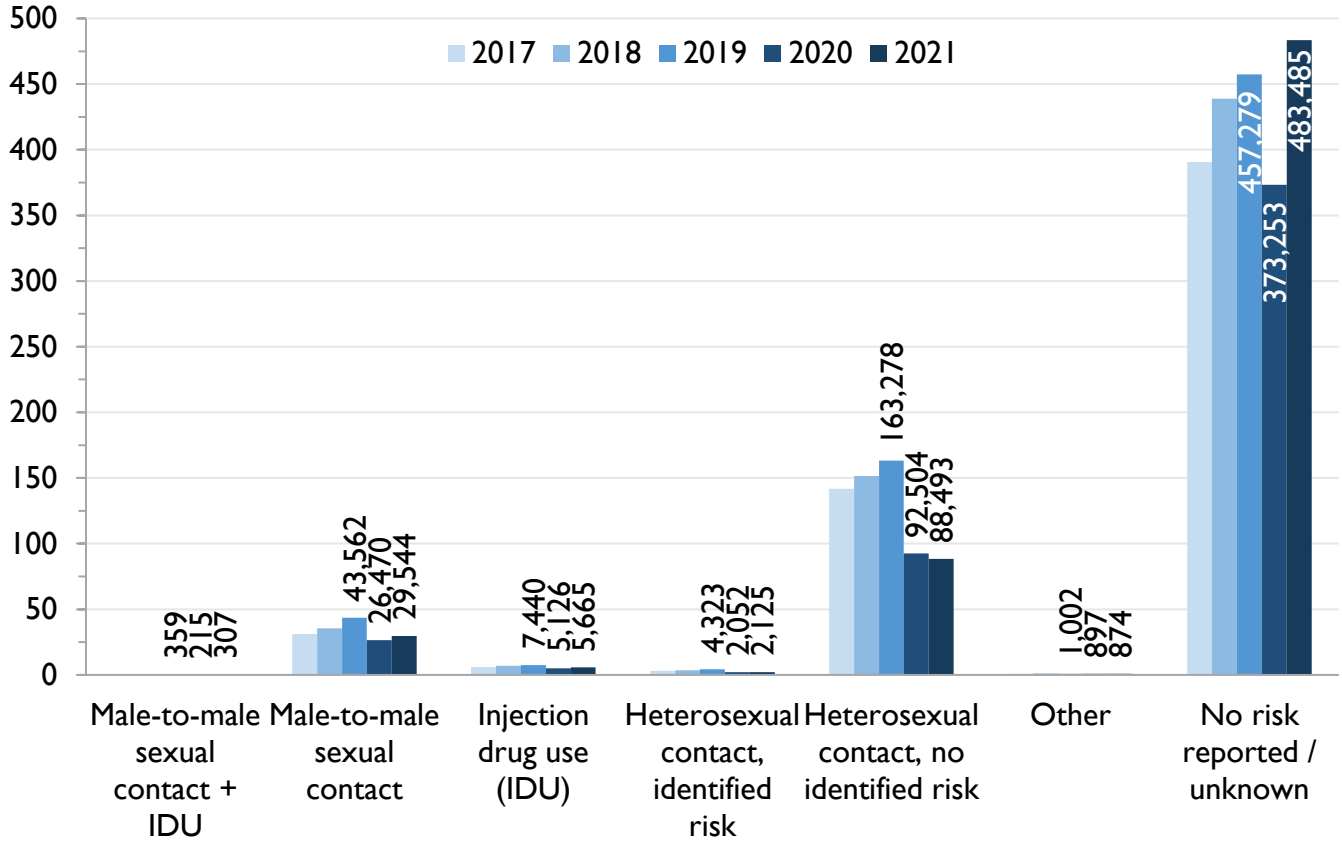
In 2021, 79.2% of HIV tests had no risk factor reported or unknown HIV risk (76.3% among males and 81.3% among females) reported on the HIV test requisition. This suggests that many ordering healthcare providers do not report a risk for their patients at time of testing. Healthcare providers are more likely to report risk factor information if they receive a positive result through the LEP form. The LEP form is not used for HIV-negative tests and in this report is not used to inform risk factor information for first-time HIV diagnoses (used in HIV test positivity calculations).

Between 2017 and 2021, the breakdown of HIV tests across HIV exposure categories was largely consistent. For males, the largest proportion of HIV tests was consistently reported as heterosexual contact with no identified risk over these years (decreasing over time to 53.6% in 2021), followed by male-to-male sexual contact among males (increasing over time to 39.9% in 2021). For females, the largest proportion of HIV tests was consistently reported as heterosexual contact with no identified risk (92.7% in 2021 and slight decrease over time) followed by IDU (4.1% in 2021 and increase over time).

In 2021, the HIV test positivity was highest for male-to-male sexual contact + IDU among males. The HIV test positivity among males reporting heterosexual contact with identified risk had been increasing since 2017, and in 2021 surpassed male-to-male sexual contact as having the second highest test positivity among males. The HIV test positivity among females was highest for IDU in 2021, followed by heterosexual contact with identified risk and was consistent between 2017 and 2021.

Note: *"Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. See HIV exposure categories for more information.*

Figure 5.1 Number of HIV tests (thousands) by exposure category, Ontario, 2017 to 2021



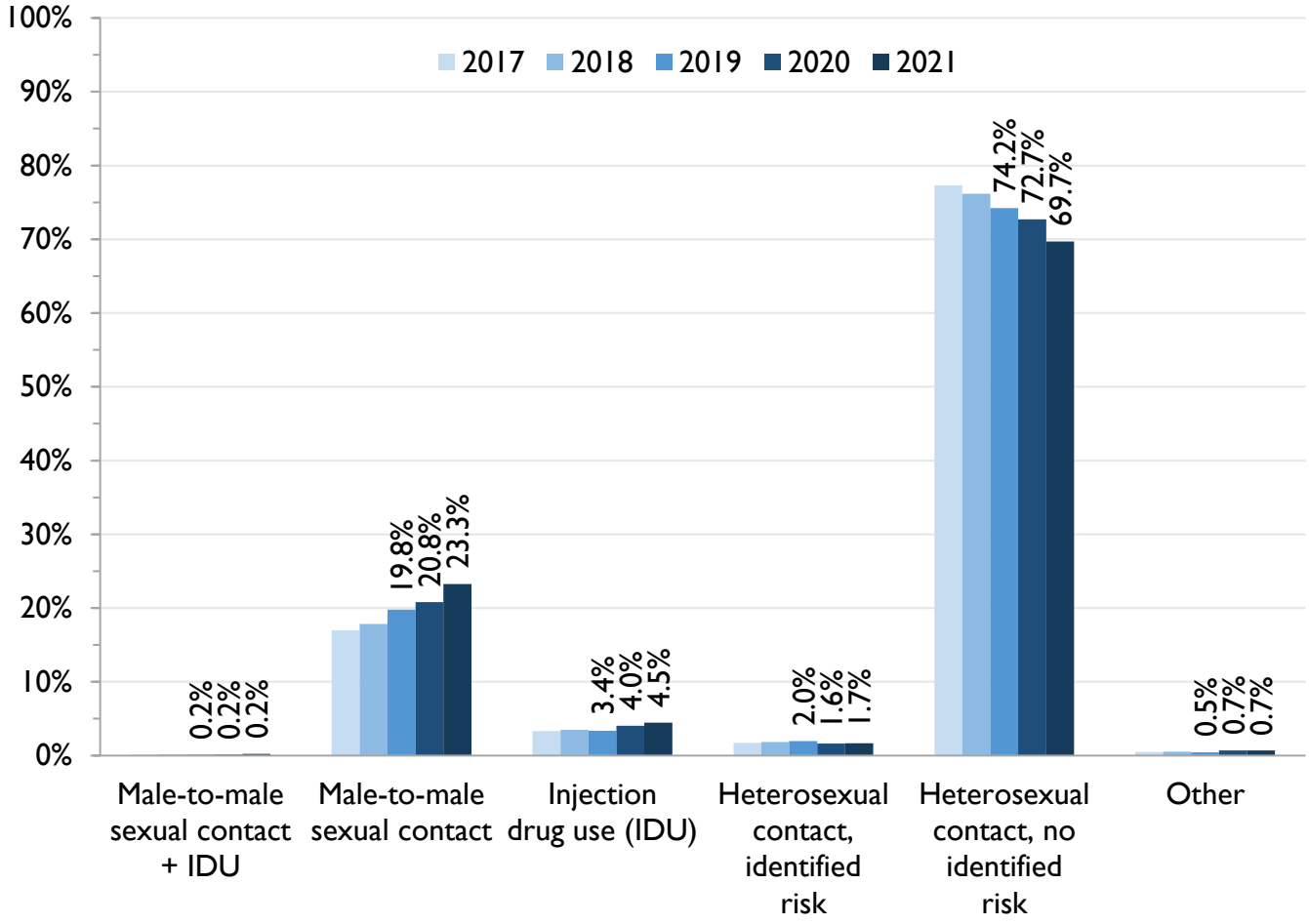
Snapshot

In 2021, 127,008 of the 610,493 HIV tests (20.8%) reported an HIV exposure category and 483,485 (79.2%) did not (i.e. no risk reported or unknown risk).

Among the 127,008 HIV tests with a reported HIV exposure category in 2021, the most frequently reported HIV exposure category was heterosexual contact with no identified risk (88,493), followed by male-to-male sexual contact (29,544) and IDU (5,665). This pattern is consistent with the previous four years. The number of HIV tests was increasing since 2017 in almost all exposure categories until 2020 when there was a decrease in all exposure categories. In 2021, compared to 2020, there was a moderate recovery of the number of tests in the male-to-male sexual contact + IDU exposure category (42.8%), small recovery in male-to-male sexual contact (11.6%), IDU (10.5%), and heterosexual contact with identified risk (3.6%), and a continued decrease in heterosexual contact with no identified risk (4.3%).

Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV tests with previous evidence of HIV not included. See HIV exposure categories in the Appendices for further explanation. See **Table 5.1** for underlying data.

Figure 5.2 Percent of HIV tests by exposure category (where reported), Ontario, 2017 to 2021

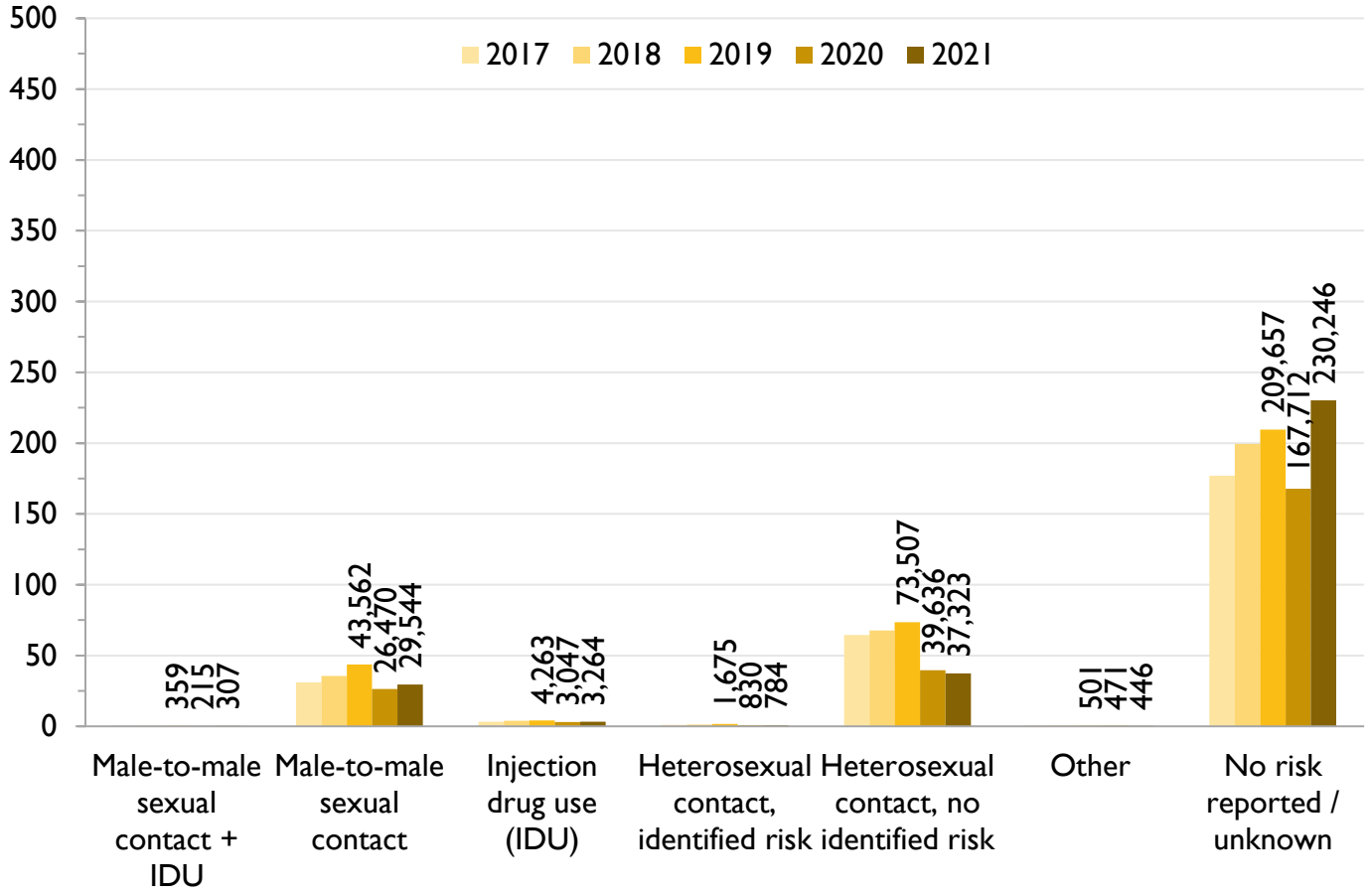


Snapshot

In 2021, among the 127,008 HIV tests with a reported HIV exposure category, the heterosexual contact with no identified risk exposure category accounted for the largest proportion (69.7%), followed by male-to-male sexual contact (23.3%), and IDU (4.5%). The proportion of tests reported as heterosexual contact with no identified risk gradually decreased from 77.3% in 2017 to 69.7% in 2021. In contrast, the proportion that reported male-to-male sexual contact gradually increased from 17.0% in 2017 to 23.2% in 2021, and an overall increasing trend was also observed among those who reported IDU (increasing from 3.4% to 4.5% between 2019 and 2021).

Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV tests with previous evidence of HIV not included. HIV exposure category not reported or unknown for average of 71.3% of HIV tests between 2017 and 2021. See HIV exposure categories in the Appendices for further explanation. See **Table 5.1** and **Table 5.2** for underlying data.

Figure 5.3 Number of HIV tests (thousands) by exposure category, males, Ontario, 2017 to 2021



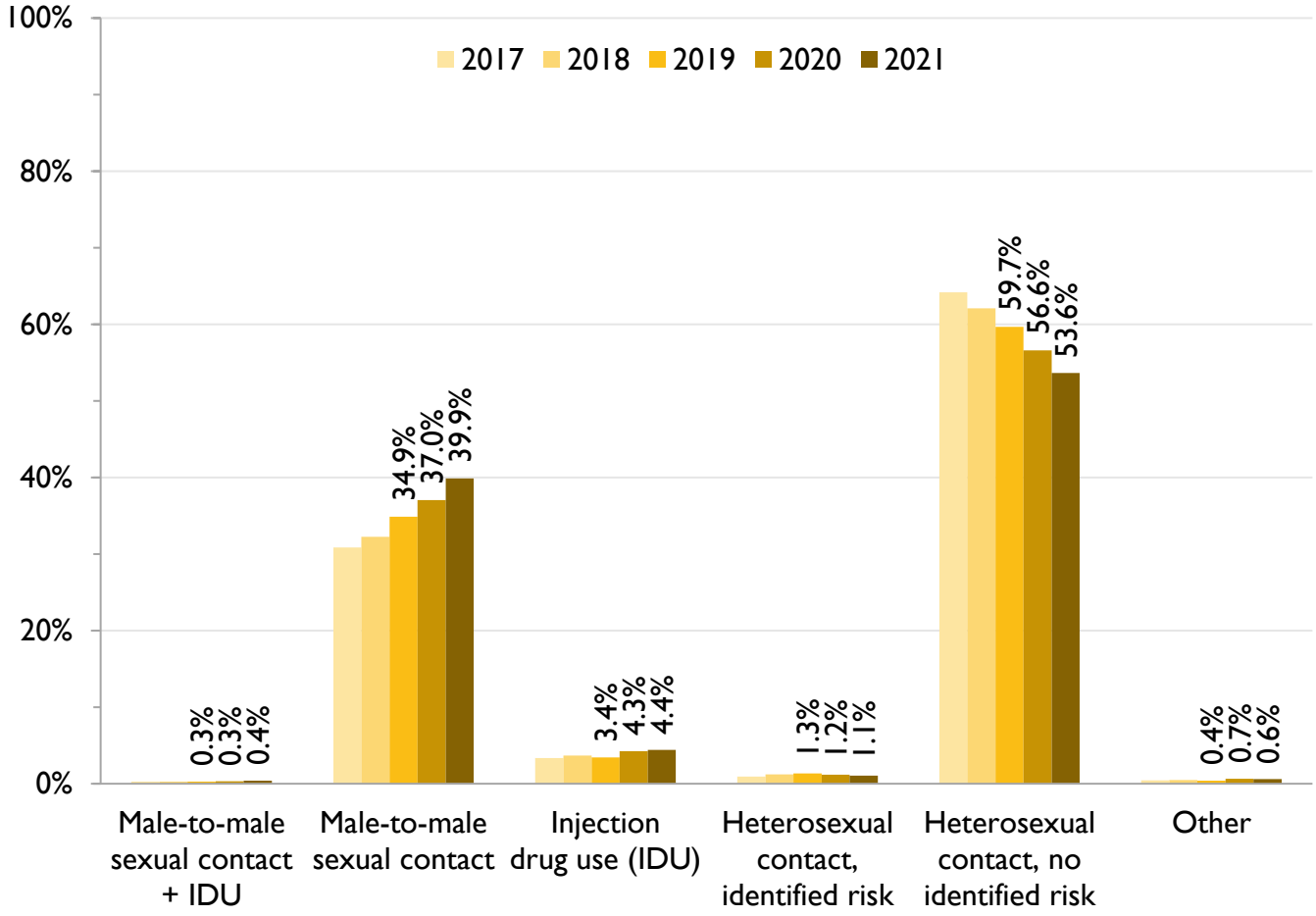
Snapshot

In 2021, 71,668 of the 301,914 HIV tests in males (23.7%) reported an HIV exposure category and 230,246 (76.3%) did not (i.e. no risk reported or unknown risk).

Among the 71,668 HIV tests in males with a reported HIV exposure category in 2021, the most frequently reported HIV exposure category was heterosexual contact with no identified risk (37,323), followed by male-to-male sexual contact (29,544) and IDU (3,264). This pattern is consistent with the previous four years. Among all categories except "other", the number of HIV tests increased year over year between 2017 and 2019 and decreased substantially in 2020. The number of HIV tests continued to decrease in 2021 among heterosexual contact with/without identified risk, while between 2020 and 2021 the number of tests increased in male-to-male sexual contact + IDU (42.8%), male-to-male sexual contact (11.6%) and IDU (7.1%). The number of HIV test peaked in 2019 for all the groups except the no risk reported/unknown category which had its highest number in 2021.

Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV tests with previous evidence of HIV not included. See HIV exposure categories in the Appendices for further explanation. See **Table 5.3** for underlying data.

Figure 5.4 Percent of HIV tests by exposure category (where reported), males, Ontario, 2017 to 2021

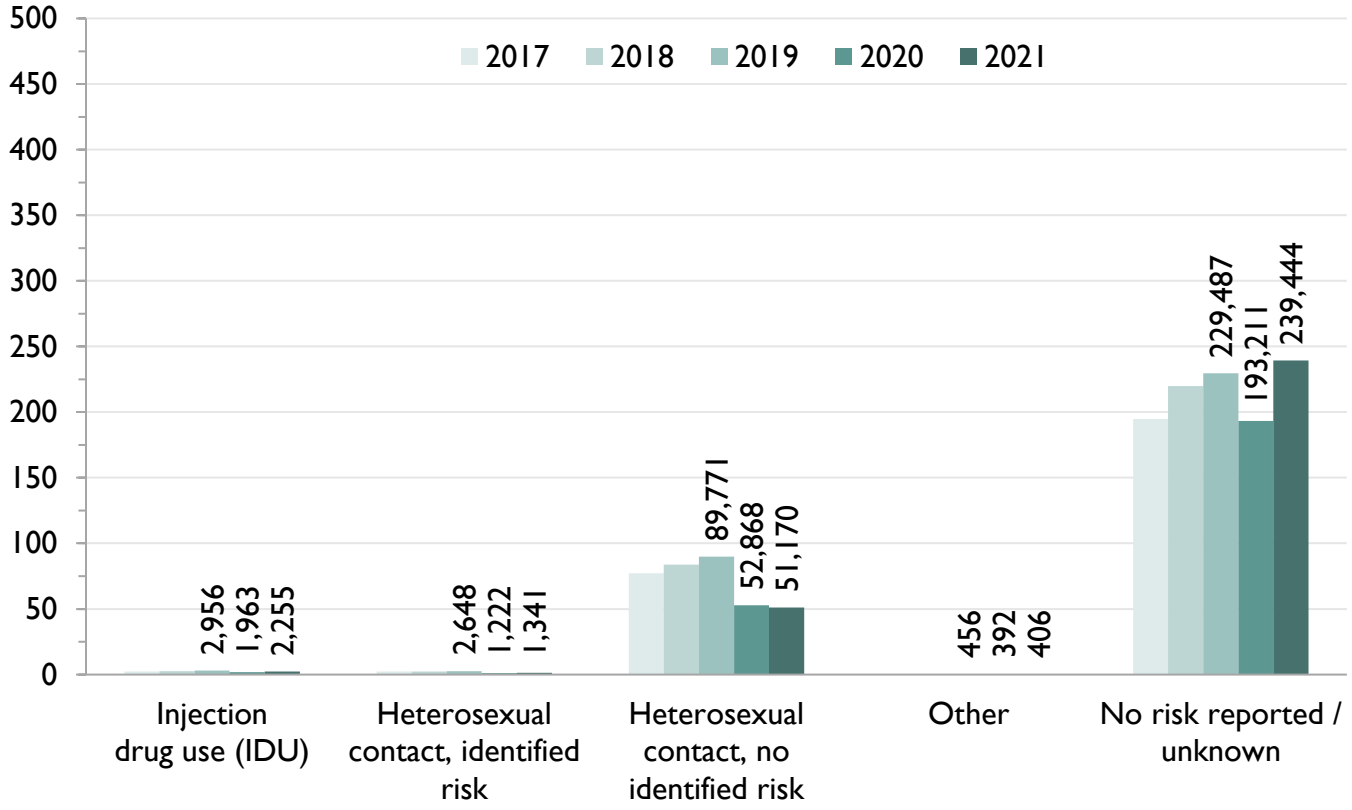


Snapshot

In 2021, among the 71,668 HIV tests in males with a reported HIV exposure category (23.7% of tests), the heterosexual contact with no identified risk exposure category accounted for the largest proportion (53.6%), followed by male-to-male sexual contact (39.9%), and IDU (4.4%). The proportion of tests reported as heterosexual contact with no identified risk gradually decreased from 64.2% in 2017 to 53.6% in 2021, while the proportion that reported male-to-male sexual contact gradually increased from 30.8% in 2017 to 39.9% in 2021.

Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV tests with previous evidence of HIV not included. HIV exposure category not reported or unknown for average of 67.6% of HIV tests among males between 2017 and 2021. See HIV exposure categories in the Appendices for further explanation. See **Table 5.3** and **Table 5.4** for underlying data.

Figure 5.5 Number of HIV tests (thousands) by exposure category, females, Ontario, 2017 to 2021



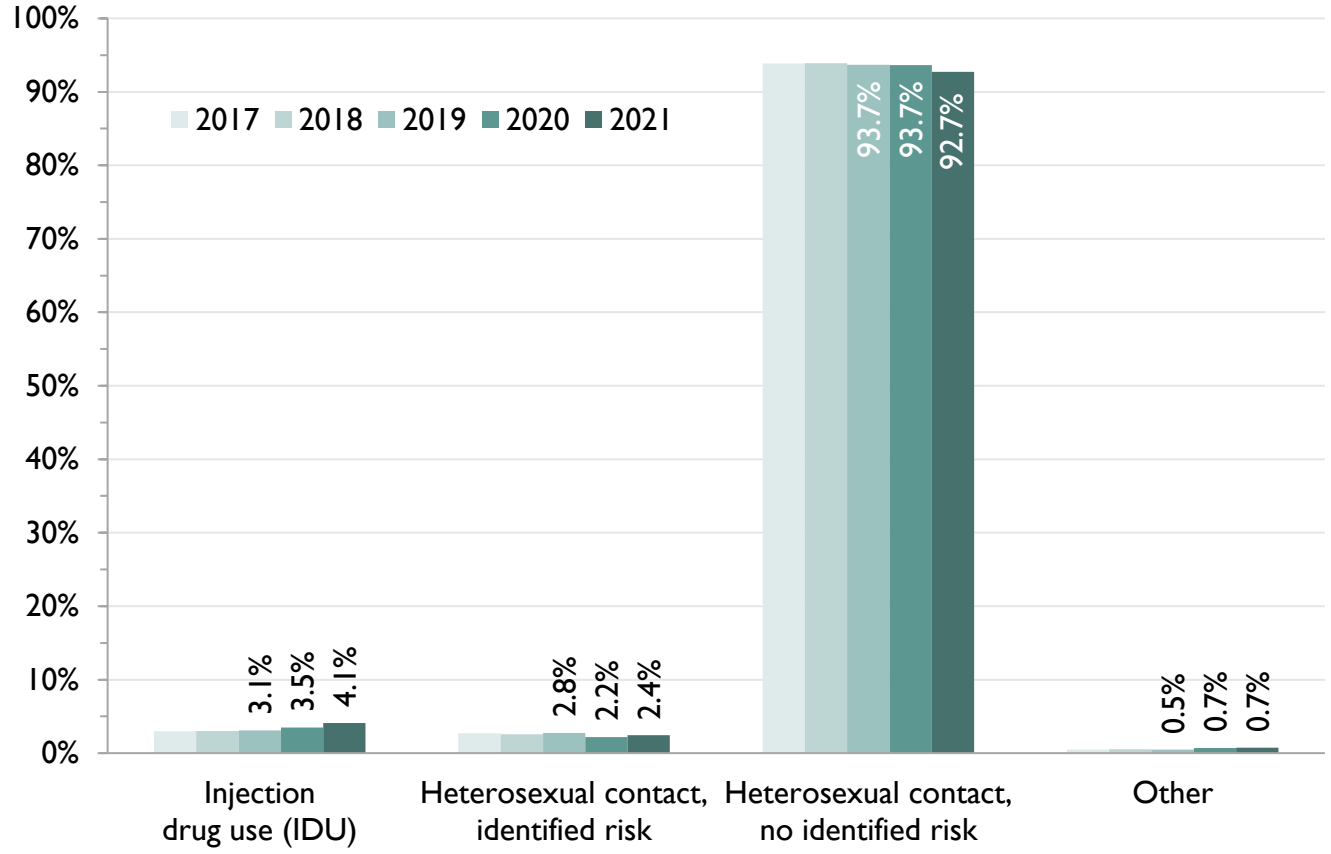
Snapshot

In 2021, 55,172 of the 294,616 HIV tests in females (18.7%) reported an HIV exposure category and 239,444 (81.3%) did not (i.e. no risk reported, unknown).

Among the 55,172 HIV tests in females with a reported HIV exposure category in 2021, the most frequently reported HIV exposure category was heterosexual contact with no identified risk (51,170), followed by IDU (2,255) and heterosexual contact with identified risk (1,341). This pattern is consistent with the previous four years. The number of HIV tests increased in all HIV exposure categories between 2020 and 2021 (except for heterosexual contact with no identified risk), with the greatest relative increases seen in IDU (14.9%) and heterosexual contact with identified risk (9.7%). For those with heterosexual contact with no identified risk, the number of HIV tests increased year over year between 2017 and 2019, decreased substantially in 2020 (41.1%), and continued to decrease in 2021 (3.2%).

Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV tests with previous evidence of HIV not included. See HIV exposure categories in the Appendices for further explanation. See **Table 5.5** for underlying data.

Figure 5.6 Percent of HIV tests by exposure category (where reported), females, Ontario, 2017 to 2021

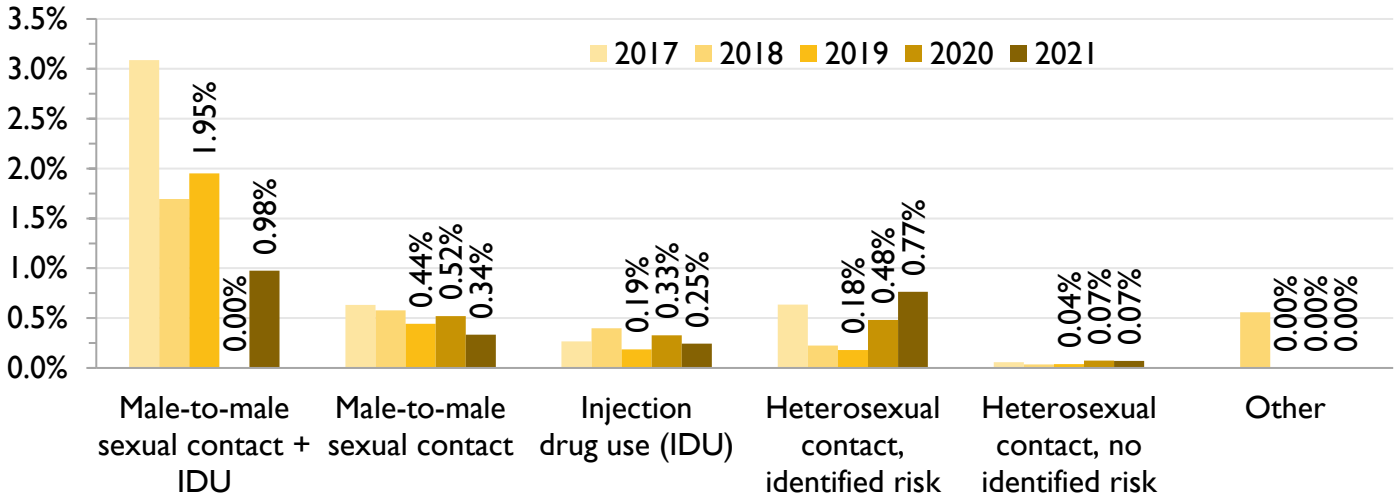


Snapshot

In 2021, among the 55,172 HIV tests in females with a reported HIV exposure category (18.7% of tests), the heterosexual contact with no identified risk exposure category accounted for the largest proportion (92.7%), followed by IDU (4.1%), and heterosexual contact with identified risk (2.4%). This pattern is consistent with the previous four years. While the proportion of HIV tests among females in most exposure categories remained stable between 2017 and 2021, the proportion of females with a reported IDU exposure category continuously increased from 3.0% to 4.1% during this period.

Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV tests with previous evidence of HIV not included. HIV exposure category not reported or unknown for average of 74.1% of HIV tests among females between 2017 and 2021. See HIV exposure categories in the Appendices for further explanation. See **Table 5.5** and **Table 5.6** for underlying data.

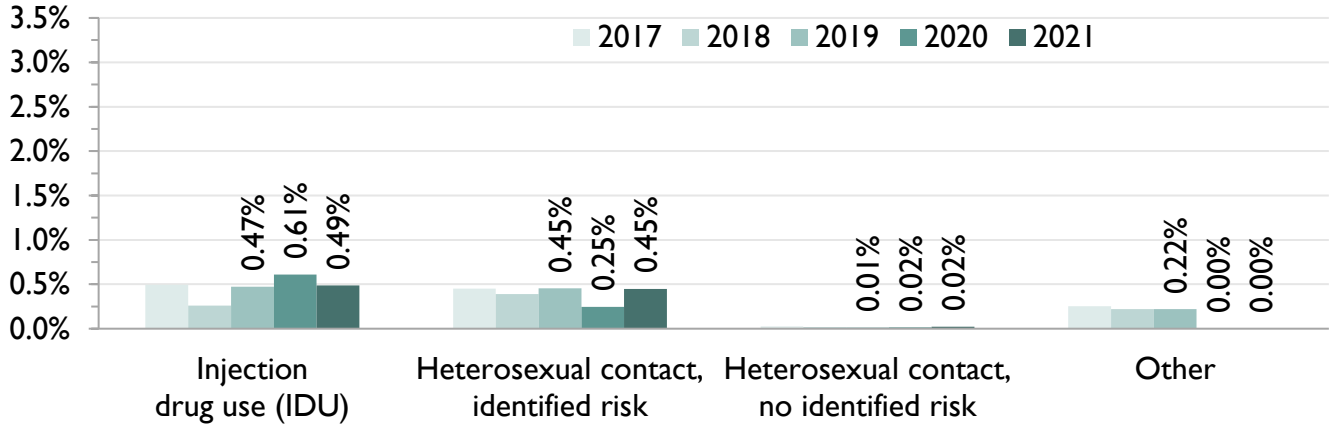
Figure 5.7 HIV test positivity by sex and exposure category (where reported), males, Ontario, 2017 to 2021



Snapshot

In 2021, just as in 2017 through 2019, the HIV test positivity among males was reported to be the highest for male-to-male sexual contact + IDU, after no tests reported a first-time HIV diagnosis for this exposure category in 2020. For males who reported heterosexual contact with identified risk, the HIV test positivity continuously increased from 0.18% to 0.77% between 2019 to 2021, becoming the second highest test positivity among males in 2021. HIV test positivity decreased over time among the male-to-male sexual contact exposure category and remained relatively stable among males who reported IDU.

Figure 5.8 HIV test positivity by sex and exposure category (where reported), females, Ontario, 2017 to 2021



Snapshot

The HIV test positivity among females was highest for IDU in 2021 (0.49%), followed by heterosexual contact with identified risk (0.45%). HIV test positivity of all HIV exposure categories in 2021 were mostly consistent with previous years.

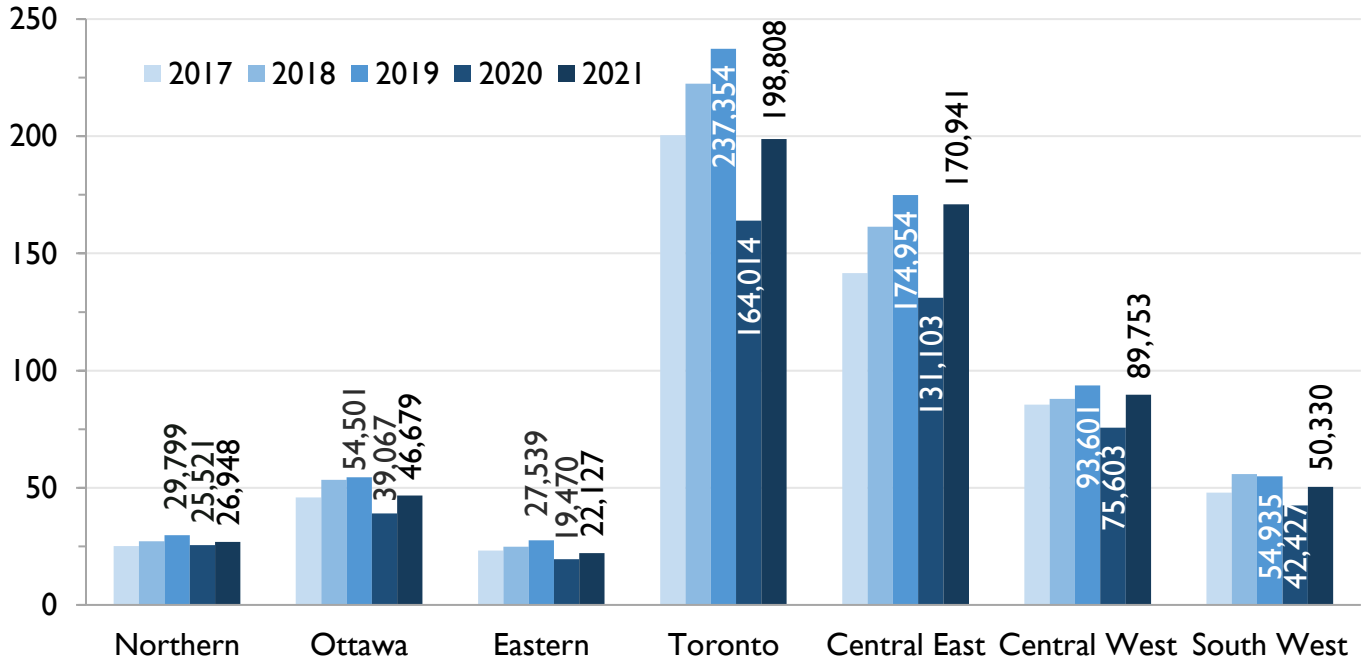
Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. First-time HIV diagnoses stratified by exposure category and submitter type only use the test requisition (and not the LEP) to help inform categorization. Additional information may be available on the LEP and is used to describe first-time HIV diagnoses in the forthcoming OHESI Diagnosis report.See HIV exposure categories in the Appendices for further explanation. See **Table 5.7** and **Table 5.8** for underlying data. Missing bar denotes 0% HIV test positivty rate due zero tests reporting a first-time HIV diagnosis in that year and specific exposure category.

6. By health region

In 2021, the HIV test rate per 1,000 people was highest in Toronto (66.8) followed by Ottawa (44.3) and was lowest in Eastern (24.8) region. The number and rate of HIV tests per capita increased in all health regions for both males and females in 2021 compared to 2020 but only males in Central East reached their previous peak of number of HIV tests in 2019.

Trends in HIV test positivity by health region in 2021 were largely consistent with those of prior years for both males and females. There was a decreasing trend in test positivity in Toronto and South West regions among both males and females and in Central East among females. There was an increasing trend in test positivity among males in Central West and in females in the Northern region. Overall, the HIV test positivity was highest in Toronto in 2021 (0.11%), followed by Northern region (0.10%), Central West region (0.09%), and South West region (0.08%). Among males, the HIV test positivity was highest in Toronto (0.17%), and among females, the HIV test positivity was highest in the Northern region (0.11%).

Figure 6.1 Number of HIV tests (thousands) by health region, Ontario, 2017 to 2021



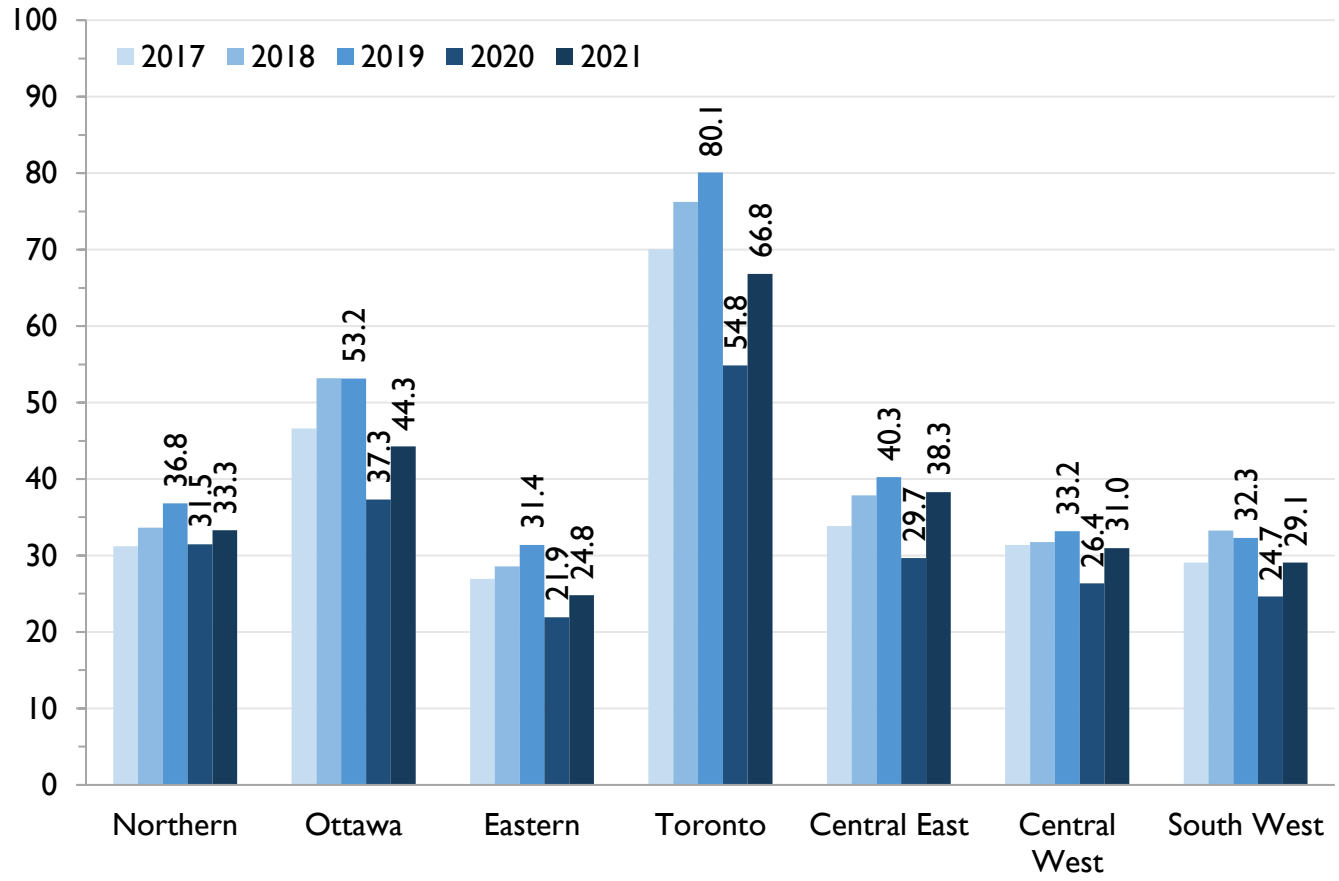
Snapshot

Between 2020 and 2021, the number of HIV tests performed increased across all health regions, but none of them reached their previous peaks in 2019. Compared to 2020, the largest relative increase in the number of HIV tests in 2021 was in Central East (30.4%), followed by Toronto (21.2%), Ottawa (19.5%), Central West (18.7%), South West (18.6%), Eastern (13.6%), and Northern (5.6%) regions. Compared to 2019, the largest relative decrease in 2021 was in Eastern (19.7%), followed by Toronto (16.2%), Ottawa (14.4%), Northern (9.6%), South West (8.4%), Central West (4.1%), and Central East (2.3%).

Between 2017 and 2021, the number of HIV tests was highest in Toronto, followed by Central East region, and lowest in the Northern and Eastern health regions. The lower numbers of HIV tests correspond with smaller population sizes – see Figure 6.2 for rates per 1,000 people which take into account population size.

Notes: Data provided by Public Health Ontario Laboratory. Tests with unknown health region not included (less than 0.0%). Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. HIV tests with previous evidence of HIV not included. See Appendices for more information. See Table 6.1 for underlying data.

Figure 6.2 HIV test rate per 1,000 people by health region, Ontario, 2017 to 2021

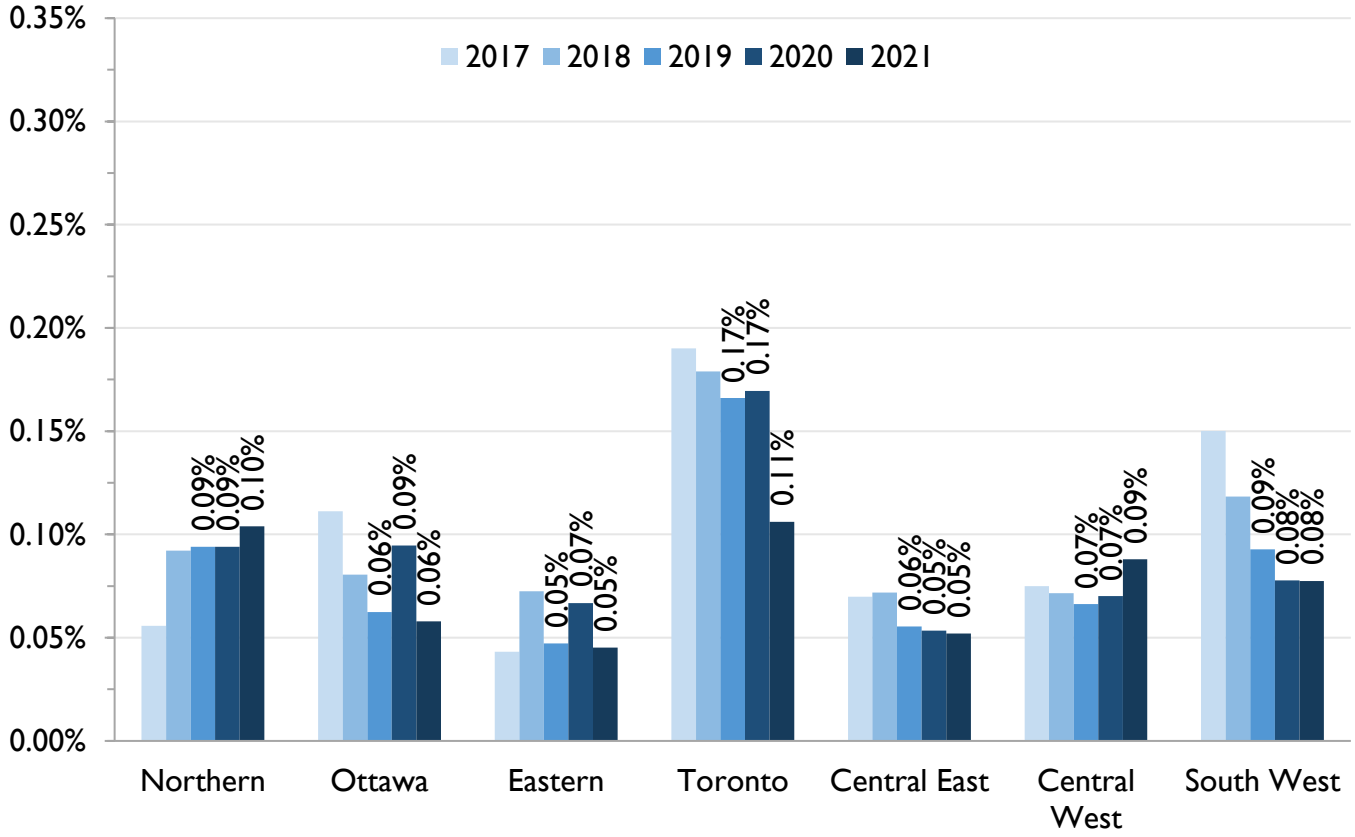


Snapshot

Between 2020 and 2021, the HIV test rates per 1,000 people increased in all regions, but none of the regions reached their previous peaks prior years. Compared to 2020, the largest relative increases in the HIV test rate in 2021 were in Central East (29.1%), Toronto (21.9%), and South West (17.9%) regions. Compared to 2019, the largest decreases in HIV test rate in 2021 were in Eastern (21.0%), Ottawa (16.7%), and Toronto (16.6%) regions. Between 2017 and 2021, the HIV test rate per 1,000 people was highest in Toronto followed by Ottawa, and then relatively similar in the remaining health regions.

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV not included. Tests with unknown health region not included (less than 0.0%). See Appendices for more information. See **Table 6.1** for underlying data.

Figure 6.3 HIV test positivity by health region, Ontario, 2017 to 2021

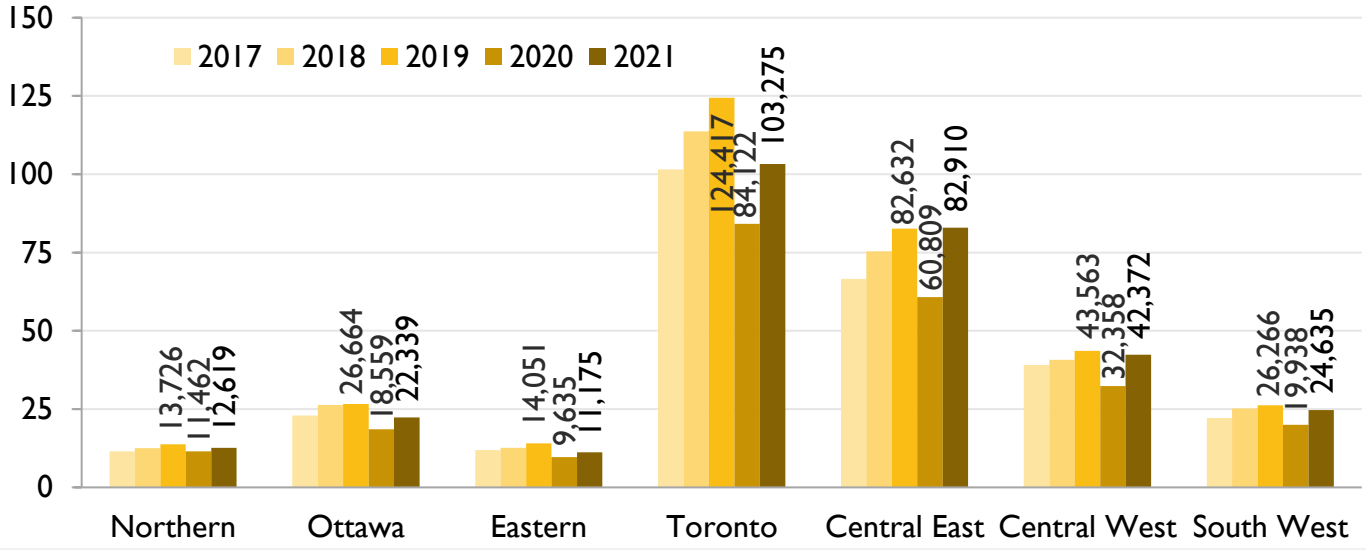


Snapshot

In 2021, the HIV test positivity was highest in Toronto (0.11%) followed by Northern region (0.10%), Central West region (0.09%), and South West region (0.08%). Compared to 2020, the HIV test positivity in 2021 had a relative decrease of more than 30% in Ottawa, Toronto, and Eastern regions and increased in the Central West (26%) and Northern (11%) regions. Between 2017 and 2021, an overall decreasing trend was observed in Toronto, Ottawa and the South West regions

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. Tests with unknown health region not included (less than 0.0%). See Appendices for more information. See **Table 6.1** for underlying data.

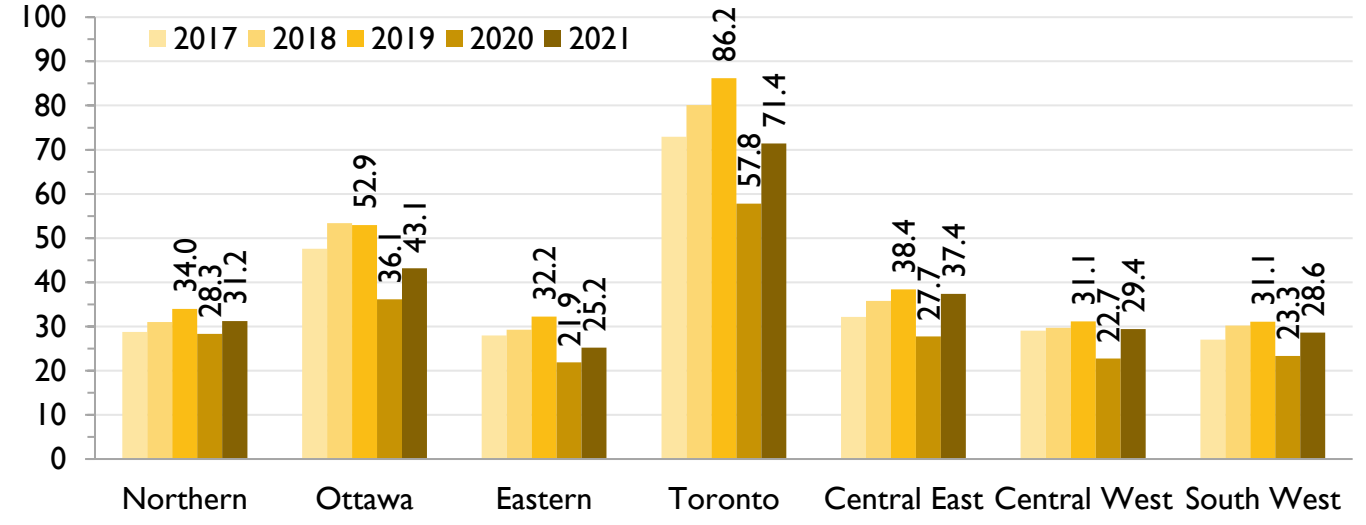
Figure 6.4 Number of HIV tests (thousands) by health region, males, Ontario, 2017 to 2021



Snapshot

Between 2020 and 2021, the number of HIV tests performed in males increased across all health regions. In 2021, the number of HIV tests for Central East surpassed its previous peak in 2019, but none of the other regions reached their previous peaks. Compared to 2020, the largest relative increase in 2021 was in Central East (36.3%) followed by Central West (30.9%), South West (23.6%), Toronto (22.8%), Ottawa (20.4%), Eastern (16.0%), and Northern (10.1%) regions. Between 2017 and 2021, the number of HIV tests was highest in Toronto followed by Central East, and lowest in the Northern and Eastern regions.

Figure 6.5 HIV test rate per 1,000 people by health region, males, Ontario, 2017 to 2021

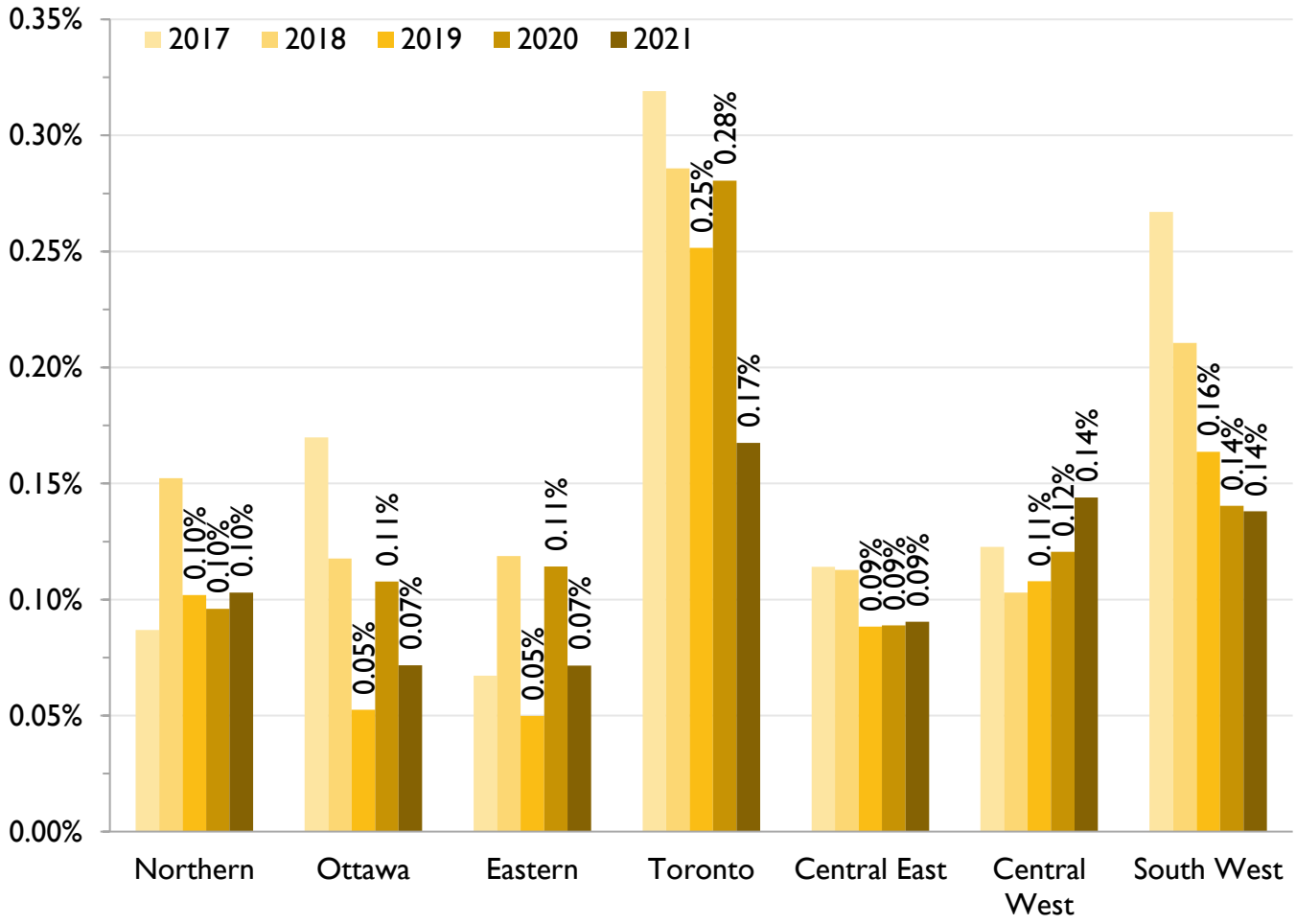


Snapshot

Between 2020 and 2021, the HIV test rates in males per 1,000 people increased in all regions, but none of the regions had reached their previous peaks. Compared to 2020, the largest relative increases in 2021 were in Central East (34.9%), Central West (29.5%), and Toronto (23.6%) regions. Between 2017 and 2021, the HIV test rate in males per 1,000 people was highest in Toronto followed by Ottawa, and then relatively similar in the remaining regions.

Notes: Data provided by Public Health Ontario Laboratory. Tests with unreported sex not included (approximately 2-3% per year). Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. HIV tests with previous evidence of HIV not included. See Appendices for more information. See **Table 6.2** for underlying data.

Figure 6.6 HIV test positivity by health region, males, Ontario, 2017 to 2021

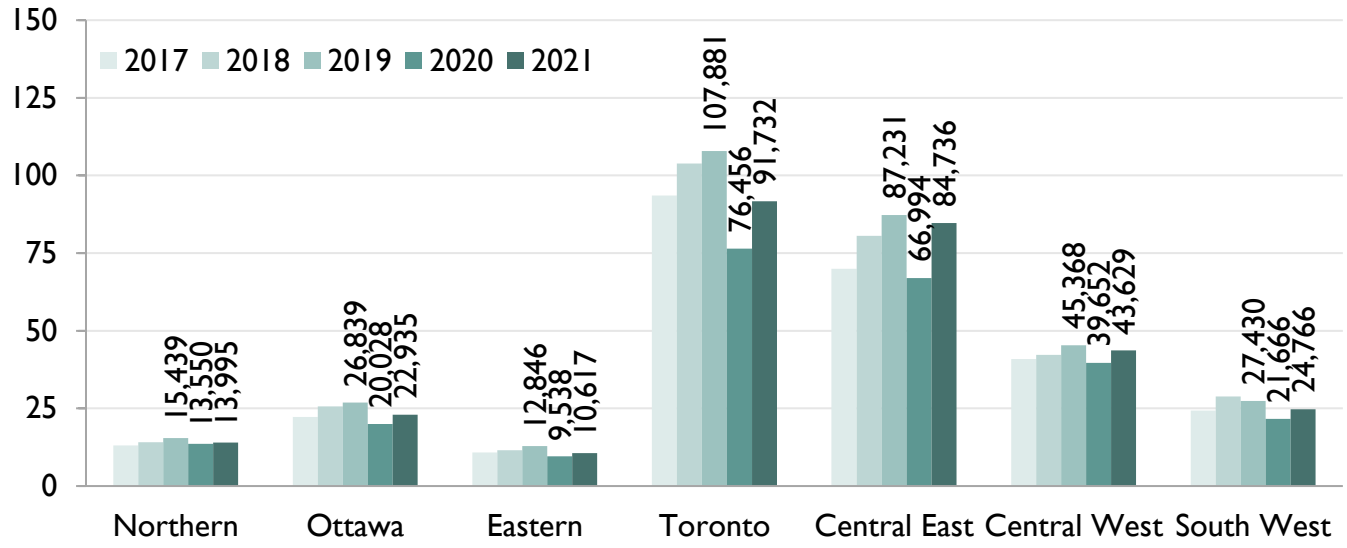


Snapshot

In 2021, the HIV test positivity among males was highest in Toronto (0.17%) followed by Central West and South West (both 0.14%), Northern (0.10%), Central East (0.09%), Ottawa (0.07%) and Eastern (0.07%) regions. Compared to previous years, the HIV test positivity among males in 2021 changed considerably. Central West region continued an increasing trend and Toronto and South West regions reached a new low in the past 5 years. HIV test positivity in males was largely unchanged from that of prior years in the Northern and Central East regions. Fluctuations in Ottawa and Eastern regions reflect relatively smaller numbers of first-time HIV diagnoses.

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. Tests with unreported sex not included (approximately 2-3% per year). See Appendices for more information. See **Table 6.2** for underlying data.

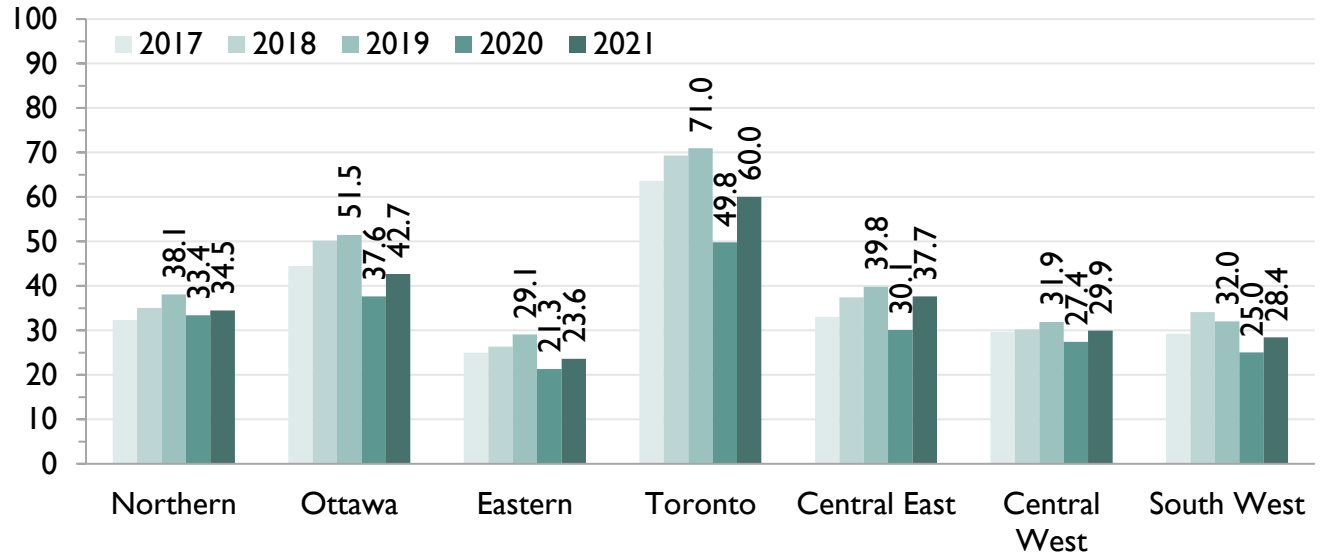
Figure 6.7 Number of HIV tests (thousands) by health region, females, Ontario, 2017 to 2021



Snapshot

Between 2020 and 2021, the number of HIV tests performed in females increased across all health regions, but none of the regions reached their previous peaks. The largest relative increase was in Central East (26.5%), followed by Toronto (20.0%), Ottawa (14.5%), South West (14.3%), Eastern (11.3%), Central West (10.0%), and Northern (3.3%) regions. Between 2017 and 2021, the number of HIV tests was highest in Toronto followed by Central East, and lowest in the Northern and Eastern regions.

Figure 6.8 HIV test rate per 1,000 people by health region, females, Ontario, 2017 to 2021

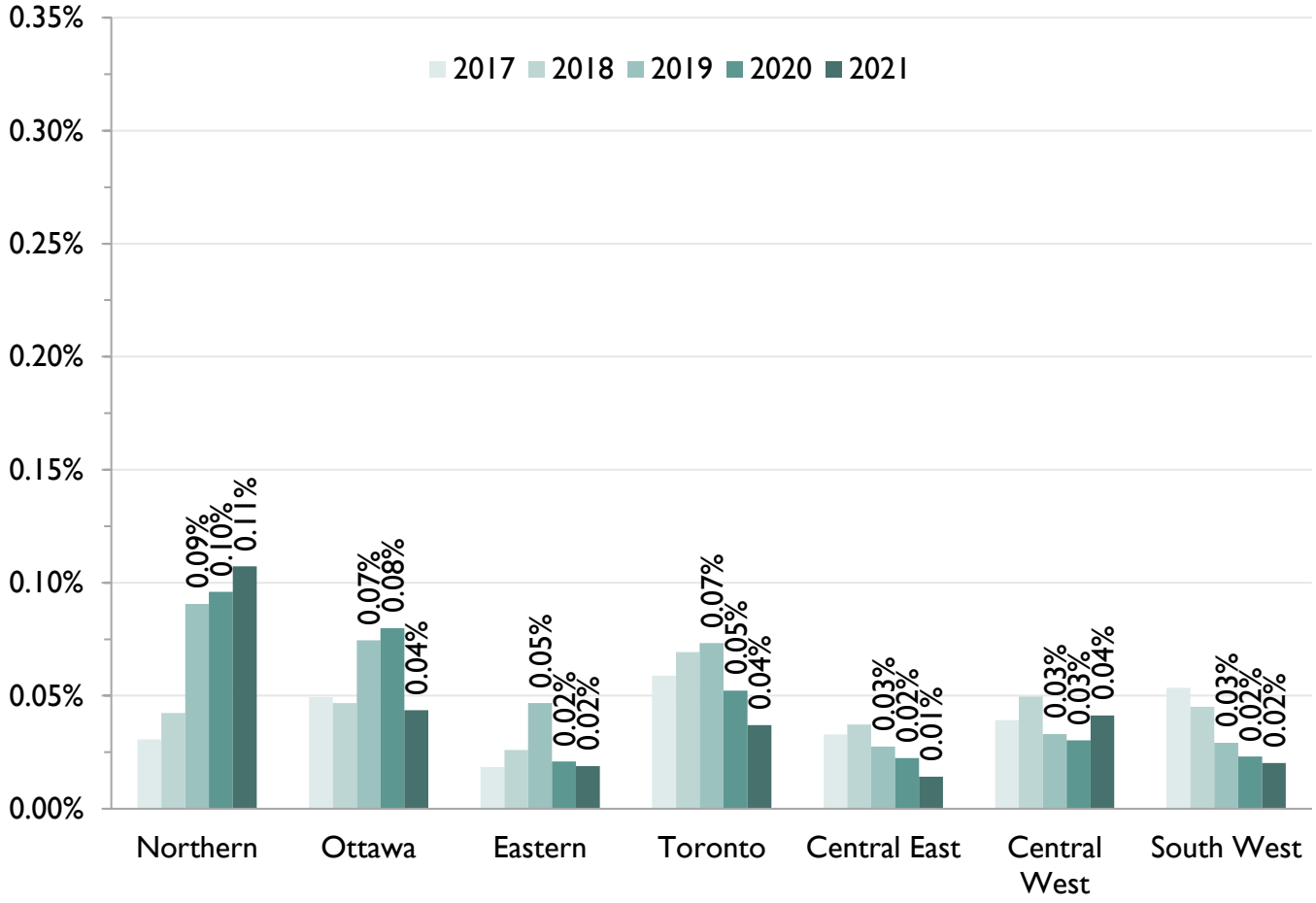


Snapshot

Between 2020 and 2021, the HIV test rates in females per 1,000 people increased in all regions, but none of the regions reached their previous peaks. The largest relative increases were in Central East (25.3%), Toronto (20.5%) and South West (13.7%) regions. Between 2017 and 2020, the HIV test rate in females per 1,000 people was highest in Toronto followed by Ottawa, and then relatively similar in the remaining regions.

Notes: Data provided by Public Health Ontario Laboratory. Tests with unreported sex not included (approximately 2-3% per year). HIV tests with previous evidence of HIV not included. Rates calculated using Statistics Canada population estimates for all ages, accessed 11/05/2021. See Appendices for more information. See **Table 6.3** for underlying data.

Figure 6.9 HIV test positivity by health region, females, Ontario, 2017 to 2021



Snapshot

In 2021, the HIV test positivity among females increased in Northern and Central West regions, and decreased in all other regions compared to 2020. Fluctuations in Ottawa and Eastern regions reflect relatively smaller numbers of first-time HIV diagnoses among females. The HIV test positivity continued to increase in Northern region from 0.03% to 0.11% between 2017 and 2021, while a continuous decreasing trend was observed in South West (from 0.05% to 0.02%) during this period. The HIV test positivity decreased in the latter 4 consecutive years in Central East (from 0.04% to 0.01%) while decreasing in the latter 3 consecutive years in Toronto (from 0.07% to 0.04%). The HIV test positivity among females in 2021 was highest in Northern (0.11%) followed by Ottawa, Toronto, and Central West (all 0.04%), Eastern and South West (both 0.02%), and Central East (0.01%) regions.

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. Tests with unreported sex not included (approximately 3% per year). See Appendices for more information. See **Table 6.3** for underlying data.

7. By HIV test submitter type

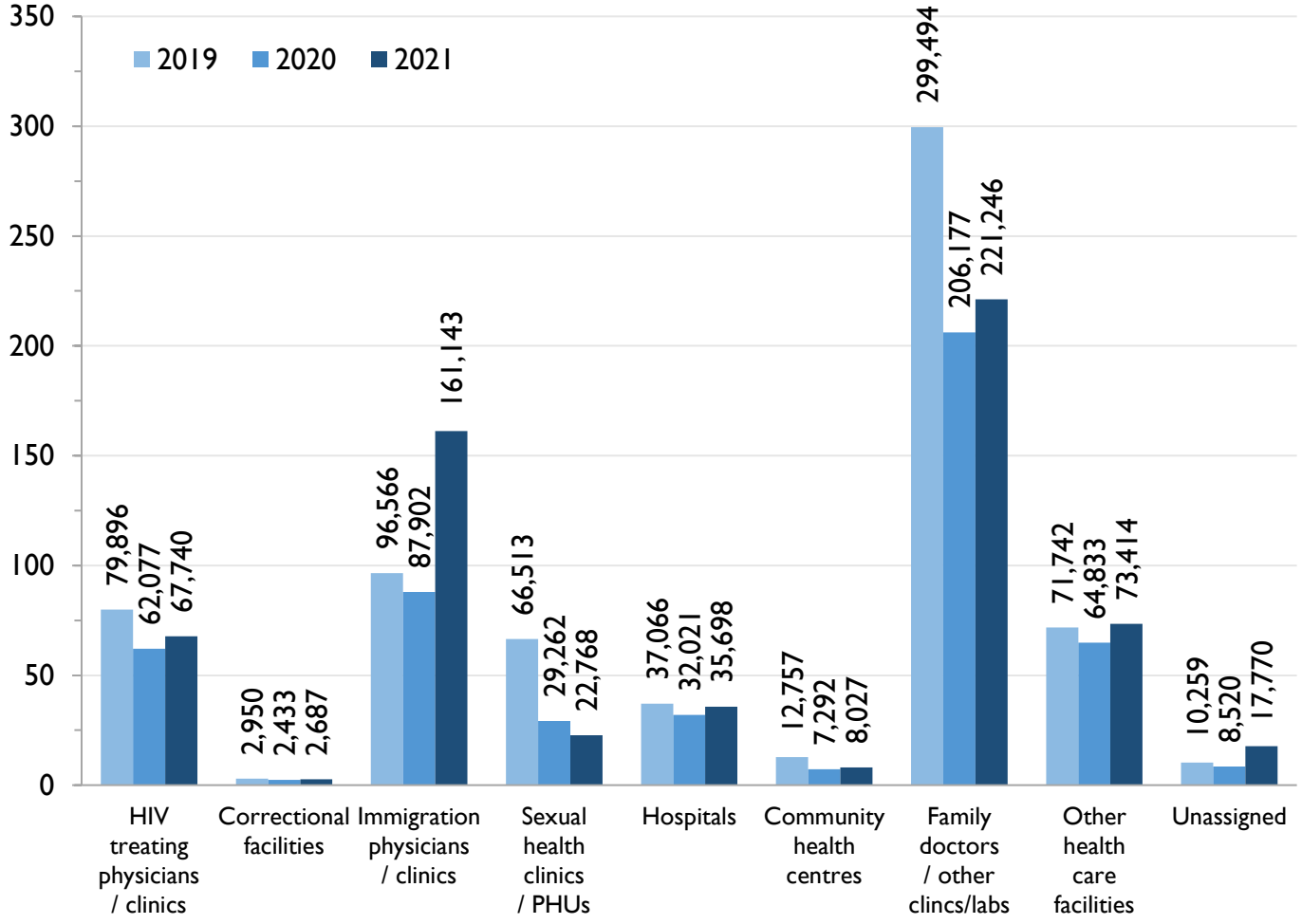
In 2021, HIV tests submitted by 'family doctors/other clinics/labs'[8] made up the largest proportion of HIV tests, followed by immigration physicians/clinics, other health care facilities and HIV treating physicians/clinics. Compared to 2020, the number of HIV tests increased for all submitter types in 2021 (except sexual health clinics/PHUs), with the greatest relative increases seen in immigration physicians/clinics (83.3%) and other health care facilities (13.2%). In 2021, the number of HIV tests submitted by immigration physicians/clinics surpassed its previous peak in 2019.

In 2021, the largest numbers test that were first-time HIV diagnoses[9] were submitted by 'family doctors/other clinics/labs' overall and among both males and females. The numbers of tests that were first-time HIV diagnoses were submitted by HIV treating physicians/clinics and immigration physicians/clinics each decreased in 2021 compared to 2019 and 2020 overall and for both males and females. The numbers of tests that were first-time HIV diagnoses submitted by hospitals and family doctors/other clinics/labs, each increased in 2021 compared to 2020 overall and for both males and females with the largest increase among males at hospitals.

[8] "Family doctors/ other clinics/labs" includes physicians who are not classified as HIV treating physicians or immigration physicians, clinics that are not classified as any of the preceding submitter types (shown in figures), and laboratories that are not in a hospital site.

[9] First-time HIV diagnoses stratified by submitter type uses information collected from the ordering physician.

Figure 7.1 Number of HIV tests (thousands) by submitter type, Ontario, 2019 to 2021

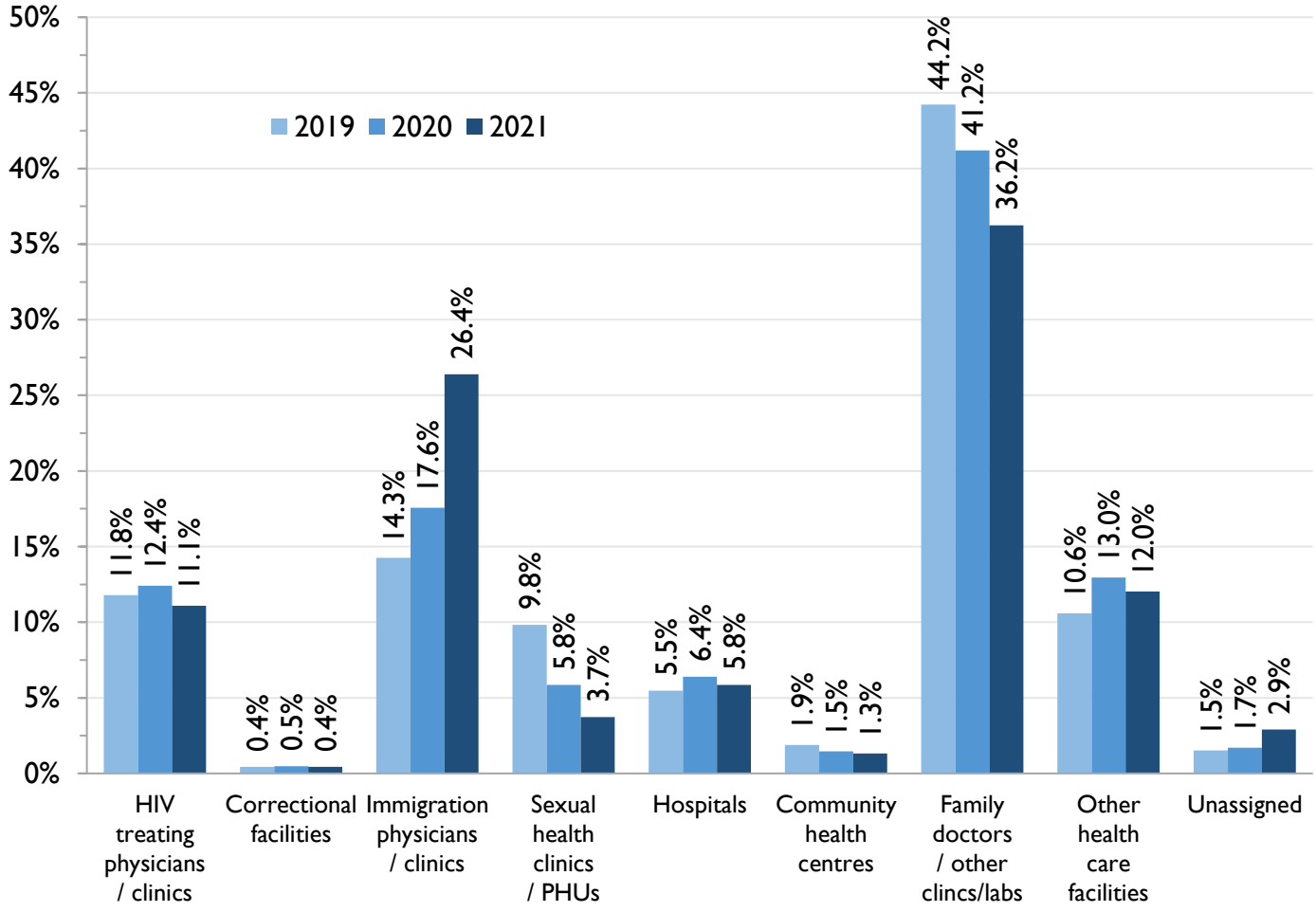


Snapshot

In 2021, HIV tests submitted by "family doctors/other clinics/labs' made up the largest number of HIV tests (221,246), followed by immigration physicians/clinics (161,143), other health care facilities (73,414) and HIV treating physicians/clinics (67,740). Compared to 2020, the number of HIV tests increased for all submitter types in 2021 (except for sexual health clinics/PHUs), with the greatest relative increases seen in immigration physicians/clinics (83.3%), other health care facilities (13.2%). In 2021, the immigration physicians/clinics and other health care facilities groups surpassed their previous peaks in 2019, with a significant relative increase seen in the immigration physicians/clinics group (66.9%). For the remaining submitter types, which had fewer HIV tests submitted in 2021 compared to 2019, the greatest relative decreases were observed in sexual health clinics/PHUs (65.8%), followed by community health centres (37.1%) and other physicians/clinics/labs (26.1%).

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV not included. "Family doctors/other clinics/labs" includes physicians who are not classified as HIV treating physicians or immigration physicians, clinics that are not classified as any of the preceding submitter types, and laboratories that are not in a hospital site. "Other health care facilities" includes fertility clinics, school-based wellness centres, mental/addiction health clinics, and long-term care/retirement facilities. PHU = Public health unit. See Appendices for more information. See **Table 7.1** for underlying data.

Figure 7.2 Percent of HIV tests by submitter type, Ontario, 2019 to 2021

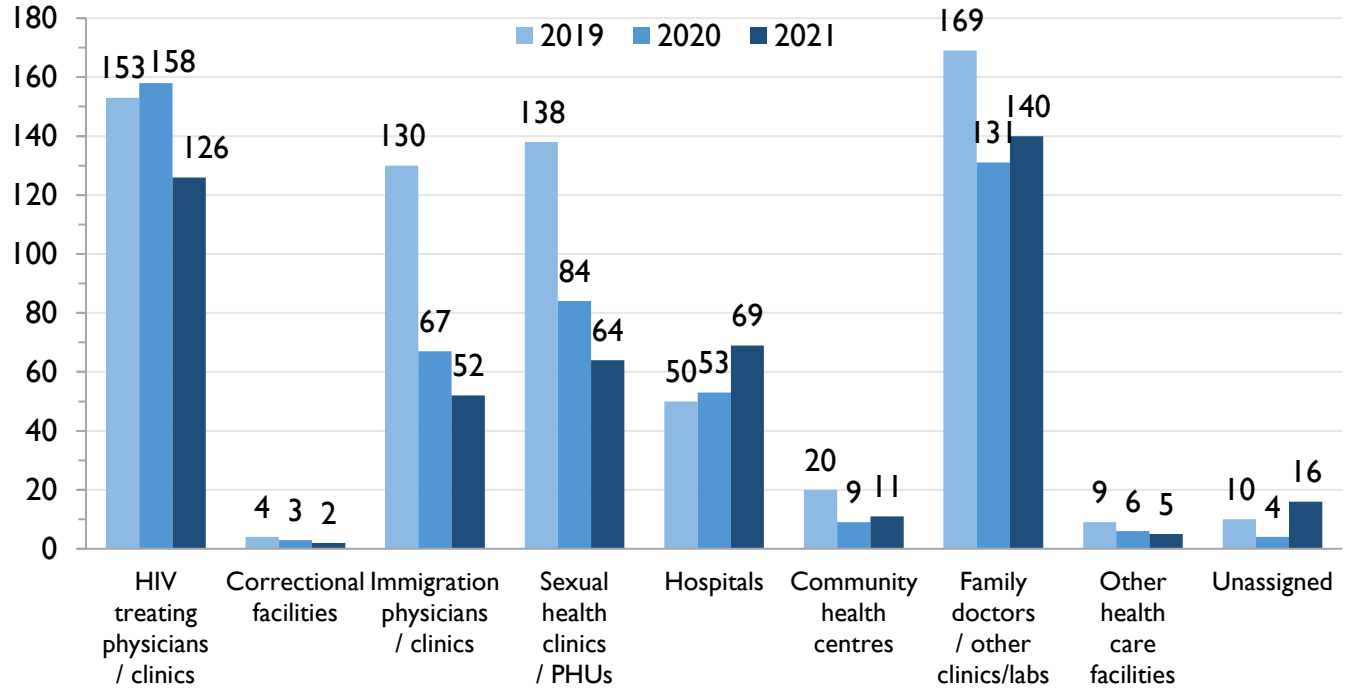


Snapshot

In 2021, HIV tests submitted by 'family doctors/other clinics/labs' made up the largest proportion of HIV tests (36.2%), followed by immigration physicians/clinics (26.4%), other health care facilities (12.0%), and HIV treating physicians/clinics (11.1%). Between 2019 and 2021, the proportion of HIV tests within the immigration physicians/clinics submitter type increased from 14.3% to 26.4%, while a continuous decreasing trend was seen among the sexual health clinics/PHUs submitter type (from 9.8% to 3.7%), community health centres (from 1.9% to 1.3%), and 'family doctors/other clinics/labs' submitter type (from 44.2% to 36.2%). Otherwise the distribution of HIV tests across submitter types was similar during this period.

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV not included. "Family doctors/other clinics/labs" includes physicians who are not classified as HIV treating physicians or immigration physicians, clinics that are not classified as any of the preceding submitter types, and laboratories that are not in a hospital site. "Other health care facilities" includes fertility clinics, school-based wellness centres, mental/addiction health clinics, and long-term care/retirement facilities. PHU = Public health unit. See Appendices for more information. See **Table 7.1** for underlying data.

Figure 7.3 Number of first-time HIV diagnoses by submitter type, Ontario, 2019 to 2021

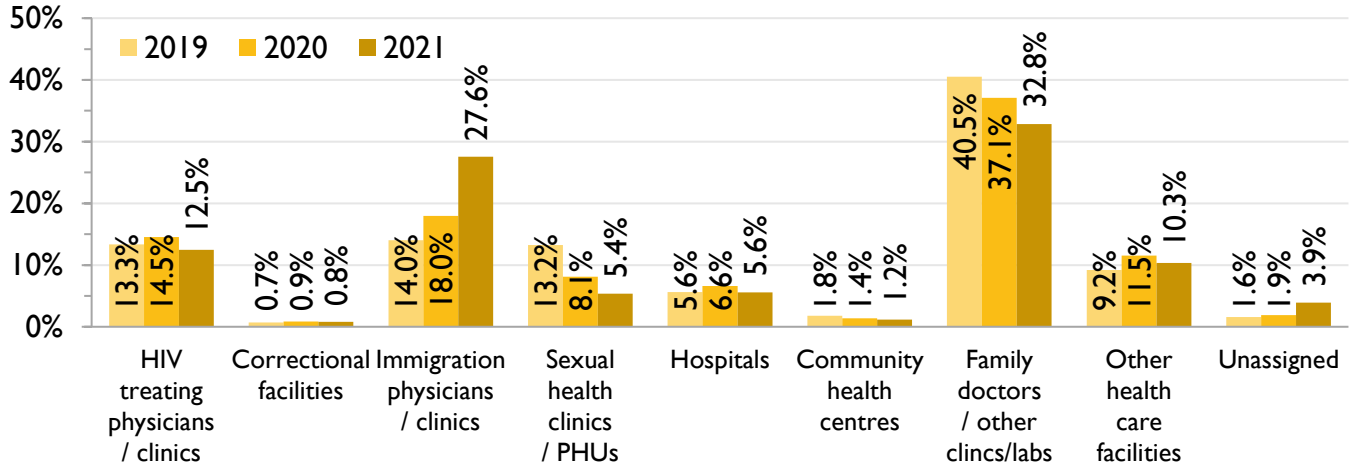


Snapshot

In 2021, the largest number of first-time HIV diagnoses were submitted by 'family doctors/other clinics/labs' (140, 28.9%), followed by HIV treating physicians/clinics (126, 26.0%), Hospitals (69, 14.2%), sexual health clinics/PHUs (64, 13.2%), and immigration physician/clinics (52, 10.7%). Between 2019 and 2021, a continuous decreasing trend of first-time HIV diagnoses was observed in immigration physicians/clinics (from 130 to 52, a 60.0% decrease), sexual health clinics/PHUs (from 138 to 64, a 53.6% decrease), correctional facilities (from 4 to 2, a 50% decrease), and other health care facilities (from 9 to 5, a 44.4% decrease), while a continuous increasing trend was observed in hospitals (from 50 to 69, a 38.0% increase).

Notes: Data provided by Public Health Ontario Laboratory. HIV test submitter types depicted in order of hierarchy of assignment. HIV tests with previous evidence of HIV not included. 'Family doctors/other clinics/labs' includes physicians who are not classified as HIV treating physicians or immigration physicians, clinics that are not classified as any of the preceding submitter types, and laboratories that are not in a hospital site. "Other health care facilities" includes fertility clinics, school-based wellness centres, mental/addiction health clinics, and long-term care/retirement facilities. HIV tests with previous evidence of HIV not included. PHU = Public health unit. See Appendices for more information. See **Table 7.2** for underlying data.

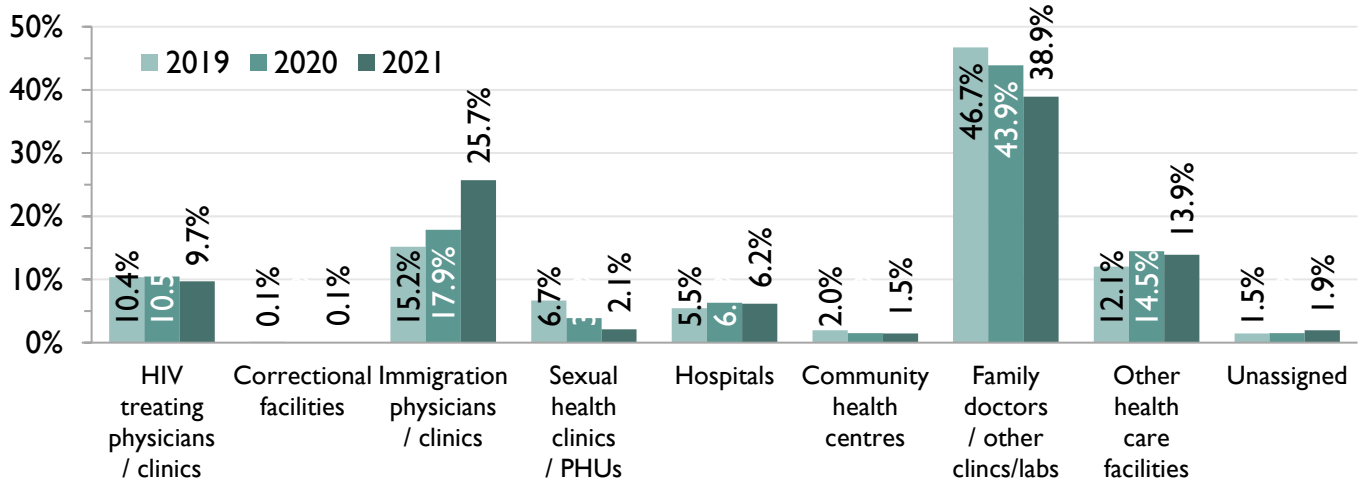
Figure 7.4 Percent of HIV tests by submitter type, males, Ontario, 2019 to 2021



Snapshot

In 2021, HIV tests submitted by 'family doctors/other clinics/labs' made up the largest proportion of HIV tests among males (32.8%), followed by immigration physicians/clinics (27.6%), and HIV treating physicians/clinics (12.5%). Between 2019 and 2021, a continuous increasing trend of percentage of HIV tests among males was seen in immigration physicians/clinics (from 14.0% to 27.6%), while a continuous decreasing trend was observed in sexual health clinics/PHUs (from 13.2% to 5.4%), community health centres (from 1.8% to 1.2%), and 'family doctors/other clinics/labs' (from 40.5% to 32.8%).

Figure 7.5 Percent of HIV tests by submitter type, females, Ontario, 2019 to 2021

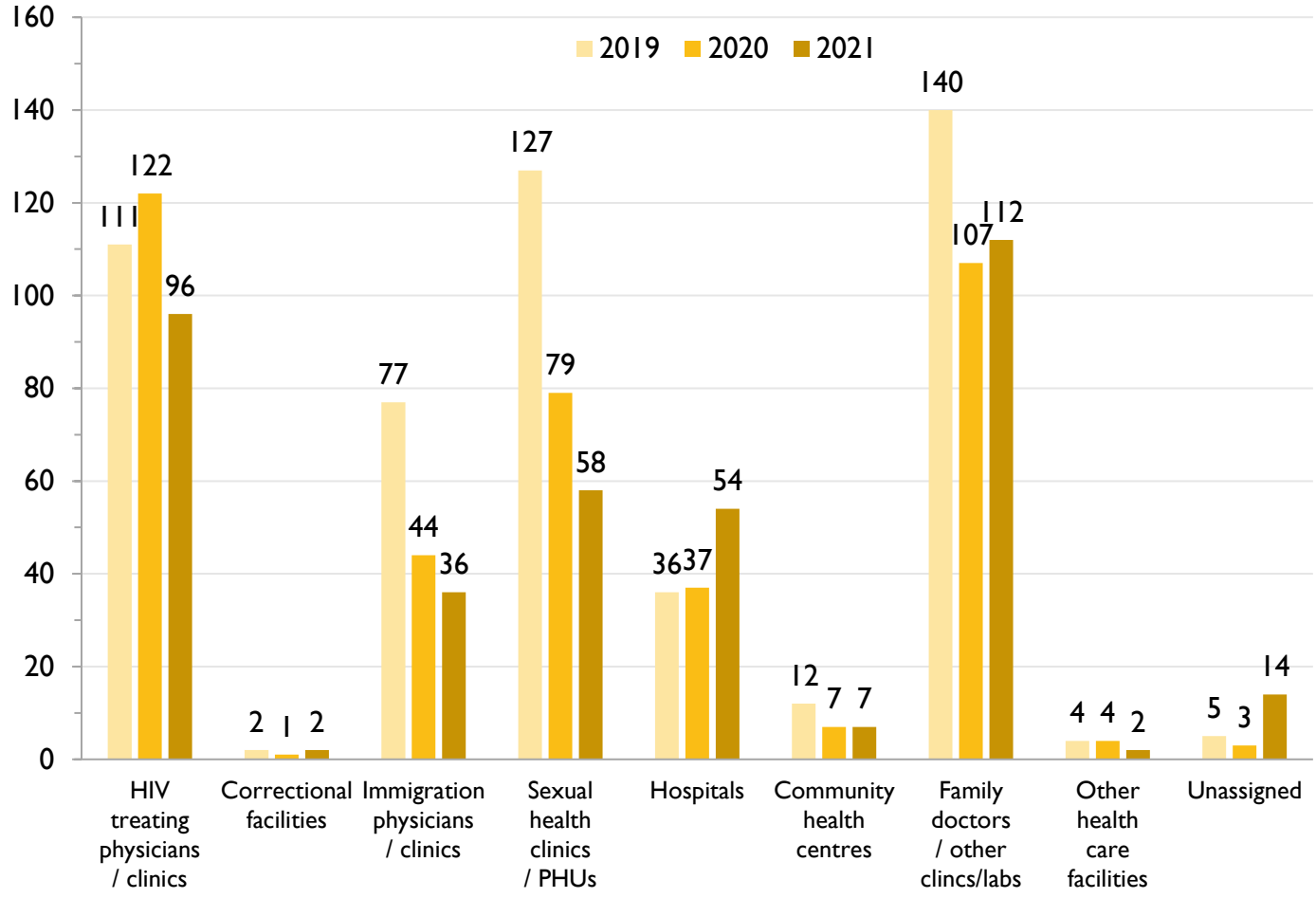


Snapshot

In 2021, HIV tests submitted by 'family doctors/other clinics/labs' made up the largest proportion of HIV tests among females (38.9%), followed by immigration physicians/clinics (25.7%), and other health care facilities (13.9%). Between 2019 and 2021, a continuous increasing trend of percentage of HIV tests among females was observed in immigration physicians/clinics (from 15.2% to 25.7%), while a continuous decreasing trend was observed in sexual health clinics/PHUs (from 6.7% to 2.1%) and 'family doctors/ other clinics/labs' (from 46.7% to 38.9%).

Notes: Data provided by Public Health Ontario Laboratory. HIV test submitter types depicted in order of hierarchy of assignment. HIV tests with previous evidence of HIV not included. "Family doctors/other clinics/labs" includes physicians who are not classified as HIV treating physicians or immigration physicians, clinics that are not classified as any of the preceding submitter types, and laboratories that are not in a hospital site. "Other health care facilities" includes fertility clinics, school-based wellness centres, mental/addiction health clinics, and long-term care/retirement facilities. PHU = Public health unit. See Appendices for more information. See **Table 7.1** for underlying data.

Figure 7.6 Number of first-time HIV diagnoses by submitter type, male, Ontario, 2019 to 2021

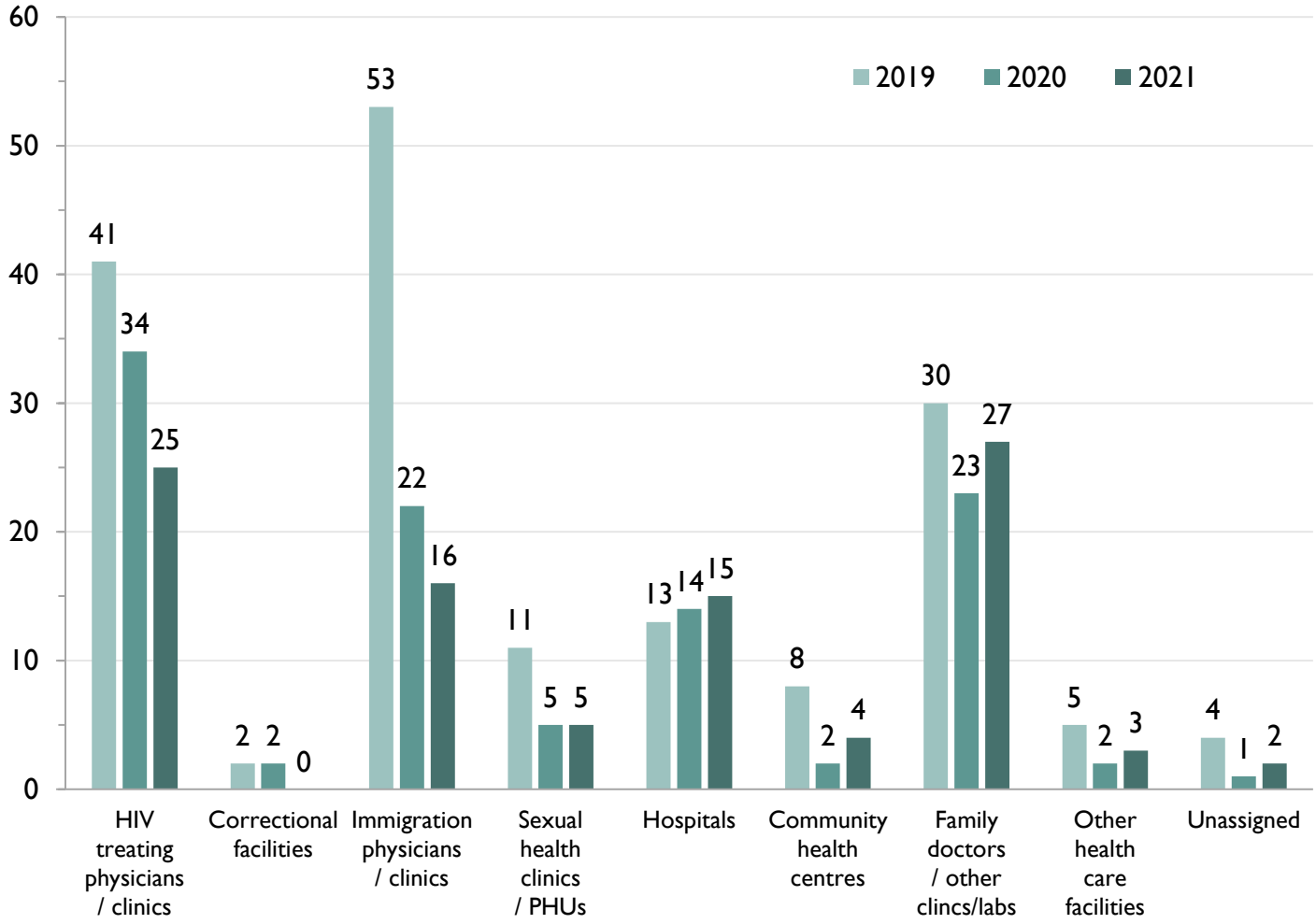


Snapshot

In 2021, the largest number of first-time HIV diagnoses among males were submitted by 'family doctors/other clinics/labs' (112, 29.4%), followed by HIV treating physicians/clinics (96, 25.2%), sexual health clinics/PHUs (58, 15.2%) and hospitals (54, 14.2%). Between 2019 and 2021, a continuous increasing trend of first-time HIV diagnoses among males was observed in hospitals (from 36 to 54), while a continuous decreasing trend was seen among immigration physicians/clinics (from 77 to 36) and sexual health clinics/PHUs (from 127 to 58).

Notes: Data provided by Public Health Ontario Laboratory. If counts are <5 per year within a category, trends over time may be unstable and should be interpreted with caution. HIV test submitter types depicted in order of hierarchy of assignment. "Family doctors/other clinics/labs" includes physicians who are not classified as HIV treating physicians or immigration physicians, clinics that are not classified as any of the preceding submitter types, and laboratories that are not in a hospital site. "Other health care facilities" includes fertility clinics, school-based wellness centres, mental/addiction health clinics, and long-term care/retirement facilities. HIV tests with previous evidence of HIV not included. PHU = Public health unit. See Appendices for more information. See **Table 7.2** for underlying data.

Figure 7.7 Number of first-time HIV diagnoses by submitter type, female, Ontario, 2019 to 2021



Snapshot

In 2021, the largest number of first-time HIV diagnoses among females were submitted by 'family doctors/other clinics/labs' (27, 27.8%), followed by HIV treating physicians/clinics (25, 25.8%). Between 2019 and 2021, a continuous increasing trend of first-time HIV diagnoses among females was observed in hospitals (13.3% increase, from 13 to 15), while a continuous decreasing trend was observed in HIV treating physicians/clinics (39.0% decrease, from 41 to 25) and immigration physicians/clinics (67.9% decrease, from 53 to 16).

Notes: Data provided by Public Health Ontario Laboratory. If counts are <5 per year within a category, trends over time may be unstable and should be interpreted with caution. HIV test submitter types depicted in order of hierarchy of assignment. "Family doctors/other clinics/labs" includes physicians who are not classified as HIV treating physicians or immigration physicians, clinics that are not classified as any of the preceding submitter types, and laboratories that are not in a hospital site. "Other health care facilities" includes fertility clinics, school-based wellness centres, mental/addiction health clinics, and long-term care/retirement facilities. HIV tests with previous evidence of HIV not included. PHU = Public health unit. See Appendices for more information. See **Table 7.2** for underlying data.

8. Transgender identity and race/ethnicity (only among HIV test requisitions that include transgender identity and race/ethnicity)

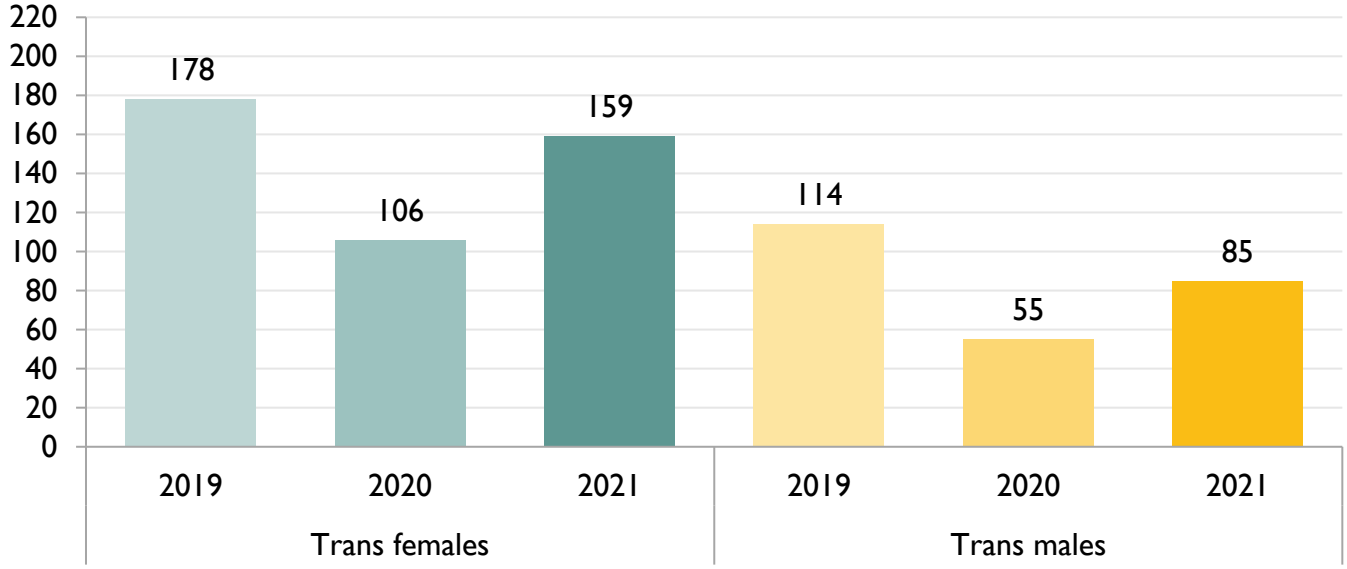
In February 2018, PHO laboratory implemented a revised HIV test requisition with newly added fields on transgender identity, race/ethnicity, and country of birth. Approximately 55.2%, 39.1%, and 33.0% of all HIV tests in 2021, 2020, and 2019, respectively, were ordered using this requisition form. As this proportion increases, it is expected that the number of HIV tests reporting transgender identity and/or race/ethnicity will increase. Due to the incomplete uptake of the HIV test requisition that asks these new questions, the findings related to transgender identity and race/ethnicity should be interpreted with caution: these tests represent a subset of all HIV tests submitted to PHO in these years, and may not be representative of all HIV tests in Ontario.

In 2021, of the 337,307 HIV tests submitted using the HIV test requisition that reported sex and gender, 159 (0.05%) were reported as transgender females and 85 (0.03%) were reported as transgender males. Although the number of tests among transgender males and females represent a 50.0% and 54.5% relative increase, respectively, from 2020 to 2021, due to increased overall counts of testing in 2021 compared to 2020, the proportion reporting transgender identity has remained stable.

In 2021, among the 343,493 HIV tests submitted using the HIV test requisitions that asks about race/ethncity, 212,571 (61.9%) were missing information on race/ethnicity. Of the 130,922 tests that reported a race/ethnciity, the greatest number and proportion of HIV tests were among White people (59,938 tests, 45.8%), followed by South Asian (23,654, 18.1%), Black (14,112, 10.8%), East/Southeast Asian (14,061, 10.7%), Latino/e/a/x (5,552, 4.2%), Middle Eastern (5,030, 3,8%), Indigenous (4,868, 3.7%) and other/mixed (3,707, 2.8%) individuals.

In 2021, the number of HIV tests surpassed that of 2019 and 2020 within all race/ethnicity categories, except white people. With the increase in the total number of HIV tests in 2021 compared to 2020, and the increase in the proportion of tests using the HIV test requisition where race/ethnicity is asked, it is expected that the total number of tests reporting race/ethnicity would increase; however, this was not seen proportionally across all race/ethnicities. The largest relative increase in the South Asian race/ethnicity (2.9 times higher in 2021 vs 2019) and the largest relative decrease in white race/ethnicity (9.7% decrease). Given the high proportion of unreported/unknown race/ethnicity, it is not possible to determine if these results are representative of tests overall.

Figure 8.1 Number of HIV tests by transgender identity, among tests submitted via the HIV test requisition, Ontario, 2019 to 2021

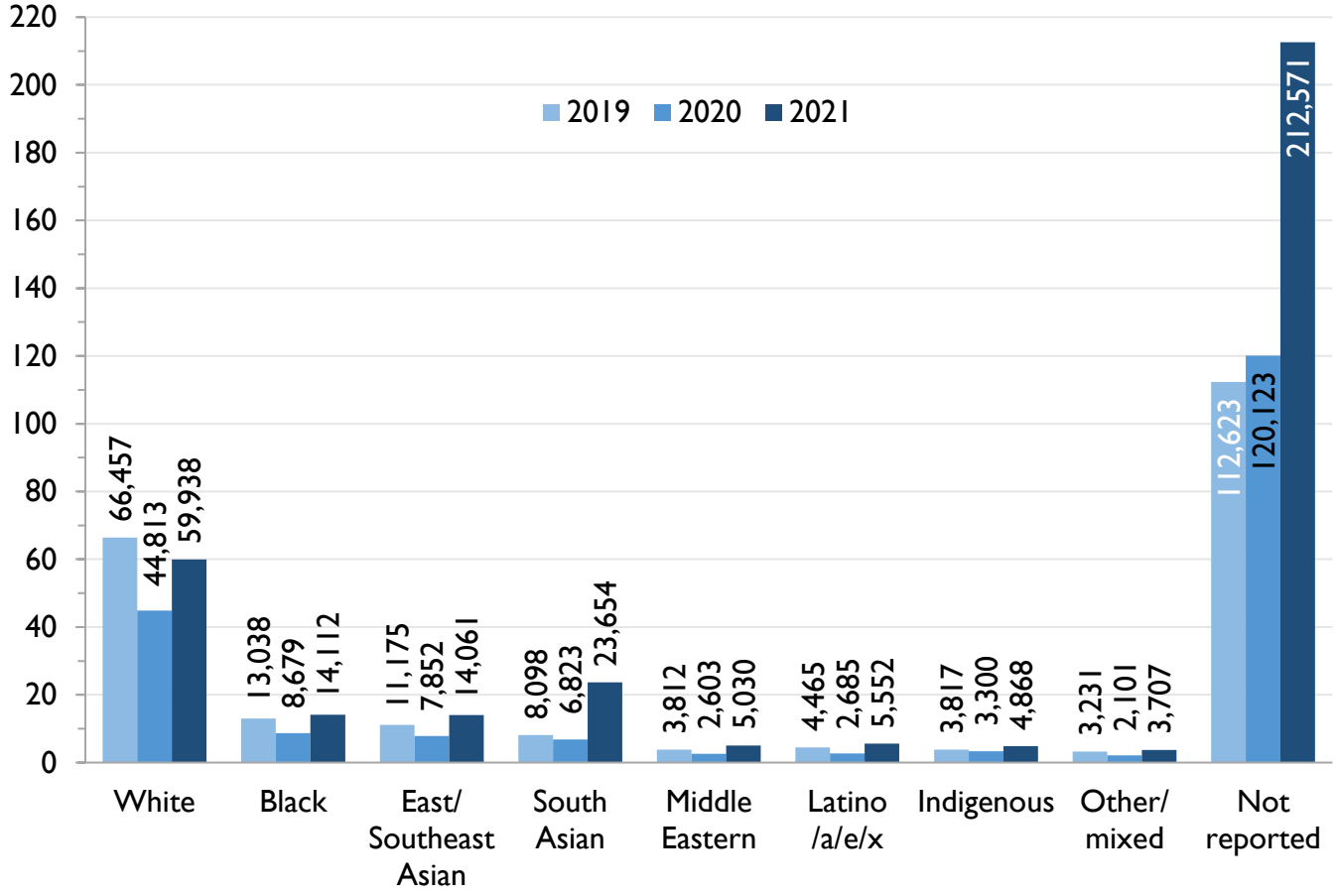


Snapshot

In 2021, of the 337,307 HIV tests submitted via the HIV test requisitions that ask about sex and gender and where sex or gender is reported, 159 (0.05%) represented transgender females and 85 (0.02%) represented transgender males. The proportion of tests reporting transgender males and transgender females remained stable in 2020 to 2021.

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with unreported gender excluded (1.6%, 1.5%, and 1.8% of tests submitted via the new HIV test requisition in 2019, 2020, and 2021, respectively). N = 337,307 with reported gender in 2021, 55.2% of all HIV tests; N = 195,931 with reported gender in 2020, 39.1% of all HIV tests; N = 223,198 with reported gender in 2019, 33.0% of all HIV tests. HIV tests with previous evidence of HIV are not included. See Appendices for more information. See **Table 8.1** for underlying data.

Figure 8.2 Number of HIV tests (thousands) by race/ethnicity, among tests submitted via the HIV test requisition, Ontario, 2019 to 2021



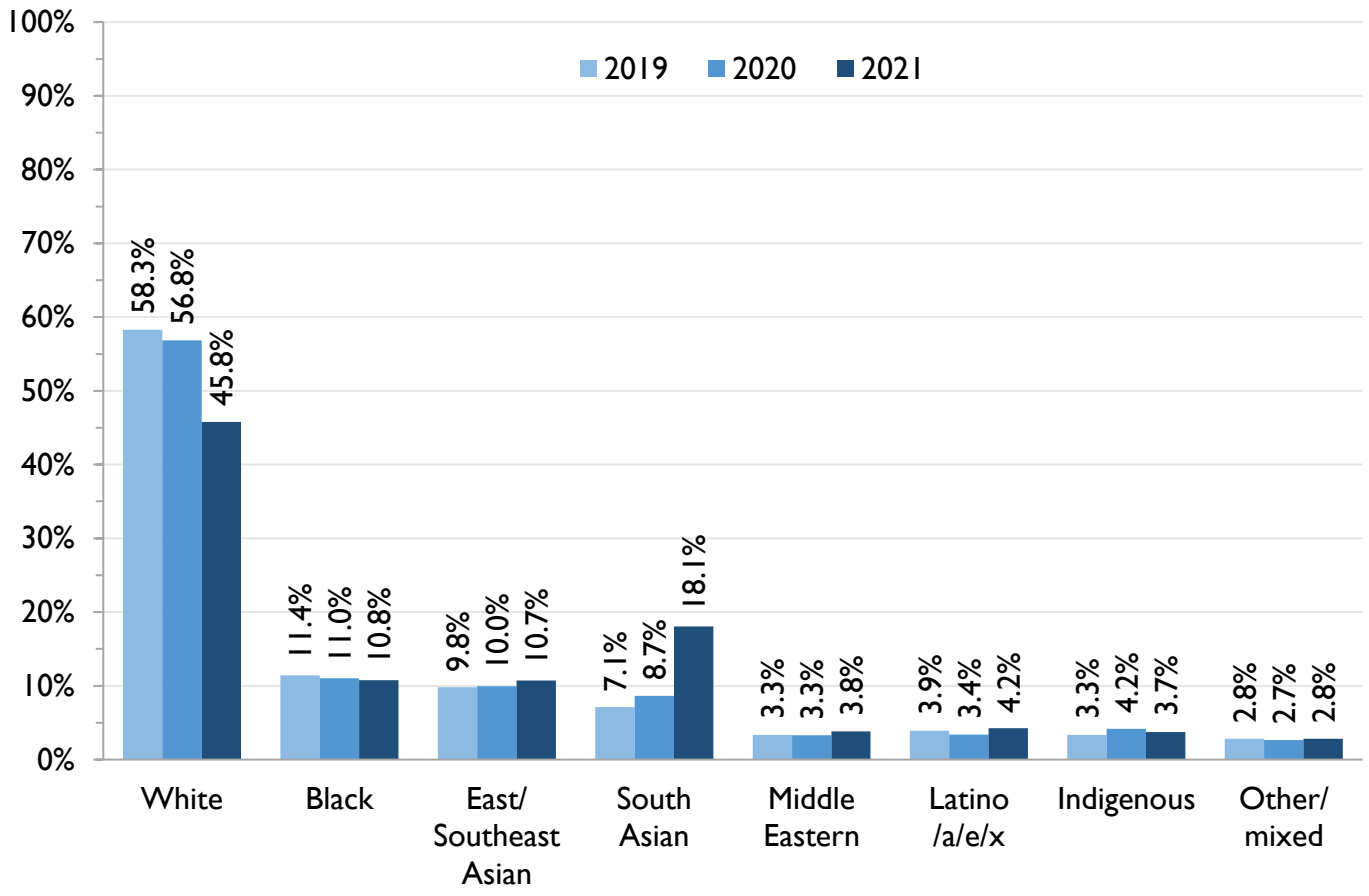
Snapshot

In terms of race/ethnicity, among the 343,493 HIV tests submitted in 2021 via the new HIV test requisition, 212,571 (61.9%) did not have race/ethnicity information reported. Of the 130,922 tests that reported a race/ethnciity in 2021, the greatest number of HIV tests were among White people (59,938 tests), followed by South Asian (23,654), Black (14,112), and East/Southeast Asian (14,061) individuals.

Between 2019 and 2021, the number of HIV tests increased for all race/ethnicity categories except among white people. As the proportion of HIV tests using the revised HIV test requisition that asks about race/ethnicity increases, it would be expected that the number of tests reporting race/ethnicity would also increase; however, this was not a proportional increase across all race/ethnicities. The largest relative increase was seen in the South Asian race/ethnicity (2.9 times higher in 2021 vs 2019). The Indigenous, Middle Eastern, East/Southeast Asian and Latino/a/e/x race/ethnicities saw a relative increase in the number of tests between 2019 and 2021 between 24%-32%. The only relative decrease in number of tests was observed in the white race/ethnicity (9.7% decrease).

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV not included. N = 343,493 in 2021, 56.3% of all HIV tests; N = 198,979 in 2020, 39.8% of all HIV tests; N = 226,227 in 2019, 33.4% of all HIV tests. See Appendices for more information. See **Table 8.2** for underlying data.

Figure 8.3 Proportion of HIV tests by race/ethnicity (where known), among tests submitted via the HIV test requisition, Ontario, 2019 to 2021



Snapshot

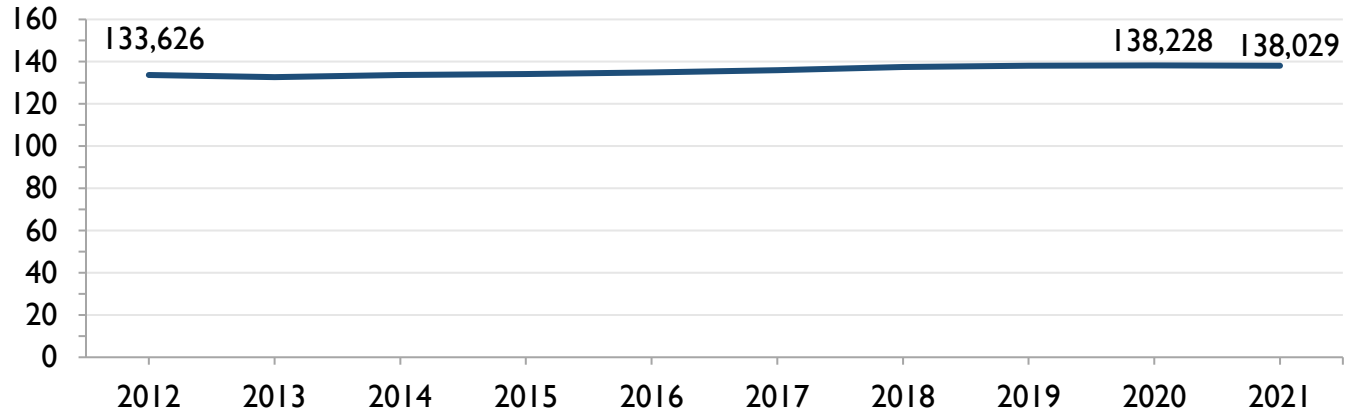
Among the 130,922 HIV tests that reported a race/ethnciity, the greatest proportion of HIV tests were among White people (45.8% in 2021, decreased over time) followed by South Asian (18.1% in 2021, increased over time), Black (10.8% in 2021, decreased over time) and East/Southeast Asian (10.7% in 2021, increased over time). The other race/ethnicities each made up less than 5% of HIV tests (where known) in 2021 and remained relatively stable between 2019 and 2021.

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV included. N = 343,493 in 2021, 56.3% of all HIV tests; N = 198,979 in 2020, 39.8% of all HIV tests; N = 226,227 in 2019, 33.4% of all HIV tests. See Appendices for more information. See **Table 8.2** for underlying data.

9. Prenatal HIV testing

The number of unique pregnant people who received a prenatal HIV test was relatively stable between 2012 and 2021 (range of 133,626 to 138,228) Between 2012 and 2021, the ratio of pregnant people who received a prenatal HIV test to births (live and stillbirths) increased from 0.94 in 2012 to 1.00 in 2020 and 0.99 in 2021.

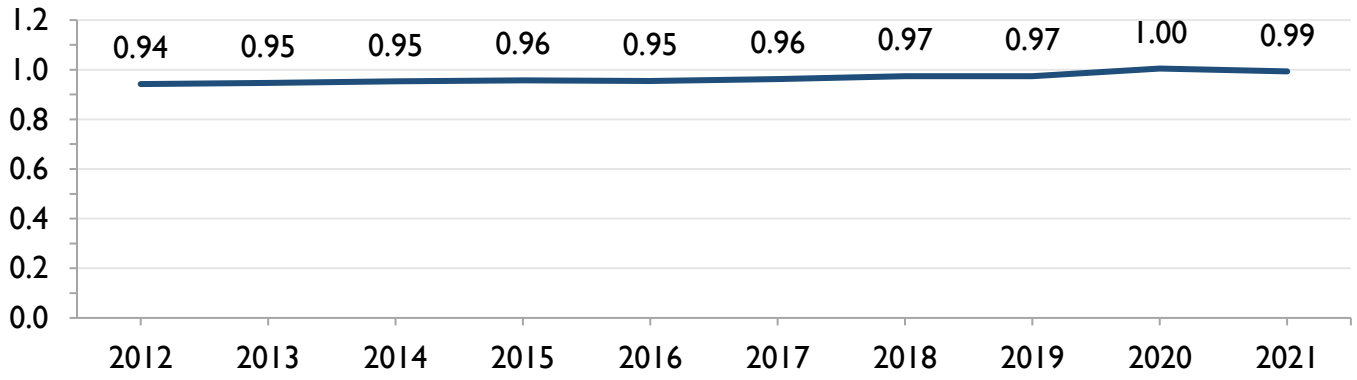
Figure 9.1 Number of unique pregnant people who received a prenatal HIV test (thousands), Ontario, 2012 to 2021



Snapshot

Between 2012 and 2021, the number of unique pregnant people who received a prenatal HIV test remained relatively stable and was 133,626 in 2012 and 138,029 in 2021.

Figure 9.2 Ratio of pregnant people who received a prenatal HIV test to births (live and stillbirths), Ontario, 2012 to 2021



Snapshot

Between 2012 and 2021, the ratio of pregnant people who received a prenatal HIV test to births (live and stillbirths) increased from 0.94 in 2012 to 1.0 in 2020 and was 0.99 in 2021. It is important to note that the number of births (live and stillbirths) is a known undercount of all pregnant people, as miscarriages occurring before 20 weeks of pregnancy are not included. This metric is also limited in that prenatal HIV tests are assigned to the year the test is performed, while births are assigned to the year the birth occurs; because HIV testing is typically conducted in the first trimester of pregnancy, some pregnant people will be tested for HIV in the calendar year prior to the year they give birth.

Notes: Annual number of pregnant people who received a prenatal HIV test provided by Public Health Ontario Laboratory and the number of births (live and stillbirths) provided by the Better Outcomes Registry & Network (BORN). HIV tests with previous evidence of HIV included. See Appendices for more information. See **Table 9.1** for underlying data.

Appendices

1. Definitions

Anonymous HIV testing

A type of non-nominal HIV diagnostic testing where no identifying information on the individual being tested is collected on an anonymous HIV test requisition. The lack of identifying information means that it is not possible to link anonymous HIV-positive diagnostic tests to viral load tests (which are nominal) within the HIV Datamart.

First-time HIV diagnoses

First-time HIV diagnoses are positive HIV tests with no previous evidence of HIV. We look at this number to better understand which diagnoses are likely due to local transmission in Ontario and, therefore, what populations might be at most risk and benefit most from prevention activities. We report on first-time HIV diagnoses separately to better understand local transmission. This report uses first-time HIV diagnoses as the numerator of the HIV test positivity calculation. When reporting HIV test positivity by exposure category, only the test requisition is used to assign a positive test as a first-time HIV diagnosis and to which (if any) exposure category. When reporting HIV test positivity by submitter type, only information collected from the ordering physician is used to assign a submitter type. Any new information gathered about the positive test via the LEP form is not used to inform the exposure category and is not available on the LEP with respect to submitter type..

First-time HIV diagnoses exclude anyone with a previous positive diagnostic test as indicated on the LEP form (or the test requisition form since 2018), regardless of the location of the previous positive test (inside of outside of Ontario). It also uses linked viral load testing history in Ontario as evidence of being in care for HIV so excludes 1) anyone with a history of viral load testing in Ontario of more than 30 days before to their first nominal confirmatory diagnostic test in Ontario, or 2) anyone with a history of viral load testing in Ontario within 30 days (including same day) of their first nominal confirmatory diagnostic test with a viral load of <200 copies/mL indicating prior treatment. People who have evidence of a history of viral load testing before their first reported HIV positive test are counted as a positive HIV test in the first year which there is evidence of an HIV diagnoses (i.e. the year of their first viral load test).

Where HIV test history information is not reported, positive HIV tests are categorized as first-time HIV diagnoses.

HIV exposure category

A category meant to represent an individual's most likely means of HIV transmission. An individual getting tested is assigned to an exposure category based on reported HIV risk factors collected on the test requisition. Exposure categories are mutually exclusive, which means an individual can only be assigned to one category. When more than one exposure category is applicable for a single individual, a hierarchy is used to assign them to a single category. This hierarchy is based on the level of HIV risk associated with different exposure categories. See HIV exposure categories within the Appendices for more information.

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 for more information on these groupings and boundaries.

HIV Datamart

All data in this report is stored in the 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 anonymous 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 test), and has been confirmed as HIV-positive by a separate test (Geenius [LFIA], p24 antigen confirmatory test, or polymerase chain reaction). HIV-positive diagnostic tests in the HIV Datamart includes all people who were diagnosed with HIV. That is, people who test HIV-positive for the first time in Ontario (never tested HIV-positive out-of-province), as well as people who were diagnosed HIV-positive elsewhere and moved to Ontario and tested again ('out-of-province' diagnoses).

HIV test with previous evidence of HIV

An HIV test with previous evidence of HIV includes any individual with a previous positive diagnostic test as indicated on the test history section of the laboratory enhancement program (LEP) form or the test requisition, regardless of the location of the previous positive test (inside or outside of Ontario). It also uses linked viral load testing history in Ontario as evidence of being in care for HIV and so excludes 1) anyone with a history of viral load testing in Ontario of more than 30 days before a first diagnostic positive test and 2) anyone with viral load testing in Ontario within 30 days (including same day) of their first nominal confirmatory diagnostic test with a viral load of <200 copies/mL indicating prior treatment. HIV tests with previous evidence of HIV were not included in this report (as counts in the number of HIV tests or as first-time HIV diagnoses when calculating test positivity. See First-time HIV diagnoses and exclusion of HIV tests with previous evidence of HIV in the technical notes for more information.

Identified risk

"Identified risk", as used within the HIV exposure categories, means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male.

Laboratory Enhancement Program (LEP)

When a person receives a new HIV diagnosis in Ontario, a Laboratory Enhancement Program (LEP) form is sent to the health care provider who ordered the test in order to collect further information on the person who tested HIV-positive. This includes information collected on the original HIV test requisition (e.g. risk factors), as well as additional information. Since 2009, the LEP form has collected information on race/ethnicity and country of birth. The HIV test requisition form was revised in 2018 to collect this information as well and revised again in 2021 to expand on "reasons for testing". As LEP data does not

exist for HIV-negative tests, it informs only HIV-positive diagnostic tests in this report. This form was returned for 62.9% of positive HIV tests without previous history of HIV in 2021.

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.

Point-of-care (POC) testing

HIV diagnostic testing that provides initial results at the same visit as the test. The POC test (sometimes referred to as rapid testing) currently used in Ontario can provide results within minutes. If a POC test is reactive (i.e. suggestive of an HIV-positive result), the result is not considered to be a final diagnosis. To confirm the result, a blood sample must be taken and sent to the laboratory for additional testing. If a POC test is non-reactive, it is included in the total testing numbers as a negative test. This report includes POC tests provided by the Ministry of Health (MOH) only. A reactive rapid/point-of-care test result (i.e. suggestive of an HIV-positive result) must be confirmed through laboratory testing to be counted as a new HIV diagnosis. HIV tests with previous evidence of HIV (see above) are excluded in this report. See First-time HIV diagnoses and exclusion of HIV tests with previous evidence of HIV for more information.

POC testing was first introduced in Ontario in 2007. In 2019, POC tests were provided to all 38 active anonymous testing organizations as well as four other organizations that were not legislated to provide anonymous testing. COVID-19 significantly impacted POC testing services across Ontario, with sites suspending or limiting testing services. While some sites have begun to resume services, the effects of COVID-19 service disruption continue to affect the program.

Prenatal HIV test

An HIV test that was done either as part of a prenatal screening requisition form or a regular HIV test requisition form with 'Prenatal' checked as the reason for testing. These tests are not included in any part of the testing report except the “Prenatal HIV testing” section.

Previous evidence of HIV (PEH)

HIV diagnoses with previous evidence of HIV include both 1) people who may be new to the province who already knew their HIV-positive status and have a confirmatory HIV test in Ontario (‘out-of-province’ HIV diagnoses) and 2) people who may have been infected in Ontario and have been living and receiving care (viral load testing) in the province but have no prior linked confirmatory diagnostic test in Ontario. HIV tests that indicate previous evidence of HIV on the test requisition or LEP are not included in this report.

Public health unit (PHU)

A health agency that provides health promotion and disease prevention programs. There are 34 public health units in Ontario and each has its own unique geographical boundary. See technical notes for more information.

Submitter type

Each HIV test submitter type is a category defined by specific criteria and each HIV test is assigned an HIV test submitter type based on information about the submitter of the HIV test to the Public Health Ontario (PHO) Laboratory. When more than one submitter type is identified for a single HIV test, a hierarchy is used to assign an HIV test to a single submitter type. Therefore, the HIV test submitter types are mutually exclusive. This hierarchy, and the defining criteria for each submitter type, are described under "HIV test submitter types" within the Appendices.

Test positivity

The percent of HIV diagnostic tests with a first-time HIV diagnosis (first-time HIV diagnoses divided by the number of HIV tests). HIV test positivity can provide insight into which sub-populations have a higher level of HIV risk. However, HIV test positivity should be interpreted with the awareness that although they are calculated with the counts of first-time diagnoses, some of the diagnoses likely still represent individuals with prior knowledge of their HIV-positive status who are unable to be identified in the HIV Datamart. See Technical notes for more information.

Test requisitions

A form filled out by a health care provider along with each HIV diagnostic test. The HIV diagnostic test requisition collects information on the age, sex and HIV risk factors of the person getting tested. In 2018 the HIV test requisition was expanded and began to collect information on race/ethnicity, country of birth, transgender identity and PrEP status. In 2021 the HIV test requisition was updated to include "self-test; result pos, neg, invalid" as an option in the "reason for test" section. Healthcare providers can still submit any version of the HIV test requisition and uptake of the form that includes race/ethnicity and transgender identity has been increasing since its introduction (33.4% of all tests in 2019, 39.8% in 2020 and 56.3% in 2021). Note, race/ethnicity and country of birth information has been collected on the Laboratory Enhancement Program (LEP) form since 2009.

Test type

There are two main test types as defined by the type of identifier collected on the test requisition form. HIV tests can be conducted under a patient's name (nominal) or a unique anonymous number.

Test rate per 1,000 people

Refers to the number of HIV tests per 1,000 people in Ontario. While the number of tests is influenced by the size of the underlying population (e.g. greater population = greater number of tests), rates take population size into account and remove it as a possible explanatory factor for any observed differences over time or between populations.

Importantly, this report uses the number of HIV tests in Ontario to calculate test rates. It does NOT use the number of unique individuals tested. This means trends may reflect changes in both the number of times an individual gets tested in a year as well as the total number of unique people who get tested.

2. Abbreviations

IDU = Injection drug use

LEP = Laboratory Enhancement Program

OHESI = Ontario HIV Epidemiology and Surveillance Initiative

PEH = Previous evidence of HIV

PHO = Public Health Ontario

PHU = Public Health Unit

3. Technical notes

The data in this report come from laboratory databases at Public Health Ontario (PHO) Laboratory. These data are collected for clinical purposes and completeness is reliant on clinicians and other providers completing the test requisitions and other related forms.

The majority of HIV diagnostic testing conducted by health care providers in Ontario is done by PHO. This includes tests conducted in Canada as part of an immigration medical exam. Information on test results and the two forms which are completed as part of the testing process (test requisition and LEP forms) are compiled in a central database at Public Health Ontario, known as the 'HIV Datamart'. Tests conducted for purposes of blood/tissue/organ donation and life insurance eligibility are conducted outside of PHO's laboratory system and are not included in this report.

When someone gets an HIV test in Ontario, the health care provider conducting the test fills out an HIV test requisition that collects information on the individual getting tested for HIV, including age, sex and HIV risk factors. A blood sample is also taken and sent with the form to PHO; however, with POC testing, a blood sample is only taken and sent to the laboratory if the test is reactive (i.e. suggestive of an HIV-positive result). This is done in order for the result to be confirmed through additional testing at the laboratory. A blood sample may also be taken and sent to the laboratory if a POC test is non-reactive but there is reason to believe the person is in the window period (period of time during which an individual has been potentially exposed to HIV but the HIV test may not give an accurate result). This is done in order for the sample to be tested using an HIV test with a shorter window period. Unless followed by a confirmatory laboratory test, reactive POC tests are included in the total testing numbers but not as a first-time HIV diagnosis when calculating HIV test positivity.

If laboratory testing confirms an HIV-positive result and the person has no previous HIV-positive test in the laboratory database system, a second form is sent to the health care provider who ordered the test in order to collect information that may have been missed on the HIV test requisition. This second form was implemented in 1999 and is referred to as the Laboratory Enhancement Program (LEP) form. The LEP form was changed in 2009 to collect information on race/ethnicity and country of birth, both of which were only collected on the HIV test requisition since 2018. Information on race/ethnicity and transgender identity was not available on HIV test requisition forms up to and including part of 2018. Uptake of the form that includes race/ethnicity and transgender identity has been increasing since its introduction (33.4% of all tests in 2019, 39.8% in 2020 and 56.3% in 2021) and the number of tests by race/ethnicity and transgender identity are reported in this report. Data from the requisition and LEP forms are combined and used for describing trends in first-time HIV diagnoses in Ontario. However, with the exception of identifying duplicate positive tests of the same individual, only data from the test requisition are used in this report as LEP data are not available for HIV-negative tests.

Prenatal HIV testing

Prenatal HIV tests are part of an ongoing HIV testing program offered to all pregnant individuals as part of their prenatal care. Prenatal HIV testing results are included separately in this report (Section 9). They are not included in the number of HIV tests or population test rates in this report. However, to calculate HIV test positivity, HIV-positive prenatal tests are included in the numerator while HIV-negative prenatal tests are not included in the denominator. From 2012 to 2021, the annual number of HIV-positive prenatal tests ranged from 2 to 10 (where no previous evidence of HIV infection exists). To calculate the ratio of pregnant people who received a prenatal HIV test to births (live and stillbirths), the number of unique

individuals who received an HIV test as part of the prenatal panel (either as part of a prenatal screening requisition form or a regular HIV test requisition form with 'Prenatal' checked as the reason for testing) were divided by the total number of births (live and stillbirths) for each year. Data on the annual number of births in Ontario is provided by the Better Outcomes Registry & Network (BORN). It is important to note that the number of births (live and stillbirths) is a known undercount of all pregnant people, as miscarriages occurring before 20 weeks of pregnancy are not included. This ratio metric is also limited in that prenatal HIV tests are assigned to the year the test is performed, while births are assigned to the year the birth occurs; because HIV testing is typically conducted in the first trimester of pregnancy, many pregnant people will be tested for HIV in the calendar year prior to the year they give birth.

4. Population-based rates: Statistics Canada data

Rates of HIV tests per 1,000 people were calculated with denominators informed by Statistics Canada population data, retrieved on September 16 2022 from the websites: "Population estimates on July 1st, by age and sex" and "Estimates of population (2016 Census and administrative data), by age group and sex for July 1st, Canada, provinces, territories, health regions (2018 boundaries) and peer groups".

5. First-time HIV diagnoses and exclusion of HIV tests with previous evidence of HIV

Counts of HIV tests in this report exclude positive HIV tests from individuals with previous evidence of HIV. An additional 1,190 tests were performed in 2021 for individuals who had Previous evidence of HIV (PEH) (806 males, 366 females, 18 unknown sex). First-time HIV diagnoses are positive HIV tests with no previous evidence of HIV and are used as the numerator in the calculation of HIV test positivity. Therefore, the total counts of HIV tests in this report include 1) tests that are not HIV-positive plus 2) tests from individuals who are first-time HIV diagnoses. The aim of this is to better reflect HIV tests from those who are testing to learn their HIV status for the first time and, therefore, which people might be at greater risk of HIV transmission in Ontario today. Previous evidence of HIV includes a previous positive diagnostic test indicated on the HIV test requisition or LEP forms, regardless of the location of the previous positive test (inside or outside of Ontario). Previous evidence of HIV also includes evidence of being in care for HIV by means of linked viral load testing history in Ontario: this includes 1) anyone with a history of viral load testing in Ontario of more than 30 days before a first diagnostic positive test and 2) anyone with viral load testing in Ontario within 30 days (including same day) before a first diagnostic positive test with a viral load <200 copies/mL. Known duplicate HIV-positive tests are also excluded from counts of HIV tests – that is, a diagnosis with a documented history of a previous HIV diagnosis within Ontario. Duplicates can be recognized by lab records or the test history section of the LEP/HIV test requisition form indicating a previous positive in Ontario. Counts of HIV tests do include individuals who reside in another province but have an HIV test performed in Ontario.

It is not possible to exclude all individuals with a previous HIV-positive result from the first-time HIV diagnoses numbers. Many individuals who test HIV-positive through anonymous testing re-test a second time through nominal testing (e.g. confirming an HIV-positive test is standard practice for some healthcare providers when an HIV-positive person first presents to care). Unless this previous HIV-positive test result is indicated on the LEP/HIV test requisition form, since these two tests cannot be linked together when one is anonymous, both are reported as a first-time HIV diagnosis - leading to double-counting of these individuals. Also, incomplete information on the HIV test requisition and/or LEP questionnaire from individuals who have previously been diagnosed with HIV outside of Ontario may lead to them being included as new diagnoses at the time of their first positive test in Ontario. This means that the reported

number of fist-time HIV diagnoses each year is likely higher than the true number of diagnoses and may influence the positivity rates reported.

6. HIV exposure categories

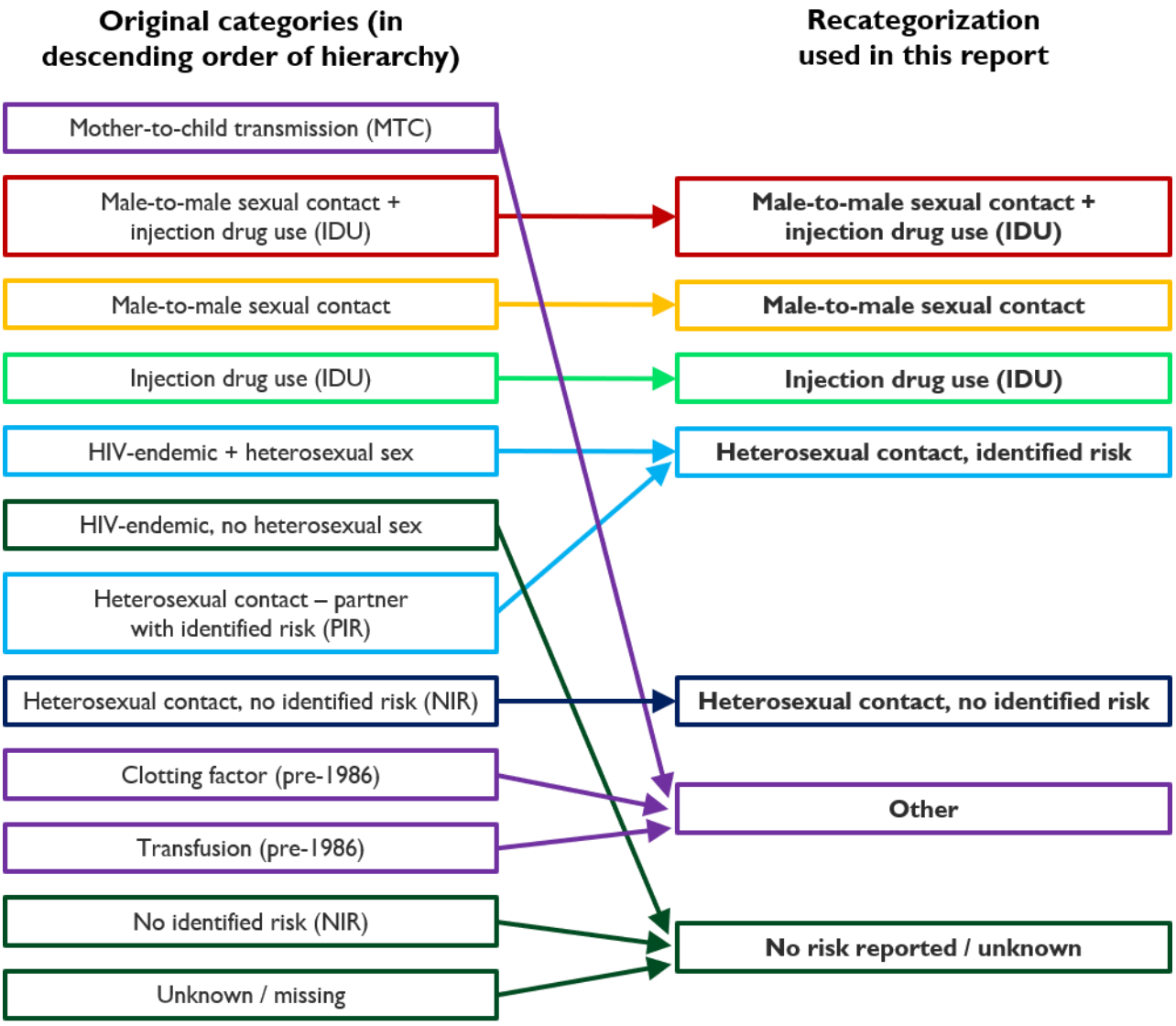
An attempt is made to assign each HIV test to an exposure category based on what reported HIV risk factor information is collected on the requisition form. The HIV exposure category is meant to represent an individual's most likely means of HIV acquisition. The HIV exposure categories are mutually exclusive. When more than one risk factor is reported for a single individual, a hierarchy is used to assign an HIV test to a single HIV exposure category. This hierarchy is as follows:

1. Mother-to-child transmission (MTC): Being a child of an HIV-positive mother or aged less than 18 months
2. Male-to-male sexual contact + injection drug use (IDU): Being male and indicating sex with men and injection drug use
3. Male-to-male sexual contact: Being male and indicating sex with men
4. Injection drug use (IDU): Indicating injection drug use
5. HIV-endemic
    a. HIV-endemic + heterosexual contact: (Country of birth is HIV-endemic or "Born in an HIV-endemic country" indicated as HIV risk factor) + indication of heterosexual contact (defined as being male or female and indicating sex with a person of the opposite sex/gender)
    b. HIV-endemic, no heterosexual contact: (Country of birth is HIV-endemic or "Born in an HIV-endemic country" indicated as HIV risk factor) + no indication of heterosexual contact as in 5a
6. Heterosexual contact – partner with identified risk (PIR): Being male or female and indicating sex with a person of the opposite sex/gender who is either HIV-positive, uses injection drugs, born in an HIV-endemic country, or is a bisexual male.
7. Heterosexual contact, no identified risk: Being male or female and indicating sex with a person of the opposite sex/gender who has no identified risk.
8. Clotting factor (pre-1986): Indicating clotting factor pre-1986
9. Transfusion (pre-1986): Indicating a blood transfusion pre-1986
10. No identified risk (NIR): Indicating "none" or "other" or "needlestick injury" as a risk factor
11. Unknown/missing: No risk factors indicated (form not completed)

In this report, some of the above categories are combined to form broader categories (see **Figure ii** below). This represents a new categorization compared to previous OHESI testing reports:

- Heterosexual contact, identified risk: combines tests assigned to "HIV-endemic + heterosexual contact" (category #5a above) and "Heterosexual contact – partner with identified risk (PIR)" (category #6)
- Other: combines tests assigned to "Mother-to-child transmission (MTC)" (category #1), "Clotting factor (pre-1986)" (category #8), and transfusion categories (category #9).
- No risk reported/unknown: combines tests assigned to "HIV-endemic, no heterosexual contact" (category #5b) and "No identified risk" (category #10), or where the form is not completed (category #11).

Figure ii. Original hierarchical HIV exposure categories (in descending order) and how they were recategorized for this report.



HIV-endemic areas (category #5) are classified by the Public Health Agency of Canada as countries where the prevalence of HIV among adults (15-49 years old) is 1.0% or greater and one of the following criteria is met: at least 50% are attributed to heterosexual transmission; a male to female ratio of 2:1 or less among prevalent infections; or HIV prevalence greater than or equal to 2% among women receiving prenatal care. A list of these countries can be found here.

HIV risk factor data used to determine an individual's exposure category is missing for about 7 out of 10 HIV tests (average of 71.3% per year between 2017 and 2021). These tests are included in figures of numbers of HIV tests and excluded from figures of proportions by HIV exposure category.

It is unknown whether individuals with certain HIV risk factors, and hence exposure categories, are more likely to be missing information, which could introduce bias into the exposure category breakdowns. Also, provider practices for filling out the requisition forms may vary, leading to further bias. For example, some providers may ask people getting tested about their risk factors, while others may make assumptions or not ask.

In 2018, a "country of birth" field was added to the HIV test requisition form which better informed attribution to the HIV-endemic exposure category and likely contributed to the larger proportion of HIV tests attributed to this category in this year and later years (2019 through 2021). As exposure category attribution follows a hierarchy, increasing proportions in higher categories would decrease proportions attributed to subsequent categories. Any interpretation of changes between exposure category proportions of HIV tests in 2018/2019/2020/2021 and the years prior should remain mindful of this caveat.

7. 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 14% of diagnoses are missing information on address of residence in 2021 and assigned based on provider address. Less than 0.05% of tests have unknown health region.

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. 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

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

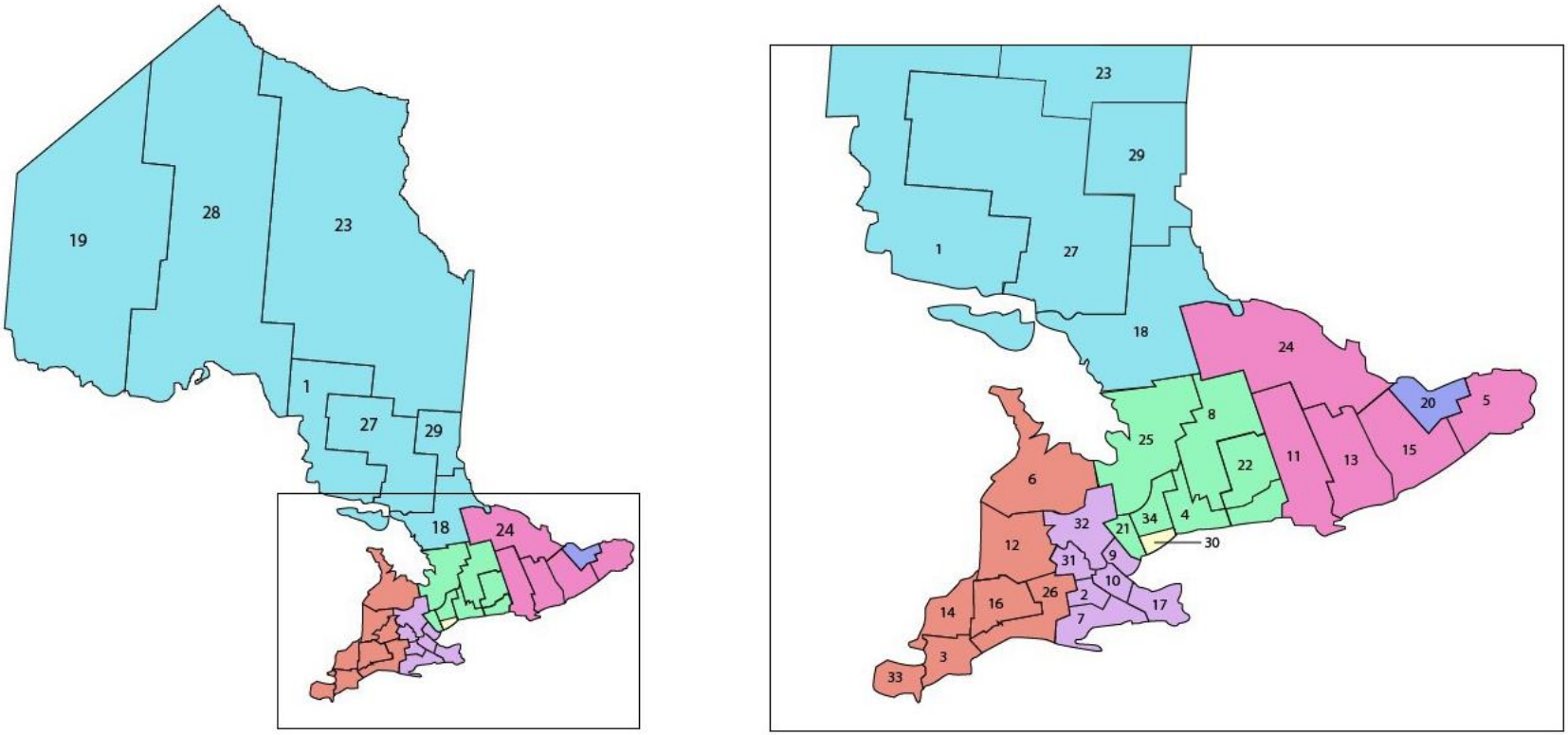
Toronto health region
- Toronto

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

Figure iii. Geographic map of health region and public health unit boundaries (created using Statistics Canada boundary files).



Public health units (map legend)

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

8. HIV test submitter types

Each HIV test submitter type is a category defined by specific criteria and each HIV test is assigned an HIV test submitter type based on information about the submitter of the HIV test to the Public Health Ontario (PHO) Laboratory. When more than one submitter type is identified for a single HIV test, a hierarchy is used to assign an HIV test to a single submitter type. Therefore, the HIV test submitter types are mutually exclusive. This hierarchy, and the defining criteria for each submitter type, are as follows:

1. HIV treating physicians/clinics:
    - a submitter that has ordered ≥ 100 viral load tests since April 26, 2010
2. Correctional facilities:
    - a submitter that serves in correctional facilities/institutions listed from federal or provincial government websites
3. Immigration physicians/clinics:
    - a physician who is in the list of panel physicians in Ontario from federal government websites, or
    - a submitter with a panel physician that has ordered ≥ 200 HIV diagnostic tests with ≥ 50% tests tested for visa/immigration purposes since April 26, 2010, or
    - a submitter without a panel physician that has ordered ≥ 200 HIV diagnostic tests with ≥ 65% tests tested for visa/immigration purposes since April 26, 2010
4. Sexual health clinics/public health units:
    - a submitter who serves in a sexual clinic identified with a key word, or
    - a specified HIV clinic, or
    - a public health unit site, as identified from the Ontario Ministry of Health Service Provider Locations
5. Hospitals:
    - a hospital site, as identified from the Ontario Ministry of Health Service Provider Locations, or
    - a laboratory in a hospital site
6. Community health centres:
    - a community health centre site, as identified from the Ontario Ministry of Health Service Provider Locations
7. Family doctors/Other clinics/labs:
    - a physician who is not classified as an HIV treating physician or an immigration physician, or
    - a clinic that is not classified as any of the above submitter types, or in the "Other health care facilities" type below, or
    - a laboratory that is not in a hospital site
8. Other health care facilities
    - a fertility clinic identified by key word, or
    - a school-based wellness centre identified by key word and is not classified as any above submitter type, or
    - a mental/addiction health clinic site, as identified from the Ontario Ministry of Health Service Provider Locations, and is not classified in any above submitter type, or
    - a long-term care/retirement facilities, as identified from Ontario A of Health Service Provider Locations
9. Unassigned
    - unable to be assigned in any above submitter type

Data Tables

1. Overall

Table 1.1 Number of HIV tests, HIV test rate per 1,000 people, number of first-time HIV diagnoses and HIV test positivity, Ontario, 2012 to 2021

Year	Number of tests	Population (all ages)	Rate per 1,000	First-time HIV diagnoses	HIV test Positivity
2012	436,085	13,390,632	32.6	707	0.16%
2013	441,648	13,510,781	32.7	666	0.15%
2014	457,726	13,617,553	33.6	696	0.15%
2015	485,046	13,707,118	35.4	686	0.14%
2016	527,093	13,875,394	38.0	716	0.14%
2017	573,811	14,070,141	40.8	697	0.12%
2018	637,779	14,308,697	44.6	738	0.12%
2019	677,243	14,544,701	46.6	683	0.10%
2020	500,517	14,726,022	34.0	515	0.10%
2021	610,493	14,809,257	41.2	485	0.08%

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. See Appendices for more information.

2. By sex

Table 2.1 Number of HIV tests and HIV test positivity, by sex, Ontario, 2012 to 2021

Year	Males			Females			Sex not reported		
	Number of tests	First-time HIV diagnoses	Test positivity	Number of tests	First-time HIV diagnoses	Test positivity	Number of tests	First-time HIV diagnoses	Test positivity
2012	203,840	560	0.275%	216,013	143	0.066%	16,232	4	0.02%
2013	209,604	555	0.265%	217,389	106	0.049%	14,655	5	0.03%
2014	218,762	560	0.256%	223,183	130	0.058%	15,781	6	0.04%
2015	231,163	557	0.241%	236,256	127	0.054%	17,625	2	0.01%
2016	251,364	567	0.226%	256,308	141	0.055%	19,343	8	0.04%
2017	277,702	569	0.205%	276,919	125	0.045%	19,130	2	0.01%
2018	308,849	576	0.186%	309,168	160	0.052%	19,574	2	0.01%
2019	333,524	514	0.154%	325,318	167	0.051%	18,078	2	0.01%
2020	238,381	404	0.169%	249,656	105	0.042%	12,301	6	0.05%
2021	301,914	381	0.126%	294,616	97	0.033%	13,709	6	0.04%

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. HIV tests with previous evidence of HIV not included. See Appendices for more information.

Table 2.2 Number and rate of HIV tests per 1,000 people, by sex, Ontario, 2012 to 2021

Year	Males			Females		
	Number of tests	Population (all ages)	Rate per 1,000	Number of tests	Population (all ages)	Rate per 1,000
2012	203,840	6,581,938	31.0	216,013	6,808,694	31.7
2013	209,604	6,643,473	31.6	217,389	6,867,308	31.7
2014	218,762	6,698,984	32.7	223,183	6,918,569	32.3
2015	231,163	6,746,804	34.3	236,256	6,960,314	33.9
2016	251,364	6,835,845	36.8	256,308	7,039,549	36.4
2017	277,702	6,936,575	40.0	276,919	7,133,566	38.8
2018	308,849	7,062,361	43.7	309,168	7,246,336	42.7
2019	333,524	7,184,314	46.4	325,318	7,360,387	44.2
2020	238,381	7,273,980	32.8	249,656	7,452,042	33.5
2021	301,914	7,318,702	41.3	294,616	7,490,555	39.3

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV not included. Tests with unreported sex not included (approximately 3% each year). Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. See Appendices for more information.

3. By age

Table 3.1 Rate of HIV tests per 1,000 people by age, 2017 to 2021

Year	Age category (HIV test rate per 1,000 people)											
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+
2017	32.4	87.6	112.9	102.2	83.6	55.7	35.9	25.5	19.4	16.3	13.9	9.3
2018	35.8	93.0	118.7	109.9	91.4	62.5	40.5	28.4	21.9	18.5	15.6	10.8
2019	37.1	96.2	121.4	114.0	95.3	66.0	42.6	30.9	23.4	19.4	16.5	11.0
2020	22.0	63.9	91.5	84.6	71.0	47.7	29.8	22.3	17.1	14.5	13.5	9.6
2021	23.2	91.9	120.2	99.0	82.7	56.4	34.1	24.6	19.0	16.1	14.1	10.4

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV not included. Tests with unreported age not included (less than 0.5%). Rates calculated using Statistics Canada population estimates, accessed 16/09/2022. See Appendices for more information.

Table 3.2 Rate of HIV tests per 1,000 males by age, males, 2017 to 2021

Year	Age category (HIV test rate per 1,000 people)											
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+
2017	22.7	72.8	106.2	96.5	81.7	57.6	39.9	29.2	22.2	19.0	16.5	11.7
2018	25.8	77.4	111.2	104.6	89.3	64.6	44.8	32.1	24.6	21.0	18.3	13.3
2019	27.5	80.9	114.6	109.8	94.0	69.5	48.0	36.0	26.9	22.4	19.6	13.5
2020	14.8	50.7	83.5	77.7	67.8	49.4	32.6	25.3	19.3	15.8	15.1	11.7
2021	17.3	82.6	114.9	92.7	79.5	58.4	38.3	28.4	22.0	18.3	16.1	12.8

Table 3.3 Rate of HIV tests per 1,000 males by age, females, 2017 to 2021

Year	Age category (HIV test rate per 1,000 people)											
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+
2017	40.0	97.4	113.8	102.2	80.6	50.5	29.5	19.8	15.0	12.6	10.4	6.9
2018	43.6	103.7	120.5	110.0	89.1	57.4	33.8	22.7	17.4	14.8	12.1	8.2
2019	44.3	106.8	122.9	113.5	92.6	60.0	35.2	24.1	18.4	15.4	12.7	8.3
2020	28.0	74.2	96.0	88.3	71.5	44.2	25.8	18.1	14.0	12.4	11.3	7.5
2021	27.8	97.3	120.8	101.5	83.0	52.3	28.7	19.8	14.9	13.2	11.5	8.0

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV not included. Tests with unreported age and sex not included (approximately 2-3%). Rates calculated using Statistics Canada population estimates, accessed 16/09/2022. See Appendices for more information.

Table 3.4 Number of HIV tests and HIV test positivity by age and sex, Ontario, 2021

Age	Total			Male			Female		
	Number of tests	First-time HIV diagnoses	Test positivity	Number of tests	First-time HIV diagnoses	Test positivity	Number of tests	First-time HIV diagnoses	Test positivity
<15	2,931	0	0.00%	1,351	0	0.00%	1,499	0	0.00%
15 to 19	19,155	9	0.05%	7,299	5	0.07%	11,196	4	0.04%
20 to 24	93,584	41	0.04%	43,910	34	0.08%	47,357	6	0.01%
25 to 29	130,097	98	0.08%	64,421	84	0.13%	63,070	12	0.02%
30 to 34	104,977	80	0.08%	49,908	67	0.13%	52,994	11	0.02%
35 to 39	83,687	63	0.08%	40,193	50	0.12%	42,045	13	0.03%
40 to 44	52,532	45	0.09%	26,445	31	0.12%	25,060	13	0.05%
45 to 49	31,377	34	0.11%	17,139	24	0.14%	13,569	10	0.07%
50 to 54	23,580	37	0.16%	13,378	29	0.22%	9,615	8	0.08%
55 to 59	20,183	31	0.15%	11,617	24	0.21%	7,966	7	0.09%
60 to 64	15,848	22	0.14%	8,833	17	0.19%	6,615	5	0.08%
65 to 69	11,670	14	0.12%	6,349	10	0.16%	4,997	4	0.08%
70+	19,246	6	0.03%	10,520	5	0.05%	8,219	1	0.01%

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. HIV tests with previous evidence of HIV not included. Tests with unreported age not included (less than 0.5%). See Appendices for more information.

Table 3.5 Number and rate of HIV tests per 1,000 people by age and sex, Ontario, 2021

Age	Total			Males			Females		
	Number of tests	Population	Rate per 1,000	Number of tests	Population	Rate per 1,000	Number of tests	Population	Rate per 1,000
<15	2,931	2,269,324	1.3	1,351	1,159,630	1.2	1,499	1,109,694	1.4
15 to 19	19,155	824,874	23.2	7,299	421,805	17.3	11,196	403,069	27.8
20 to 24	93,584	1,018,796	91.9	43,910	531,909	82.6	47,357	486,887	97.3
25 to 29	130,097	1,082,679	120.2	64,421	560,676	114.9	63,070	522,003	120.8
30 to 34	104,977	1,060,020	99.0	49,908	538,105	92.7	52,994	521,915	101.5
35 to 39	83,687	1,011,915	82.7	40,193	505,617	79.5	42,045	506,298	83.0
40 to 44	52,532	932,014	56.4	26,445	453,143	58.4	25,060	478,871	52.3
45 to 49	31,377	921,126	34.1	17,139	448,006	38.3	13,569	473,120	28.7
50 to 54	23,580	957,494	24.6	13,378	471,635	28.4	9,615	485,859	19.8
55 to 59	20,183	1,060,833	19.0	11,617	526,959	22.0	7,966	533,874	14.9
60 to 64	15,848	985,219	16.1	8,833	482,189	18.3	6,615	503,030	13.2
65 to 69	11,670	827,732	14.1	6,349	394,815	16.1	4,997	432,917	11.5
70+	19,246	1,857,231	10.4	10,520	824,213	12.8	8,219	1,033,018	8.0

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV not included. Tests with unreported age not included (less than 0.5%). Rates calculated using Statistics Canada population estimates, accessed 16/09/2022. See Appendices for more information.

Table 3.6 HIV test positivity by age, males, 2019 to 2021

Year	Age category (HIV test positivity)											
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+
2019	0.09%	0.11%	0.18%	0.18%	0.14%	0.10%	0.24%	0.22%	0.26%	0.12%	0.10%	0.04%
2020	0.06%	0.16%	0.17%	0.21%	0.15%	0.17%	0.22%	0.24%	0.16%	0.21%	0.05%	0.08%
2021	0.07%	0.08%	0.13%	0.13%	0.12%	0.12%	0.14%	0.22%	0.21%	0.19%	0.16%	0.05%

Table 3.7 HIV test positivity rate by age, females, 2019 to 2021

Year	Age category (HIV test positivity)											
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70+
2019	0.02%	0.02%	0.04%	0.05%	0.06%	0.08%	0.08%	0.07%	0.09%	0.07%	0.06%	0.06%
2020	0.01%	0.02%	0.04%	0.04%	0.05%	0.04%	0.06%	0.08%	0.07%	0.07%	0.04%	0.04%
2021	0.04%	0.01%	0.02%	0.02%	0.03%	0.05%	0.07%	0.08%	0.09%	0.08%	0.08%	0.01%

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. HIV tests with previous evidence of HIV not included. Tests with unreported age and sex not included (approximately 3%). See Appendices for more information.

4. By test type

Table 4.1 Number of HIV tests and HIV test positivity by test type, Ontario, 2012 to 2021

Year	Nominal			Anonymous		
	Number of tests	First-time HIV diagnoses	Test positivity	Number of tests	First-time HIV diagnoses	Test positivity
2012	396,378	525	0.13%	16,167	114	0.71%
2013	400,949	496	0.12%	17,192	115	0.67%
2014	422,182	570	0.14%	17,434	108	0.62%
2015	451,259	565	0.13%	17,255	93	0.54%
2016	499,990	605	0.12%	15,598	96	0.62%
2017	548,845	589	0.11%	14,677	89	0.61%
2018	614,685	627	0.10%	13,750	98	0.71%
2019	652,466	593	0.09%	16,478	78	0.47%
2020	491,419	463	0.09%	5,309	43	0.81%
2021	599,878	448	0.07%	4,958	28	0.56%

Table 4.2 Number of HIV tests by test type and sex, Ontario, 2012 to 2021

Year	Males		Females	
	Nominal	Anonymous	Nominal	Anonymous
2012	180,177	10,911	201,023	4,948
2013	183,940	12,279	203,048	4,675
2014	196,412	12,608	210,733	4,574
2015	209,209	12,750	225,090	4,300
2016	232,872	11,945	248,400	3,399
2017	260,982	11,171	269,365	3,333
2018	293,125	10,738	302,515	2,713
2019	316,207	12,977	318,700	3,141
2020	232,540	4,145	246,831	1,026
2021	295,882	3,722	290,798	1,090

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV.. HIV tests with previous evidence of HIV not included. See Appendices for more information.

Table 4.3 Percent of HIV tests by test type, Ontario, 2012 to 2021

Year	Nominal	Anonymous
2012	90.9%	3.7%
2013	90.8%	3.9%
2014	92.2%	3.8%
2015	93.0%	3.6%
2016	94.9%	3.0%
2017	96.4%	2.2%
2018	96.3%	2.4%
2019	96.3%	2.4%
2020	98.2%	1.1%
2021	98.3%	0.8%

Table 4.4 Number of HIV tests and HIV test positivity by test type, males, Ontario, 2012 to 2021

Year	Nominal			Anonymous		
	Number of tests	First-time HIV diagnoses	Test positivity	Number of tests	First-time HIV diagnoses	Test positivity
2012	180,177	391	0.22%	10,911	104	0.95%
2013	183,940	404	0.22%	12,279	100	0.81%
2014	196,412	443	0.23%	12,608	100	0.79%
2015	209,209	449	0.21%	12,750	82	0.64%
2016	232,872	464	0.20%	11,945	92	0.77%
2017	260,982	473	0.18%	11,171	78	0.70%
2018	293,125	475	0.16%	10,738	90	0.84%
2019	316,207	436	0.14%	12,977	70	0.54%
2020	232,540	353	0.15%	4,145	43	1.04%
2021	295,882	352	0.12%	3,722	25	0.67%

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. HIV tests with previous evidence of HIV not included. Tests with unreported sex not included in Table 4.4 (approximately 3% each year). See Appendices for more information.

Table 4.5 Number of HIV tests and HIV test positivity by test type, females, Ontario, 2012 to 2021

Year	Nominal			Anonymous		
	Number of tests	First-time HIV diagnoses	Test positivity	Number of tests	First-time HIV diagnoses	Test positivity
2012	201,023	130	0.06%	4,948	10	0.20%
2013	203,048	88	0.04%	4,675	14	0.30%
2014	210,733	121	0.06%	4,574	8	0.17%
2015	225,090	115	0.05%	4,300	10	0.23%
2016	248,400	134	0.05%	3,399	4	0.12%
2017	269,365	114	0.04%	3,333	10	0.30%
2018	302,515	150	0.05%	2,713	8	0.29%
2019	318,700	156	0.05%	3,141	8	0.25%
2020	246,831	105	0.04%	1,026	0	0.00%
2021	290,798	94	0.03%	1,090	2	0.18%

Notes: Data provided by Public Health Ontario Laboratory. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. HIV tests with previous evidence of HIV not included. Tests with unreported sex not included in Table 4.5 (approximately 3% each year). See Appendices for more information.

5. By exposure category

Table 5.1 Number of HIV tests by exposure category, Ontario, 2017 to 2021

Year	Male-to-male sexual contact + IDU	Male-to-male sexual contact	Injection drug use	Heterosexual contact, identified risk	Heterosexual contact, no identified risk	Other	No risk reported / unknown
2017	259	31,127	6,064	3,165	141,646	925	390,625
2018	295	35,488	6,973	3,642	151,624	1,032	438,725
2019	359	43,562	7,440	4,323	163,278	1,002	457,279
2020	215	26,470	5,126	2,052	92,504	897	373,253
2021	307	29544	5665	2,125	88,493	874	483,485

Table 5.2 Percent of HIV tests by exposure category, Ontario, 2017 to 2021

Year	Male-to-male sexual contact + IDU	Male-to-male sexual contact	Injection drug use	Heterosexual contact, identified risk	Heterosexual contact, no identified risk	Other	Total
2017	0.1%	17.0%	3.3%	1.7%	77.3%	0.5%	100%
2018	0.1%	17.8%	3.5%	1.8%	76.2%	0.5%	100%
2019	0.2%	19.8%	3.4%	2.0%	74.2%	0.5%	100%
2020	0.2%	20.8%	4.0%	1.6%	72.7%	0.7%	100%
2021	0.2%	23.3%	4.5%	1.7%	69.7%	0.7%	100%

Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV tests with previous evidence of HIV not included. See Appendices for more information.

Table 5.3 Number of HIV tests by exposure category, males, Ontario, 2017 to 2021

Year	Male-to-male sexual contact + IDU	Male-to-male sexual contact	Injection drug use	Heterosexual contact, identified risk	Heterosexual contact, no identified risk	Other	No risk reported / unknown
2017	259	31,127	3,372	945	64,433	465	177,101
2018	295	35,488	4,035	1,340	67,760	537	199,393
2019	359	43,562	4,263	1,675	73,507	501	209,657
2020	215	26,470	3,047	830	39,636	471	167,712
2021	307	29,544	3,264	784	37,323	446	230,246

Table 5.4 Percent of HIV tests by exposure category, males, Ontario, 2017 to 2021

Year	Male-to-male sexual contact + IDU	Male-to-male sexual contact	Injection drug use	Heterosexual contact, identified risk	Heterosexual contact, no identified risk	Other	Total
2017	0.3%	30.8%	3.3%	0.9%	64.2%	0.5%	100%
2018	0.3%	32.3%	3.7%	1.2%	62.1%	0.5%	100%
2019	0.3%	34.9%	3.4%	1.3%	59.7%	0.4%	100%
2020	0.3%	37.0%	4.3%	1.2%	56.6%	0.7%	100%
2021	0.4%	39.9%	4.4%	1.1%	53.6%	0.6%	100%

Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV tests with previous evidence of HIV not included. See Appendices for more information.

Table 5.5 Number of HIV tests by exposure category, females, Ontario, 2017 to 2021

Year	Injection drug use	Heterosexual contact, identified risk	Heterosexual contact, no identified risk	Other	No risk reported / unknown
2017	2,432	2,219	77,213	398	194,656
2018	2,673	1,975	83,864	454	220,202
2019	2,956	2,345	89,771	456	229,790
2020	1,963	1,045	52,868	392	193,387
2021	2,255	1,341	51,170	406	239,444

Table 5.6 Percent of HIV tests by exposure category, females, Ontario, 2017 to 2021

Year	Injection drug use	Heterosexual contact, identified risk	Heterosexual contact, no identified risk	Other	Total
2017	3.0%	2.7%	93.9%	0.5%	100%
2018	3.0%	2.6%	93.9%	0.5%	100%
2019	3.1%	2.8%	93.7%	0.5%	100%
2020	3.5%	2.2%	93.7%	0.7%	100%
2021	4.1%	2.4%	92.7%	0.7%	100%

Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV tests with previous evidence of HIV not included. See Appendices for more information.

Table 5.7 HIV test positivity by exposure category, males, Ontario, 2017 to 2021

Year	Male-to-male sexual contact + IDU	Male-to-male sexual contact	Injection drug use	Heterosexual contact, identified risk	Heterosexual contact, no identified risk	Other
2017	3.09%	0.63%	0.27%	0.63%	0.06%	0.00%
2018	1.69%	0.58%	0.40%	0.22%	0.04%	0.56%
2019	1.95%	0.44%	0.19%	0.18%	0.04%	0.00%
2020	0.00%	0.52%	0.33%	0.48%	0.07%	0.00%
2021	0.98%	0.34%	0.25%	0.77%	0.07%	0.00%

Table 5.8 HIV test positivity by exposure category, females, Ontario, 2017 to 2021

Year	Injection drug use	Heterosexual contact, identified risk	Heterosexual contact, no identified risk	Other
2017	0.49%	0.45%	0.02%	0.25%
2018	0.26%	0.39%	0.02%	0.22%
2019	0.47%	0.45%	0.01%	0.22%
2020	0.61%	0.25%	0.02%	0.00%
2021	0.49%	0.45%	0.02%	0.00%

Notes: Data provided by Public Health Ontario Laboratory. "Identified risk" means either the individual's country of birth is reported as an HIV-endemic country, or the individual's opposite-sex/gender partner is reported to be at least one of: HIV-positive; user of injection drugs; born in an HIV-endemic country; a bisexual male. HIV test positivity refers to the proportion of the number of first-time HIV diagnoses divided by the number of non-prenatal HIV tests with no previous evidence of HIV. HIV tests with previous evidence of HIV not included. See Appendices for more information.

6. By health region

Table 6.1 Number, rate of HIV tests per 1,000 people, and HIV test positivity, by health region, Ontario, 2017 to 2021

Health Region	2017	2018	2019	2020	2021
Northern					
Number of Tests	25,089	27,144	29,799	25,521	26,948
Population (all ages)	804,044	806,714	809,201	810,700	809,461
Rate per 1,000	31.2	33.6	36.8	31.5	33.3
First-time HIV diagnoses	14	25	28	24	28
Test positivity	0.06%	0.09%	0.09%	0.09%	0.10%
Ottawa					
Number of Tests	45,864	53,436	54,501	39,067	46,679
Population (all ages)	983,739	1,004,802	1,025,354	1,046,260	1,054,800
Rate per 1,000	46.6	53.2	53.2	37.3	44.3
First-time HIV diagnoses	51	43	34	37	27
Test positivity	0.11%	0.08%	0.06%	0.09%	0.06%
Eastern					
Number of Tests	23,170	24,839	27,539	19,470	22,127
Population (all ages)	859,549	869,004	878,082	887,268	892,536
Rate per 1,000	27.0	28.6	31.4	21.9	24.8
First-time HIV diagnoses	10	18	13	13	10
Test positivity	0.04%	0.07%	0.05%	0.07%	0.05%
Toronto					
Number of Tests	200,507	222,453	237,354	164,014	198,808
Population (all ages)	2,862,661	2,917,915	2,963,227	2,990,856	2,974,293
Rate per 1,000	70.0	76.2	80.1	54.8	66.8
First-time HIV diagnoses	381	398	394	278	211
Test positivity	0.19%	0.18%	0.17%	0.17%	0.11%
Central East					
Number of Tests	141,655	161,336	174,954	131,103	170,941
Population (all ages)	4,186,566	4,259,995	4,346,041	4,421,370	4,465,922
Rate per 1,000	33.8	37.9	40.3	29.7	38.3
First-time HIV diagnoses	99	116	97	70	89
Test positivity	0.07%	0.07%	0.06%	0.05%	0.05%
Central West					
Number of Tests	85,451	87,963	93,601	75,603	89,753
Population (all ages)	2,723,205	2,771,651	2,821,915	2,868,739	2,897,874
Rate per 1,000	31.4	31.7	33.2	26.4	31.0
First-time HIV diagnoses	64	63	62	53	79
Test positivity	0.07%	0.07%	0.07%	0.07%	0.09%
South West					
Number of Tests	47,978	55,802	54,935	42,427	50,330
Population (all ages)	1,650,377	1,678,616	1,700,881	1,720,519	1,731,390
Rate per 1,000	29.1	33.2	32.3	24.7	29.1
First-time HIV diagnoses	72	66	51	33	39
Test positivity	0.15%	0.12%	0.09%	0.08%	0.08%

Notes: Data provided by Public Health Ontario Laboratory. Test positivity -percent of tests HIV-positive (first-time HIV diagnoses). HIV tests with previous evidence of HIV not included. Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. See Appendices for more information.

Table 6.2 Number, rate of HIV tests per 1,000 people, and positivity rate, by health region, males, Ontario, 2017 to 2021

Health Region	2017	2018	2019	2020	2021
Northern					
Number of Tests	11,514	12,474	13,726	11,462	12619
Population (all ages)	400,853	402,659	404,086	404,654	403,888
Rate per 1,000	28.7	31.0	34.0	28.3	31.2
First-time HIV diagnoses	10	19	14	11	13
Test positivity	0.09%	0.15%	0.10%	0.10%	0.10%
Ottawa					
Number of Tests	22,950	26,344	26,664	18,559	22,339
Population (all ages)	482,585	493,205	503,746	513,779	517,832
Rate per 1,000	47.6	53.4	52.9	36.1	43.1
First-time HIV diagnoses	39	31	14	20	16
Test positivity	0.17%	0.12%	0.05%	0.11%	0.07%
Eastern					
Number of Tests	11,919	12,628	14,051	9,635	11,175
Population (all ages)	426,151	431,304	435,884	440,235	442,855
Rate per 1,000	28.0	29.3	32.2	21.9	25.2
First-time HIV diagnoses	8	15	7	11	8
Test positivity	0.07%	0.12%	0.05%	0.11%	0.07%
Toronto					
Number of Tests	101,541	113,724	124,417	84,122	103,275
Population (all ages)	1,392,831	1,420,072	1,443,021	1,455,147	1,445,671
Rate per 1,000	72.9	80.1	86.2	57.8	71.4
First-time HIV diagnoses	324	325	313	236	173
Test positivity	0.32%	0.29%	0.25%	0.28%	0.17%
Central East					
Number of Tests	66,578	75,410	82,632	60,809	82,910
Population (all ages)	2,070,180	2,108,983	2,153,761	2,192,231	2,216,333
Rate per 1,000	32.2	35.8	38.4	27.7	37.4
First-time HIV diagnoses	76	85	73	54	75
Test positivity	0.11%	0.11%	0.09%	0.09%	0.09%
Central West					
Number of Tests	39,132	40,766	43,563	32,358	42,372
Population (all ages)	1,345,856	1,372,774	1,399,012	1,423,369	1,439,530
Rate per 1,000	29.1	29.7	31.1	22.7	29.4
First-time HIV diagnoses	48	42	47	39	61
Test positivity	0.12%	0.10%	0.11%	0.12%	0.14%
South West					
Number of Tests	22,101	25,165	26,266	19,938	24,635
Population (all ages)	818,119	833,364	844,804	854,580	860,572
Rate per 1,000	27.0	30.2	31.1	23.3	28.6
First-time HIV diagnoses	59	53	43	28	34
Test positivity	0.27%	0.21%	0.16%	0.14%	0.14%

Notes: Data provided by Public Health Ontario Laboratory. Test positivity refers to the percent of tests that were HIV-positive (first-time HIV diagnoses). HIV tests with previous evidence of HIV not included. Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. See Appendices for more information.

Table 6.3 Number, rate of HIV tests per 1,000 people, and HIV test positivity, by health region, females, Ontario, 2017 to 2021

Health Region	2017	2018	2019	2020	2021
Northern					
Number of Tests	13,028	14,152	15,439	13,550	13,995
Population (all ages)	403,191	404,055	405,115	406,046	405,573
Rate per 1,000	32.3	35.0	38.1	33.4	34.5
First-time HIV diagnoses	4	6	14	13	15
Test positivity	0.03%	0.04%	0.09%	0.10%	0.11%
Ottawa					
Number of Tests	22,280	25,666	26,839	20,028	22,935
Population (all ages)	501,154	511,597	521,608	532,481	536,968
Rate per 1,000	44.5	50.2	51.5	37.6	42.7
First-time HIV diagnoses	11	12	20	16	10
Test positivity	0.05%	0.05%	0.07%	0.08%	0.04%
Eastern					
Number of Tests	10,813	11,543	12,846	9,538	10,617
Population (all ages)	433,398	437,700	442,198	447,033	449,681
Rate per 1,000	24.9	26.4	29.1	21.3	23.6
First-time HIV diagnoses	2	3	6	2	2
Test positivity	0.02%	0.03%	0.05%	0.02%	0.02%
Toronto					
Number of Tests	93,546	103,829	107,881	76,456	91,732
Population (all ages)	1,469,830	1,497,843	1,520,206	1,535,709	1,528,622
Rate per 1,000	63.6	69.3	71.0	49.8	60.0
First-time HIV diagnoses	55	72	79	40	34
Test positivity	0.06%	0.07%	0.07%	0.05%	0.04%
Central East					
Number of Tests	69,991	80,518	87,231	66,994	84,736
Population (all ages)	2,116,386	2,151,012	2,192,280	2,229,139	2,249,589
Rate per 1,000	33.1	37.4	39.8	30.1	37.7
First-time HIV diagnoses	23	30	24	15	12
Test positivity	0.03%	0.04%	0.03%	0.02%	0.01%
Central West					
Number of Tests	40,882	42,248	45,368	39,652	43,629
Population (all ages)	1,377,349	1,398,877	1,422,903	1,445,370	1,458,344
Rate per 1,000	29.7	30.2	31.9	27.4	29.9
First-time HIV diagnoses	16	21	15	12	18
Test positivity	0.04%	0.05%	0.03%	0.03%	0.04%
South West					
Number of Tests	24,304	28,853	27,430	21,666	24,766
Population (all ages)	832,258	845,252	856,077	865,939	870,818
Rate per 1,000	29.2	34.1	32.0	25.0	28.4
First-time HIV diagnoses	13	13	8	5	5
Test positivity	0.05%	0.05%	0.03%	0.02%	0.02%

Notes: Data provided by Public Health Ontario Laboratory. Test positivity refers to the percent of tests that were HIV-positive (first-time HIV diagnoses). HIV tests with previous evidence of HIV not included. Rates calculated using Statistics Canada population estimates for all ages, accessed 16/09/2022. See Appendices for more information.

7. By HIV test submitter type

Table 7.1 Number and percent of HIV tests by HIV test submitter type, overall and by sex, Ontario, 2020 to 2021

HIV test submitter type	Number of HIV tests		Percent of HIV tests					
	Total		Total		Males		Females	
	2020	2021	2020	2021	2020	2021	2020	2021
HIV treating physicians / clinics	62077	67740	12.4%	11.1%	14.5%	12.5%	10.5%	9.7%
Correctional facilities	2433	2687	0.5%	0.4%	0.9%	0.8%	0.1%	0.1%
Immigration physicians / clinics	87902	161143	17.6%	26.4%	18.0%	27.6%	17.9%	25.7%
Sexual health clinics / public health units (PHUs)	29262	22768	5.8%	3.7%	8.1%	5.4%	3.9%	2.1%
Hospitals	32021	35698	6.4%	5.8%	6.6%	5.6%	6.3%	6.2%
Community health centres	7292	8027	1.5%	1.3%	1.4%	1.2%	1.5%	1.5%
Family doctors / other clinics / labs	206177	221246	41.2%	36.2%	37.1%	32.8%	43.9%	38.9%
Other health care facilities	64833	73414	13.0%	12.0%	11.5%	10.3%	14.5%	13.9%
Unassigned	8520	17770	1.7%	2.9%	1.9%	3.9%	1.5%	1.9%

Notes: Data provided by Public Health Ontario Laboratory. "Family doctors/other clinics/labs" includes physicians who are not classified as HIV treating physicians or immigration physicians, clinics that are not classified as any of the preceding submitter types, and laboratories that are not in a hospital site. "Other health care facilities" includes fertility clinics, school-based wellness centres, mental/addiction health clinics, and long-term care/retirement facilities. HIV tests with previous evidence of HIV not included. See Appendices for more information.

Table 7.2 First-time HIV diagnoses by HIV test submitter type, overall and by sex, Ontario, 2020 to 2021

HIV test submitter type	Total		Males		Females	
	2020	2021	2020	2021	2020	2021
HIV treating physicians / clinics	156	121	122	96	34	25
Correctional facilities	3	2	1	2	2	0
Immigration physicians / clinics	66	52	44	36	22	16
Sexual health clinics / public health units (PHUs)	84	63	79	58	5	5
Hospitals	51	69	37	54	14	15
Community health centres	9	11	7	7	2	4
Family doctors / other clinics / labs	130	139	107	112	23	27
Other health care facilities	6	5	4	2	2	3
Unassigned	4	16	3	14	1	2

Notes: Data provided by Public Health Ontario Laboratory. "Family doctors/other clinics/labs" includes physicians who are not classified as HIV treating physicians or immigration physicians, clinics that are not classified as any of the preceding submitter types, and laboratories that are not in a hospital site. "Other health care facilities" includes fertility clinics, school-based wellness centres, mental/addiction health clinics, and long-term care/retirement facilities. HIV tests with previous evidence of HIV not included. See Appendices for more information.

8. Transgender identity and race/ethnicity (new HIV test requisition)

Table 8.1 Number and percent of HIV tests by transgender identity, among tests submitted via the HIV test requisition, Ontario, 2019 to 2021

Gender identity	Year	Number of tests	Percent of tests
Trans female	2019	178	0.08%
	2020	106	0.05%
	2021	159	0.05%
Trans male	2019	114	0.05%
	2020	55	0.02%
	2021	85	0.02%

Table 8.2 Number and percent of HIV tests by race/ethnicity, among tests submitted via the HIV test requisition, Ontario, 2019 to 2021

Race/ethnicity	Number of tests			Percent of tests (where race/ethnicity known)		
	2019	**2020**	**2021**	**2019**	**2020**	**2021**
White	66,386	44,813	59,938	58.3%	56.8%	45.8%
Black	12,982	8,679	14,112	11.4%	11.0%	10.8%
East/Southeast Asian	11,169	7,852	14,061	9.8%	10.0%	10.7%
South Asian	8,090	6,823	23,654	7.1%	8.7%	18.1%
Middle Eastern	3,809	2,603	5,030	3.3%	3.3%	3.8%
Latino/a/e/x	4,458	2,685	5,552	3.9%	3.4%	4.2%
Indigenous	3,804	3,300	4,868	3.3%	4.2%	3.7%
Other/mixed	3,228	2,101	3,707	2.8%	2.7%	2.8%
Not reported	112,301 (49.6%)	120,123 (60.4%)	212,571 (61.9%)	-	-	-

Notes: Data provided by Public Health Ontario Laboratory. HIV tests with previous evidence of HIV excluded. HIV tests with unreported gender excluded from Table 8.1 (1.6%, 1.5% and 1.8% of tests submitted via the new HIV test requisition in 2019, 2020, 2021, respectively). Race/ethnciity was only aded to the HIV test requisition in 2018. N = 337,307 with reported gender in 2021, 55.2% of all HIV tests; N = 195,931 with reported gender in 2020, 39.1% of all HIV tests; N = 222,715 with reported gender in 2019, 33.0% of all HIV tests)See Appendices for more information.

9. Prenatal HIV testing

Table 9.1 Number pregnant people who received a prenatal HIV test, number of births (live and stillbirths), and ratio of pregnant people who received a prenatal HIV test to births (live and stillbirths), Ontario, 2012 to 2021

Year	Estimated number of pregnant people who received a prenatal HIV test	Number of births (live and stillbirths)	Ratio of pregnant people who received a prenatal HIV test to births (live and stillbirths)
2012	133,626	141,822	0.94
2013	132,676	140,053	0.95
2014	133,735	140,372	0.95
2015	134,167	140,116	0.96
2016	134,840	141,284	0.95
2017	135,940	141,353	0.96
2018	137,540	141,167	0.97
2019	138,039	141,699	0.97
2020	138,228	137,583	1.00
2021	138,029	138,942	0.99

Notes: Annual number of pregnant people who received a prenatal HIV test provided by Public Health Ontario Laboratory and the number of births (live and stillbirths) provided by the Better Outcomes Registry & Network (BORN). HIV tests with previous evidence of HIV included. It is important to note that the number of births (live and stillbirths) is a known undercount of all pregnant people, as miscarriages occurring before 20 weeks of pregnancy are not included. This metric is also limited in that prenatal HIV tests are assigned to the year the test is performed, while births are assigned to the year the birth occurs; because HIV testing is typically conducted in the first trimester of pregnancy, many pregnant people will be tested for HIV in the calendar year prior to the year they give birth. See Appendices for more information.