

HIV pre-exposure prophylaxis (PrEP) in Ontario, 2021

Ontario HIV Treatment Network

The Ontario HIV Treatment Network (OHTN) is a non-profit network funded by the AIDS and Hepatitis C programs of the Ontario Ministry of Health working with 1) testing programs and clinics, 2) AIDS service and other community-based organizations, and 3) policy and system leaders within and beyond the health sector. The mission of the OHTN is to improve the health and lives of people living with and at risk of HIV by using data and evidence to drive change.

Data was purchased from IQVIA (www.iqvia.com), a privately-owned company and a proprietary source of pharmaco-epidemiologic data. It provides market intelligence to the pharmaceutical and health care industries, and its data products are used by academics, pharmaceutical companies, drug plan administrators and government

To assess efforts to improve access and identify implementation gaps, it is important to monitor PrEP uptake. However, no provincial-level monitoring system is currently in place in Ontario. In response to this need, the OHTN is pleased to bring you this report summarizing PrEP uptake in Ontario from 2016 to 2021.

Acknowledgements

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EXECUTIVE SUMMARY

Overview

Pre-exposure prophylaxis (PrEP) is a highly effective HIV-risk reduction strategy and a critical part of a comprehensive approach to HIV prevention. Although PrEP was found to be effective almost a decade ago, and has had successful roll-outs in other countries such as Australia and the U.K., its uptake has been slow in Canada. While access to all health care services (including HIV testing) was complicated during the COVID-19 pandemic, the annual number of first-time HIV diagnoses in Ontario has decreased in recent years.

Recent progress has been made to improve access to PrEP in Canada broadly, and specifically in Ontario. In February 2016, Health Canada granted regulatory approval of Truvada™ (tenofovir disoproxil fumarate-emtricitabine [TDF/FTC]) for use as PrEP and, in July 2017, lower cost generic versions of TDF/FTC became available. In September 2017, the Ontario Drug Benefit (ODB) started covering the cost of PrEP and at the start of 2018, ODB coverage was expanded to all individuals under age 25 through OHIP+. OHIP+ was then modified in April 2019 to only cover individuals under age 25 without existing private insurance. In December 2020, Health Canada approved a new formulation of tenofovir (tenofovir alafenamide [TAF], also co-formulated with emtricitabine and sold under the brand name Descovy™) for the indication of HIV prevention.

Diverse community-based efforts have facilitated awareness of PrEP, facilitated access to PrEP and moved PrEP programs and policies forward. To assess efforts to improve access and identify implementation gaps, it is important to monitor PrEP uptake. However, no provincial-level monitoring system is currently in place in Ontario, and such efforts are challenged by the range of health care providers who may be prescribing PrEP outside of dedicated clinics and programs. While clinic/program evaluations and other studies can provide some insight into uptake, these data are difficult to extrapolate to the provincial level. Larger-scale data sources are needed to understand and inform PrEP implementation across Ontario.

In response to this need, the Ontario HIV Treatment Network is pleased to bring you this report summarizing PrEP uptake in Ontario from 2016 to 2021. This report contains projected provincial-level estimates which are based on TDF/FTC and TAF/FTC dispensation data provided by IQVIA from close to 2,300 pharmacies across Ontario. It is an update and expansion on the PrEP report published in September 2021 by the OHTN ([HIV pre-exposure prophylaxis \(PrEP\) in Ontario, 2020](#)). In this report, the estimated number, or proportion or rate of individuals dispensed PrEP are described overall, by sex, age, prescriber specialty, payer type, region, and as a ratio relative to number of first-time HIV diagnoses (“PrEP-to-need ratio”).

Summary

PrEP uptake has been increasing in Ontario at a relatively linear rate since 2016, despite the impact of the COVID-19 pandemic. Although pharmacies never closed or stopped dispensing medications during peak COVID disruptions, a combination of factors – including changes in physician/clinic (prescriber) availability and changes in some individuals' social and/or sexual mixing patterns – resulted in a sharp drop in PrEP dispensations and usage between March and June 2020, followed by a plateauing in the number of unique individuals being dispensed PrEP during 2020, and a recovery in 2021.

The impact of COVID-19 on PrEP dispensations can obscure some trends and make it difficult to interpret some data.

By 2021, the total estimated number of individuals dispensed PrEP over the year was 11,042; a figure 7.6 times the size of the estimated 1,451 individuals dispensed PrEP in 2016. Between 2016 and 2021, the “PrEP-to-need ratio¹” (a calculated measure of PrEP provision relative to HIV burden within a population, where larger numbers suggest more optimal HIV prevention) increased for both sexes, but was consistently and substantially higher for males than females. However, more recently (2018 to 2021), the relative increase was similar among males (2.6 times) and females (2.7 times). PrEP uptake should be considered relative to those populations where PrEP is indicated. These data are not adequate to determine whether PrEP uptake has met the need of those populations. It is difficult to assess successful PrEP uptake in women because women have a much lower overall risk for HIV than men who have sex with men. More research is needed to guide appropriate use of PrEP in women.

Between 2016 and 2021, younger age groups (<30) for both males and females accounted for the greatest relative increases in the number of individuals dispensed PrEP; however, males and females aged 30-39 accounted for the largest proportions of dispensations. Most PrEP dispensations are prescribed by family and general practitioners (≥57%) although this trend has decreased over time. In 2021, nurse practitioners prescribed almost 10% of all PrEP dispensations.

While well over half of the estimated individuals dispensed PrEP received it from pharmacies in the “Toronto – Downtown” region, this proportion decreased over time. Relative increases were greatest in the “Toronto – Not Downtown” region, which accounted for almost 1 in 4 PrEP dispensations in 2021. The PrEP-to-need ratio increased across all regions with Toronto and Eastern regions having the largest relative increases, and Toronto and Ottawa having the highest PrEP-to-need ratios.

Inequities in access to PrEP persist in Ontario. The majority of PrEP dispensations in 2021 (75%) were for individuals who had private drug coverage. This pattern, which has not changed since 2018, suggests that PrEP has been rolled out as a clinical rather than public health intervention. Note: this analysis was not able to assess some key metrics of PrEP users such as race/ethnicity, gender identity, income and PrEP appropriateness because of lack of data. Beginning in 2019, there has been a decrease in HIV diagnoses in Ontario, driven mostly by males (www.OHESI.ca), but any causative association with PrEP uptake cannot be drawn.

¹ More information about the PrEP-to-need ratio can be found here: <https://pubmed.ncbi.nlm.nih.gov/29983236/>

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INTRODUCTION

What is PrEP?

HIV pre-exposure prophylaxis (PrEP) refers to the use of antiretroviral medications by HIV-negative individuals to reduce their risk of HIV infection. Tenofovir disoproxil fumarate (TDF) paired with Emtricitabine (FTC), (trade name Truvada™, generics also available in Canada) or tenofovir alafenamide (TAF) paired with FTC, (trade name Descovy™, generics not available in Canada) are the oral antiretroviral medications approved by Health Canada for use as PrEP. When used as PrEP, these medications are combined into a single pill (TDF/FTC or TAF/FTC) and, when taken daily, are highly effective at reducing the risk of acquiring HIV. On-demand (or intermittent) PrEP means taking PrEP medication only directly before and after a sexual exposure. On-demand PrEP is only dispensed as TDF/FTC and is only recommended under certain circumstances for gay, bisexual or other men who have sex with men. Go to www.OntarioPrEP.ca for more information.

Who is PrEP recommended for?

PrEP is recommended for adults who are at risk for acquiring HIV infection through sexual activity or injection drug use including:

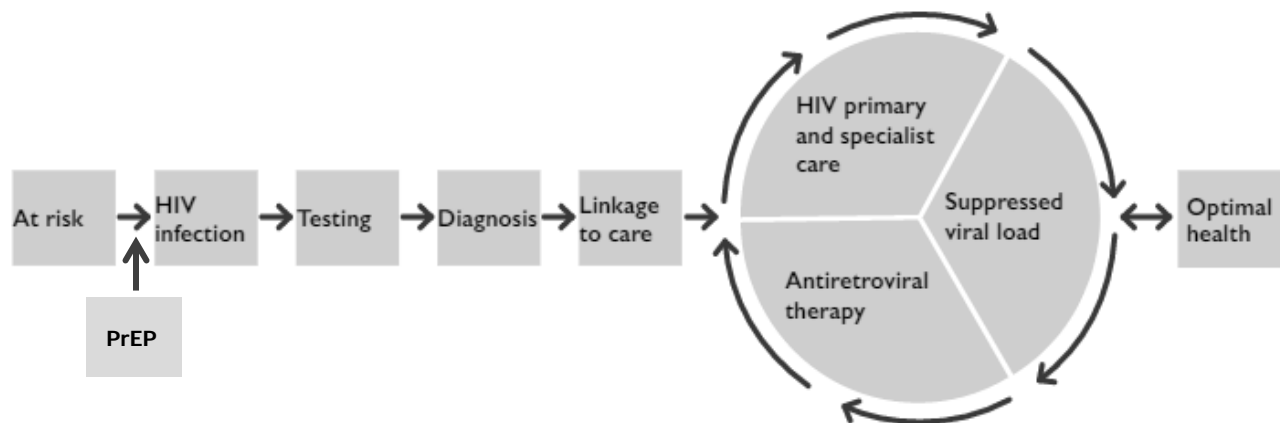
- Men who have sex with men (MSM) and transgender women who report condomless sex within the last six months and who have any of the following:
 - Infectious syphilis or rectal bacterial sexually transmitted infection (STI), particularly if diagnosed in the preceding 12 months;
 - Recurrent use of nonoccupational post-exposure prophylaxis (nPEP) (more than once);
 - Ongoing sexual relationship with HIV-positive partner with substantial risk of transmissible HIV; or
 - High-incidence risk index (HIRI)-MSM risk score ≥ 11
- Heterosexual exposure: The HIV-negative partner in heterosexual serodiscordant relationships reporting condomless vaginal or anal sex where the HIV-positive partner has a substantial risk of transmissible HIV
- People who inject drugs (PWID) exposure: if injection drug use paraphernalia is being shared with a person with a non-negligible risk of HIV infection

For more information on the Canadian guidelines on PrEP use, please see [here](#).

Why look at trends in PrEP?

- PrEP is highly effective at reducing the risk of an HIV-negative individual acquiring HIV. Increasing the appropriate uptake of PrEP is a priority to improve HIV prevention (the earliest step in the HIV cascade, see Figure i) and the overall well-being of populations affected by HIV.
- Demographic and regional trends in PrEP uptake can help inform planning efforts and can be influenced by programming and policy factors that affect awareness and access.

FIGURE 1. THE HIV PREVENTION, ENGAGEMENT, AND CARE CASCADE



What's in this report?

- The estimated number of PrEP users are based on medication dispensations from a large sample of retail pharmacies across Ontario, which are then projected/extrapolated to the Ontario-level. Dispensations refer to prescriptions which have been filled at a pharmacy.
- For this report, we acquired the estimated number of individuals dispensed branded or generic TDF/FTC, or branded TAF/FTC. These antiretroviral medications can be used for a variety of purposes (i.e. indications) including HIV treatment, post-exposure prophylaxis (PEP), PrEP and hepatitis B virus treatment. A [decision tree](#) was used to assign individuals to these indications based on other criteria such as the length of time of the prescription (≤ 30 days), other antiretrovirals being dispensed around the same time (± 3 months), or if TDF or TAF were prescribed alone.
- The data are presented by calendar year (2016 to 2021) or quarter (Jan-Mar 2020 to Oct-Dec 2021). Each year/quarter includes an estimate of the number of unique individuals dispensed PrEP at least once over the year or three-month period. If the same individual is dispensed PrEP more than once during the same year or quarter, they are not double-counted – with a few small exceptions (see technical notes [limitations section](#) for more information).
- Estimated PrEP uptake is stratified by sex (male/female), age (10-year categories), prescriber specialty, payer type (public/private) and geographic region within Ontario.
 - Information on the individual (sex and age) was captured in the pharmacy profile which is created by the pharmacist during the first transaction at the pharmacy. Age was confirmed via the patient's record for the Ontario Drug Benefit (ODB) program or the private payer depending on the individual's coverage. The "sex" field is completed at the discretion of the pharmacist and can include 'male', 'female' and 'unknown' gender. No distinction or specification can be made about this 'other' category, other than the 'male' or 'female' options were not selected and there is no clear guidance on how transgender identity was categorized.
 - Prescriber specialty was assigned when the physician license is matched with IQVIA's internal reference files on speciality from the college of physicians. Payer type was assigned to the highest reimbursement on the prescription. That is, if a patient has a co-pay, and the private portion covers a larger percentage of the total cost, the prescription is assigned to the private payer type.

- Geographic breakdowns of PrEP dispensations were based on the location of the dispensing pharmacy and categorized into larger geographic regions. Toronto-Downtown included the loose geographic boundary of the Don Valley Parkway to the East, Lake Ontario to the South, Bathurst St. to the West and Dupont St. to the North. Toronto-Not Downtown included all other postal codes beginning with “M” not listed in the Toronto-Downtown geographic region. The regions and a corresponding map are discussed further in the [geographic regions](#) technical notes section.
- The “PrEP-to-need ratio¹” (a calculated measure of PrEP provision relative to HIV burden [first-time HIV diagnoses] within a population, where larger numbers indicate more optimal HIV prevention) was calculated by sex, by gay, bisexual and other men who have sex with men (GBMSM) key population and by geographic region. Reported counts of first-time HIV diagnoses were obtained through the Ontario HIV Epidemiology and Surveillance Initiative (www.OHESI.ca). First-time HIV diagnoses are positive HIV tests with no previous evidence of HIV. Further details on first-time HIV diagnoses are discussed in the [technical notes](#) section. There is no known cut-off of the PrEP-to-need ratio that indicates PrEP use has reached some optimal level of HIV prevention or that indicates an ideal level of PrEP coverage. Furthermore, the PrEP-to-need ratio does not assess PrEP appropriateness or eligibility – that is, are people taking PrEP when indicated by clinical guidelines. This report does not have access to risk information to assess PrEP appropriateness, rather it uses the PrEP-to-need ratio as a construct to explore disparities or similarities across other indicators and helps give context to PrEP uptake.

Where do these data come from?

IQVIA

- The estimated number of unique individuals dispensed PrEP in Ontario was acquired from IQVIA, a private company which collects dispensation data from retail pharmacies across Canada and elsewhere. For more information on IQVIA please visit www.iqvia.com.
- Dispensation data were based on a representative sample of close to 2,300 retail pharmacies in Ontario – which account for approximately 66% of all dispensations in the province (excluding hospital dispensaries). Prior to sending aggregate-level data to the Ontario HIV Treatment Network, IQVIA projects and extrapolates these dispensations to the provincial level using a proprietary algorithm and weighting methods and then has its own validation methods. The weighting method considers the number of pharmacies in a given area, the distance between IQVIA-captured and uncaptured pharmacies, and the size of the pharmacies. More information on IQVIA can be found in our [technical notes](#).

What are some of the strengths of these data?

- These data fill an important gap in our knowledge about PrEP uptake in Ontario as there are currently no other comprehensive province-wide data sources.
- There is no missing information on age and geography (location of dispensation or physician’s primary work location), and only a small percent of the individuals are missing data on sex (<1%).

¹ More information about the PrEP-to-need ratio can be found here: <https://pubmed.ncbi.nlm.nih.gov/29983236/>

- Use of both more narrow and broader geographic regions to better describe geographic trends in PrEP use and uptake.
- The definition of PrEP has been updated to include both generic and branded TDF/FTC OR TAF/FTC (Truvada™ and Descovy™) antiretroviral medications as they have both been approved by Health Canada for this indication.

What are some of the limitations of these data?

- While the data includes some demographic features recorded by the pharmacy, such as age, sex, payer type and geographic location of the pharmacy, there is no information recorded on some very important characteristics (such as race/ethnicity, gender identity, HIV risk factors and other sociodemographic factors). In the IQVIA data, the sex field is at the discretion of the pharmacist and is limited to 'male', 'female' and 'unknown'.
- As PrEP uptake should be considered relative to those populations where PrEP is indicated, these data are not adequate to determine whether PrEP uptake has met the need of the key populations at risk for HIV. It is difficult to assess successful PrEP uptake in women and more research is needed to guide its appropriate use. Women who face systemic and social inequities, who are more likely to be exposed to HIV through a sexual or drug using partner require more direct and focused outreach to assess PrEP appropriateness and uptake.
- The dispensation data does not cover all retail pharmacies in Ontario and are projected/ extrapolated to the provincial level by IQVIA. The algorithm used to project dispensations to the provincial level is proprietary so it is not possible to carry out sensitivity analyses to understand the impact of the underlying assumptions of the model.
- Possible clinical indications for TDF/FTC or TAF/FTC medications include PrEP, the treatment of HIV, post-exposure prophylaxis (PEP) and hepatitis B virus treatment. IQVIA leveraged an [Indication decision tree](#) to assign an indication to each dispensation/individual/prescription. This indication decision tree may misclassify some dispensations/individuals/prescriptions and sensitivity analyses could not be carried out on the underlying assumptions.
- Dispensations from in-patient hospital pharmacies, clinical trials/other research and those provided at no cost (e.g. by a health unit) are not included in the dispensation data and are not counted in this report. Dispensations paid for out-of-pocket are included, but were not included in the Claims-data sample from which the indication analysis and ratios were derived. Therefore, specific counts of these dispensations are not available.
- Due to the above limitations, the numbers in this report represent our best estimates of PrEP uptake in the province. It may be more appropriate to focus on proportions and general trends than the actual numbers.
- Address of residence for individuals dispensed PrEP was not available. Geographic breakdowns of PrEP dispensations were based on the location of the dispensing pharmacy. Therefore, it is possible that the number of PrEP users is being overestimated in larger urban areas as geographic locations were assigned based on the location of the dispensing pharmacy and not where the individual resides. It is possible that individuals would travel to larger urban areas to find PrEP prescribers or PrEP clinics and would then also fill their prescription close by. It is also possible
- Missingness on prescriber specialty has increased over time (5.8% in 2016, 8.6% in 2018, 16.9% in 2020 and 26.9% in 2021). IQVIA assigns prescriber speciality from the Claims data in which they have private and public sources. Within the public source, nurse practitioners are able to be identified. However, in the private source, nurse practitioners cannot be identified and are categorized as 'unknown'.

KEY FINDINGS

Overall

- In 2021, 11,042 individuals were estimated to have been dispensed HIV pre-exposure prophylaxis (PrEP) in Ontario.
- The estimated number of PrEP users increased dramatically between 2016 and 2021. In 2021 the estimated number of individuals dispensed PrEP was more than 7.5 times what it was in 2016.

By sex

- In 2021, the vast majority (97%) of PrEP users were male and only 288 were female (2.6%)².
- PrEP dispensations increased for both sexes but the relative increase was greater among males (7.7 times) than females (5.3 times).
- The “PrEP-to-need ratio” (a calculated measure of PrEP provision relative to first-time HIV diagnoses among a population, where larger numbers indicate more optimal HIV prevention efforts³) increased for both sexes, but was consistently substantially higher for males than for females.
- The relative increase in the PrEP-to-need ratio over 2016 to 2021 was larger among males (11.2 times) than females (7.5 times). However, the relative increase in the PrEP-to-need ratio over 2018 to 2021 was similar among males (2.6 times) and females (2.7 times), suggesting less disparity between sexes in the rate of increase in PrEP use in recent years.

By age

- The estimated number of males dispensed PrEP increased across all age groups between 2016 and 2021. While the proportion of males aged <30 dispensed PrEP increased over time to almost 1 in 4 male dispensations in 2021, the 30-39 age category consistently made up the largest number of males dispensed PrEP across all years.
- The estimated number of females dispensed PrEP increased across all age groups between 2016 and 2021. While the proportion of females aged <30 dispensed PrEP increased over time to over 1 in 3 female dispensations in 2021, the 30-39 age category consistently made up the largest number of females dispensed PrEP except in 2018. Interpretation of these trends among females should consider the relatively small numbers on which they are based.

By prescriber specialty

- In 2021, the majority of the estimated individuals dispensed PrEP were prescribed PrEP by family and general practitioners (57.7%), followed by infectious disease physicians (22.1%), nurse practitioners (9.2%), internal medicine physicians (7.1%), public health and preventive medicine physicians (0.6%) and other physicians (3.2%).
- Between 2016 and 2021, the proportion of individuals dispensed PrEP by family and general practitioners decreased in favour of nurse practitioners who were responsible for almost 1 in 10 PrEP dispensations in 2021.

² PrEP uptake should be considered relative to those populations where PrEP is indicated. These data are not adequate to determine whether PrEP uptake has met the need of those populations. It is difficult to assess successful PrEP uptake in women because women have a much lower overall risk for HIV than men who have sex with men. More research is needed to guide appropriate use of PrEP in women.

³ More information about the PrEP-to-need ratio can be found here: <https://pubmed.ncbi.nlm.nih.gov/29983236/>

By payer type

- Between 2016 and 2021, a large majority (>75%) of estimated PrEP users covered the cost of their prescription through private drug insurance plans. The estimated proportion who covered the cost through publicly funded drug programs (e.g. Ontario Drug Benefit Plan, Trillium, Interim Federal Health) increased from 13.3% in 2016 to 25.3% in 2021; this increase occurred between the years 2017 and 2018.

By region

- In 2021, the rate of individuals dispensed PrEP per 100,000 people was highest in Toronto (253.6) and Ottawa (91.4) regions, and lowest in the North East (11.5) and York (12.8) regions.
- In 2021, the majority of estimated individuals dispensed PrEP (68.5%) were dispensed medications from pharmacies in Toronto (downtown and not-downtown). The remainder were dispensed PrEP in Ottawa (8.8%), Central South region (4.7%), South West region (3.4%) or elsewhere in the province (14.6%).
- Between 2016 and 2021, the relative increase in estimated PrEP users was greatest in regions outside of Toronto - Downtown: Durham (15.4 times), Erie-St. Claire (15.0 times), Peel (14.2 times), Central East (14.0 times), Eastern (13.9 times) and Toronto – Not Downtown (13.1 times).
- In 2019, the “PrEP-to-need ratio” (a calculated measure of PrEP provision relative to HIV burden among a population, where larger numbers indicate more optimal HIV prevention) was highest in Ottawa and Toronto (both 35.7) followed by the Eastern region (16.7), South West region (15.4), Central West (11.0), and lowest in the Northern (4.8) and Central East (8.2) regions.

DATA AND FIGURES

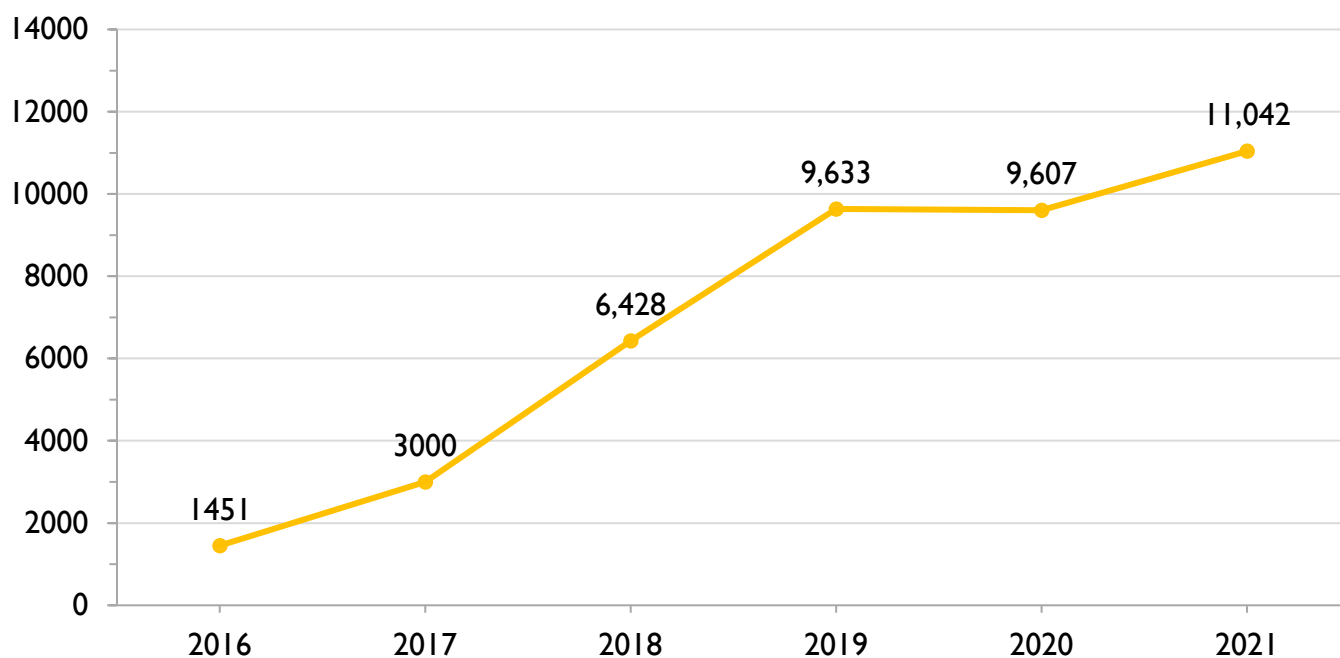
1. Overall

Summary & Interpretation

The total estimated number of PrEP users in Ontario increased overall between 2016 and 2021 with the largest increase between 2017 to 2018. There was a plateau in the number of PrEP users in 2020 compared to 2019 and a marked decrease in April-June 2020 corresponding to the beginning of the COVID-19 pandemic. An estimated total of 11,042 individuals were dispensed PrEP over the full year of 2021, while 7,295 were dispensed PrEP over the last quarter of 2021.

Note: The data are presented by calendar year (2016 to 2021) or quarter (Jan-Mar 2020 to Oct-Dec 2021). Each year/quarter includes an estimate of the number of unique individuals dispensed PrEP at least once over the year or in the three-month period. Individuals who take PrEP may go on or off PrEP depending on their assessment of their risk over a period of time. Therefore, the estimated number of individuals on PrEP differs each quarter (new individuals starting PrEP, individuals continuing PrEP from the previous quarter and individuals not continuing with PrEP) within each year estimate.

FIGURE I.1 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PREP, ONTARIO, 2016 TO 2021 (ANNUAL)

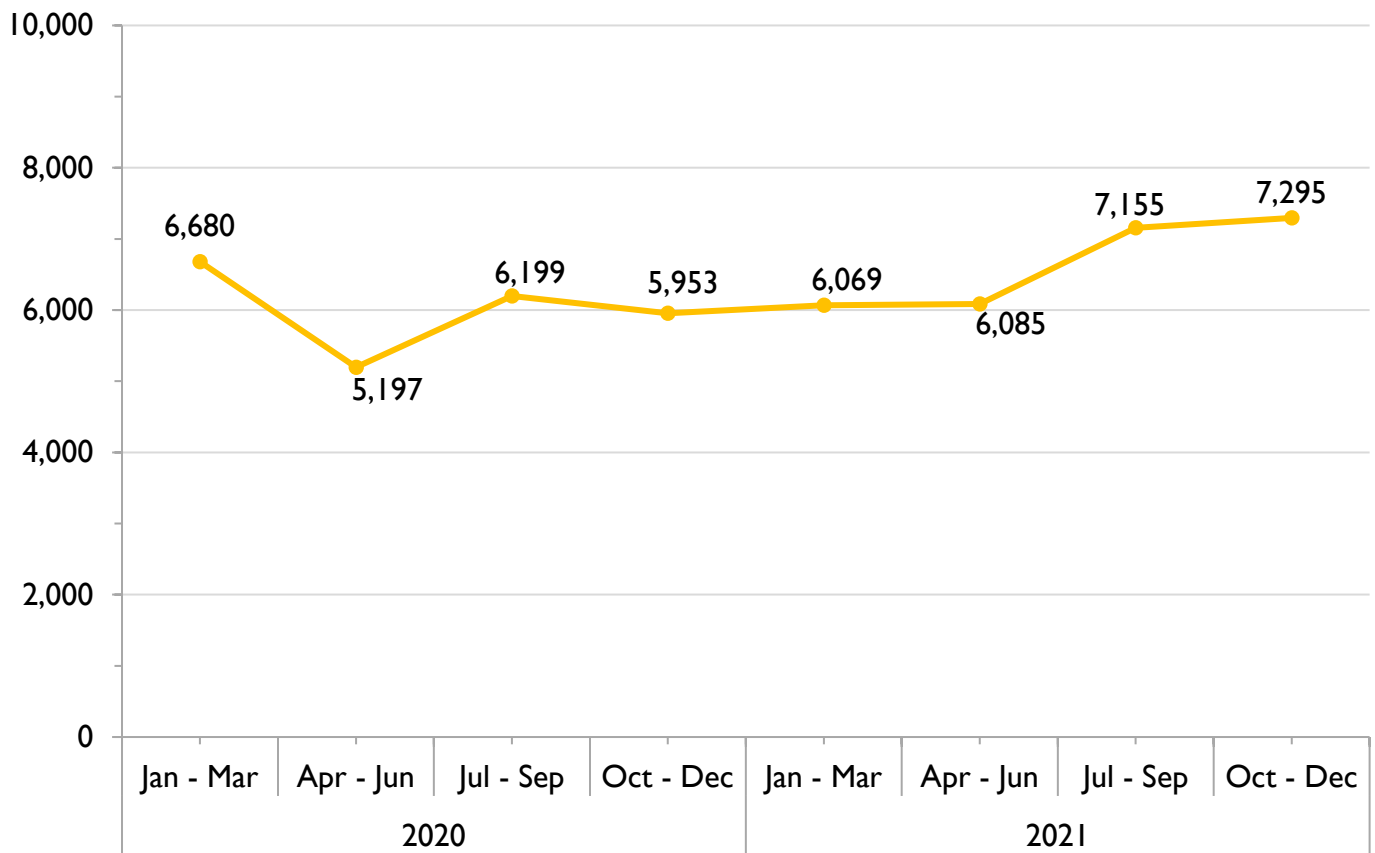


Trends

Between 2016 and 2021, the number of individuals dispensed PrEP increased overall, with a greater rate of increase between 2016 and 2019 and a plateau in 2020 coinciding with the beginning of the COVID-19 pandemic. In 2021 the number of individuals dispensed PrEP was more than 7.5 times that of 2016.

Notes: Data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. PrEP = pre-exposure prophylaxis. See **Table I.1** for underlying data.

FIGURE I.2 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)



Trends

Between Jan-Mar 2020 and Oct-Dec 2021, the number of individuals dispensed PrEP quarterly increased by 9%. There was a marked decrease in Apr-Jun 2020 corresponding to the beginning of the COVID-19 pandemic, a plateau between Jul-Sep 2020 to Apr-Jun 2021 and then an increase in Jul-Sept 2021 and Oct-Dec 2021.

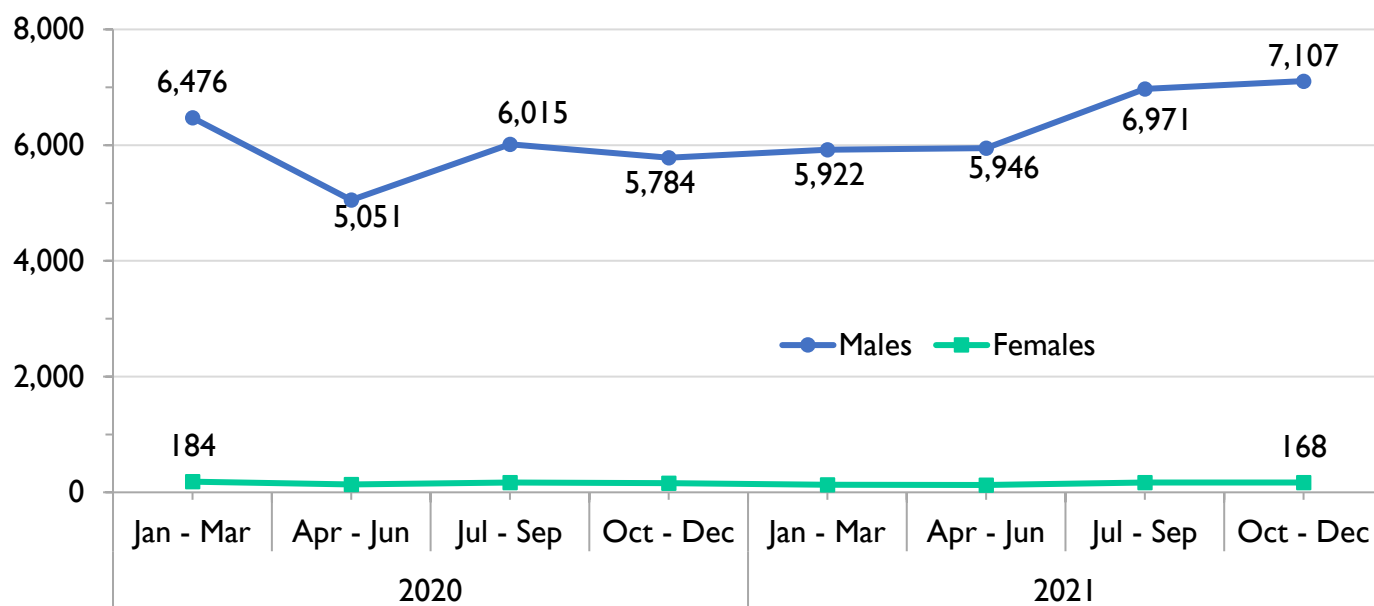
Notes: PrEP dispensation data acquired from IQVIA. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. PrEP = pre-exposure prophylaxis. See **Table I.2** for underlying data.

2. By sex

Summary & Interpretation

The number of males using PrEP in Ontario increased between 2016 and 2019, remained relatively stable in 2020 and increased again in 2021. The number of females using PrEP in Ontario increased year over year from 2016 to 2021 but slowed in 2020 and 2021. The relative rate of increase was greater among males than females in earlier years and similar between 2018 and 2021. The proportion of estimated individuals dispensed PrEP among males was 97.4% and among females was 2.6%. The “PrEP-to-need ratio” (a calculated measure of PrEP provision relative to HIV burden within a population, where larger numbers indicate more optimal HIV prevention efforts) increased for both sexes, but was consistently and substantially higher for males than for females. However, the rate of increase of the PrEP-to-need ratio was similar among males and females between 2018 and 2021. It appears that uptake and use of PrEP in Ontario has been and continues to be dominated by males, even when considered in proportion to HIV burden.

FIGURE 2.1 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PREP BY SEX, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)

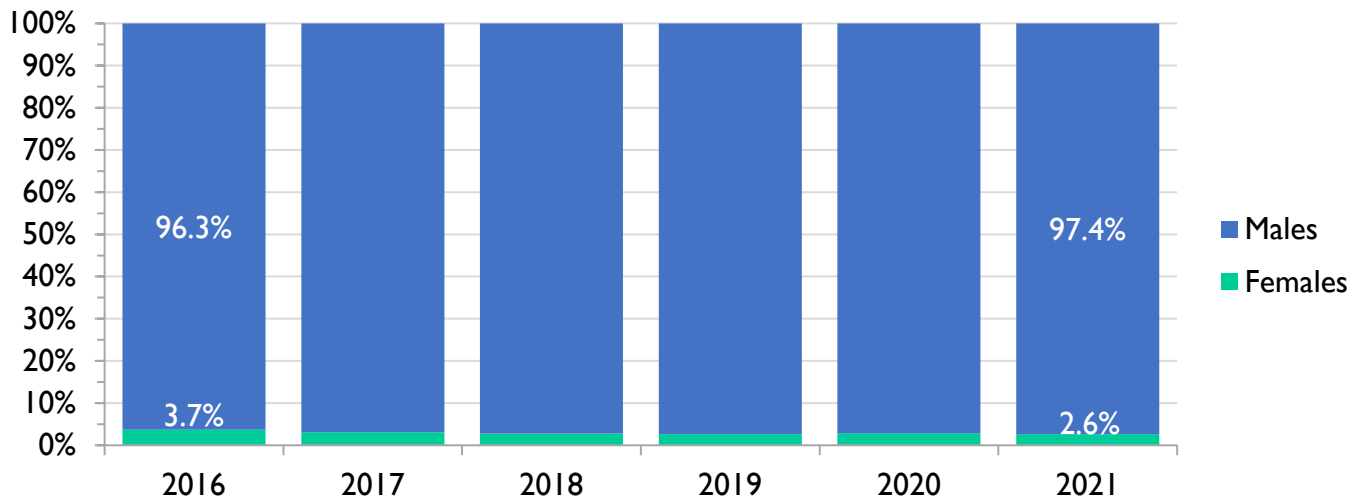


Trends

Between Jan-Mar 2019 and Oct-Dec 2021, the estimated number of PrEP users increased among males and remained stable among females. In Oct-Dec 2021. A large decrease in PrEP dispensations can be seen in Apr-Jun 2020 coinciding with the beginning of the COVID-19 pandemic.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. Quarterly data represents the number of unique individuals dispensed PrEP at least once during the three-month period. PrEP = pre-exposure prophylaxis. See **Table 1.2** for underlying data.

FIGURE 2.2 ESTIMATED PROPORTION OF INDIVIDUALS DISPENSED PrEP BY SEX (WHERE KNOWN), ONTARIO, 2016 TO 2021 (ANNUAL)

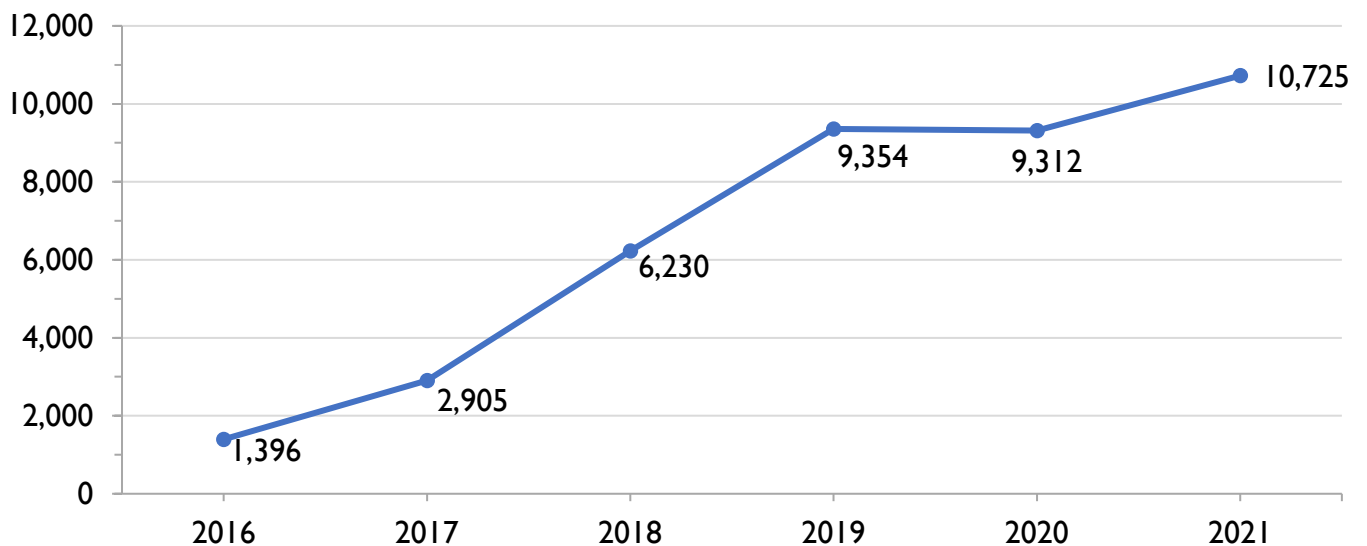


Trends

Between 2016 and 2021, the vast majority (96%-97%) of individuals dispensed PrEP were male.

Note: PrEP uptake should be considered relative to those populations where PrEP is indicated. These data are not adequate to determine whether PrEP uptake has met the need of those populations. It is difficult to assess successful PrEP uptake in women because women have a much lower overall risk for HIV than men who have sex with men. More research is needed to guide appropriate use of PrEP in women.

FIGURE 2.3 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP, MALES, ONTARIO, 2016 TO 2021 (ANNUAL)

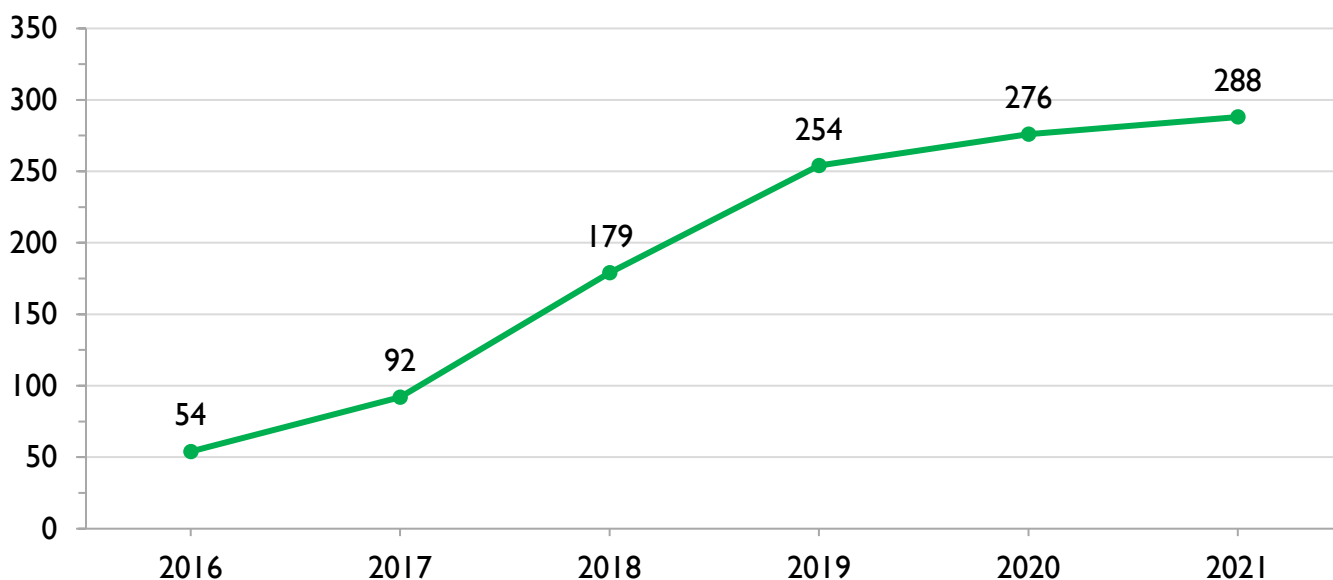


Trends

Between 2016 and 2021, the number of male individuals dispensed PrEP increased from 1396 to 10,725 with the sharpest increase between 2017 to 2018.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. PrEP = pre-exposure prophylaxis. See **Table 1.1** for underlying data.

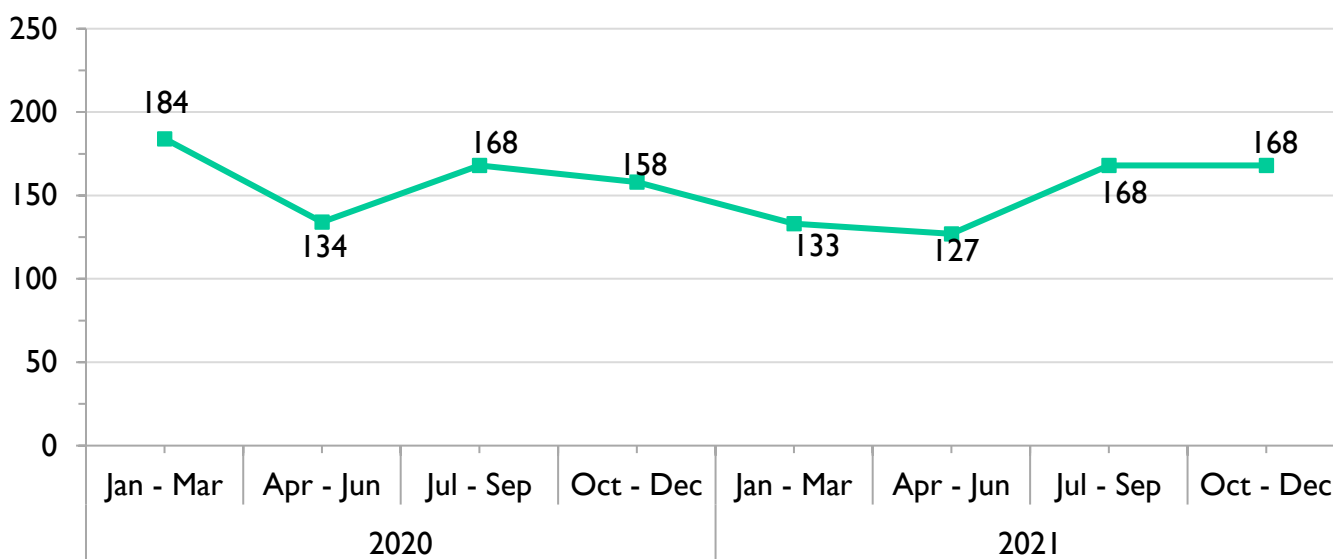
FIGURE 2.4 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP, FEMALES, ONTARIO, 2016 TO 2021 (ANNUAL)



Trends

Between 2016 and 2021, the number of female individuals dispensed PrEP increased from 54 to 288 with the sharpest increase between 2017 to 2018.

FIGURE 2.5 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP, FEMALES, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)

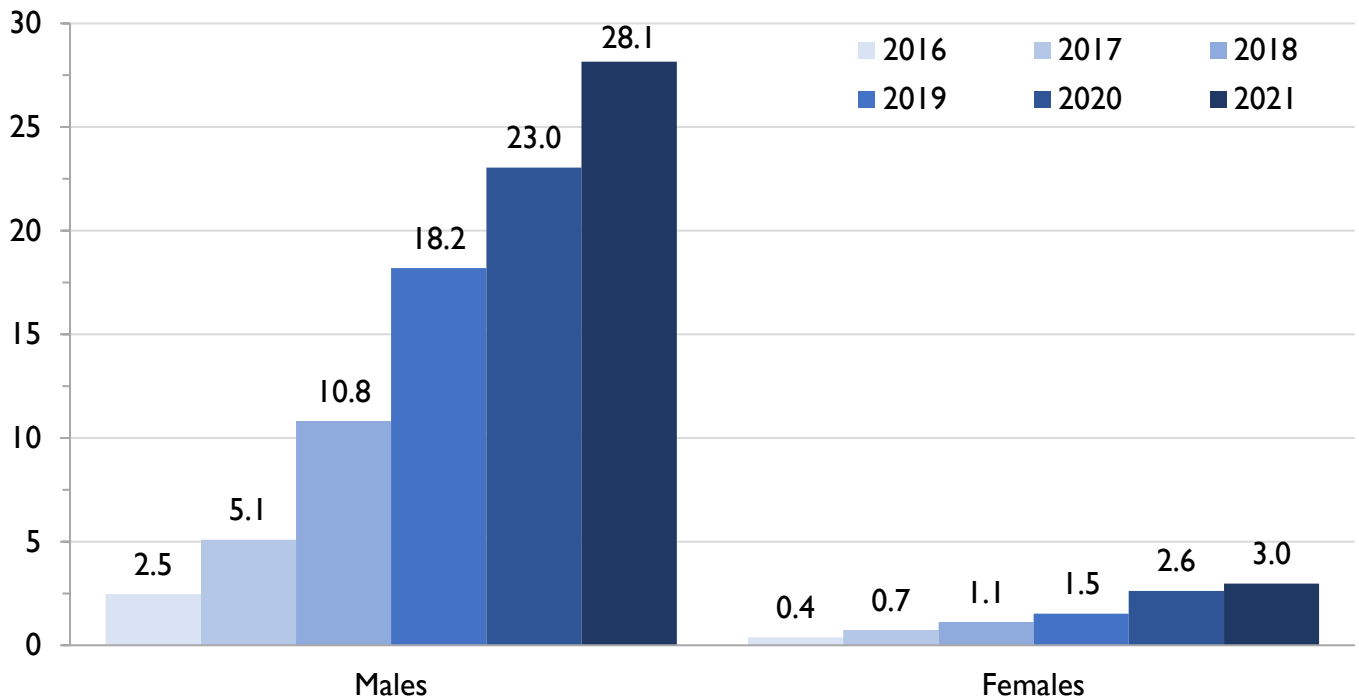


Trends

Between Jan-Mar 2020 and Oct-Dec 2021, the number of female individuals dispensed PrEP remained relatively stable with a range of 127 to 184.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. PrEP = pre-exposure prophylaxis. See **Table 1.1** and **Table 1.2** for underlying data.

FIGURE 2.6 ESTIMATED RATIO OF INDIVIDUALS DISPENSED PrEP TO FIRST-TIME HIV DIAGNOSES (“PrEP-TO-NEED RATIO”), BY SEX, ONTARIO, 2016 TO 2021 (ANNUAL)



Trends

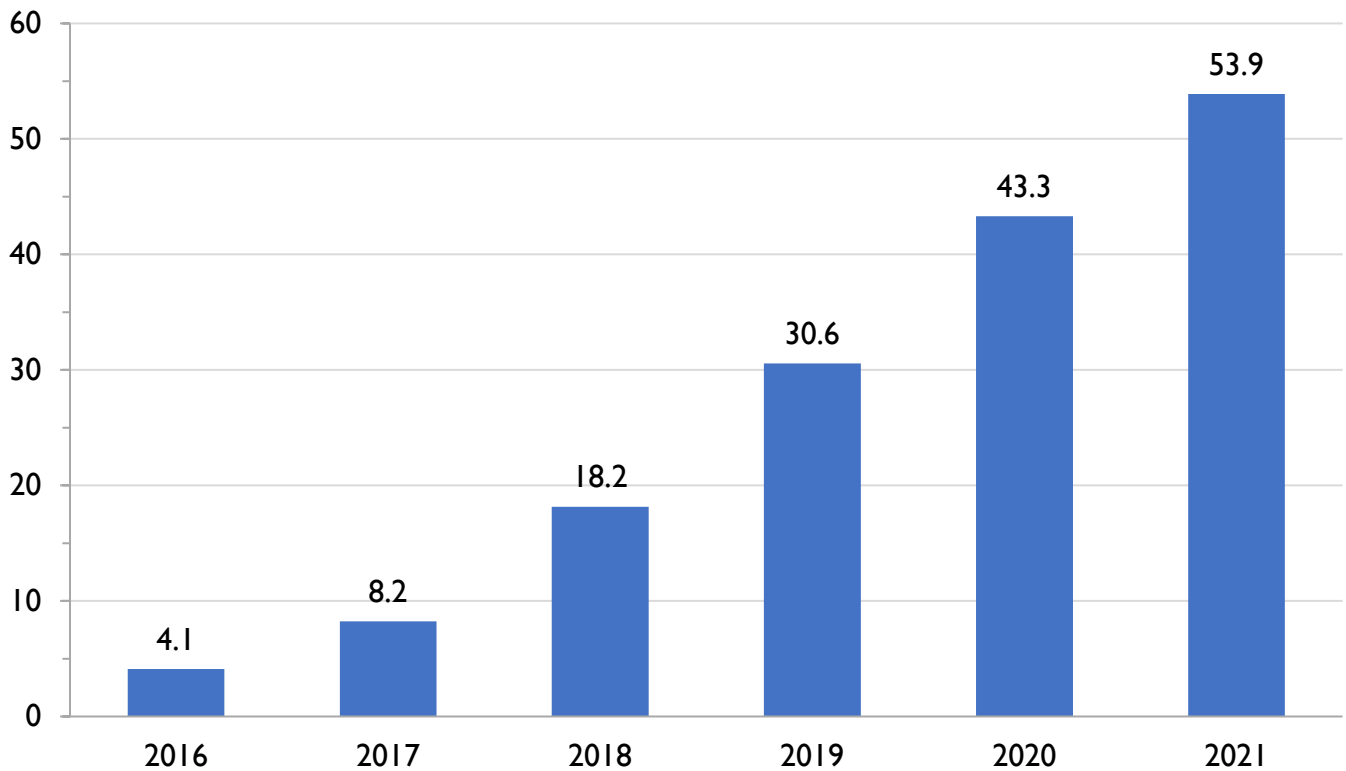
The “PrEP-to-need ratio” is a calculated ratio of individuals dispensed PrEP to first-time HIV diagnoses as an attempt to quantify PrEP provision relative to HIV burden among a population. Therefore, higher numbers suggest more optimal HIV prevention efforts.

Between 2016 and 2021, the “PrEP-to-need ratio” increased for both males and females and was consistently substantially larger for males. The relative increase over 2016 to 2021 was larger among males (11.2 times) than females (7.5 times), but the same among males (2.6 times) and females (2.7 times) comparing 2021 to 2018 indicating a larger growth in the PrEP-to-need ratio in earlier years among males. In 2021, the PrEP-to-need ratio was over 9 times higher for males than it was for females. Overall, the ratio of individuals dispensed PrEP to first-time HIV diagnoses increased from 2.0 in 2016 to 23.0 in 2021.

Note: PrEP uptake should be considered relative to those populations where PrEP is indicated, these data are not adequate to determine whether PrEP uptake has met the need of the key populations at risk for HIV. It is difficult to assess successful PrEP uptake in women and more research is needed to guide its appropriate use. Women who face systemic and social inequities, who are more likely to be exposed to HIV through a sexual or drug using partner require more direct and focused outreach to assess PrEP appropriateness and uptake.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. Counts of first-time HIV diagnoses acquired from Public Health Ontario (PHO). See [First-time HIV diagnoses](#) for more information. PrEP = pre-exposure prophylaxis. See **Table 1.3** for underlying data.

FIGURE 2.7 ESTIMATED RATIO OF GBMSM DISPENSED PREP TO FIRST-TIME HIV DIAGNOSES AMONG GBMSM (“PREP-TO-NEED RATIO AMONG GBMSM”), ONTARIO, 2016 TO 2021 (ANNUAL)



Trends

Based on the input from PrEP prescribers and community that male PrEP users are overwhelmingly GBMSM, we used the estimated number of males dispensed PrEP as a proxy for the estimated number of GBMSM dispensed PrEP. First-time HIV diagnoses were specific to GBMSM (where known), as reported by OHESI (www.OHESI.ca).

Between 2016 and 2021, the “PrEP-to-need ratio” among GBMSM increased substantially. The relative increase year over year was greatest in 2018 compared to 2017 (2.2 times). In 2021, the estimated PrEP-to-need ratio was over 13 times higher than in 2016.

Notes: GBMSM – Gay, bisexual and other men who have sex with men. PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. Counts of first-time HIV diagnoses acquired from Public Health Ontario (PHO). See [First-time HIV diagnoses](#) for more information. PrEP = pre-exposure prophylaxis. See **Table 1.3** for underlying data.

3. By age

Summary & Interpretation

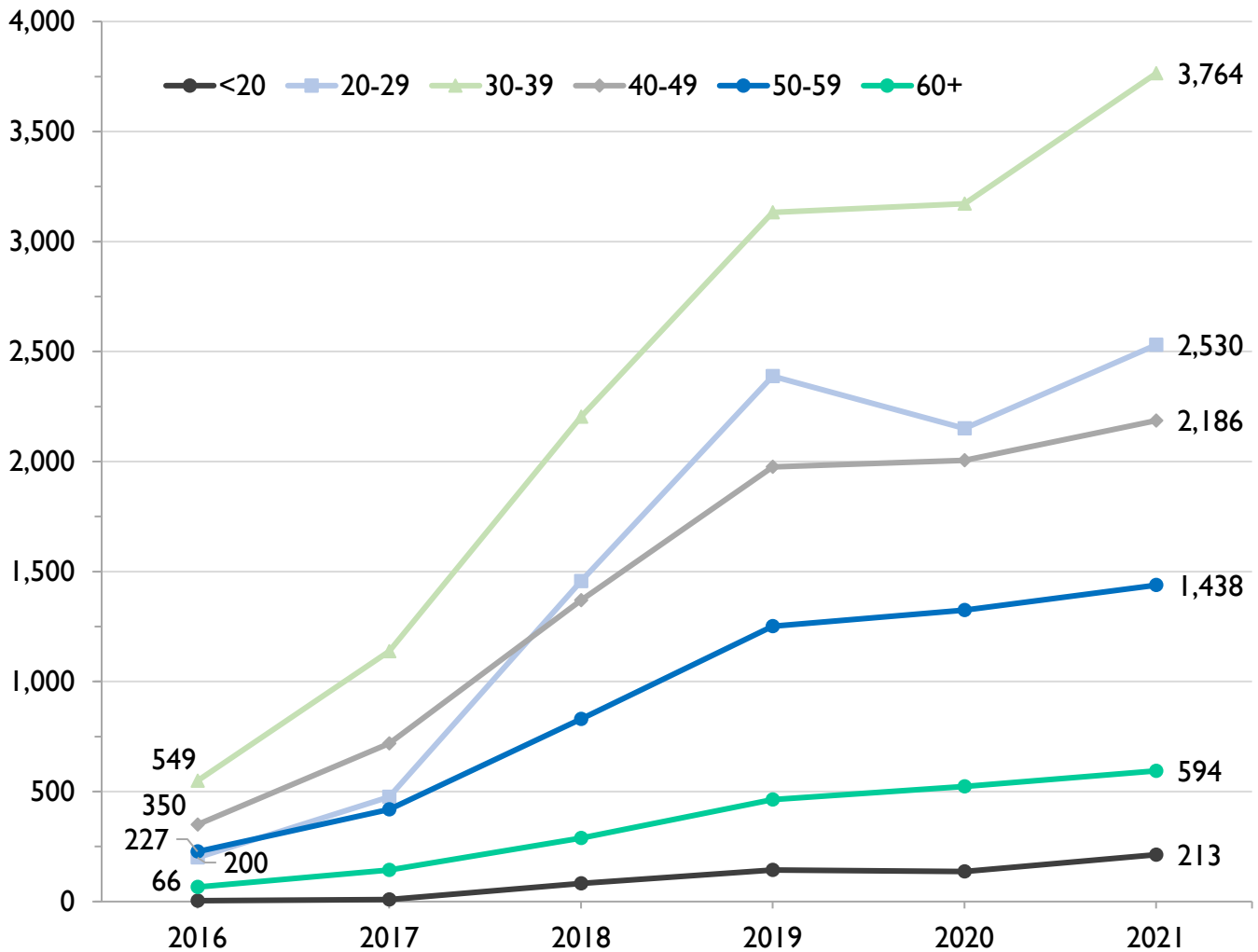
For both males and females, the number of individuals who used PrEP increased among all age categories between 2016 and 2021 with the most growth occurring between 2017 and 2018. In 2021, those aged 30-39 comprised the largest proportion of individuals on PrEP for both sexes, followed by those aged 20-29 and then 40-49.

Among males, more individuals aged 20-29 used PrEP than those aged 40-49 years over the full years 2020 and 2021; however, when the data are examined quarterly, these numbers were more similar. Possible explanations for this include males aged 40-49 being more likely to use PrEP consistently over time or younger males being more likely to use on-demand PrEP, and therefore dispensations would be less frequent.

Among females, the largest increases in PrEP users were among those under age 30 and those aged 40-49 years. Females under 30 accounted for ~1 in 5 female PrEP users in 2016 and more than ~1 in 3 in 2021.

Males by age

FIGURE 3.1 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP BY AGE, MALES, ONTARIO, 2018 TO 2021 (ANNUAL)



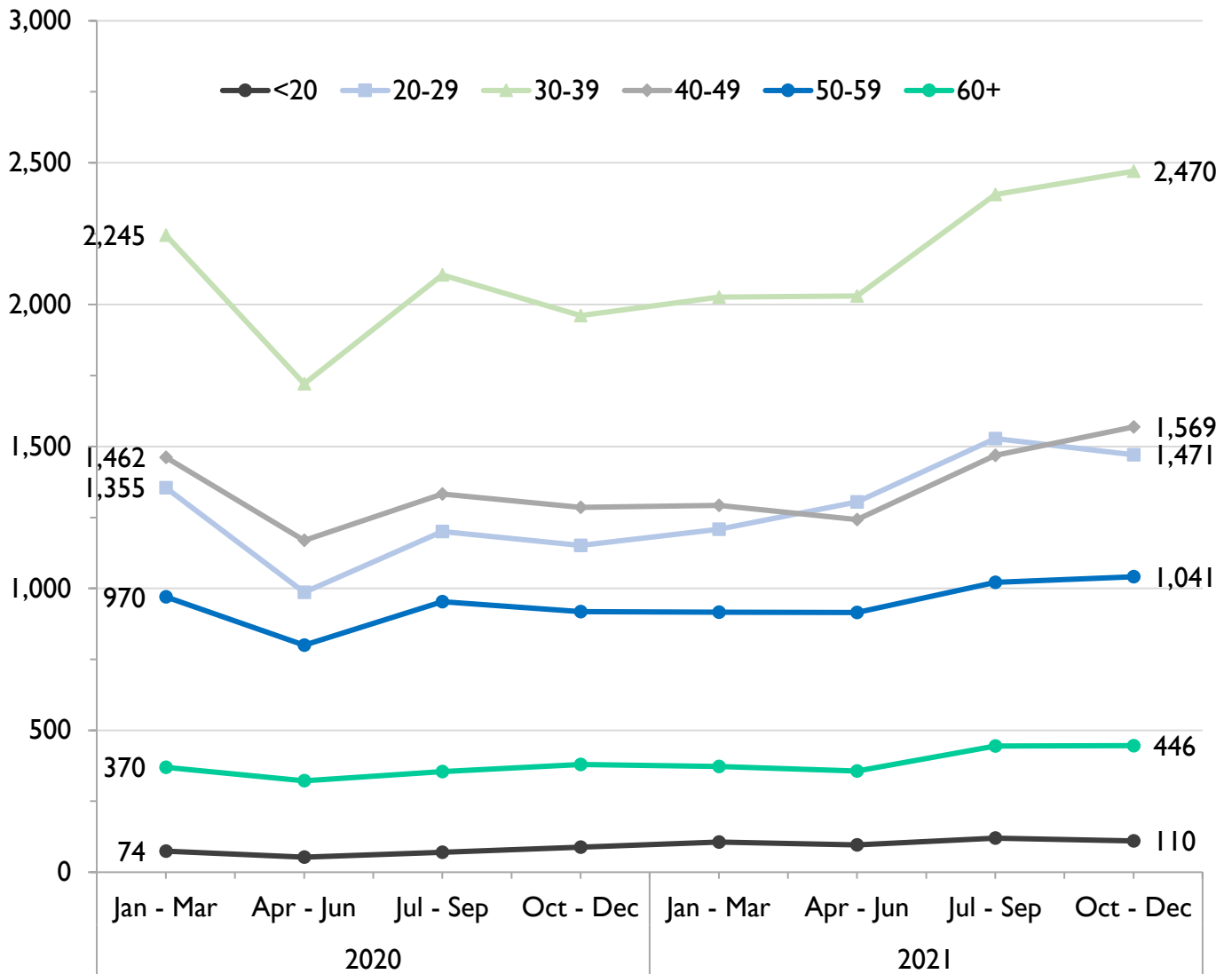
Age	2016	2021
<20	≤5	213
20-29	200	2,530
30-39	540	3,764
40-49	350	2,186
50-59	227	1,438
60+	66	594

Trends

Between 2016 and 2021, the number of males dispensed PrEP increased each year in all age categories except in 2020 (coinciding with the beginning of the COVID-19 pandemic). The yearly relative increase was greatest in 2018 compared to 2017 among those under age 20 (9.2 times), followed by those aged 20-29 (3.1 times). The 30-39 age category had the greatest number of unique individuals dispensed PrEP in each year since 2016.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. PrEP = pre-exposure prophylaxis. See **Table 2.1** for underlying data.

FIGURE 3.2 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP BY AGE, MALES, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)



Age	Jan-Mar 2020	Oct-Dec 2021
<20	74	110
20-29	1,355	1,471
30-39	2,245	2,470
40-49	1,462	1,569
50-59	970	1,041
60+	370	446

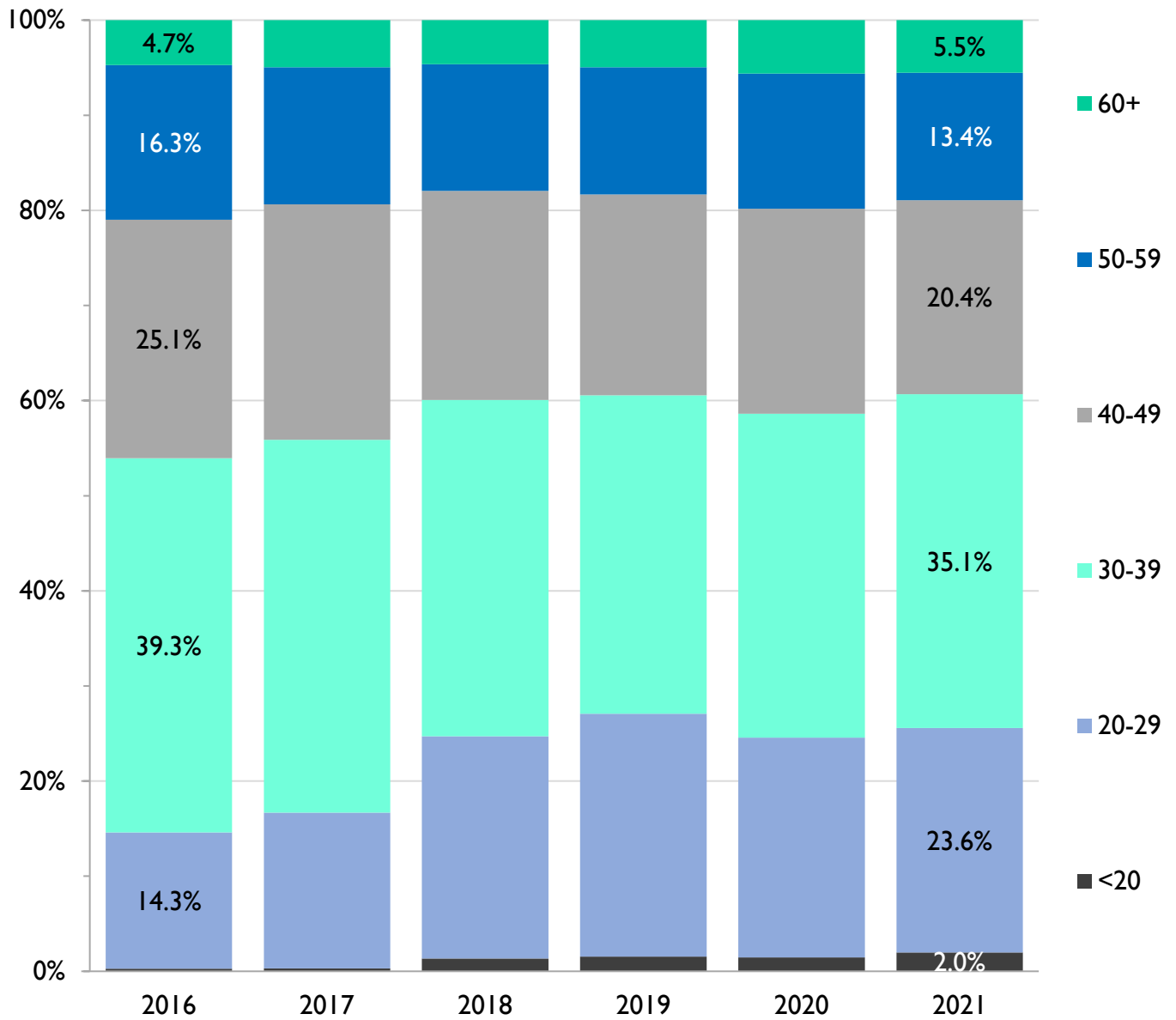
Trends

Between Jan 2020 and Dec 2021, the number of males dispensed PrEP decreased most substantially in the quarter Apr-Jun 2020 coinciding with the beginning of the COVID-19 pandemic. The 30-39 age category had the largest number of unique individuals dispensed PrEP in each quarter of this time period. While a larger number of males aged 20-29 than those aged 40-49 were dispensed PrEP over the full years of 2020 and 2021 (Figure 3.1), for most quarters in 2020 and 2021, males

aged 40-49 outnumbered those aged 20-29. This could suggest that males aged 40-49 were more likely to use PrEP consistently over time or that younger males were more likely to use on-demand PrEP and therefore would have fewer dispensations per year.

Notes: PrEP dispensation data acquired from IQVIA. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. PrEP = pre-exposure prophylaxis. See **Table 2.2** for underlying data.

FIGURE 3.3 ESTIMATED PROPORTION OF INDIVIDUALS DISPENSED PrEP BY AGE, MALES, ONTARIO, 2016 TO 2021 (ANNUAL)



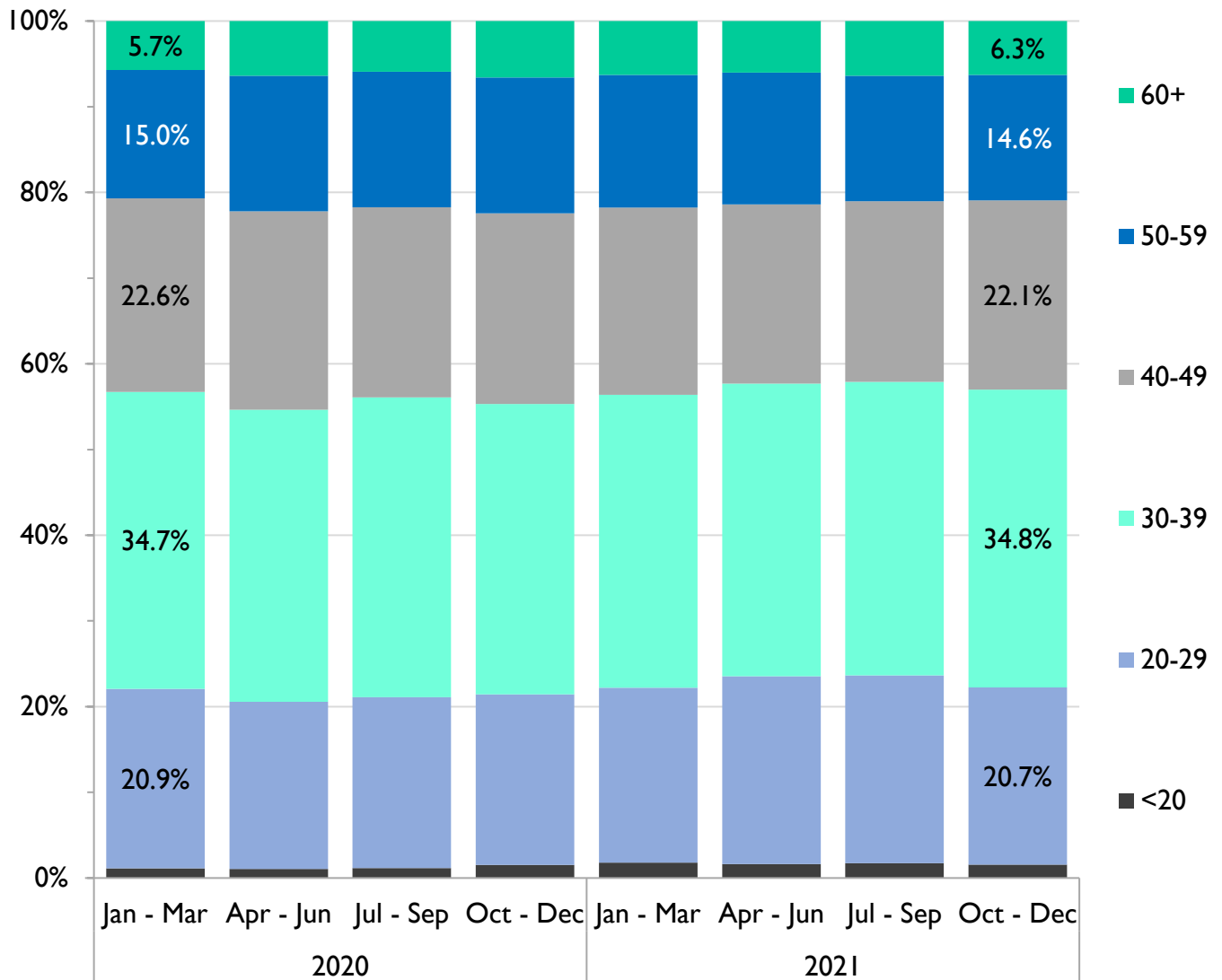
Age	2016	2021
<20	0.3%	2.0%
20-29	14.3%	23.6%
30-39	39.3%	35.1%
40-49	25.1%	20.4%
50-59	16.3%	13.4%
60+	4.7%	5.5%

Trends

Between 2016 and 2021, most of the males dispensed PrEP were between 20 and 40 years old (58.7%). Despite an increase in counts, the proportion of males dispensed PrEP aged 30-39, 40-49, and 50-59 dropped while the proportion aged <20 and 20-29 increased. Males under 30 accounted for ~1 in 7 of the estimated males dispensed PrEP in 2016 and ~1 in 4 in 2021.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. PrEP = pre-exposure prophylaxis. See **Table 2.1** for underlying data.

FIGURE 3.4 ESTIMATED PROPORTION OF INDIVIDUALS DISPENSED PrEP BY AGE, MALES, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)



Age	Jan-Mar 2020	Oct-Dec 2021
<20	1.1%	1.5%
20-29	20.9%	20.7%
30-39	34.7%	34.8%
40-49	22.6%	22.1%
50-59	15.0%	14.6%
60+	5.7%	6.3%

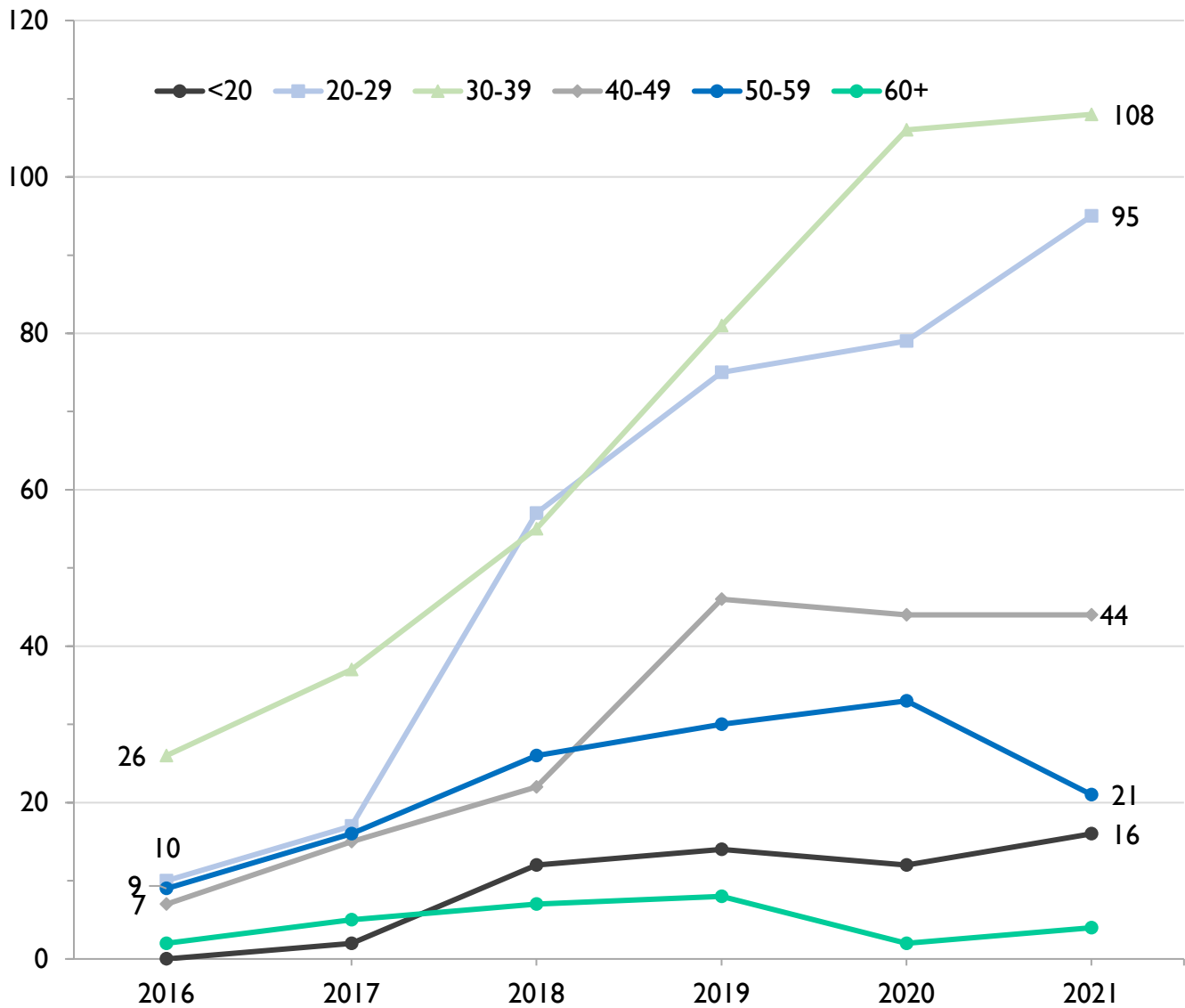
Trends

Between Jan 2020 and Dec 2021, most males dispensed PrEP were under age 40 (57.0%) and the proportion by age group remained stable. While males over 40 made up a smaller proportion of males dispensed PrEP over the full 2021 year (Figure 3.3), they made up a higher proportion in each quarter of 2021, suggesting that they could be more consistent PrEP users or that younger males were more likely to be using on-demand PrEP and therefore have less frequent dispensations.

Notes: PrEP dispensation data acquired from IQVIA. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. PrEP = pre-exposure prophylaxis. See **Table 2.2** for underlying data.

Females by age

FIGURE 3.5 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP BY AGE, FEMALES, ONTARIO, 2016 TO 2021 (ANNUAL)

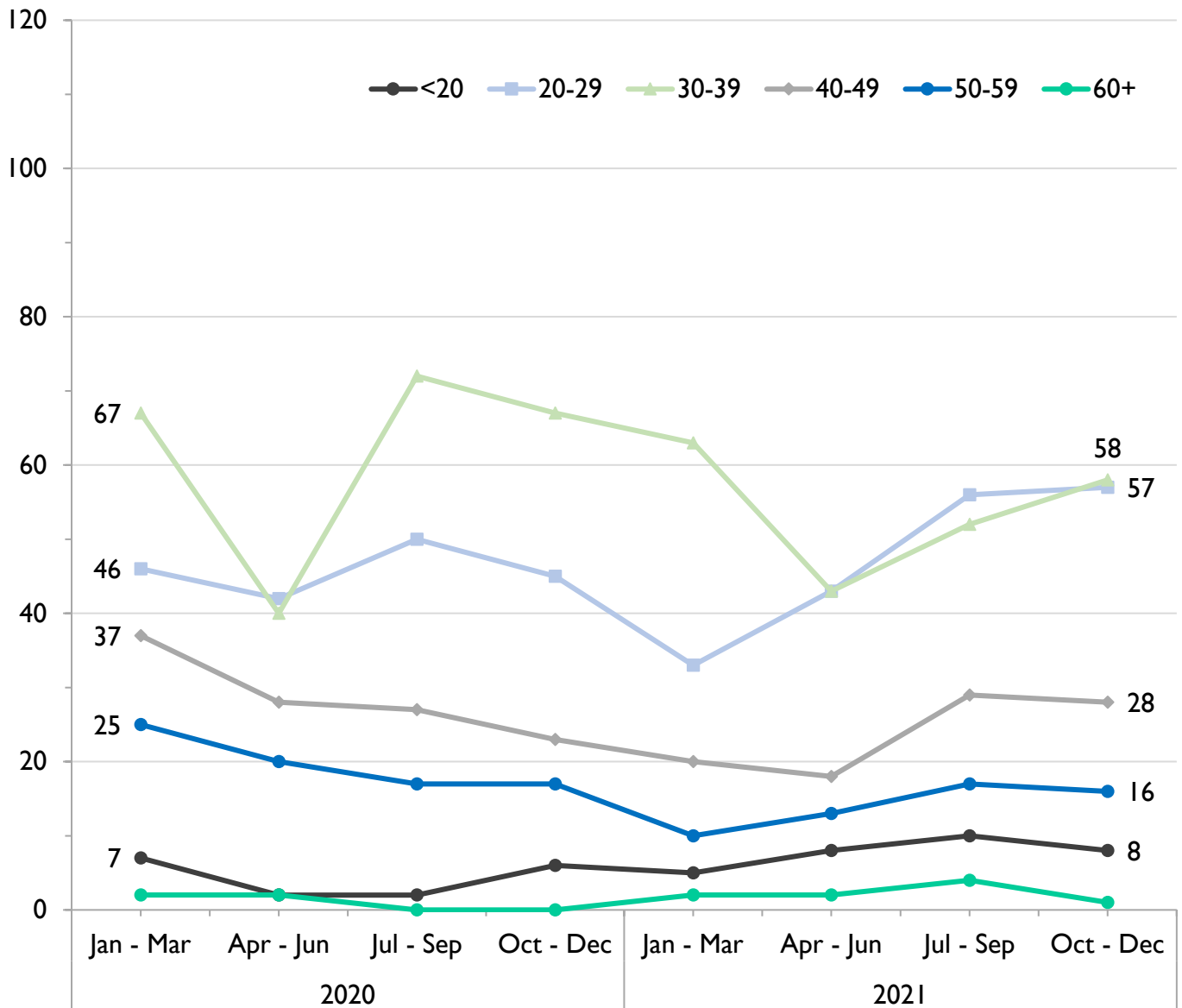


Trends

Between 2016 and 2021, the number of females dispensed PrEP increased in most age categories year over year except in 2020 (coinciding with the beginning of the COVID-10 pandemic) and in 2021 among females age 50-59. Similar to males, the relative annual increase was greatest in 2018 among those under age 20 (from ≤5 to 16), followed by those aged 20-29 (3.4 times). The 30-39 age category had the largest number of unique females dispensed PrEP in each year except one (2018). Interpretation of these trends should consider the relatively small numbers on which they are based.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. PrEP = pre-exposure prophylaxis. See **Table 2.3** for underlying data.

FIGURE 3.6 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP BY AGE, FEMALES, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)

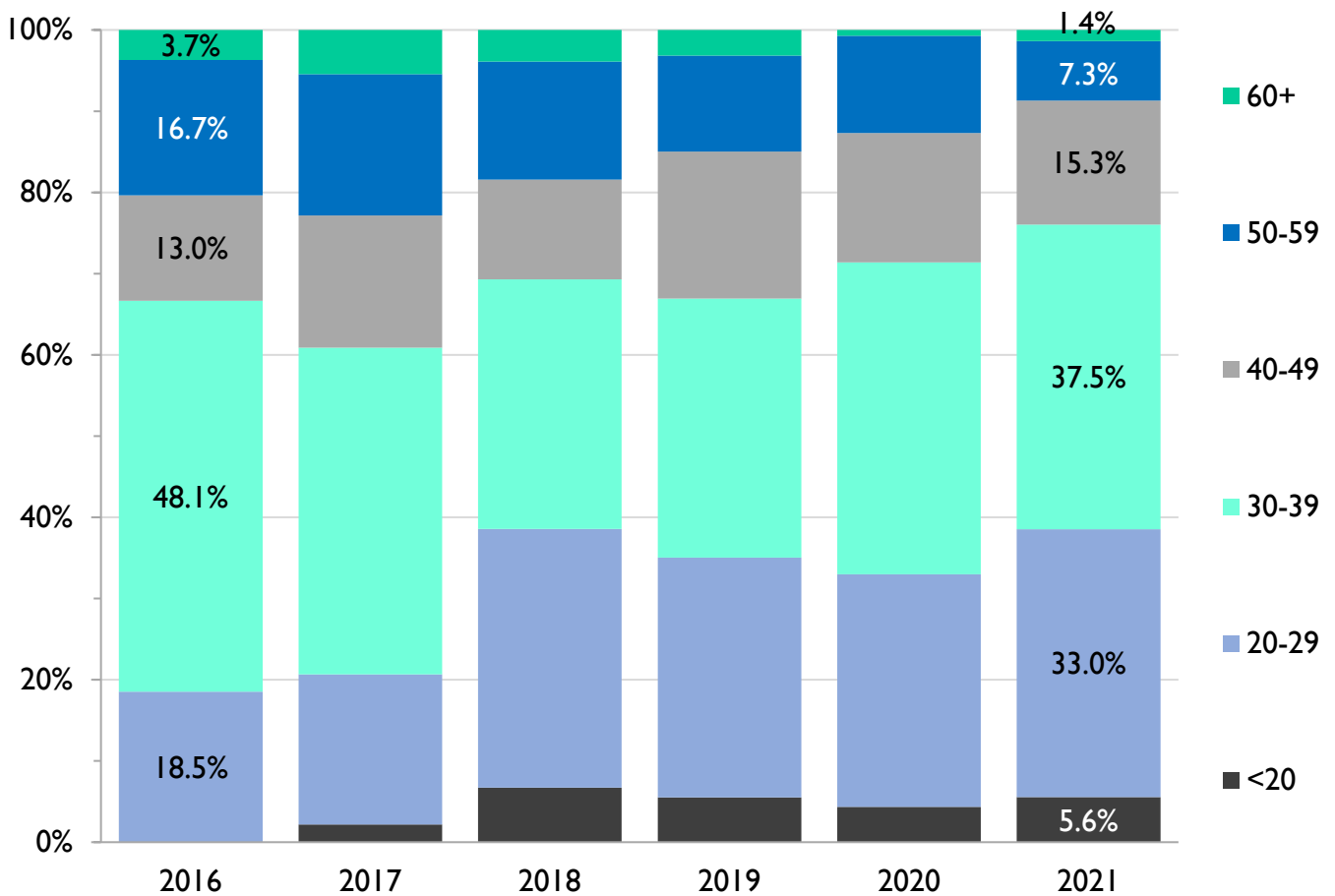


Trends

Between Jan 2020 and Dec 2021, the number of females dispensed PrEP increased in the 20-29 age category and decreased in the 30-39, 40-49, and the 50-59 categories. There was some volatility in the number of females dispensed PrEP, especially a large decrease among females aged 30-39 in Apr-Jun 2020 (coinciding with the beginning of the COVID-19 pandemic) with a rebound the next quarter (Jul-Sep 2020). For females aged <20 and 60+, there has been little change, however this is based on very small numbers and should be interpreted with caution.

Notes: PrEP dispensation data acquired from IQVIA. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. See **Table 2.4** for underlying data.

FIGURE 3.7 ESTIMATED PROPORTION OF INDIVIDUALS DISPENSED PrEP BY AGE, FEMALES, ONTARIO, 2016 TO 2021 (ANNUAL)



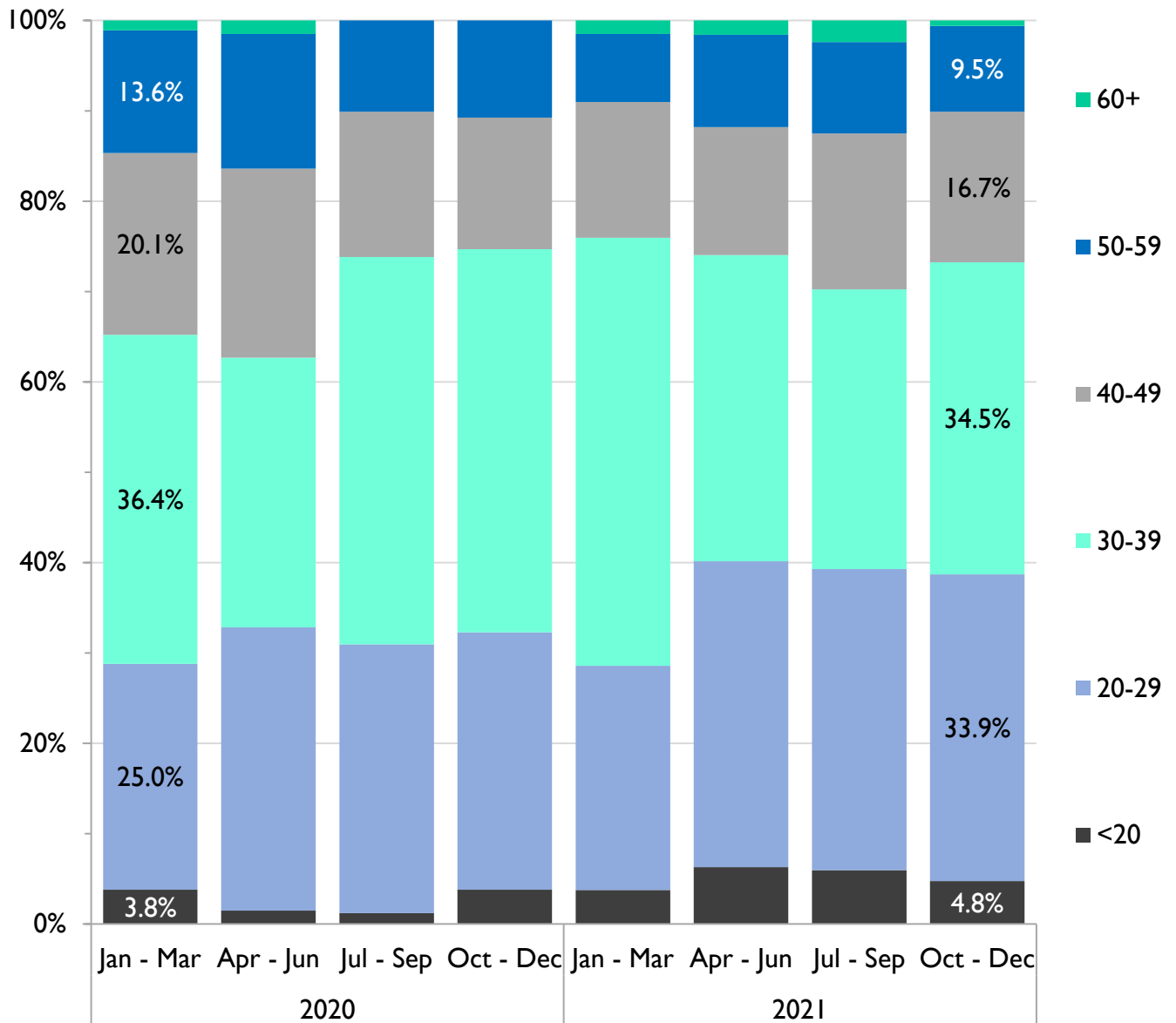
Age	2016	2021
<20	0.0%	5.6%
20-29	18.5%	33.0%
30-39	48.1%	37.5%
40-49	13.0%	15.3%
50-59	16.7%	7.3%
60+	3.7%	1.4%

Trends

Between 2016 and 2021, despite an increase in counts (Figure 3.5), the proportion of females aged 30-39, 50-59, and 60+ dispensed PrEP decreased while the proportions of females aged <20, 20-29, and 40-49 increased. Females under 30 years of age accounted for ~1 in 5 of females dispensed PrEP in 2016 and more than ~1 in 3 in 2021. Interpretation of these proportions should consider the relatively small numbers on which they are based.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. See **Table 2.3** for underlying data.

FIGURE 3.8 ESTIMATED PROPORTION OF INDIVIDUALS DISPENSED PrEP BY AGE, FEMALES, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)



Age	Jan-Mar 2020	Oct-Dec 2021
<20	3.8%	4.8%
20-29	25.0%	33.9%
30-39	36.4%	34.5%
40-49	20.1%	16.7%
50-59	13.6%	9.5%
60+	1.1%	0.6%

Trends

Between Jan 2010 and Dec 2021, ~65%-75% of the females dispensed PrEP were under age 40. As the number of females aged 20-29 dispensed PrEP increased (Figure 3.5), they made up a growing proportion of all females dispensed PrEP, whereas the proportion of females aged 30-39 dispensed PrEP remained stable over time despite an increase in numbers. Interpretation of these proportions should consider the relatively small numbers on which they are based.

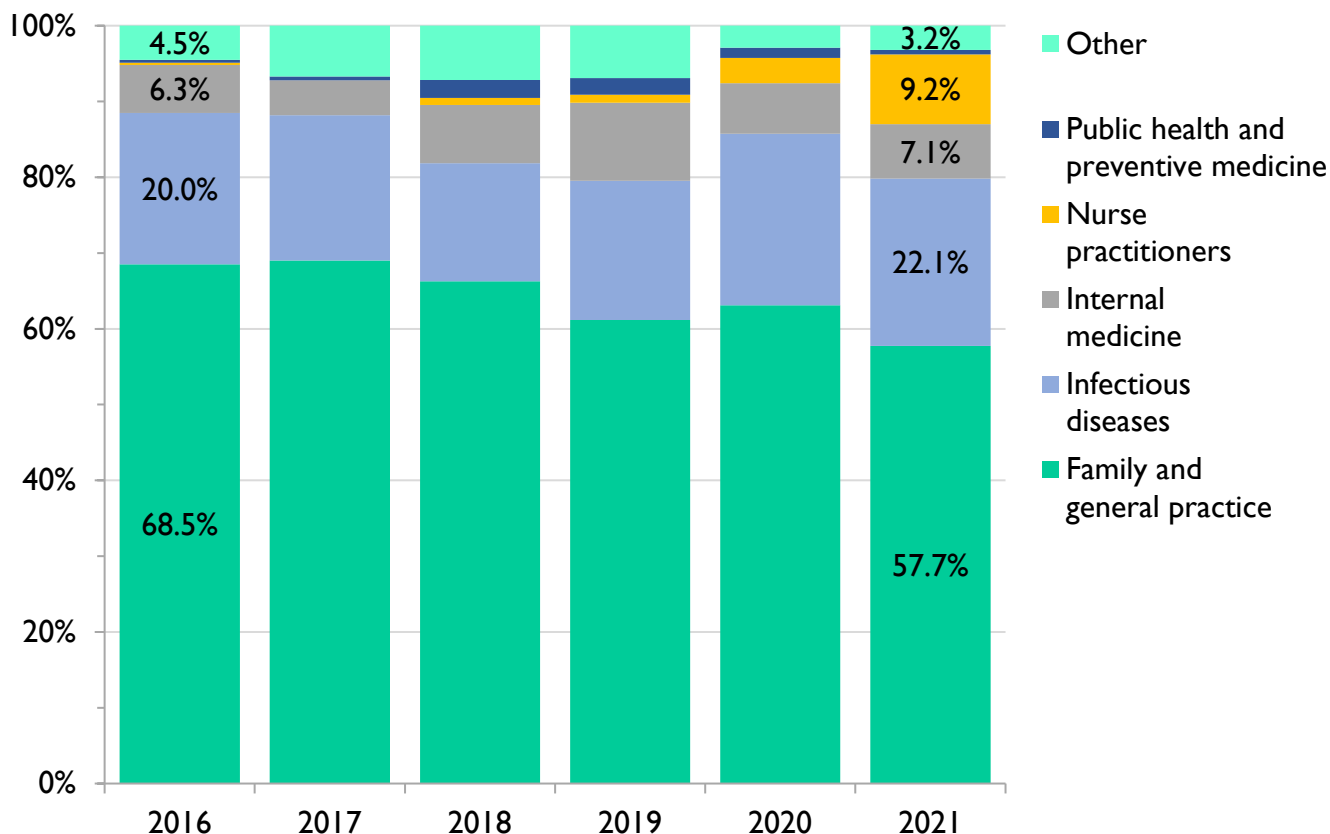
Notes: PrEP dispensation data acquired from IQVIA. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. See **Table 2.4** for underlying data.

4. By prescriber specialty

Summary & Interpretation

In 2021, family and general practitioners prescribed PrEP for almost 3 in 5 of the individuals dispensed PrEP. However, over time, nurse practitioners accounted for a growing proportion of PrEP dispensations and prescribed PrEP for almost 1 in 10 individuals who used PrEP.

FIGURE 4.1 ESTIMATED PROPORTION OF INDIVIDUALS DISPENSED PrEP BY PRESCRIBER SPECIALTY, ONTARIO, 2016 TO 2021 (WHERE KNOWN, ANNUAL)



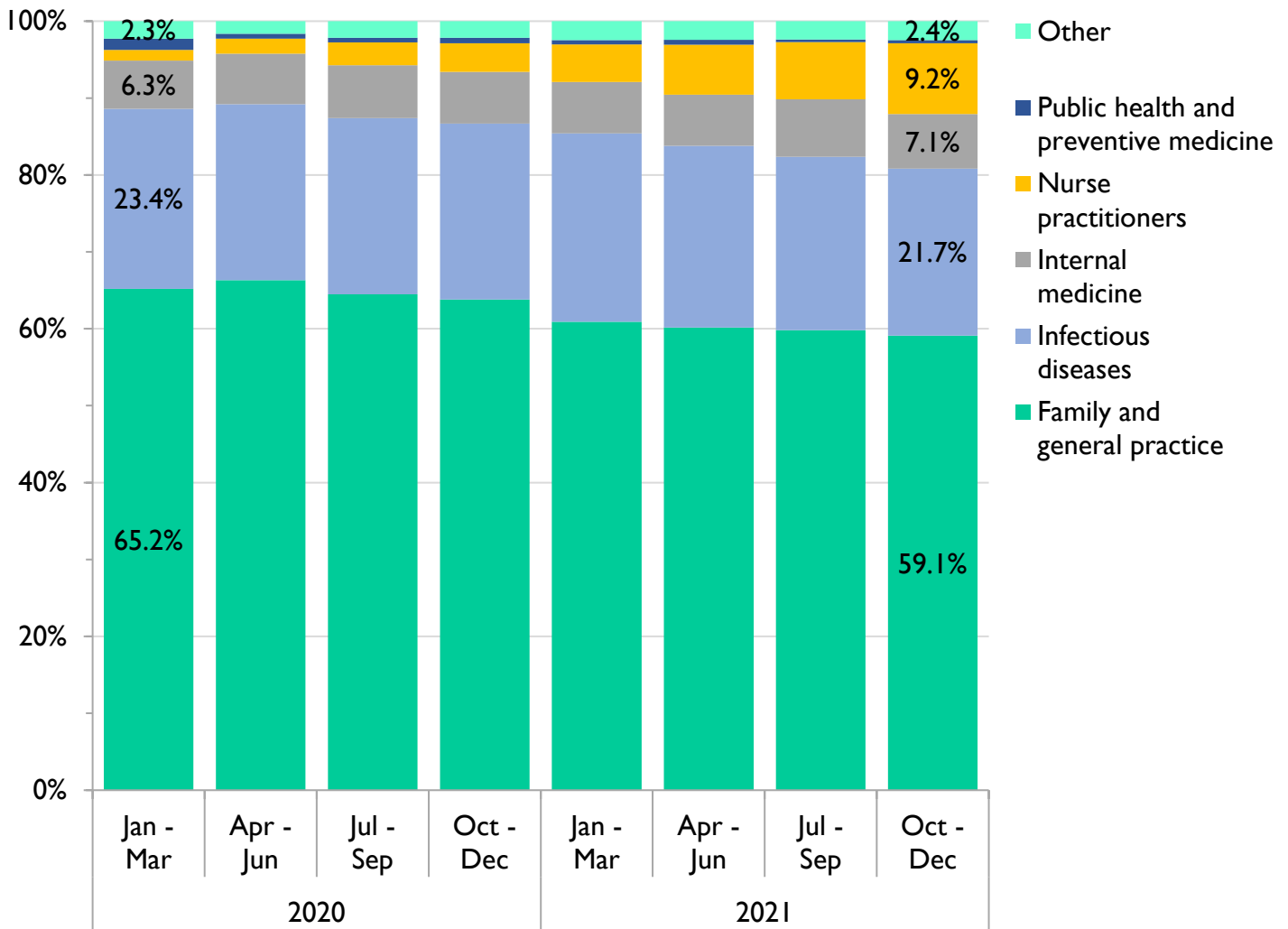
Prescriber Specialty	2016	2021
Family / GP	68.5%	57.7%
Infectious diseases	20.0%	22.1%
Internal medicine	6.3%	7.1%
Nurse practitioners	0.3%	9.2%
PH & Preventive	0.4%	0.6%
Other	4.5%	3.2%

Trends

Between 2016 and 2021, most individuals dispensed PrEP were prescribed PrEP by family and general practitioners; however, this proportion decreased over time (68.5% in 2016 to 57.7% in 2021). The estimated proportion of individuals prescribed PrEP by nurse practitioners increased and, by 2021, nurse practitioners accounted for almost 1 in 10 PrEP dispensations.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. Prescriber specialty was unknown for between 8.8% (2016) and 26.9% (2021) of estimated PrEP dispensations. PrEP = pre-exposure prophylaxis. GP = general practice. PH = public health. See **Table 3.1** for underlying data.

FIGURE 4.2 ESTIMATED PROPORTION OF INDIVIDUALS DISPENSED PrEP BY PRESCRIBER SPECIALTY, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)



Prescriber Specialty	Jan-Mar 2020	Oct-Dec 2021
Family / GP	65.2%	59.1%
Infectious diseases	23.4%	21.7%
Internal medicine	6.6%	7.1%
Nurse practitioners	2.0%	9.2%
PH & Preventive	1.5%	0.4%
Other	2.3%	2.4%

Trends

Between Jan 2020 and Dec 2021, family and general practitioners consistently prescribed most (65.2% to 59.1%) of the PrEP dispensations each quarter; however, the proportion prescribed by this group decreased slightly each quarter except Apr-Jun 2020. Quarter after quarter, nurse practitioners accounted for a growing proportion of PrEP dispensations. Some increasingly popular online

PrEP clinics/services rely on nurse practitioners to do their prescribing which may partially reflect their increasing proportion of the dispensations.

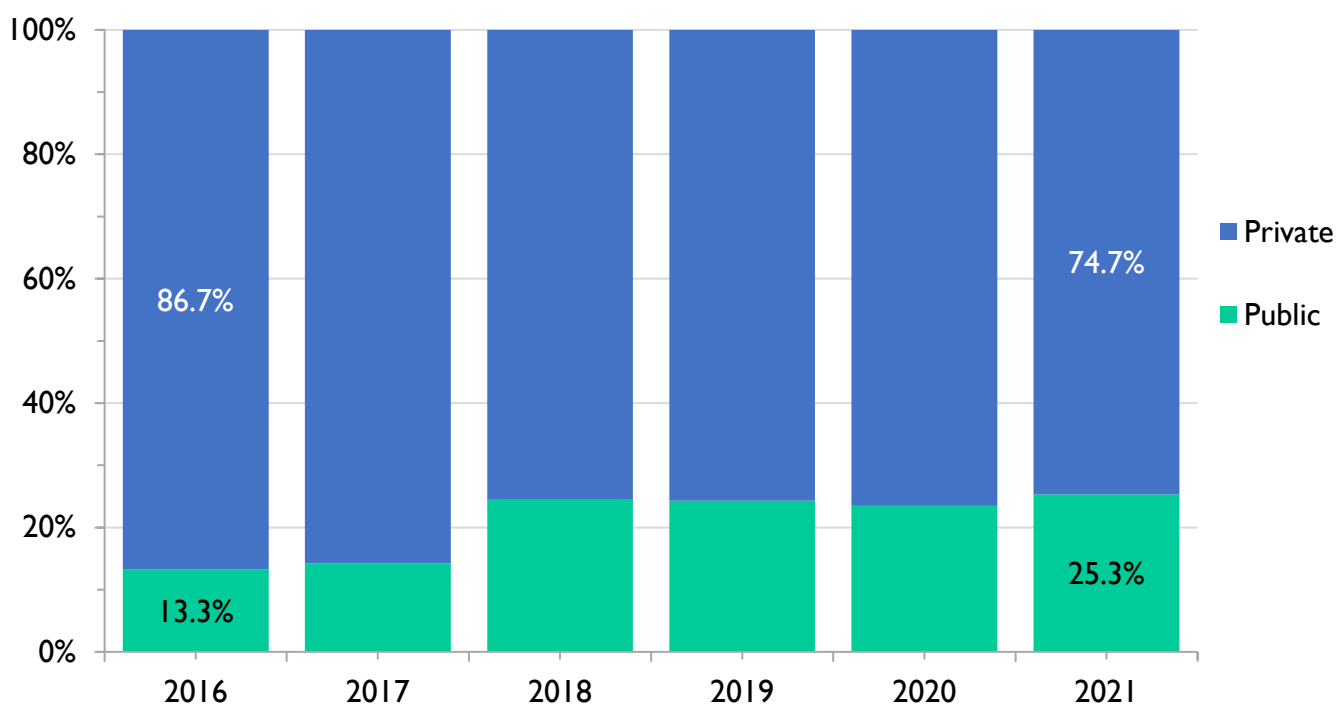
Notes: PrEP dispensation data acquired from IQVIA. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. Prescriber specialty was unknown for between 9.3% (Jan-Mar 2020) and 26.0% (Oct-Dec 2021) of estimated PrEP dispensations. PrEP = pre-exposure prophylaxis. GP = general practice. PH = public health. See **Table 3.2** for underlying data.

5. By payer type

Summary & Interpretation

Between 2016 and 2021, a large majority of the number of individuals who were dispensed PrEP covered the cost through private drug insurance; however, the proportion who covered the cost through publicly funded programs increased from ~1 in 7 in 2016/2017 to ~1 in 4 in 2018 and then remained relatively stable. This shift is likely due in part to PrEP being added to the list of drugs covered through the Ontario Drug Benefit (ODB) program in September 2017 and the expansion of PrEP coverage through this program to those under age 25 (OHIP+) in January 2018. As private drug insurance continues to be the predominant means of payment for PrEP, and this necessitates individuals having employment with private health insurance coverage and/or other means of paying out-of-pocket, economic barriers to accessing PrEP still exist.

FIGURE 5.1 ESTIMATED PROPORTION OF INDIVIDUALS DISPENSED PrEP BY PAYER TYPE, ONTARIO, 2016 TO 2021 (ANNUAL)



Trends

Between 2016 and 2021, most individuals dispensed PrEP covered the cost of the prescription through private drug insurance. The proportion who covered the cost through publicly funded programs increased from 13.3%-14.2% in 2016-2017 to 24.5% in 2018 and then remained relatively stable through 2021. The jump in public payer type in 2018 corresponds to PrEP being added to the list of drugs covered through the Ontario Drug Benefit program in September 2017 and the expansion of PrEP coverage for individuals under age 25 through OHIP+ in January 2018.

Notes: PrEP dispensation data acquired from IQVIA. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. Dispensations paid for out-of-pocket not included. PrEP = pre-exposure prophylaxis. See **Table 4.1** for underlying data.

6. By region

Summary & Interpretation

The “Toronto – Downtown” region had by far the largest number of PrEP dispensations between 2016 and 2021, accounting for most (44.6%-58.7%) PrEP dispensations in each of those years. The number of PrEP dispensations in downtown Toronto continued to increase substantially each year except in 2020 (with its most pronounced decrease in Apr-Jun 2020 coinciding with the beginning of the COVID-19 pandemic). However, the Toronto – Downtown region also saw its proportion of all PrEP dispensations decrease between 2016 and 2021 as increases in most other Ontario regions outpaced its growth (notably Durham, Erie-St Clair, Peel, Central East, Eastern, and Toronto - Not Downtown regions).

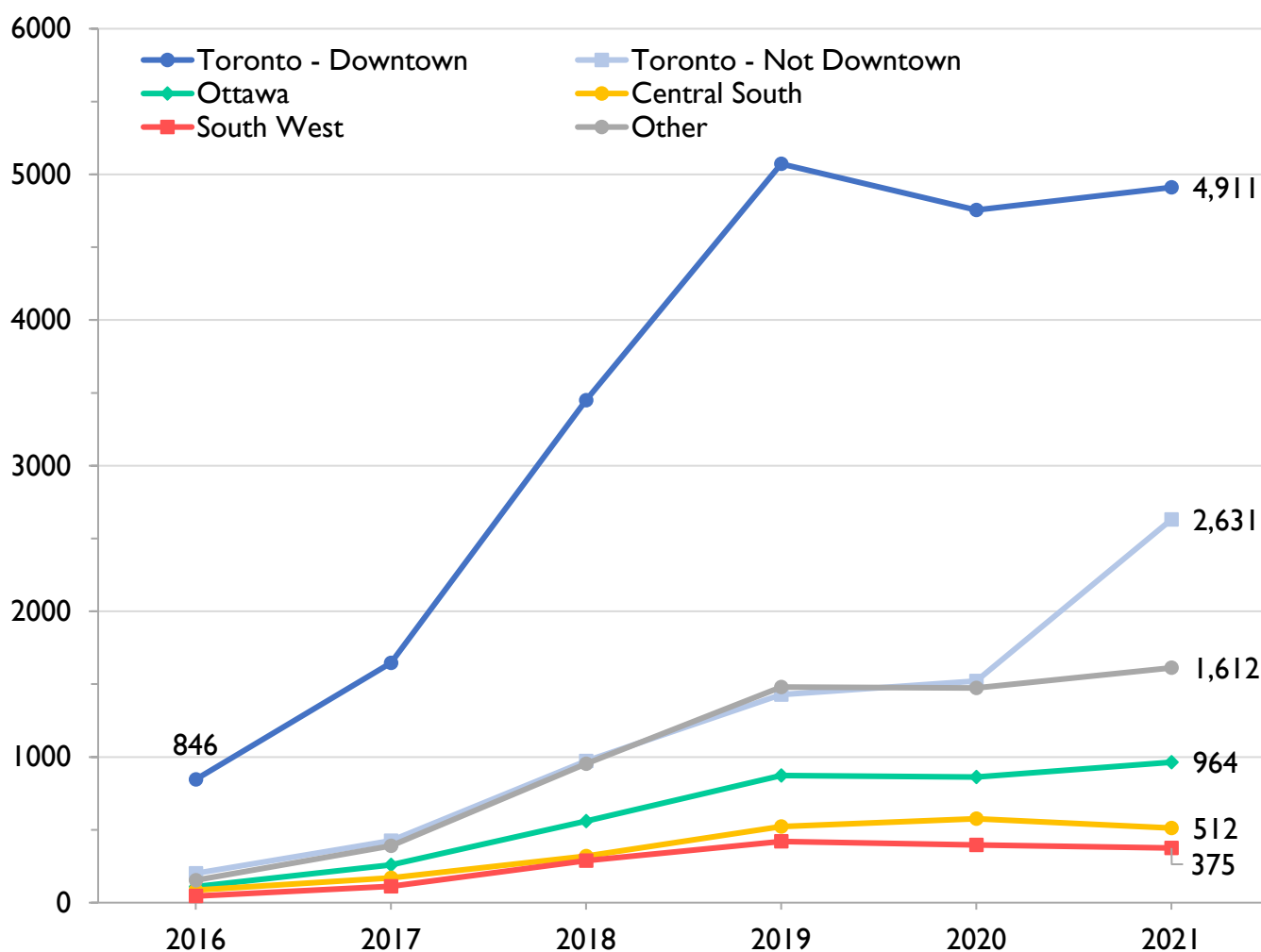
The estimated rate of PrEP dispensations per capita was highest in Toronto and increased in all regions between 2018 and 2021, with North Eastern, Peel and Durham regions having the largest relative increases.

The estimated “PrEP-to-need ratio” (a calculated measure of PrEP provision relative to HIV burden within a population, where higher numbers indicate more optimal HIV prevention) also increased for all regions, with the Toronto and Eastern regions having the largest relative increases. Ottawa and Toronto had the highest “PrEP-to-need ratio” in 2021 (both 35.7). Larger urban areas such as Toronto and Ottawa may have more individuals who are eligible to take PrEP and/or clinicians who are comfortable prescribing PrEP, as well as a higher rates of HIV testing and diagnoses, all which can affect the PrEP-to-need ratios.

Note: This section refers to PrEP dispensations rather than PrEP users to emphasize that reported information on the geographic location is the location of the pharmacy where the prescription was dispensed and not necessarily where the individual lives. This is especially true for the region of Peel where beginning in November 2021, an online PrEP clinic began to offer PrEP online assessments and care, financial assistance program help, dispensation through their partner pharmacy located in Peel and free delivery of medications within Ontario.

A map and description of the geographic regions are available [here](#). Toronto-Downtown and Toronto-not Downtown are aggregated in the rate and PrEP-to-need ratio sections.

FIGURE 6.1 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP BY REGION, ONTARIO, 2016 TO 2021 (ANNUAL)



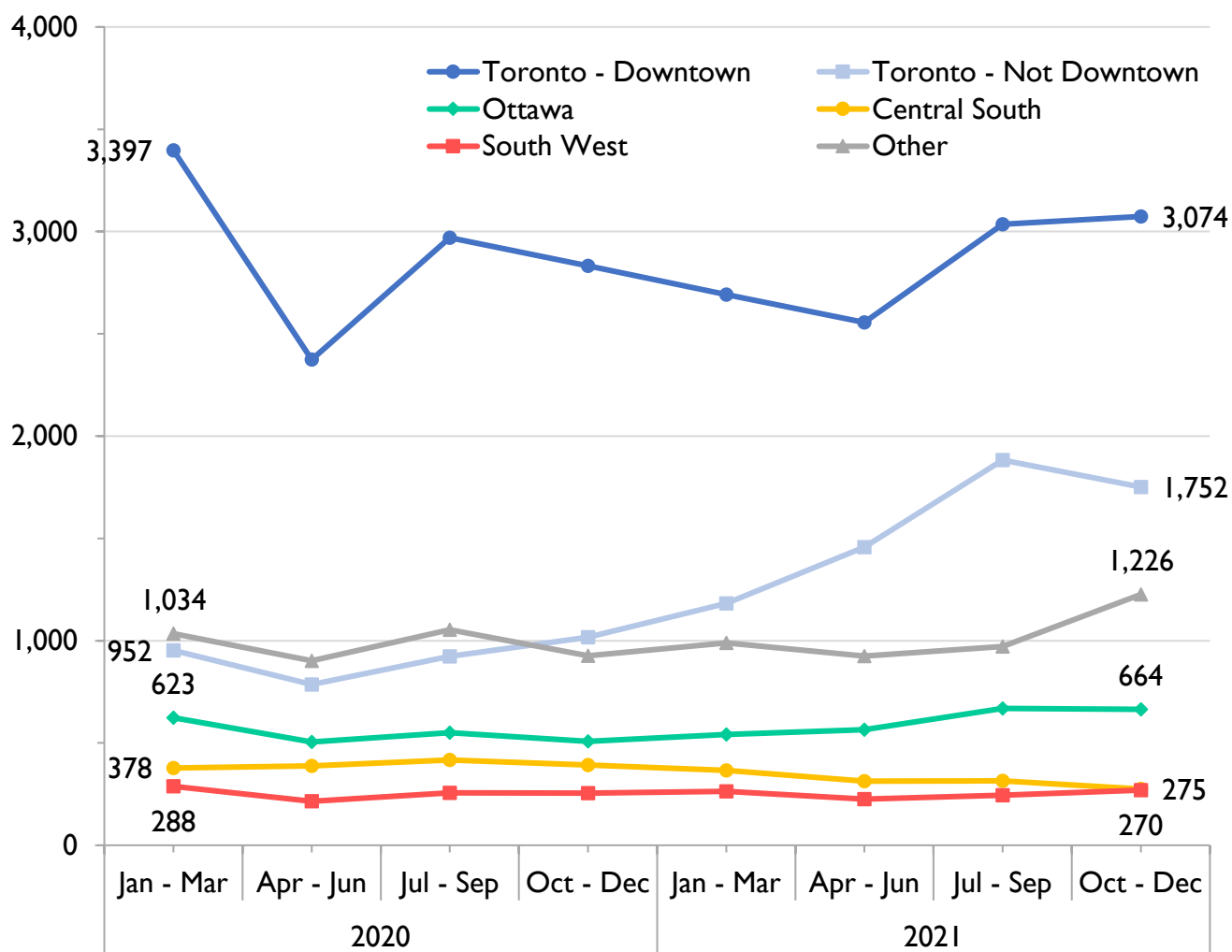
Region	2016	2021
Toronto – Downtown	846	4,911
Toronto – Not Downtown	201	2,631
Ottawa	110	964
Central South	86	512
South West	45	375
Other	154	1,612

Trends
 Between 2016 and 2021, the number of PrEP dispensations increased in all regions. Across all six years, the largest number of PrEP dispensations were from pharmacies in the “Toronto – Downtown” region. The most notable decrease in PrEP dispensations in 2020 (coinciding with the COVID-19 pandemic) was also in the Toronto – Downtown region. The greatest relative increases were in the Toronto – Not Downtown region (13.1 times)

followed by the Other region (10.5 times, see Figure 6.4 for these regions).

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. Region based on address of dispensing pharmacy. PrEP = pre-exposure prophylaxis. See technical notes for detailed information on the [Geographic regions](#). See **Table 5.1** for underlying data.

FIGURE 6.2 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP BY REGION, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)



Region	Jan-Mar 2020	Oct-Dec 2021
Toronto – Downtown	3,397	3,074
Toronto – Not Downtown	952	1,752
Ottawa	623	664
Central South	378	275
South West	288	270
Other	1,034	1,226

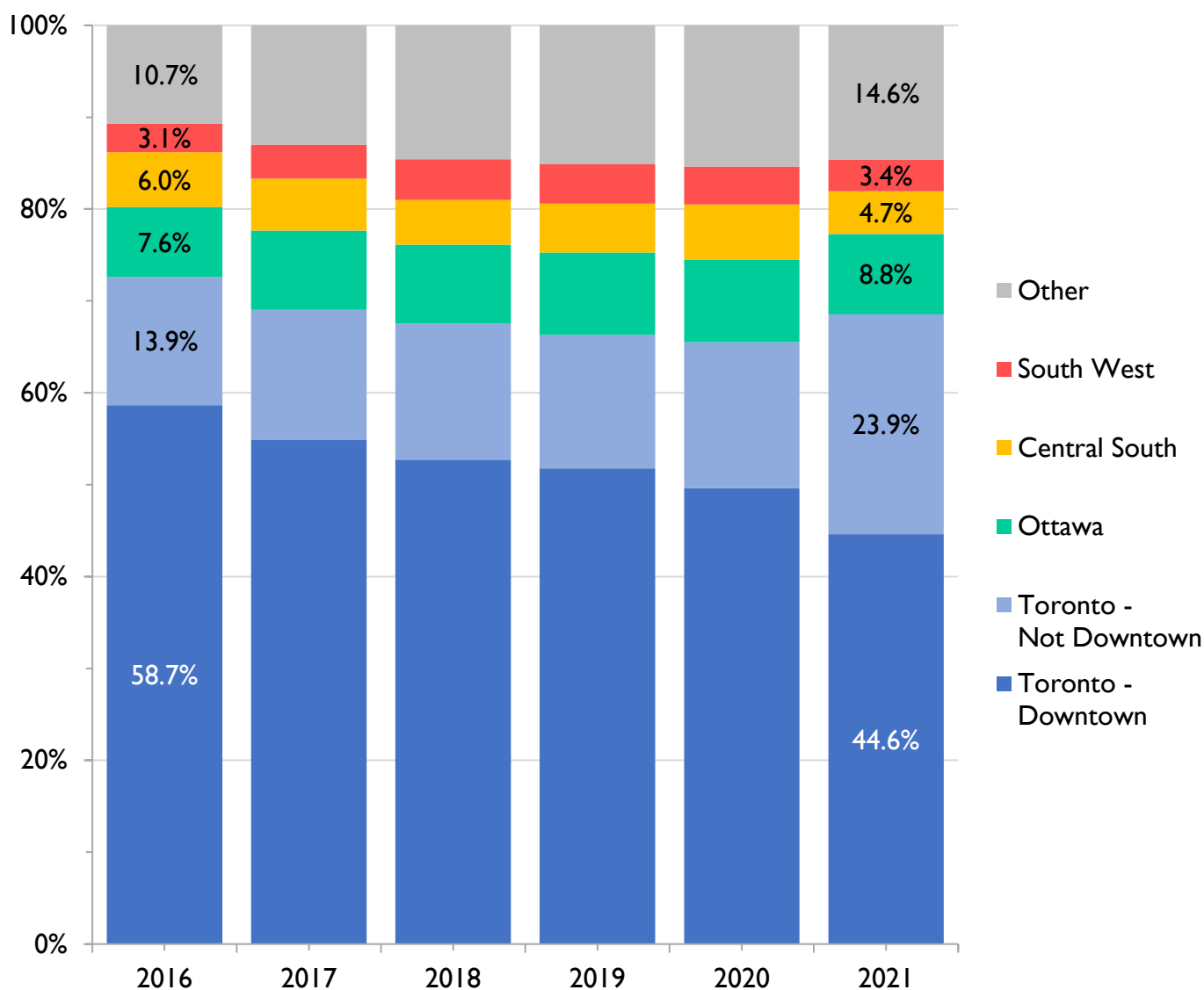
Trends

Between Jan 2020 and Dec 2021, the number of PrEP dispensations increased in Toronto – Not Downtown, Other and Ottawa regions. In all quarters over those two years, the largest number of PrEP dispensations were from pharmacies in the “Toronto – Downtown” region. This region also saw the largest decrease in Apr-Jun 2020 coinciding with the beginning of the COVID-19 pandemic. Relative increases in PrEP dispensations were greatest in the “Toronto – Not Downtown” (84%) region, followed by “Other”

regions (18%) and the Ottawa (7%) region.

Notes: PrEP dispensation data acquired from IQVIA. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. Region based on address of dispensing pharmacy. PrEP = pre-exposure prophylaxis. See technical notes for detailed information on the [Geographic regions](#). See **Table 5.2** for underlying data.

FIGURE 6.3 ESTIMATED PROPORTION OF INDIVIDUALS DISPENSED PrEP BY REGION, ONTARIO, 2016 TO 2021 (ANNUAL)

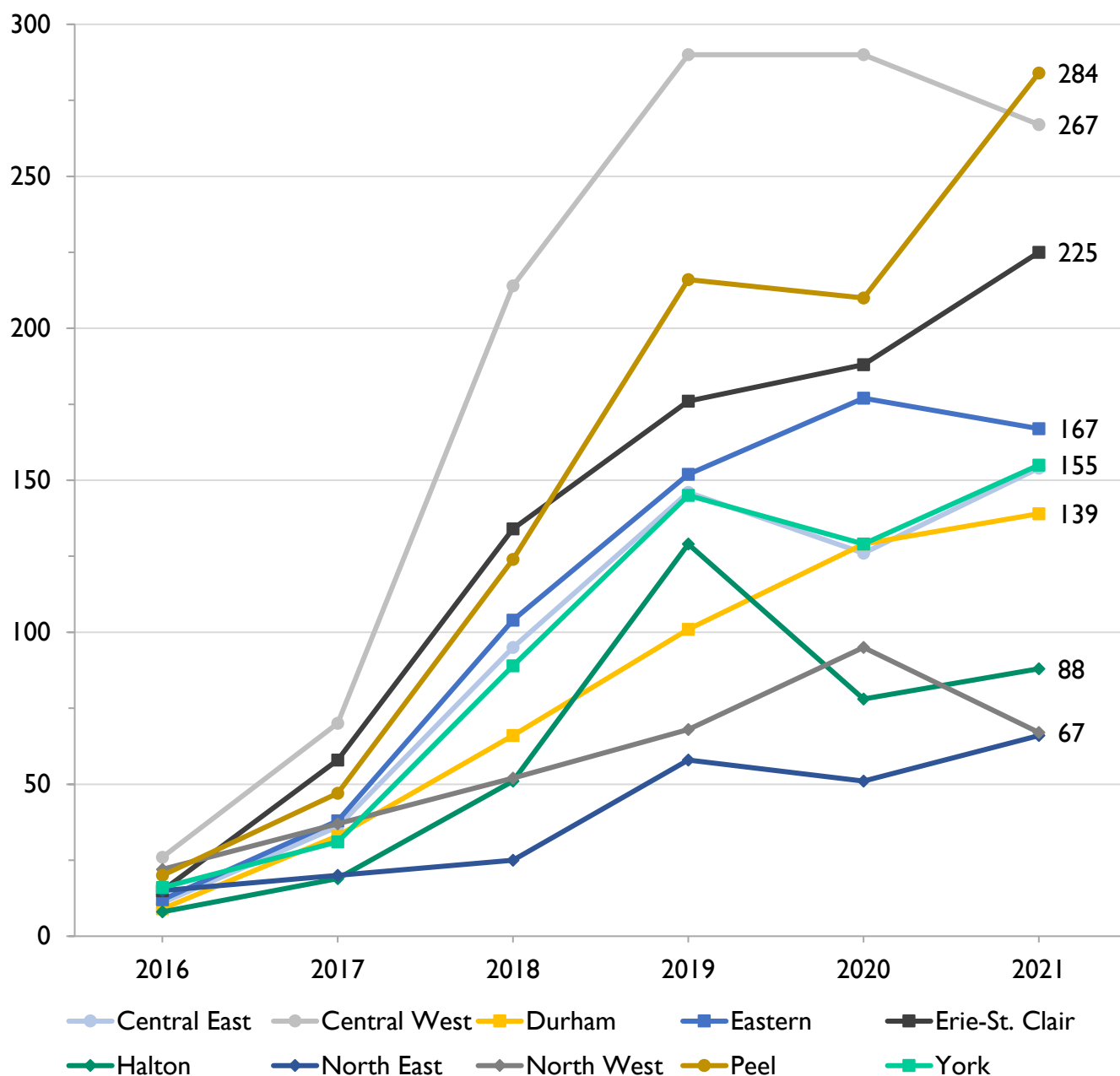


Trends

Between 2016 and 2021, most PrEP dispensations were from pharmacies in the “Toronto – Downtown” region; however, this region accounted for a smaller proportion of dispensation over this time (from 58.7% in 2016 to 44.6% in 2021). The proportions of PrEP dispensations from pharmacies in the Toronto – Not Downtown, Ottawa, South West, and Other regions increased over time. Each of the 10 regions combined into the ‘Other’ category (see breakdown in Figure 6.4 and Figure 6.5), accounted for less than 3.0% of individuals dispensed PrEP per year (together accounting for 10.7% to 15.4% of dispensations).

Notes: PrEP dispensation data acquired from IQVIA. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. Region based on address of dispensing pharmacy. PrEP = pre-exposure prophylaxis. See technical notes for detailed information on the [Geographic regions](#). See **Table 5.1** for underlying data.

FIGURE 6.4 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP BY REGION, ONTARIO (EXCLUDING TORONTO, OTTAWA, CENTRAL SOUTH, AND SOUTH WEST), 2016 TO 2021 (ANNUAL)

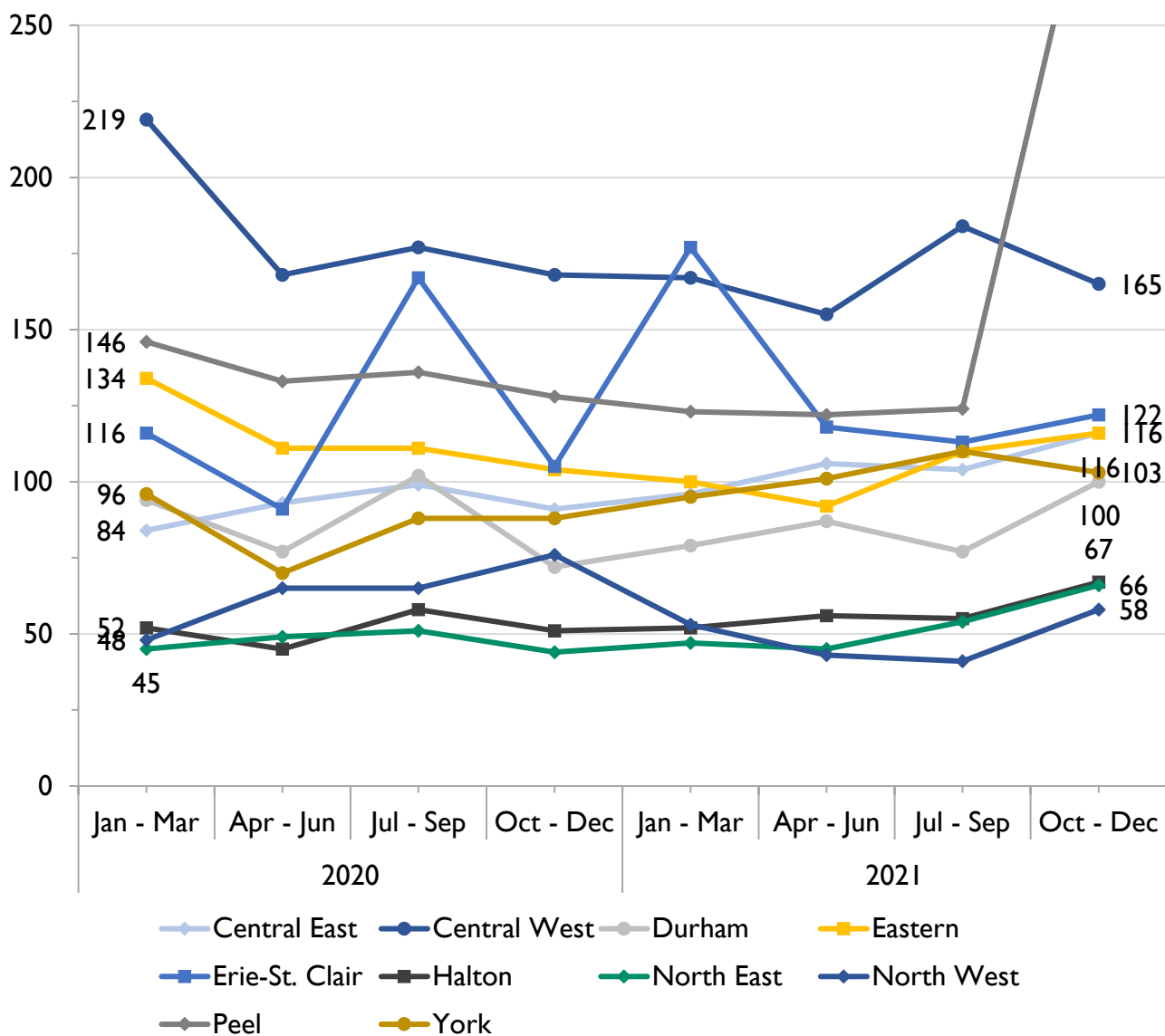


Trends

Between 2016 and 2021, the number of PrEP dispensations increased in all regions with the largest increases occurring between 2016 and 2019. Outside of Toronto, Ottawa, Central South and South West regions, the number of PrEP dispensations was consistently highest in the Central West region except in 2021 when Peel region was the highest. The relative increases were greatest in the Durham (15.4 times), Erie-St. Clair (15.0), Peel (14.2 times), Central East (14.0) and Eastern (13.9 times) regions.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. Region based on address of dispensing pharmacy. PrEP = pre-exposure prophylaxis. See technical notes for detailed information on the [Geographic regions](#). See **Table 5.1** for underlying data.

FIGURE 6.5 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP BY REGION, ONTARIO (EXCLUDING TORONTO, OTTAWA, CENTRAL SOUTH AND SOUTH WEST), JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)

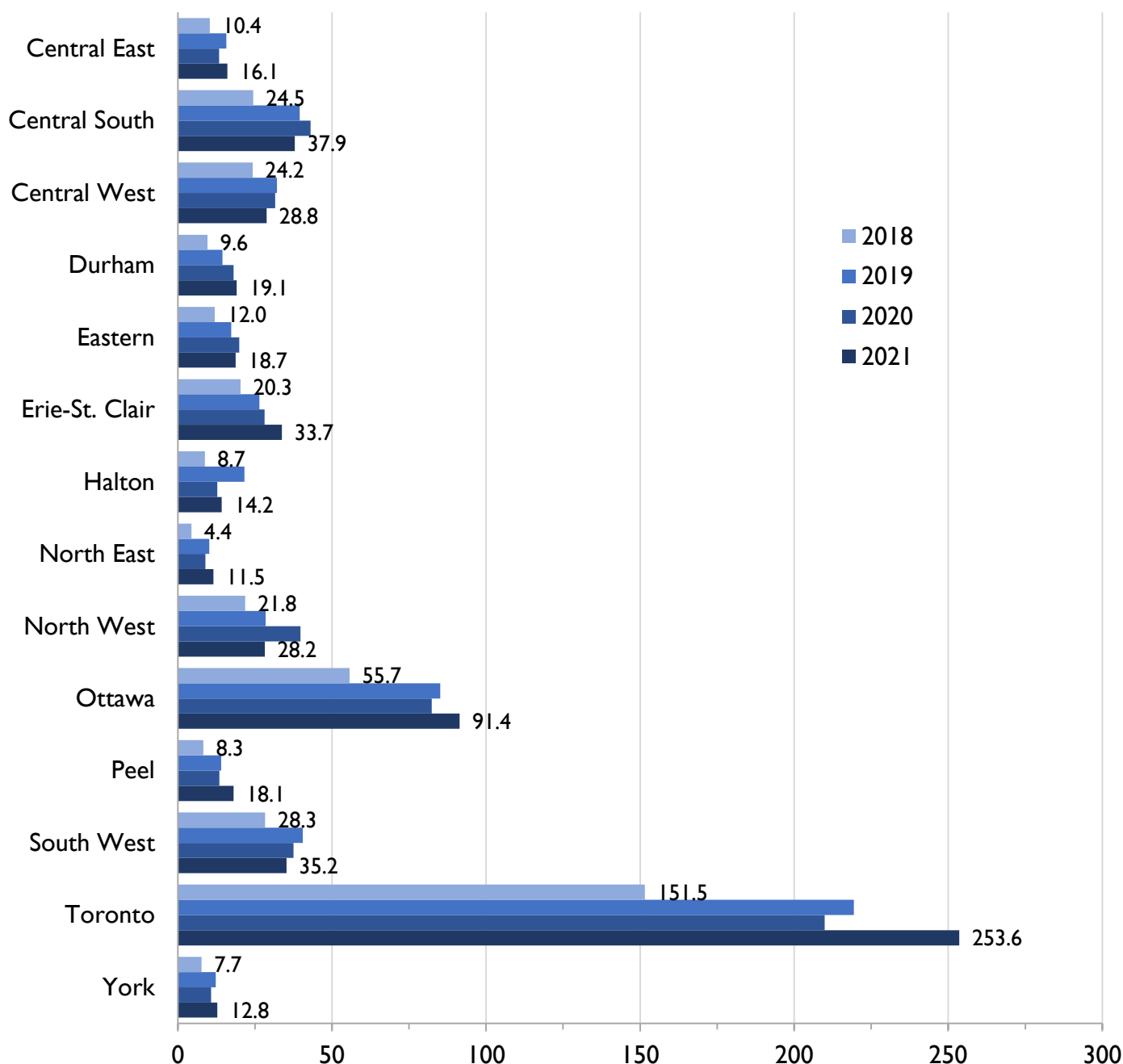


Trends

Between Jan 2020 and Dec 2021, the number of PrEP dispensations per quarter remained relatively stable in most regions except in Central West where there was a marked decrease in Apr-Jun 2020 followed by a relatively stable number of dispensations in 2021. Despite this decrease, the Central West region remained the region with the largest PrEP dispensations except in Oct-Dec 2021 when Peel region had more. Note: An online PrEP clinic whose pharmacy dispenses out of Peel region opened in November 2021, likely explaining the jump in PrEP dispensations in Oct-Dec 2021.

Notes: PrEP dispensation data acquired from IQVIA. Quarterly data represents the estimated number of unique individuals dispensed PrEP at least once during the three-month period. Region based on address of dispensing pharmacy. PrEP = pre-exposure prophylaxis. See technical notes for detailed information on the [Geographic regions](#). See **Table 5.2** for underlying data.

FIGURE 6.6 ESTIMATED RATE OF INDIVIDUALS DISPENSED PREP PER 100,000 PEOPLE BY REGION, ONTARIO, 2018 TO 2021 (ANNUAL)

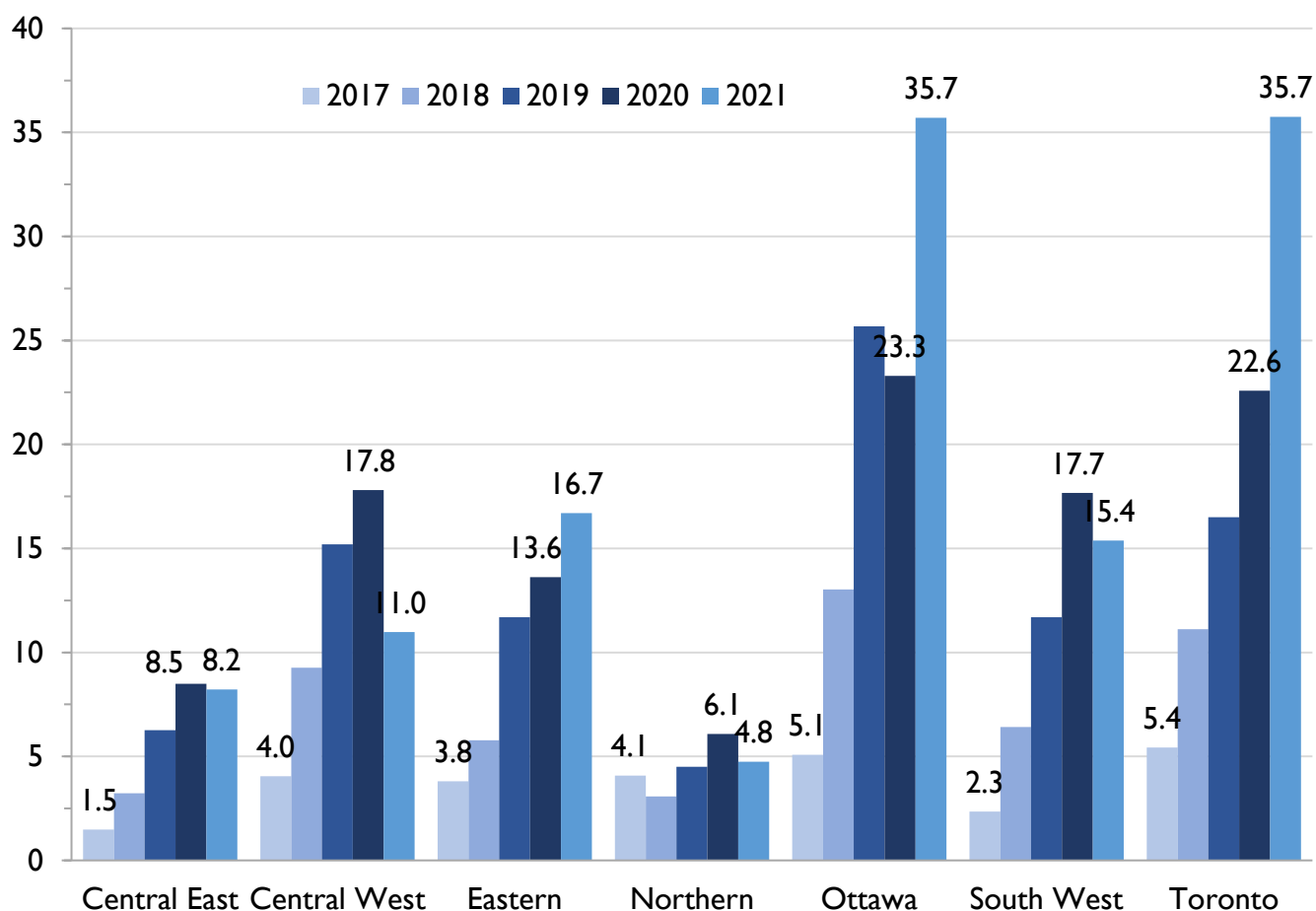


Trends

Between 2018 and 2021, the rate of PrEP dispensations per 100,000 people increased in all regions. The highest rate was consistently in the Toronto region. The relative increases were greatest in the North Eastern (2.6 times) and Peel (2.2 times) regions. Provincewide, the overall rate of PrEP dispensations per 100,000 people increased from 45.7 in 2018 to 74.2 in 2021.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. Population estimates for all ages retrieved from Statistics Canada. Region based on address of dispensing pharmacy. PrEP = pre-exposure prophylaxis. “Toronto – Downtown” and “Toronto – Not Downtown” aggregated in this figure. See technical notes for detailed information on the [Geographic regions](#). See **Table 5.3** for underlying data.

FIGURE 6.7 ESTIMATED RATIO OF INDIVIDUALS DISPENSED PREP TO FIRST-TIME HIV DIAGNOSES (“PREP-TO-NEED RATIO”), BY REGION, ONTARIO, 2017 TO 2021 (ANNUAL)



Trends

The “PrEP-to-need ratio” is a calculated ratio of PrEP dispensations to first-time HIV diagnoses as an attempt to quantify PrEP provision relative to HIV burden (first-time HIV diagnoses) within a population. Therefore, higher numbers indicate more optimal HIV prevention efforts.

Between 2018 and 2021, the “PrEP-to-need ratio” increased across all regions. This ratio was highest in Ottawa in 2018, 2019 and 2020 and the same as Toronto in 2021. Across all years it was lowest in Northern and Central East regions. The relative increases were greatest in the Toronto (3.2 times) and Eastern (2.9) regions. Provincewide, the overall estimated ratio of PrEP dispensations to first-time HIV diagnoses increased from 9.0 in 2018 to 22.8 in 2021.

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the estimated number of unique individuals dispensed PrEP at least once during the year. Regions based on address of dispensing pharmacy and are broader aggregations of previous smaller regions. First-time HIV diagnoses data provided by Public Health Ontario (PHO). PrEP = pre-exposure prophylaxis. See technical notes for information on the [Geographic regions](#) and [First-time HIV diagnoses](#). See **Table 5.4** for underlying data.

TECHNICAL NOTES

Data sources:

IQVIA: Individuals dispensed PrEP

The dispensation data used in this report was acquired from IQVIA (www.iqvia.com). IQVIA used its retail pharmacy drug dispensation database, which draws on almost 2,300 pharmacies in Ontario, representing approximately 66% of all dispensed retail prescriptions in Ontario, excluding hospital dispensaries. Any analysis of IQVIA data is arrived at independently and IQVIA is not responsible for any reliance by recipients of the data or any analysis thereof. The analyses, conclusions, opinions and statements expressed herein are those of the author(s) and not necessarily those of IQVIA.

Dispensation data provided to IQVIA is de-identified, but linkable for the same person using anonymous identifiers, allowing for IQVIA to conduct counts of unique individuals. These anonymous identifiers are assigned at the pharmacy-level. See [Limitations](#) for explanation of possible miscounts or misclassifications.

IQVIA projects their data to the provincial-level using standardized proprietary weighting methods. Weights are calculated using data on the total number of antiretroviral medication sales in Ontario (acquired by IQVIA directly from pharmaceutical companies). The weighting method considers the number of pharmacies in a given area, the distance between IQVIA-captured and uncaptured pharmacies, and the size of the pharmacies. To provide a measure of precision for these projected estimates, IQVIA validated them against its census sales database for Ontario, which measures the actual sales of pharmaceutical products sold indirectly through wholesalers and chain warehouses, as well as directly from the manufacturers to retail pharmacies. This validation found that estimates were within ~1% for the total antiretroviral market overall (<1% for brand name products and ~4% for generic products, based on Ontario year end 2021 data).

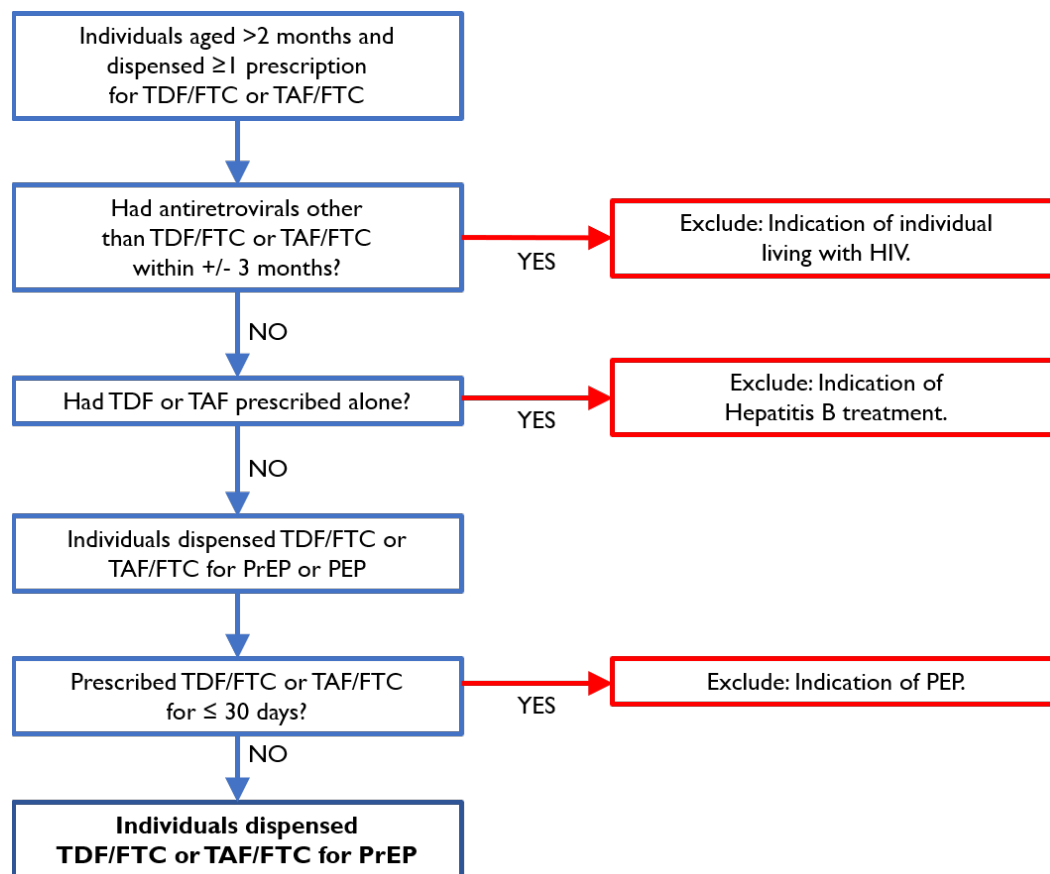
First-time HIV diagnoses

This report uses counts of first-time HIV diagnoses in 2016 through to 2021 in calculations of ratios of number of individuals dispensed PrEP to number of first-time HIV diagnoses (PrEP-to-need ratios) by sex and across seven regions defined by the Ontario HIV Epidemiology and Surveillance Initiative (OHESI). These data were provided to the OHTN by Public Health Ontario (PHO). First-time diagnoses are positive HIV tests with no previous evidence of HIV. Therefore, they exclude anyone with a previous documented positive diagnostic test, either inside or outside of Ontario. PHO also uses linked viral load testing history in Ontario as evidence of being in care for HIV and so excludes from first-time HIV diagnoses: 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) with a viral load <200 copies/mL. More information about first-time HIV diagnoses, their definition and limitations, can be found in the OHESI blogpost "[HIV diagnoses in Ontario: Refinements to surveillance data in the 2018 reports](#)".

Indication decision tree

For this report, we acquired the estimated number of individuals dispensed branded or generic TDF/FTC OR branded TAF/FTC. These antiretroviral medications can be used for a variety of purposes (i.e. indications) including HIV treatment, post-exposure prophylaxis (PEP), PrEP and hepatitis B virus treatment. However, IQVIA does not collect data on indication and therefore an indication decision tree was developed to assign this information to each individual (see Figure ii below). Some of the parameters (such as the length of time to classify as “post-exposure prophylaxis” or “antiretroviral therapy”) were chosen based on clinical judgement. Of note, the indication decision tree has not been validated for either the dispensation data or physician prescription data and therefore may misclassify some dispensations. Sensitivity analyses could not be carried out on the underlying assumptions. The acquired dispensation data was stratified by indication and sex, age, prescriber specialty, payer type and geography (geographic region of dispensation). On-demand PrEP use exists but is estimated to make up a small proportion of the total number of PrEP dispensations. It is unclear how the majority of on-demand PrEP prescriptions are being dispensed, and there may be some misclassification if first-time on demand PrEP dispensations are only one bottle (30-day quantity).

FIGURE II. DECISION TREE USED TO DEFINE DISPENSATIONS OF TDF/FTC OR TAF/FTC AS PrEP



Notes: TDF/FTC = tenofovir disoproxil fumarate-emtricitabine. TAF/FTC = tenofovir alafenamide-emtricitabine. PrEP = Pre-Exposure Prophylaxis. PEP = Post-Exposure Prophylaxis.

Limitations

The numbers in this report represent our best estimates of unique PrEP users in the province. Double-counting individuals in the quarterly data is possible. For example, an individual would be counted twice if they fill TDF/FTC or TAF/FTC prescriptions at two different pharmacies during the same calendar quarter. However, if multiple TDF/FTC or TAF/FTC dispensations from the same pharmacy occurs, the individual will not be double-counted as identifiers used to link individuals are assigned at the pharmacy-level. Alternatively, individuals regularly taking PrEP but filling prescriptions irregularly (e.g. early or late) could potentially be missed in adjacent calendar quarters - leading to underestimation.

Misclassification is possible if portions of prescriptions are filled at more than one pharmacy in the same quarter. For example, if an HIV-positive individual on antiretroviral treatment (ART) fills a prescription containing TDF/FTC or TAF/FTC at one pharmacy and the remainder of their ART regimen at a different pharmacy, the first dispensation would be classified as PrEP and the second as ART. This is because dispensations from different pharmacies are not linkable at the individual level.

With respect to the IQVIA data, this report did not assess the appropriateness of PrEP dispensation (e.g. whether PrEP was indicated based on the risk factors for that individual). The comparison of population rates by geography provided a crude comparison which accounts for overall population size. It does not account for HIV risk or appropriateness of PrEP in a jurisdiction. The ratios between number of individuals prescribed PrEP and the number of first-time HIV diagnoses (“PrEP-to-need ratio”) provide some measure of PrEP uptake relative to HIV diagnoses (a proxy measure of HIV incidence), though these also do not reflect PrEP appropriateness at the level of the individual.

Geographic regions

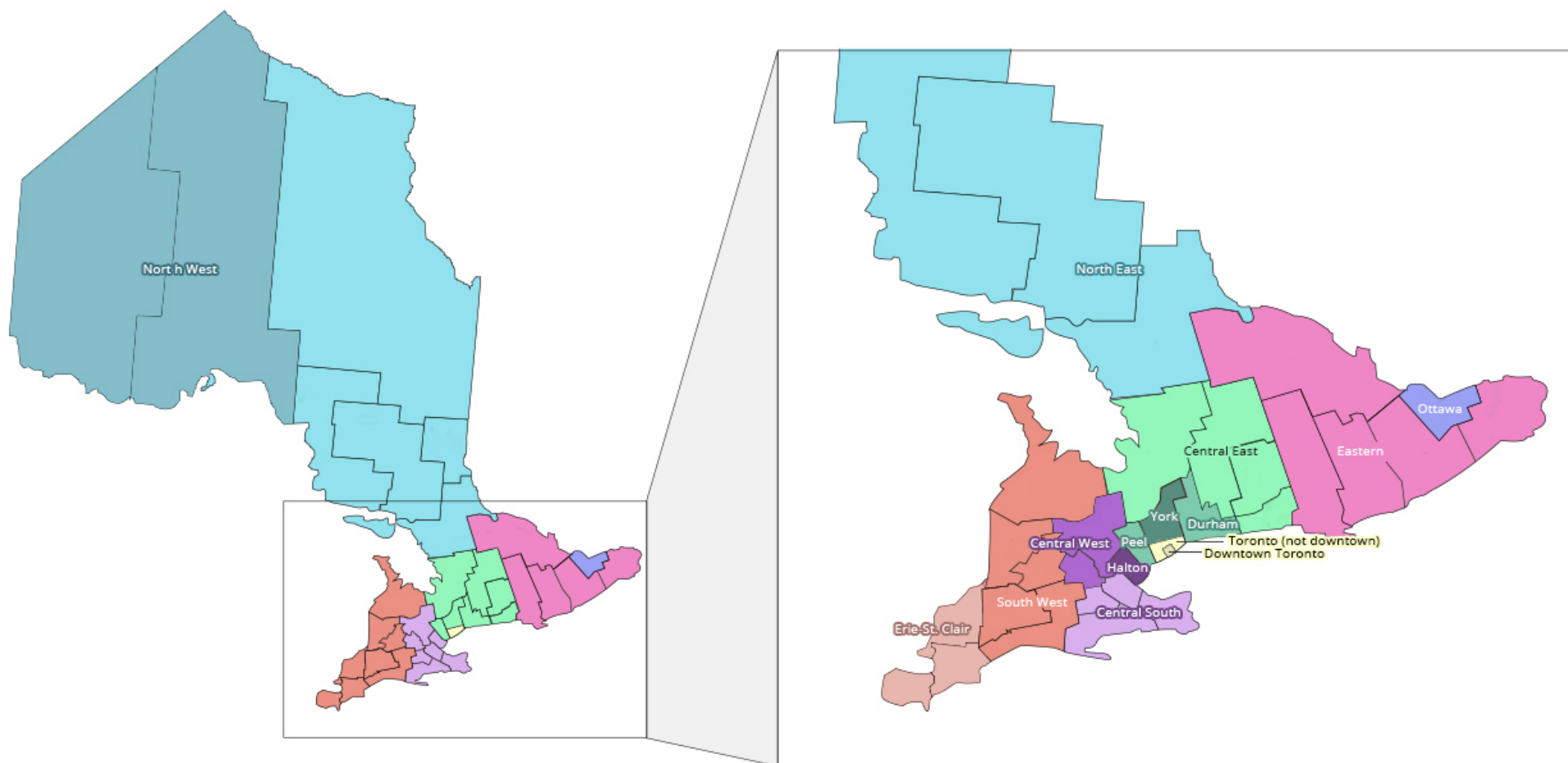
Often, geographic regions are presented first as “Toronto – Downtown, Toronto – Not Downtown, Ottawa, Central South, South West, and ‘other’”, and then the ‘other’ region is broken down separately for a more comprehensive summary. The “Toronto – Downtown” and “Toronto – Not Downtown” regions were grouped together when estimating the rates per 100,000 people. Ratios pertaining to first-time HIV diagnoses by region (PrEP-to-need ratios) are reported by larger OHESI health regions.

Regions used primarily in this report	OHESI regions used in ratios to first-time HIV diagnoses	Corresponding public health unit (or FSAs in Toronto)
Toronto – Downtown	Toronto	Forward sortation areas (FSAs): M4W, M4X, M4Y, M5A, M5B, M5C, M5E, M5G, M5H, M5J, M5K, M5L, M5R, M5S, M5T, M5V, M5W, M5X
Toronto – Not Downtown		All other FSAs starting with M not listed above
Ottawa	Ottawa	Ottawa
North West	Northern	Northwestern, Thunder Bay

North East		Algoma, North Bay Parry Sound, Porcupine, Sudbury, Timiskaming
Eastern	Eastern	Eastern Ontario; Hastings and Prince Edward Counties; Kingston, Frontenac, Lennox & Addington; Leeds, Grenville and Lanark; Renfrew
Durham	Central East	Durham
Peel		Peel
York		York
Central East		Haliburton, Kawartha, Pine Ridge; Peterborough; Simcoe Muskoka
Central West	Central West	Waterloo, Wellington-Dufferin-Guelph
Central South		Brant, Haldimand-Norfolk, Hamilton, Niagara
Halton		Halton
South West	South West	Grey Bruce, Elgin-St. Thomas, Huron, Middlesex-London, Oxford, Perth
Erie-St. Clair		Chatham-Kent, Lambton, Windsor-Essex

Notes: FSA: forward sorting address. PrEP dispensations are assigned to a region based on the address of the dispensing pharmacy. Some PrEP programs provide an initial three-month PrEP prescription that is dispensed at their own pharmacy. After the initial three-month prescription, individuals can transfer the prescription to any pharmacy. For an individual dispensed PrEP more than once in a calendar period, the geographic location corresponding to each pharmacy (if more than one) is reflected in the quarterly data. The geographic location associated with the most recent dispensation is selected to be representative in the yearly data.

FIGURE III. MAP OF GEOGRAPHIC REGIONS ENCOMPASSING PUBLIC HEALTH UNIT BOUNDARIES (LARGER OHESI REGIONS REPRESENTED BY COLOUR; CREATED USING STATISTICS CANADA BOUNDARY FILES).



DATA TABLES

1. Overall and by sex

TABLE I.1 ESTIMATED NUMBER AND PROPORTION OF INDIVIDUALS DISPENSED PrEP, OVERALL AND BY SEX, ONTARIO, 2016 TO 2021 (ANNUAL)

Year	Overall	Males		Females	
		n	Row %	n	Row %
2016	1,451	1,396	96.3%	54	3.7%
2017	3,000	2,905	96.9%	92	3.1%
2018	6,428	6,230	97.2%	179	2.8%
2019	9,633	9,354	97.4%	254	2.6%
2020	9,607	9,312	97.1%	276	2.9%
2021	11,042	10,725	97.4%	288	2.6%

TABLE I.2 ESTIMATED NUMBER OF INDIVIDUALS DISPENSED PrEP, OVERALL AND BY SEX, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)

Year	Quarter	Overall	Males	Females	Unknown sex
2020	Jan-Mar	6,680	6,476	184	20
	Apr-Jun	5,197	5,051	134	12
	Jul-Sep	6,199	6,015	168	16
	Oct-Dec	5,953	5,784	158	11
2021	Jan-Mar	6,069	5,922	133	14
	Apr-Jun	6,085	5,946	127	12
	Jul-Sep	7,155	6,971	168	16
	Oct-Dec	7,295	7,107	168	20

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the number of unique individuals dispensed PrEP at least once during the year. Quarterly data represents the number of unique individuals dispensed PrEP at least once during the three-month period. PrEP = pre-exposure prophylaxis.

TABLE I.3 ESTIMATED RATIO OF INDIVIDUALS DISPENSED PREP TO FIRST-TIME HIV DIAGNOSES (“PREP-TO-NEED RATIO”), OVERALL, BY SEX AND BY GBMSM KEY POPULATION, ONTARIO, 2016 TO 2021 (ANNUAL)

Year	Overall	Males	Females	GBMSM
2016	2.0	2.5	0.4	4.1
2017	4.3	5.1	0.7	8.2
2018	8.7	10.8	1.1	18.2
2019	14.1	18.2	1.5	30.6
2020	18.9	23.0	2.6	43.3
2021	23.0	28.1	3.0	53.9

Notes: GBMSM – Gay, bisexual and other men who have sex with men. PrEP dispensation data acquired from IQVIA. Annual data represents the number of unique individuals dispensed PrEP at least once during the year. HIV diagnoses acquired from Public Health Ontario (PHO). See [First-time HIV diagnoses](#) for more information. PrEP = pre-exposure prophylaxis.

2. By age

TABLE 2.1 ESTIMATED NUMBER AND PROPORTION OF INDIVIDUALS DISPENSED PrEP BY AGE, MALES, ONTARIO, 2016 TO 2021 (ANNUAL)

	<20		20-29		30-39		40-49		50-59		60+	
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %
2016	≤5	0.3%	200	14.3%	549	39.3%	350	25.1%	227	16.3%	66	4.7%
2017	9	0.3%	476	16.4%	1,138	39.2%	719	24.8%	419	14.4%	144	5.0%
2018	83	1.3%	1,456	23.4%	2,203	35.4%	1,369	22.0%	830	13.3%	289	4.6%
2019	144	1.5%	2,388	25.5%	3,133	33.5%	1,975	21.1%	1,251	13.4%	463	4.9%
2020	137	1.5%	2,150	23.1%	3,172	34.1%	2,006	21.5%	1,324	14.2%	523	5.6%
2021	213	2.0%	2,530	23.6%	3,764	35.1%	2,186	20.4%	1,438	13.4%	594	5.5%

TABLE 2.2 ESTIMATED NUMBER AND PROPORTION OF INDIVIDUALS DISPENSED PrEP BY AGE, MALES, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)

		<20		20-29		30-39		40-49		50-59		60+	
		n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %
2020	Jan-Mar	74	1.1%	1,355	20.9%	2,245	34.7%	1,462	22.6%	970	15.0%	370	5.7%
	Apr-Jun	53	1.0%	986	19.5%	1,721	34.1%	1,169	23.1%	800	15.8%	322	6.4%
	Jul-Sep	70	1.2%	1,200	20.0%	2,104	35.0%	1,333	22.2%	953	15.8%	355	5.9%
	Oct-Dec	88	1.5%	1,151	19.9%	1,961	33.9%	1,286	22.2%	918	15.9%	380	6.6%
2021	Jan-Mar	106	1.8%	1,208	20.4%	2,026	34.2%	1,293	21.8%	916	15.5%	373	6.3%
	Apr-Jun	96	1.6%	1,305	21.9%	2,030	34.1%	1,243	20.9%	915	15.4%	357	6.0%
	Jul-Sep	120	1.7%	1,528	21.9%	2,388	34.3%	1,469	21.1%	1,021	14.6%	445	6.4%
	Oct-Dec	110	1.5%	1,471	20.7%	2,470	34.8%	1,569	22.1%	1,041	14.6%	446	6.3%

Notes: Data acquired from IQVIA. Annual data represents the number of unique individuals dispensed PrEP at least once during the year. Quarterly data represents the number of unique individuals dispensed PrEP at least once during the three-month period. PrEP = pre-exposure prophylaxis.

TABLE 2.3 ESTIMATED NUMBER AND PROPORTION OF INDIVIDUALS DISPENSED PrEP BY AGE, FEMALES, ONTARIO, 2016 TO 2021 (ANNUAL)

	<20		20-29		30-39		40-49		50-59		60+	
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %
2016	≤5	0.0%	10	18.5%	26	48.1%	7	13.0%	9	16.7%	≤5	3.7%
2017	≤5	2.2%	17	18.5%	37	40.2%	15	16.3%	16	17.4%	≤5	5.4%
2018	12	6.7%	57	31.8%	55	30.7%	22	12.3%	26	14.5%	7	3.9%
2019	14	5.5%	75	29.5%	81	31.9%	46	18.1%	30	11.8%	8	3.1%
2020	12	4.3%	79	28.6%	106	38.4%	44	15.9%	33	12.0%	≤5	0.7%
2021	16	5.6%	95	33.0%	108	37.5%	44	15.3%	21	7.3%	≤5	1.4%

TABLE 2.4 ESTIMATED NUMBER AND PROPORTION OF INDIVIDUALS DISPENSED PrEP BY AGE, FEMALES, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)

		<20		20-29		30-39		40-49		50-59		60+	
		n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %
2020	Jan-Mar	7	3.8%	46	25.0%	67	36.4%	37	20.1%	25	13.6%	≤5	1.1%
	Apr-Jun	≤5	1.5%	42	31.3%	40	29.9%	28	20.9%	20	14.9%	≤5	1.5%
	Jul-Sep	≤5	1.2%	50	29.8%	72	42.9%	27	16.1%	17	10.1%	≤5	0.0%
	Oct-Dec	6	3.8%	45	28.5%	67	42.4%	23	14.6%	17	10.8%	≤5	0.0%
2021	Jan-Mar	≤5	3.8%	33	24.8%	63	47.4%	20	15.0%	10	7.5%	≤5	1.5%
	Apr-Jun	8	6.3%	43	33.9%	43	33.9%	18	14.2%	13	10.2%	≤5	1.6%
	Jul-Sep	10	6.0%	56	33.3%	52	31.0%	29	17.3%	17	10.1%	≤5	2.4%
	Oct-Dec	8	4.8%	57	33.9%	58	34.5%	28	16.7%	16	9.5%	≤5	0.6%

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the number of unique individuals dispensed PrEP at least once during the year. Quarterly data represents the number of unique individuals dispensed PrEP at least once during the three-month period. PrEP = pre-exposure prophylaxis.

3. By prescriber specialty

TABLE 3.1 ESTIMATED NUMBER AND PROPORTION (AMONG KNOWN) OF INDIVIDUALS DISPENSED PrEP BY PRESCRIBER SPECIALTY, ONTARIO, 2016 TO 2021 (ANNUAL)

	Family and general practice		Infectious diseases		Internal medicine		Nurse practitioners		Public health and preventive medicine		Other		Unknown
	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n
2016	908	68.5%	265	20.0%	83	6.3%	≤5	0.3%	≤5	0.4%	60	4.5%	128
2017	1,846	69.0%	513	19.2%	124	4.6%	≤5	0.0%	13	0.5%	181	6.8%	328
2018	3,793	66.3%	891	15.6%	441	7.7%	52	0.9%	137	2.4%	409	7.1%	792
2019	5,185	61.2%	1,553	18.3%	874	10.3%	92	1.1%	186	2.2%	584	6.9%	1,302
2020	5,075	63.1%	1,820	22.6%	537	6.7%	267	3.3%	108	1.3%	234	2.9%	1,638
2021	4,675	57.7%	1,791	22.1%	579	7.1%	748	9.2%	46	0.6%	259	3.2%	2,981

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the number of unique individuals dispensed PrEP at least once during the year. PrEP = pre-exposure prophylaxis.

TABLE 3.2 ESTIMATED NUMBER AND PROPORTION (AMONG KNOWN) OF INDIVIDUALS DISPENSED PREP BY PRESCRIBER SPECIALTY, ONTARIO, JAN-MAR 2020 TO OCT-DEC 2021 (QUARTERLY)

		Family and general practice		Infectious diseases		Internal medicine		Nurse practitioners		Public health and preventive medicine		Other		Unknown
		n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n	Row %	n
		2020	Jan-Mar	3,943	65.2%	1,414	23.4%	381	6.3%	84	1.4%	88	1.5%	137
Apr-Jun	3,054	66.3%	1,053	22.9%	303	6.6%	91	2.0%	28	0.6%	76	1.7%	599	
Jul-Sep	3,489	64.5%	1,241	22.9%	371	6.9%	162	3.0%	33	0.6%	116	2.1%	800	
Oct-Dec	3,187	63.8%	1,143	22.9%	335	6.7%	186	3.7%	37	0.7%	107	2.1%	958	
2021	Jan-Mar	2,991	60.9%	1,202	24.5%	327	6.7%	241	4.9%	27	0.6%	121	2.5%	1,153
Apr-Jun	2,818	60.1%	1,107	23.6%	312	6.7%	305	6.5%	29	0.6%	114	2.4%	1,394	
Jul-Sep	3,187	59.8%	1,203	22.6%	397	7.4%	397	7.4%	17	0.3%	128	2.4%	1,813	
Oct-Dec	3,192	59.1%	1,173	21.7%	382	7.1%	498	9.2%	23	0.4%	132	2.4%	1,897	

4. By payer type

TABLE 4.1 ESTIMATED NUMBER AND PROPORTION OF INDIVIDUALS DISPENSED PREP BY PAYER TYPE, ONTARIO, 2016 TO 2021 (ANNUAL)

	Private		Public	
	n	Row %	n	Row %
2016	1,257	86.7%	193	13.3%
2017	2,574	85.8%	426	14.2%
2018	4,854	75.5%	1,573	24.5%
2019	7,295	75.7%	2,339	24.3%
2020	7,347	76.5%	2,257	23.5%
2021	8,240	74.7%	2,798	25.3%

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the number of unique individuals dispensed PrEP at least once during the year. Quarterly data represents the number of unique individuals dispensed PrEP at least once during the three-month period. PrEP = pre-exposure prophylaxis.

5. By region

TABLE 5.1 ESTIMATED NUMBER AND PROPORTION OF INDIVIDUALS DISPENSED PrEP BY REGION, ONTARIO, 2016 TO 2021 (ANNUAL)

Region	2016		2017		2018		2019		2020		2021	
	n	Col %	n	Col %	n	Col %	n	Col %	n	Col %	n	Col %
Central East	11	0.8%	36	1.2%	95	1.5%	146	1.5%	126	1.3%	154	1.4%
Central South	86	6.0%	170	5.7%	319	4.9%	523	5.3%	576	6.0%	512	4.7%
Central West	26	1.8%	70	2.3%	214	3.3%	290	3.0%	290	3.0%	267	2.4%
Durham	9	0.6%	33	1.1%	66	1.0%	101	1.0%	129	1.3%	139	1.3%
Eastern	12	0.8%	38	1.3%	104	1.6%	152	1.6%	177	1.8%	167	1.5%
Erie-St. Clair	15	1.0%	58	1.9%	134	2.0%	176	1.8%	188	2.0%	225	2.0%
Halton	8	0.6%	19	0.6%	51	0.8%	129	1.3%	78	0.8%	88	0.8%
North East	15	1.0%	20	0.7%	25	0.4%	58	0.6%	51	0.5%	66	0.6%
North West	22	1.5%	37	1.2%	52	0.8%	68	0.7%	95	1.0%	67	0.6%
Ottawa	110	7.6%	259	8.6%	560	8.6%	873	8.9%	862	9.0%	964	8.8%
Peel	20	1.4%	47	1.6%	124	1.9%	216	2.2%	210	2.2%	284	2.6%
South West	45	3.1%	111	3.7%	289	4.4%	420	4.3%	395	4.1%	375	3.4%
Toronto - Downtown	846	58.7%	1,645	54.9%	3,449	52.7%	5,072	51.8%	4,756	49.6%	4,911	44.6%
Toronto - Not Downtown	201	13.9%	424	14.1%	972	14.9%	1,428	14.6%	1,522	15.9%	2,631	23.9%
York	16	1.1%	31	1.0%	89	1.4%	145	1.5%	129	1.3%	155	1.4%

Notes: Data acquired from IQVIA. Annual data represents the number of unique individuals dispensed PrEP at least once during the year. Region based on address of dispensing pharmacy. See technical notes for detailed information on the [Geographic regions](#). PrEP = pre-exposure prophylaxis.

Table 5.2 Estimated number of individuals dispensed PrEP by region, Ontario, Jan-Mar 2020 to Oct-Dec 2021 (quarterly)

Region	2020				2021			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Central East	84	93	99	91	96	106	104	116
Central South	378	388	417	392	366	314	315	275
Central West	219	168	177	168	167	155	184	165
Durham	94	77	102	72	79	87	77	100
Eastern	134	111	111	104	100	92	110	116
Erie-St. Clair	116	91	167	105	177	118	113	122
Halton	52	45	58	51	52	56	55	67
North East	45	49	51	44	47	45	54	66
North West	48	65	65	76	53	43	41	58
Ottawa	623	505	550	508	541	565	669	664
Peel	146	133	136	128	123	122	124	313
South West	288	215	257	255	264	225	245	270
Toronto - Downtown	3,397	2,374	2,970	2,833	2,692	2,556	3,036	3,074
Toronto - Not Downtown	952	786	924	1,017	1,183	1,458	1,883	1,752
York	96	70	88	88	95	101	110	103

Notes: Data acquired from IQVIA. Quarterly data represents the number of unique individuals dispensed PrEP at least once during the three-month period. Region based on address of dispensing pharmacy. See technical notes for detailed information on the [Geographic regions](#). PrEP = pre-exposure prophylaxis.

Table 5.3 Estimated rate of individuals dispensed PrEP per 100,000 people by region, Ontario, 2018 to 2021 (annual)

Region	2018	2019	2020	2021
Central East	10.4	15.7	13.3	16.1
Central South	24.5	39.5	43.0	37.9
Central West	24.2	32.2	31.6	28.8
Durham	9.6	14.5	18.1	19.1
Eastern	12.0	17.3	19.9	18.7
Erie-St. Clair	20.3	26.5	28.1	33.7
Halton	8.7	21.6	12.8	14.2
North East	4.4	10.2	8.9	11.5
North West	21.8	28.5	39.8	28.2
Ottawa	55.7	85.1	82.4	91.4
Peel	8.3	14.1	13.4	18.1
South West	28.3	40.5	37.5	35.2
Toronto	151.5	219.4	209.9	253.6
York	7.7	12.3	10.7	12.8

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the number of unique individuals dispensed PrEP at least once during the year. Population estimates for all ages retrieved from Statistics Canada. Region based on address of dispensing pharmacy. “Toronto – Downtown” and “Toronto – Not Downtown” aggregated in Table 5.3. See technical notes for detailed information on the [Geographic regions](#) and [First-time HIV diagnoses](#). PrEP = pre-exposure prophylaxis

TABLE 5.4 ESTIMATED RATIO OF INDIVIDUALS DISPENSED PrEP TO FIRST-TIME HIV DIAGNOSES (“PrEP-TO-NEED RATIO”), BY REGION, ONTARIO, 2018 TO 2021 (ANNUAL)

Region	2018	2019	2020	2021
Central East	3.2	6.3	8.5	8.2
Central West	9.3	15.2	17.8	11.0
Eastern	5.8	11.7	13.6	16.7
Northern	3.1	4.5	6.1	4.8
Ottawa	13.0	25.7	23.3	35.7
South West	6.4	11.7	17.7	15.4
Toronto	11.1	16.5	22.6	35.7

Notes: PrEP dispensation data acquired from IQVIA. Annual data represents the number of unique individuals dispensed PrEP at least once during the year. Population estimates for all ages retrieved from Statistics Canada. Region based on address of dispensing pharmacy. Regions in Table 5.4 are collapsed OHESI regions. See technical notes for detailed information on the [Geographic regions](#) and [First-time HIV diagnoses](#). PrEP = pre-exposure prophylaxis