

SURVEILLANCE REPORT

Infectious Syphilis and Early Congenital Syphilis in Ontario: Focus on 2023

Published: January 2025

Purpose

The purpose of this annual report is to summarize infectious syphilis case data for Ontario stratified by time, age and sex, geography, risk factors as well as laboratory testing data for syphilis with a focus on cases reported in 2023. Trends in the incidence of early congenital syphilis in Ontario, focusing on cases reported in 2023, are also presented.

This report includes the most current information available from Ontario's integrated Public Health Information System (iPHIS) as of **July 10, 2024**. Cases meeting the provincial confirmed [syphilis](#) case definition for infectious syphilis as well as early congenital syphilis are included in this report.¹

Surveillance data for infectious syphilis and early congenital syphilis reported between 2020 and 2023 should be interpreted with caution due to changes in the availability of health care, health seeking behaviour, public health follow-up, and case entry during the COVID-19 pandemic and subsequent recovery period.

Key Messages

- Despite a slight decrease in 2023, the annual provincial incidence of infectious syphilis has increased more than three-fold since 2014. Although males continue to account for the majority of infectious syphilis cases reported in Ontario, there has been a substantial increase in the proportion of cases diagnosed among females between 2014 and 2023.
- Coinciding with the increased incidence of syphilis among females, Ontario has also observed a considerable and concerning increase in the incidence of early congenital syphilis in the last five years. A [retrospective review](#)² of early congenital syphilis cases reported in Ontario describes the clinical characteristics of these cases occurring between 2020 and 2022, the factors related to their associated maternal syphilis cases, as well as potential challenges associated with their public health management and follow-up.
- Among females of childbearing age (i.e., those aged 15-44 years), the age-standardized rate of infectious syphilis was much higher among those least able to access and attain basic material needs (e.g., housing, food, clothing, education).³ Additionally, female syphilis cases were considerably more likely to report risk factors such as inadequate housing, substance use, and sex

work compared to males. This reflects the importance of addressing socioeconomic factors as a part of syphilis and congenital syphilis prevention and control.

- Prevention strategies (e.g., safer sex education and counselling, antibiotic prophylaxis for high-risk populations⁴), providing non-stigmatizing person-centred sexual health care⁵, and ensuring early detection through screening of at-risk individuals (e.g. those with a new or multiple partners) and/or upon request of the individual should be part of a comprehensive approach to reduce the provincial incidence of syphilis. In addition, universal screening for syphilis in pregnancy and adequate access to prenatal care and appropriate treatment if screened positive, is crucial for the prevention of congenital syphilis.⁶

Overview

Trends over Time

- In 2023, 3,264 cases of infectious syphilis were reported in Ontario. The provincial incidence (i.e., cases per 100,000 population) of laboratory-confirmed infectious syphilis more than tripled between 2014 (6.5) and 2022 (23.6), before decreasing slightly in 2023 (20.9).
- Although males have consistently accounted for the vast majority of infectious syphilis cases reported in Ontario between 2014 and 2023 (average: 90.5%; range: 81.0%-95.8%), the proportion of cases reported among women has increased almost five-folds during this 10-year period, from 3.8% in 2014 to 18.0% in 2023.
- In each of the last 10 years, the annual incidence of infectious syphilis has been higher among males compared to females. However, the male-to-female rate ratio has decreased substantially from a high of 26.0:1.0 in 2015 to a low of 4.5:1.0 in 2023, due to steady increases in the annual incidence of infectious syphilis among females from 2014 (0.5) to 2023 (7.5). ([Figure 1](#))
- Among males, the proportion of infectious syphilis cases staged as primary syphilis at the time of diagnosis remained stable between 2014-2023 (average 30.1%; range: 26.5%-33.3%); however, the proportion staged as secondary syphilis decreased by 27.1% and the proportion staged as early latent syphilis increased by 32.0%. The proportion of cases staged as infectious neurosyphilis remained stable during this period (average 1.5%; range: 1.2% to 1.8%). ([Figure 2a](#))
- Among females, the proportion of infectious syphilis cases staged as primary syphilis at the time of diagnosis fluctuated between 2014-2023 (average 28.1%; range 16.4%-38.2%). Since 2015, the greatest proportion of female cases were staged as early latent syphilis (average 39.9%; range 34.6%-47.9%). Both the proportion of cases staged as secondary syphilis (average 30.2%; range 27.9%-34.1%) and infectious neurosyphilis (average 2.0%; range 0.0%-2.9%) has remained stable between 2014-2023. ([Figure 2b](#))

Age and Sex

- In 2023, males aged 30-34 years had the highest incidence of infectious syphilis (81.5), followed by males aged 35-39 years (75.1), and males aged 25-29 years (65.8).
- Among females, the highest incidence of infectious syphilis occurred among those aged 30-34 years (22.0), followed by those aged 25-29 years (20.2), and those aged 20-24 years (16.5). ([Figure 3](#))

Geography

- In 2023, the public health units (PHUs) with the highest incidence of infectious syphilis were: Northwestern Health Unit (55.3), Thunder Bay District Health Unit (54.3), and Kingston, Frontenac, Lennox & Addington Public Health (45.9). ([Figure 4](#))
- Between 2019 and 2023, Northwestern Health Unit consistently reported the highest incidence of infectious syphilis. From 2019-2021, Toronto Public Health reported the second highest incidence with Thunder Bay District Health Unit having the second highest incidence in 2022 and 2023.
- From 2022 to 2023, three PHUs (Porcupine Health Unit, Algoma Public Health Unit and Public Health Sudbury & Districts) experienced infectious syphilis rate increases of greater than 100%; 16 PHUs observed rate decreases from 2022 to 2023. ([Table A1](#))

Risk Factors

- Among males reporting at least one risk factor, the most commonly reported risk factors were sex with same sex (66.2%), no condom used (50.7%), and sex with opposite sex (30.0%). Among females, the most commonly reported risk factors included sex with opposite sex (83.4%), no condom used (67.5%), and more than one sexual contact in last 6 months (24.9%). ([Table 2](#))
- Fifty female cases had the risk factor of 'pregnant' selected. Of these, only three cases reported having had four or more prenatal care visits. Only 19 (38.0%) were tested for syphilis during their first trimester, 13 (26.0%) were tested between 28 and 32 weeks' gestation, and 14 (28.0%) were tested at the time of delivery. Note that these findings should be interpreted with caution as these risk factors were only made available in iPHIS as of March 2023. ([Table 5](#))

Testing

- Between 2019 and 2023, an average of 572,549 non-prenatal serology specimens (range: 439,253-691,958) were tested annually by Public Health Ontario. ([Table 3](#))
- During the same period, an annual average of 153,770 (range: 150,235-161,366) serology specimens were tested by PHO as part of Ontario's prenatal screening program. ([Table 6](#))

Early Congenital Syphilis

- Between 2014 to 2018, a total of six confirmed early congenital syphilis cases were reported in Ontario (annual average: 1.2 cases). However, since 2019, the annual number of reported cases has increased substantially, from 3 cases in 2019 to a high of 23 cases in 2022. ([Figure 5](#))
- In 2023, a total of 14 early congenital syphilis cases were reported by 12 public health units with the two cases reported each in Thunder Bay District Health Unit and Windsor-Essex County Health Unit and one cases reported in each of the following 12 health units: Brant County, Durham Region, Grey Bruce, City of Hamilton, Kingston, Frontenac and Lennox & Addington, Middle-Sex London, Niagara Region, Northwestern, and Toronto.

ON-Marg

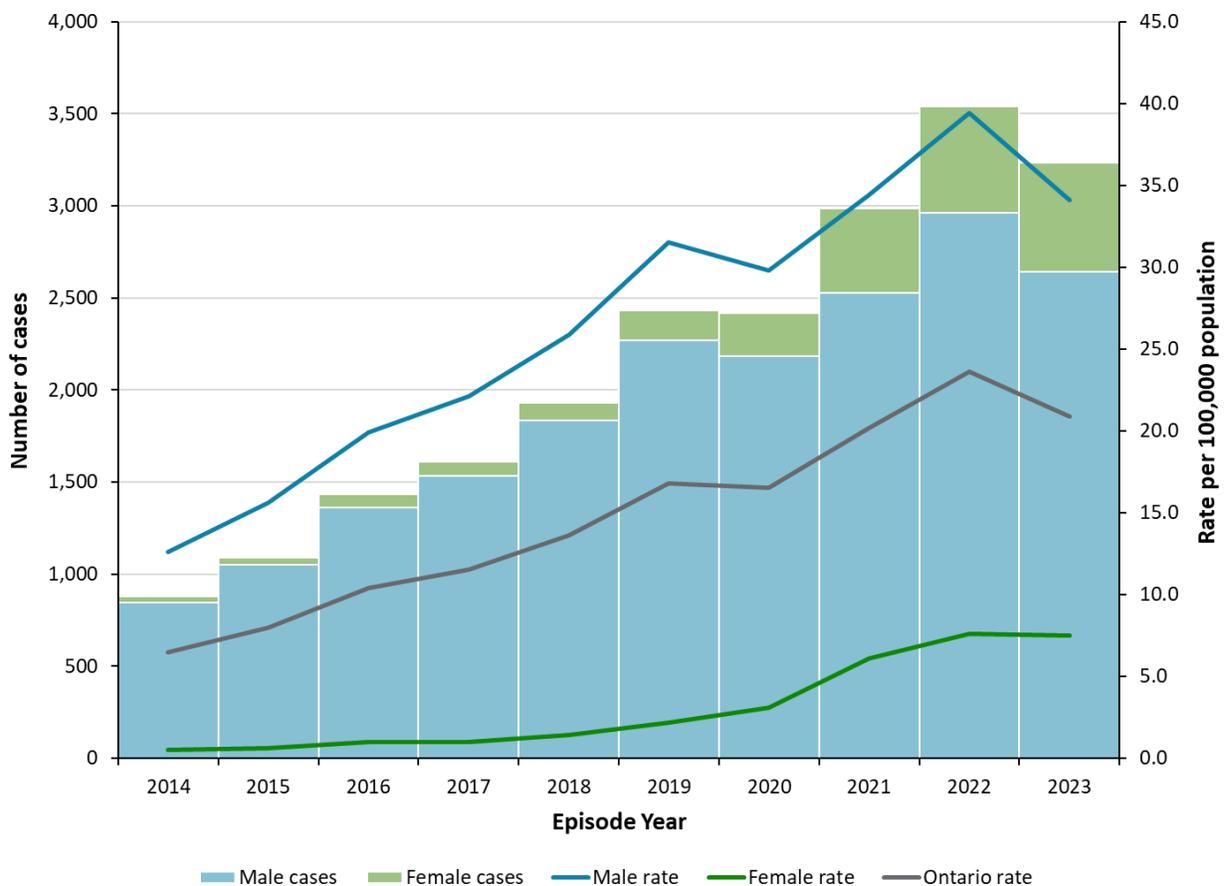
- In 2023, the age-standardized rate of infectious syphilis among females of childbearing age (i.e., 15-44 years) was:

- 4.70 times higher among those least able to access and attain basic material needs (e.g., housing, food, clothing, education) (Quintile 5 [Q5]) compared to those most able to access and attain basic material needs (Quintile 1 [Q1]). ([Table 7](#))
- 0.40 times lower in neighbourhoods with the highest level of racialized and newcomer populations (Q5) compared to those with the lowest level (Q1). ([Table 8](#))
- 4.18 times higher in neighbourhoods with the highest level of households and dwellings-related marginalization (Q5) compared to those with the lowest level (Q1). ([Table 9](#))

Infectious Syphilis

Trends over Time

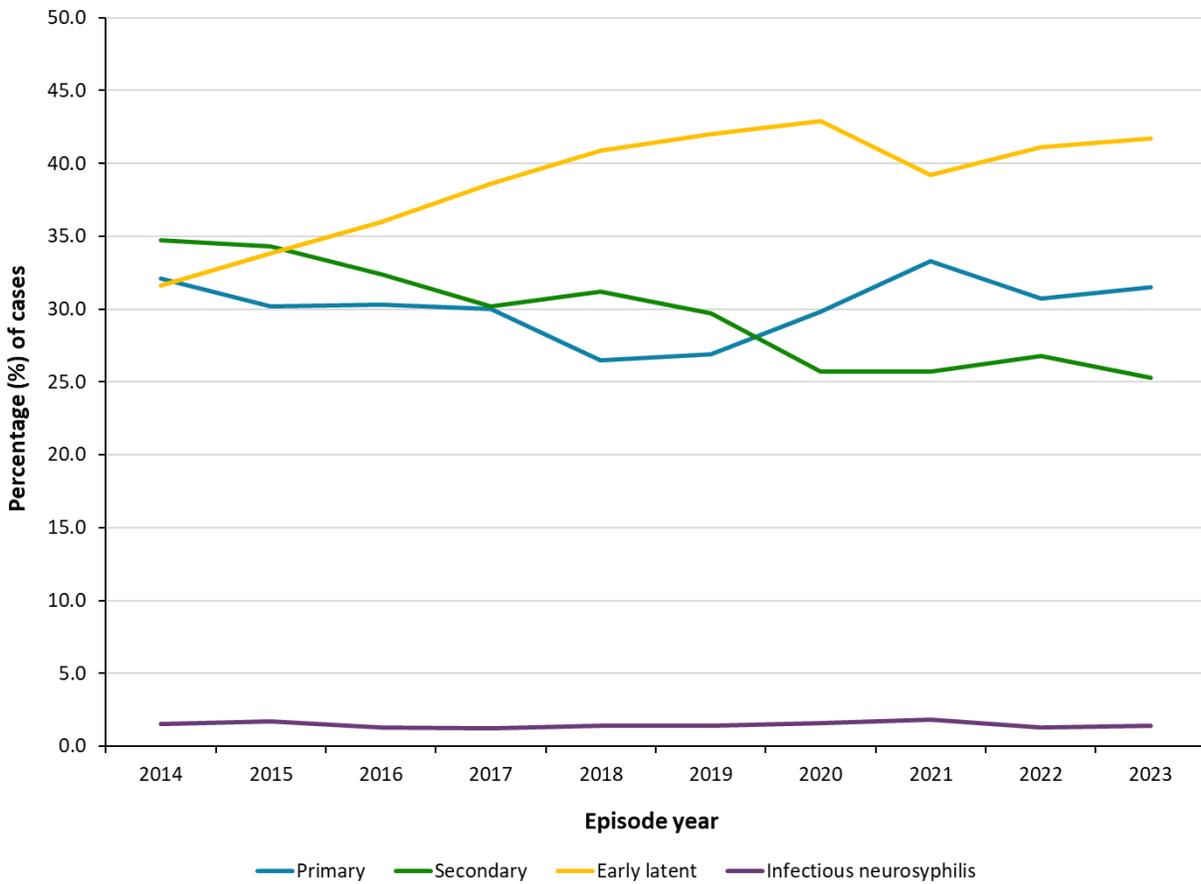
Figure 1. Infectious syphilis cases and rate (per 100,000 population) by year and sex*: Ontario, 2014-2023



Data source: Cases: Integrated Public Health Information System (iPHIS) [database]. Population Estimates: Statistics Canada.⁷

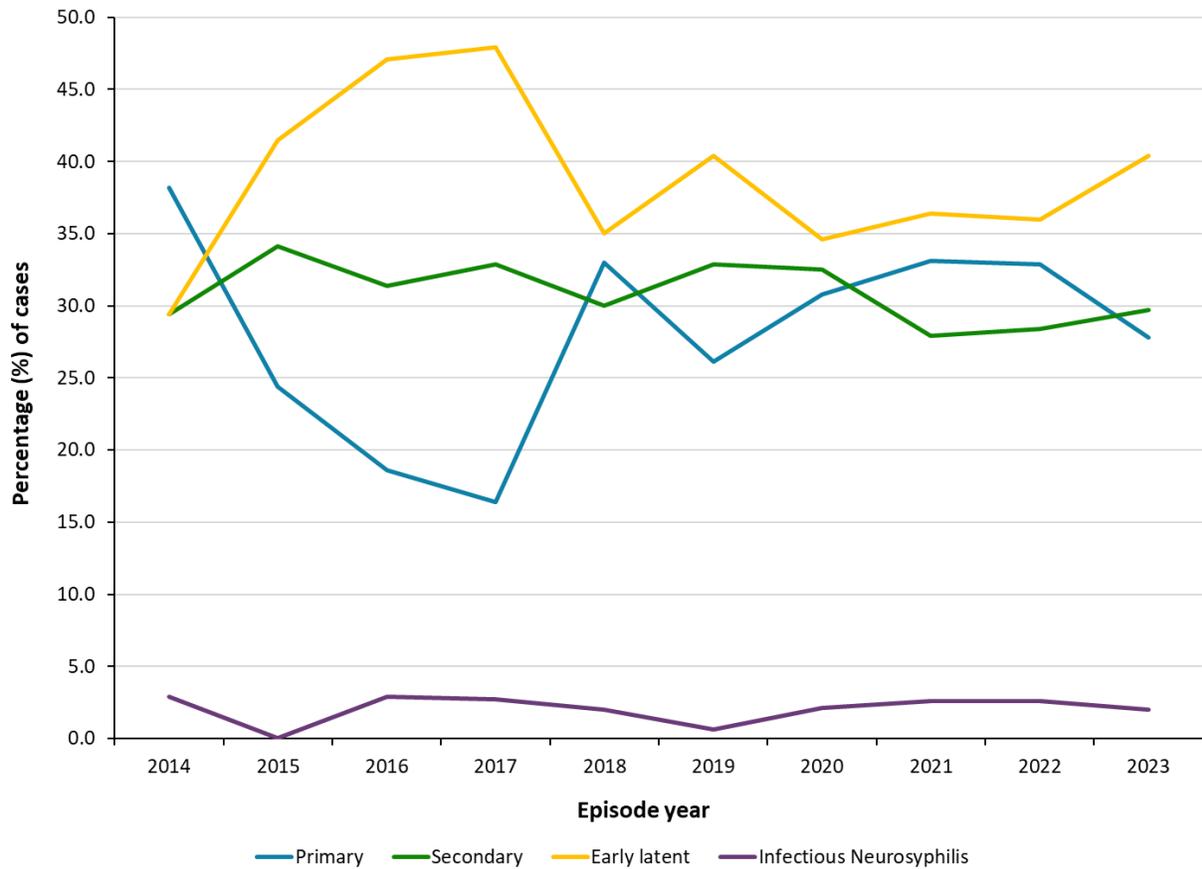
*Cases that did not identify as male or female were excluded from the infectious syphilis sex-specific counts and rates.

Figure 2a. Percentage of infectious syphilis cases by stage at time of diagnosis: males, Ontario, 2014-2023



Data source: iPHIS

Figure 2b. Percentage of infectious syphilis cases by stage at time of diagnosis: females, Ontario, 2014-2023



Data source: iPHIS

Age and Sex

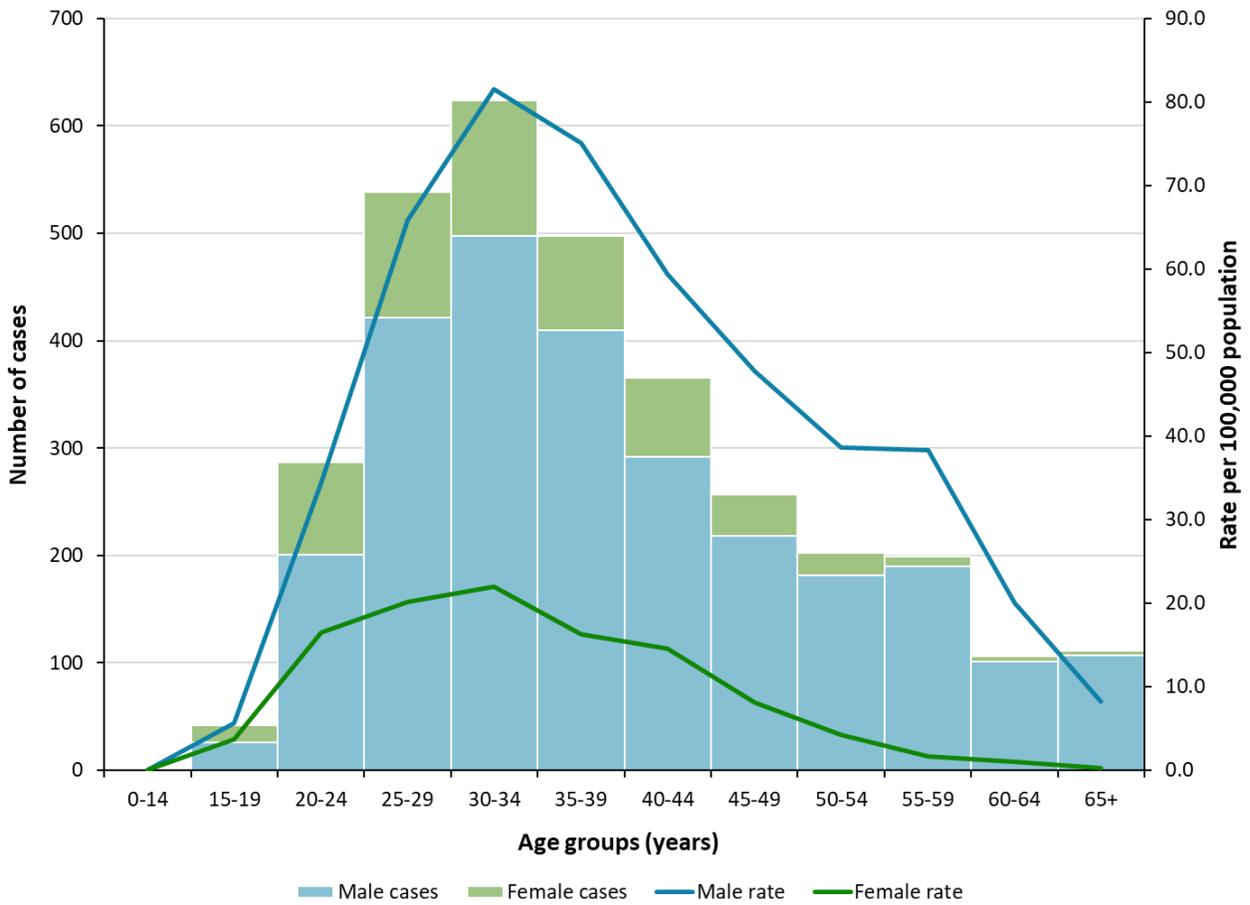
Table 1. Infectious syphilis cases by age and sex: Ontario, 2023 (n=3,264)

Demographic characteristic	2023
Mean age (years)	38.2
Median age and inter-quartile range (years)	35.5 (29.0-45.0)
Age group	n (%)
<20 years*	47 (1.4%)
20 – 29 years	837 (25.6%)
30 – 39 years	1,133 (34.7%)
40 – 49 years	628 (19.2%)
50 – 59 years	401 (12.3%)
60 – 69 years	161 (4.9%)
70+ years	57 (1.7%)
Unknown	0 (0.0%)
Sex	n (%)
Male	2,644 (81.0%)
Female	589 (18.0%)
Transgender	27 (0.8%)
Other	3 (0.1%)
Unknown	1 (<0.1%)

Data source: iPHIS

*Excludes cases meeting the provincial case definition for early congenital syphilis (see [Data Caveats](#)).

Figure 3. Infectious syphilis cases and rate (per 100,000 population) by age group and sex*: Ontario, 2023 (n=3,228)

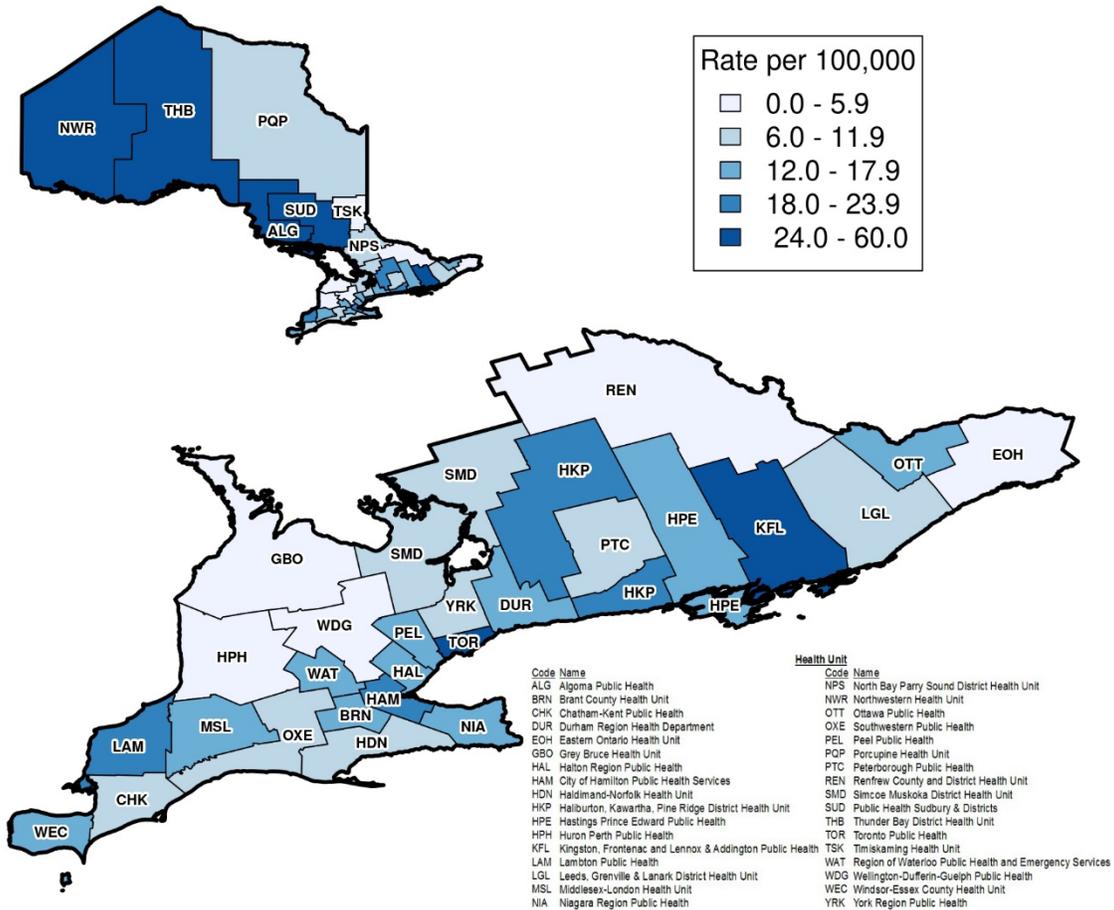


Data source: iPHIS; Statistics Canada.⁷

*Cases that did not identify as male or female were excluded from the infectious syphilis sex-specific counts and rates.

Geography

Figure 4. Infectious syphilis rates per 100,000 population by public health unit: Ontario, 2023



Data source: iPHIS; Statistics Canada.⁷

Note: Data available in [Appendix A](#): Table A1.

Risk Factors

Table 2. Risk factors for cases of infectious syphilis by sex among cases reporting at least one risk factor*: Ontario, 2023

Risk factor	Males n (%)	Females n (%)	Total n (%)
Sex with same sex	1,595 (66.2%)	23 (4.3%)	1,633 (55.0%)
No condom used	1,220 (50.7%)	361 (67.5%)	1,593 (53.6%)
Sex with opposite sex	722 (30.0%)	446 (83.4%)	1,175 (39.5%)
Repeat sexually transmitted infection (STI)	699 (29.0%)	120 (22.4%)	831 (28.0%)
More than one sexual contact in last 6 months	565 (23.5%)	133 (24.9%)	708 (23.8%)
New sexual contact in last 2 months	395 (16.4%)	92 (17.2%)	492 (16.6%)
Anonymous sex	414 (17.2%)	63 (11.8%)	484 (16.3%)
Impaired judgement due to drugs and/or alcohol	102 (4.2%)	87 (16.3%)	190 (6.4%)
Met contact through internet	172 (7.1%)	12 (2.2%)	188 (6.3%)
Persons experiencing homelessness/inadequate housing	39 (1.6%)	75 (14.0%)	116 (3.9%)
Inhalation drug use	51 (2.1%)	45 (8.4%)	96 (3.2%)
Injection drug use	39 (1.6%)	54 (10.1%)	93 (3.1%)
Sex with sex trade worker	79 (3.3%)	4 (0.7%)	83 (2.8%)
Sex trade worker	19 (0.8%)	51 (9.5%)	71 (2.4%)
Travel outside province	65 (2.7%)	6 (1.1%)	72 (2.4%)
Pregnant	0 (0.0%)	50 (9.3%)	50 (1.7%)
Bath house	31 (1.3%)	0 (0.0%)	31 (1.0%)
Survival sex (i.e., sex for food, money or shelter)	4 (0.2%)	24 (4.5%)	29 (1.0%)

Data source: iPHIS

*Excludes cases that reported a risk factor of 'Unknown'. Among cases that reported at least one known risk factor (n=2,971), 2,408 were male and 535 were female.

Non-prenatal Syphilis Testing

Table 3. Number of serology samples tested for syphilis by sex, non-prenatal testing: Public Health Ontario, 2019-2023

Sex	2019	2020	2021	2022	2023
Female	282,386	214,244	261,301	276,015	320,972
Male	302,767	220,041	284,034	303,421	363,537
Other	266	190	257	408	475
Unknown	6,363	4,778	7,152	7,165	6,974
Total	591,782	439,253	552,744	587,009	691,958

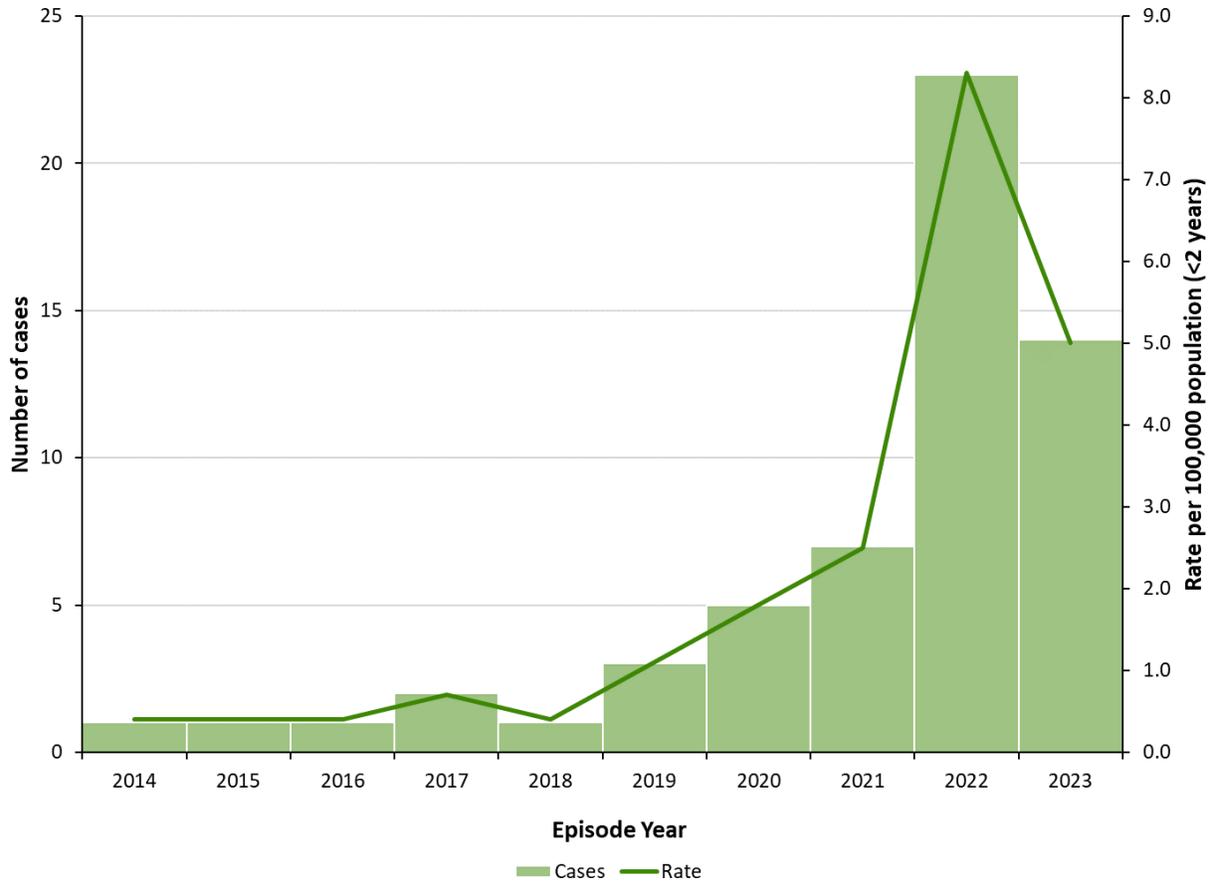
Data source: Public Health Ontario (PHO) Laboratory Information System (LIMS).

Note: Tests represent unique samples as opposed to individuals or cases. As a result, the same individual may be counted multiple times. 'Other' includes transgender individuals.

Early Congenital Syphilis

Trends Over Time

Figure 5. Early congenital syphilis cases* and rate (per 100,000 population) by year: Ontario, 2014-2023



Data sources: iPHIS; Statistics Canada.⁷

*Excludes cases ≥ 2 years of age as per early congenital syphilis [case definition](#).¹

Pregnancy

Table 4. Number of syphilis cases among females where risk factor of pregnant was reported by stage at time of diagnosis: Ontario, 2023

Syphilis stage	Total number of cases among females	Total number (%) reporting pregnancy as a risk factor
Infectious syphilis	589	50 (8.5%)
Primary	164	13 (7.9%)
Secondary	175	15 (8.6%)
Early latent	238	22 (9.2%)
Infectious neurosyphilis	12	0 (0.0%)
Non-infectious syphilis*	685	75 (10.9%)
Unspecified	130	8 (6.2%)
Total	1,412	133 (9.4%)

Data source: iPHIS

*Non-infectious syphilis include late latent, non-infectious neurosyphilis and other tertiary syphilis.

Table 5. Risk factors among infectious syphilis cases reported as pregnant*: Ontario, 2023

Maternal care	n (%)
Prenatal care received for <4 visits	4 (8.0%)
Prenatal care received for 4 visits or more	3 (6.0%)
Testing for syphilis during first trimester	19 (38.0%)
Testing for syphilis at 28 to 32 weeks gestation	13 (26.0%)
Testing for syphilis >4 weeks prior to delivery	5 (10.0%)
Testing for syphilis at delivery	14 (28.0%)
Appropriate treatment for syphilis stage completed >4 weeks prior to delivery	4 (8.0%)

Data source: iPHIS

*Among cases that reported the risk factor of pregnant (n=50). These risk factors were included in iPHIS as of March 2023 and therefore should be interpreted with caution as these risk factors may not have been completed for all cases.

Prenatal Syphilis Testing

Table 6. Number of samples tested for syphilis as part of prenatal screening: Public Health Ontario, 2019-2023

	2019	2020	2021	2022	2023
Total	152,987	151,922	152,340	150,235	161,366

Data source: PHO LIMS

Note: Prenatal samples include all samples that have been submitted for prenatal screening.

Ontario Marginalization Index (ON-Marg)

The ON-Marg is a data tool that combines a wide range of demographic indicators into distinct dimensions of marginalization in Ontario, including economic, ethno-racial, and social marginalization.³ Each dimension is divided into five quintiles ranked from low marginalization (Q1) to high marginalization (Q5).

MATERIAL RESOURCES

The material resources dimension is closely connected to poverty and refers to the inability of individuals and communities to access and attain basic material needs related to housing, food, clothing, and education. The differences between quintiles in this report may be reflective of the pervasive impact that socioeconomic position has on a person's access to necessities for good health, exposure to unhealthy stress and instability, and support for healthy behaviours.

Table 7. Summary of confirmed infectious syphilis cases among females of childbearing age* across material resources quintiles: Ontario, 2023

Quintiles of material resources	Number of infectious syphilis cases among females of childbearing age	Percent of all infectious syphilis cases among females of childbearing age (%)	Age-standardized cumulative rate per 100,000 population**	Rate relative to the lowest level of material resources
Quintile 1 (low marginalization)	42	9.4%	7.2	1.00
Quintile 2	58	13.0%	9.5	1.33
Quintile 3	59	13.2%	10.6	1.48
Quintile 4	101	22.6%	19.5	2.72
Quintile 5 (high marginalization)	187	41.8%	33.6	4.70

Data source: iPHIS; ON-Marg 2021.³

*Defined as those aged 15 to 44 years at time of illness.

**Rates per 100,000 population are adjusted to the 2011 census population to account for any age differences between quintiles of material resources.

RACIALIZED AND NEWCOMER POPULATIONS

The racialized and newcomer populations dimension measures the proportion of newcomers and/or non-white, non-Indigenous populations, and is an indicator of the impacts of racialization and xenophobia. The differences between quintiles in this report may be the result of interpersonal and structural racism, and not necessarily the result of individual-level causal factors. While newcomers to Canada often have better overall health outcomes than Canadian-born counterparts, a phenomenon commonly known as the “healthy immigrant effect,” many newcomers may experience declining health linked to the adoption of Western lifestyle (e.g., sedentary lifestyle and diet) and the cumulative exposure to stress associated with racism and discrimination, and systematic barriers to employment, housing, and health care.

Table 8. Summary of confirmed infectious syphilis cases among females of childbearing age* across racialized and newcomer population quintiles: Ontario, 2023

Quintiles of racialized and newcomer populations	Number of infectious syphilis cases among females of childbearing age	Percent of all infectious syphilis cases among females of childbearing age (%)	Age-standardized cumulative rate per 100,000 population**	Rate relative to the lowest level of racialized and newcomer populations
Quintile 1 (low marginalization)	77	17.2%	23.5	1.00
Quintile 2	69	15.4%	17.4	0.74
Quintile 3	114	25.5%	24.1	1.02
Quintile 4	94	21.0%	14.8	0.63
Quintile 5 (high marginalization)	93	20.8%	9.5	0.41

Data source: iPHIS; ON-Marg 2021.³

*Defined as those aged 15 to 44 years at time of illness.

**Rates per 100,000 population are adjusted to the 2011 census population to account for any age differences between quintiles of racialized and newcomer populations.

HOUSEHOLDS AND DWELLINGS

The households and dwellings dimension relates to family and neighbourhood stability and cohesiveness, and is based on measures of the types and density of residential accommodations and family structure characteristics. The differences between quintiles in this report may reflect the impact that socially supportive environments have on mental health and overall wellbeing.

Table 9. Summary of confirmed infectious syphilis cases among females of childbearing age* across households and dwellings quintiles: Ontario, 2023

Quintiles of households and dwellings	Number of infectious syphilis cases among females of childbearing age	Percent of all infectious syphilis cases among females of childbearing age (%)	Age-standardized cumulative rate per 100,000 population**	Rate relative to the lowest level of households and dwellings
Quintile 1 (low marginalization)	35	7.8%	6.1	1.00
Quintile 2	50	11.2%	10.6	1.73
Quintile 3	55	12.3%	11.8	1.92
Quintile 4	111	24.8%	22.7	3.70
Quintile 5 (high marginalization)	196	43.8%	25.6	4.18

Data source: iPHIS; ON-Marg 2021.³

*Defined as those aged 15 to 44 years at time of illness.

**Rates per 100,000 population are adjusted to the 2011 census population to account for any age differences between quintiles of households and dwellings.

Technical Notes

Data Sources

CASE DATA

- The data for this report are based on information entered in the Ontario Ministry of Health (MOH) integrated Public Health Information System (iPHIS) database as of **July 10, 2024**.
- iPHIS is a dynamic disease reporting system that allows ongoing updates to previously entered data. As a result, data extracted from iPHIS represent a snapshot at the time of extraction and may differ from previous or subsequent reports.

LABORATORY DATA

- Data were extracted from the Public Health Ontario Laboratory Information Management System (LIMS) on **April 24, 2024**.

ON-MARG DIMENSIONS

- Matheson FI (Unity Health Toronto), Moloney G (Unity Health Toronto), van Ingen T (Public Health Ontario). 2021 Ontario marginalization index. Toronto, ON: St. Michael's Hospital (Unity Health Toronto); 2023.³ Available from: <https://www.publichealthontario.ca/-/media/Documents/O/2017/on-marg-userguide.pdf>
- Statistics Canada Postal Code Conversion File Plus (PCCF+), version 8B.
- Statistics Canada. Census profile, 2021 census of population [Internet]. Catalogue number 98-316-X2021001. Ottawa, ON: Government of Canada; 2022 [updated 2023 Feb 8; extracted 2023 Feb 22]. Available from: <https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E>

ONTARIO POPULATION DATA

- Statistics Canada. Table 17-10-0157-01 Population estimates, July 1, by health region and peer group, 2023 boundaries [Internet]. Ottawa, ON: Government of Canada; 2024 Jun 19 [extracted 2024 Jun 28].⁷

Data Caveats

IPHIS

- Data reported between 2020 and 2023 should be interpreted with caution. Both testing and iPHIS data entry practices were likely impacted by the COVID-19 pandemic response and subsequent recovery period.
- These data only represent laboratory-confirmed cases of infectious syphilis and early congenital syphilis reported to public health and recorded in iPHIS. As a result, all case counts are subject to varying degrees of underreporting due to a variety of factors, such as disease awareness and medical care seeking behaviours that may depend on severity of illness, clinical practices, and changes in laboratory testing and reporting behaviours.
- Cases of infectious syphilis include those staged as: Early Latent, Primary – Anal, Primary – Genital, Primary – Other Sites, Secondary – Skin and Mucous Membranes, Secondary – Other Sites, and

Infectious Neurosyphilis. Cases of early congenital syphilis are not included in counts of infectious syphilis.

- Only infectious syphilis cases and early congenital syphilis cases meeting the confirmed case classification as listed in the Ontario MOH surveillance [case definitions](#)¹ are included in the reported case counts. Provincial surveillance case definitions are available online under the Infectious Diseases Protocol are the most current.
 - Changes to provincial surveillance case definitions and disease classifications have occurred over the years and thus may impact the analysis of trends over time. Cases are classified in iPHIS based on the Ontario MOH surveillance case definitions in use at the time the case was identified.
 - PHO's technical report "[Factors Affecting Reporting Diseases in Ontario: Case Definition Changes and Associated Trends 1991-2016](#)" and its associated [appendix](#) provide more detailed information on this topic.^{8,9}
- Cases of infectious syphilis and early congenital syphilis are reported based on the Episode Date, which is an estimate of the onset date of disease for a case. In order to determine this date, the following hierarchy exists in iPHIS: Onset Date > Specimen Collection Date > Lab Test Date > Reported Date.
 - For example, if an Onset Date exists, it will be used as the Episode Date. If Onset Date is not available, then the next available date in the hierarchy (i.e., Specimen Collection Date) will be used, and so on.
- Confirmation of syphilis staging takes time. As a result, case counts for syphilis do not start to become stable for at least three months. For example, syphilis cases reported in January only start to stabilize in April. Case counts for the year in focus are more likely to change in subsequent reports than those for earlier years and should be interpreted with caution.
- Case counts by geography are based on the diagnosing health unit (DHU). DHU refers to the case's public health unit of residence at the time of illness onset or report to public health.
 - Cases for which the DHU was reported as MOHLTC (to signify a case that is not a resident of Ontario) were excluded from this analysis.
- Cases for which the Disposition Status was reported as ENTERED IN ERROR, DOES NOT MEET DEFINITION, DUPLICATE-DO NOT USE, or any variation on these values, were excluded from this analysis.
- The following values for sex are derived from the data entered in the Gender field of iPHIS: MALE, FEMALE, TRANSGENDER, OTHER, UNKNOWN. Counts or rates presented as 'Total' include all of these values; however, for sex-specific rates or proportions, only Male and Female counts are included as denominators are not available for the other values.
 - Note: Cases reported as Transgender include both transgender males and transgender females as it is not possible to determine the case's preferred gender identity from data reported in iPHIS.
- The potential for duplicate case records exists because duplicate sets were not identified and excluded unless they were already resolved at either the local or provincial level prior to data extraction from iPHIS.

LABORATORY INFORMATION MANAGEMENT SYSTEM

- This report only includes laboratory testing performed at PHO. PHO performs most syphilis screening but all syphilis confirmatory testing in Ontario. Other laboratories may perform syphilis screening; however, if these samples are reactive, they are submitted to PHO for confirmatory testing. PHO does not receive negative samples from these laboratories.
- Laboratory test results in the LIMS represent unique samples as opposed to individuals or cases. As a result, individuals with multiple laboratory tests may be counted more than once.
- Results for individuals less than 18 months old should be interpreted with caution. A diagnosis of early congenital syphilis requires additional clinical context.
- Prenatal samples include all samples that have been submitted for prenatal screening for syphilis. All other samples are considered not prenatal.
- Prenatal samples include all individuals regardless of reported gender. In total, 0.5% of these specimens indicate male gender and 2.0% had unknown gender.
- Demographic information is obtained from paper requisitions accompanying the patient sample and is thus subject to transcription errors.
- Login date was used to assign year of test.

ON-MARG DIMENSIONS

- ON-Marg is an area-based index which assigns a measure of marginalization based on neighbourhood characteristics, not individual characteristics. Therefore, not all individuals in a given area will reflect the broader demographic trends of the area they live in. This means, for example, that not every individual who lives in an area of high neighbourhood material deprivation experiences material deprivation themselves. Heterogeneity of demographic characteristics can vary substantially, especially across large rural geographies.
- “Neighbourhoods” are considered to be Statistic Canada dissemination areas (DA). Cases were probabilistically matched to a DA based on their postal code using Statistics Canada’s PCCF+ version 8B file, and subsequently assigned to a quintile of marginalization that contained 20% of Ontario neighbourhoods. The quintiles are ordered from quintiles 1 to 5, with quintile 1 having the lowest level of marginalization and quintile 5 having the highest level of marginalization.
- People who have tested positive for infectious syphilis that reside in census dissemination areas where data has been suppressed, and cases that have missing or invalid postal codes could not be assigned to a quintile of marginalization. In these analyses 59 infectious syphilis cases among females of childbearing age were excluded due to missing postal code record (n=1), PCCF+ unable to assign postal code to DA (n=34), ON-Marg unavailable for the assigned DA (n=24).
- Due to data suppression for some census indicators on Indigenous reserves and settlements in Ontario, residents of Indigenous reserves and settlements could not be included in ON-Marg and therefore people who have tested positive for infectious syphilis and are living on Indigenous reserves and settlements could not be assigned to a quintile of marginalization. While Indigenous individuals living off reserves are included in this analysis, Indigeneity data is not currently collected or captured in dimensions of ON-Marg.
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References

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Appendix A

Table A1. Infectious syphilis cases and rate (per 100,000 population) by public health unit: Ontario, 2019-2023

Public Health Unit	2019	2020	2021	2022	2023
Algoma Public Health	2 (1.7)	3 (2.5)	12 (10.2)	17 (14.2)	45 (36.3)
Brant County Health Unit	4 (2.6)	8 (5.1)	26 (16.4)	12 (7.3)	23 (13.5)
Chatham-Kent Public Health	14 (13.2)	6 (5.6)	7 (6.5)	7 (6.4)	8 (7.2)
City of Hamilton Public Health Services	59 (10.2)	118 (20.1)	178 (30.0)	195 (32.4)	145 (23.6)
Durham Region Health Department	60 (8.6)	89 (12.5)	86 (11.8)	82 (11.0)	98 (12.8)
Eastern Ontario Health Unit	5 (2.3)	6 (2.8)	6 (2.7)	7 (3.1)	12 (5.2)
Grey Bruce Health Unit	7 (4.0)	5 (2.8)	5 (2.8)	14 (7.6)	10 (5.3)
Haldimand-Norfolk Health Unit	4 (3.4)	5 (4.2)	9 (7.4)	8 (6.4)	11 (8.6)
Haliburton, Kawartha, Pine Ridge District Health Unit	6 (3.1)	10 (5.2)	15 (7.7)	23 (11.5)	43 (21.1)
Halton Region Health Department	40 (6.7)	57 (9.3)	95 (15.3)	83 (13.2)	79 (12.3)
Hastings Prince Edward Public Health	9 (5.2)	9 (5.1)	18 (10.1)	16 (8.8)	31 (16.7)
Huron Perth Health Unit	4 (2.8)	14 (9.5)	10 (6.7)	17 (11.2)	9 (5.8)
Kingston, Frontenac, Lennox & Addington Public Health	12 (5.7)	21 (9.9)	51 (23.7)	89 (40.4)	103 (45.9)
Lambton Public Health	6 (4.5)	12 (8.9)	12 (8.9)	20 (14.5)	33 (23.4)
Leeds, Grenville and Lanark District Health Unit	3 (1.7)	1 (0.5)	10 (5.4)	13 (6.8)	15 (7.7)
Middlesex-London Health Unit	107 (21.0)	110 (21.2)	94 (17.9)	129 (23.8)	101 (17.9)
Niagara Region Public Health	33 (6.8)	65 (13.3)	121 (24.3)	120 (23.6)	63 (12.0)
North Bay Parry Sound District Health Unit	10 (7.6)	13 (9.8)	18 (13.4)	8 (5.8)	9 (6.3)

Public Health Unit	2019	2020	2021	2022	2023
Northwestern Health Unit	42 (51.3)	38 (46.1)	72 (86.6)	77 (92.7)	46 (55.3)
Ottawa Public Health	172 (16.7)	126 (12.0)	120 (11.3)	129 (11.9)	169 (15.2)
Peel Public Health	152 (10.1)	162 (10.6)	175 (11.6)	235 (15.4)	249 (15.7)
Peterborough Public Health	11 (7.3)	8 (5.3)	13 (8.5)	22 (14.0)	16 (9.8)
Porcupine Health Unit	4 (4.7)	2 (2.3)	4 (4.7)	0 (0.0)	6 (6.8)
Public Health Sudbury & Districts	33 (15.9)	25 (12.0)	19 (9.0)	31 (14.5)	68 (31.1)
Region of Waterloo Public Health and Emergency Services	51 (8.6)	72 (11.9)	141 (23.0)	118 (18.5)	96 (14.2)
Renfrew County and District Health Unit	4 (3.7)	4 (3.6)	4 (3.6)	6 (5.3)	5 (4.4)
Simcoe Muskoka District Health Unit	24 (4.0)	36 (5.9)	59 (9.4)	86 (13.4)	62 (9.4)
Southwestern Public Health	14 (6.5)	12 (5.4)	16 (7.1)	17 (7.4)	22 (9.3)
Thunder Bay District Health Unit	21 (13.2)	14 (8.8)	42 (26.4)	98 (61.3)	88 (54.3)
Timiskaming Health Unit	0 (0.0)	3 (9.0)	0 (0.0)	2 (5.9)	2 (5.8)
Toronto Public Health	1,376 (46.8)	1,241 (42.0)	1,426 (48.9)	1,723 (57.7)	1,420 (45.6)
Wellington-Dufferin-Guelph Public Health	19 (6.1)	15 (4.7)	21 (6.6)	32 (9.8)	17 (5.1)
Windsor-Essex County Health Unit	71 (16.4)	55 (12.5)	50 (11.4)	45 (9.9)	74 (15.8)
York Region Public Health Services	68 (5.7)	65 (5.4)	70 (5.7)	87 (7.1)	86 (6.9)
Total	2,447 (16.8)	2,430 (16.5)	3,005 (20.2)	3,568 (23.6)	3,264 (20.9)

Data source: iPHIS; Statistics Canada⁷

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