Public Health Ontario | Santé publique Ontario

SURVEILLANCE REPORT

Chlamydia in Ontario: Focus on 2024

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Purpose

This annual report summarizes data on trends over time, age and sex, geography, site of infection, and testing for confirmed cases of chlamydia in Ontario with a focus on cases reported in 2024. It includes cases that meet the provincial confirmed chlamydia case definition[1], based on data available from Ontario's integrated Public Health Information System (iPHIS) as of **July 7, 2025**.

Key Messages

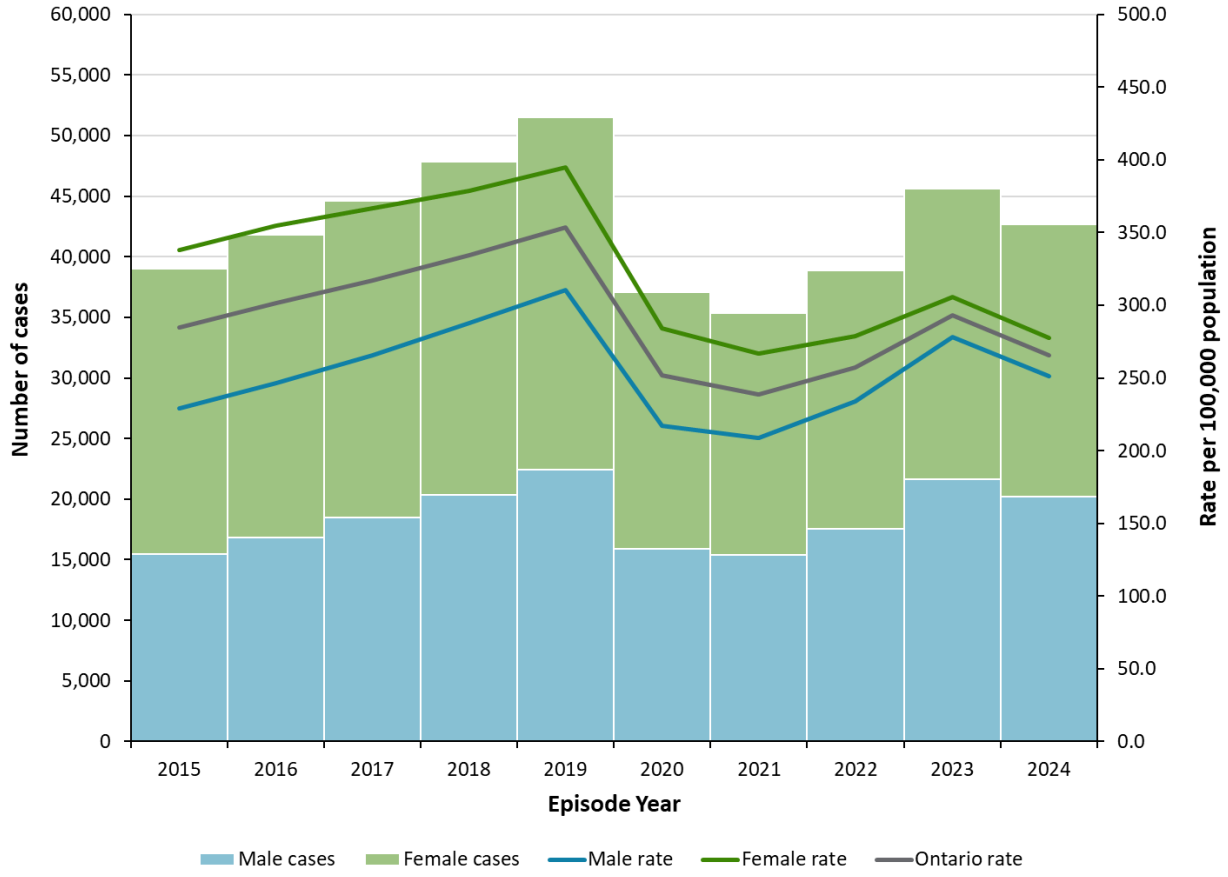
- Chlamydia, caused by *Chlamydia trachomatis,* is the most commonly reported sexually transmitted infection in Ontario with an average of approximately 42,500 cases reported annually between 2015 and 2024. In 2024, the number of reported chlamydia cases declined compared to 2023 and remained below levels observed prior to the COVID-19 pandemic.
- In 2024, chlamydia continued to disproportionately affect young people aged 15-29 years in Ontario, with higher rates and number of cases occurring among females. However, the proportion of cases reported among males has steadily increased in the past 10 years.
- Although there was a small decrease in the provincial incidence of chlamydia in 2024 compared to 2023, four public health units reported increases. These regional differences highlight the need for targeted public health interventions that are responsive to local context, population needs, and service accessibility.
- Approximately 11.0% of chlamydia infections occurred at extragenital sites only (i.e., pharyngeal and rectal), and among males, this proportion was higher at 21.7% compared to 1.5% among females. Among males with extragenital infections, 17.2% had rectal-only infections, highlighting the importance of open, respectful conversations about sexual health practices to guide appropriate extragenital STI screening.
    - Testing for *Lymphogranuloma venereum* (LGV), an infection caused by invasive strains of *C. trachomatis*, should be considered when a rectal chlamydial infection is detected among gay, bisexual, as well as other men who have sex with men (gbMSM) with risk factors for LGV, regardless of symptoms.[2]
- The epidemiology of chlamydia in Ontario underscores the need for a comprehensive approach to reducing the provincial incidence. This approach would include primary prevention through safer sex education, culturally appropriate counselling, and stigma-reduction campaigns that promote routine STI testing. Equitable access to inclusive, non-judgmental sexual health services[3], alongside the expansion of innovative service delivery models (e.g., mobile clinics, digital platforms), can enhance reach and uptake. Routine screening of sexually active individuals at all relevant anatomical sites and timely treatment of cases and their sexual partners are essential to interrupt transmission.

Trends over Time

Between 2015 and 2019, the provincial incidence of laboratory-confirmed chlamydia cases in Ontario rose from 284.8 to 353.8 cases per 100,000 population (Figure 1). Rates per 100,000 population declined sharply in 2020 (251.6) and 2021 (238.7), likely due to pandemic-related impacts on testing and health-seeking behaviours; data from these years should be interpreted with caution. Incidence increased in 2022 (257.3) and 2023 (292.9), followed by a 9.4% decrease in 2024 (265.5), though rates from 2020 to 2024 remain below pre-pandemic levels overall.

Between 2015 and 2024, females consistently accounted for the majority of chlamydia cases reported in Ontario (average: 56.5%; range: 52.4%-60.3%). However, the proportion of cases reported among males has increased from 39.6% in 2015 to 47.2% in 2024. The female-to-male incidence ratio decreased from 1.5 times higher in 2015 (338.2 vs. 229.0) to 1.1 times higher in 2024 (277.8 vs. 251.3).

Figure 1: Chlamydia Cases and Rate per 100,000 Population by Year and Sex*: Ontario, 2015-2024



Data sources: Cases: Integrated Public Health Information System (iPHIS) [database]. Population Estimates: Statistics Canada.[4] *Excludes cases that reported their sex as transgender, other, or unknown due to the lack of an appropriate denominator.

Age and Sex

In 2024, the average age of reported chlamydia cases was 28.4 years and the median age was 25.8 years. (Table 1) Half of all chlamydia cases occurred among individuals aged 21.5 to 32.7 years (i.e., interquartile range).

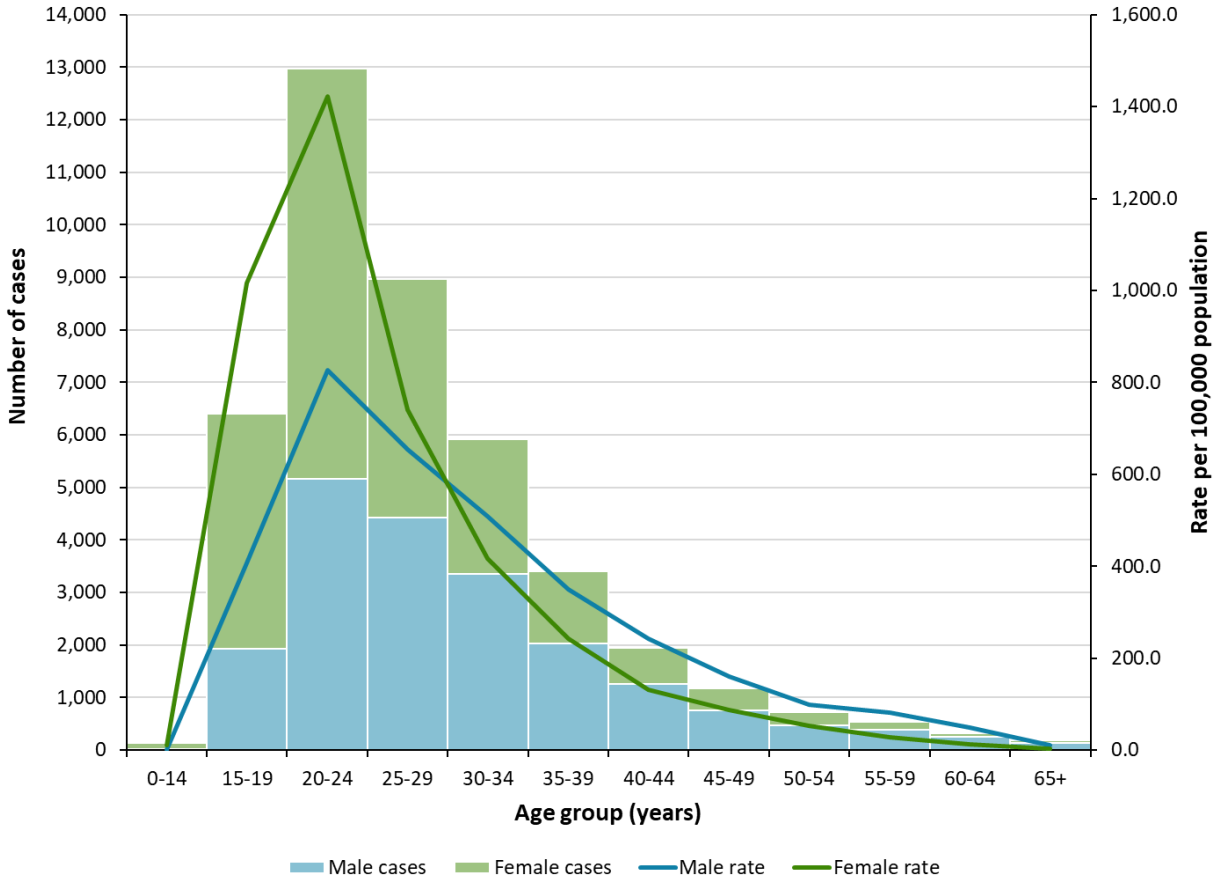
The highest incidence of chlamydia per 100,000 population was observed among females aged 20-24 years (1,421.7), followed by females aged 15-19 years (1,016.8), and males aged 20-24 years (825.6). (Figure 2)

Table 1: Chlamydia Cases by Age and Sex: Ontario, 2024 (n=42,812)

Demographic Characteristic	2024
Mean Age (years)	28.4
Median age and interquartile range (years)	25.8 (21.5 - 32.7)
Age Group	**n (%)**
<20 years	6,550 (15.3)
20 – 29 years	22,004 (51.4)
30 – 39 years	9,357 (21.9)
40 – 49 years	3,134 (7.3)
50 – 59 years	1,266 (3.0)
60 – 69 years	439 (1.0)
70+ years	59 (0.1)
Unknown	3 (<0.1)
Sex	**n (%)**
Male	20,197 (47.2)
Female	22,469 (52.5)
Transgender	86 (0.2)
Other	16 (<0.1)
Unknown	44 (0.1)

Data source: iPHIS
Note: Due to limitations in how data are captured in iPHIS, it is not possible to determine an individual's self-identified gender. Therefore, cases whose sex is reported as 'Transgender' include both transgender males and transgender females.

Figure 2: Chlamydia Cases and Rate per 100,000 Population by Age Group and Sex*: Ontario, 2024

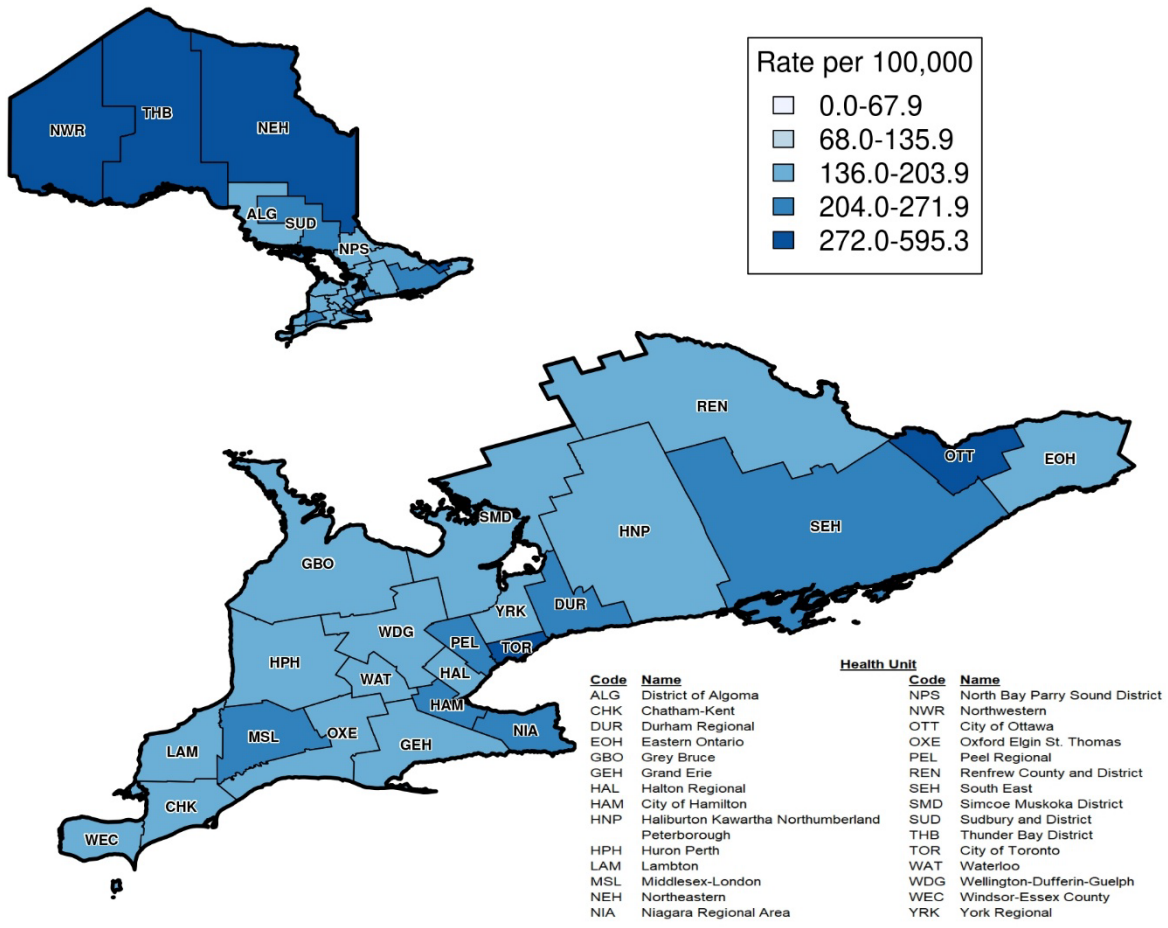


Data sources: iPHIS; Statistics Canada.[4]
*Excludes cases that reported their sex as transgender, other, or unknown due to the lack of an appropriate denominator.

Geography

Although the overall incidence of chlamydia in Ontario decreased in 2024, four public health units (PHUs) reported an increase compared to 2023: Eastern Ontario Health Unit, Northwestern Health Unit, Southwestern Public Health, and Thunder Bay District Health Unit. However, the PHUs with the highest incidence of chlamydia in 2024 were Northwestern Health Unit (595.3 cases per 100,000 population), Toronto Public Health (427.8), Thunder Bay District Health Unit (406.0), Northeastern Public Health (312.2), and Ottawa Public Health (292.4). (Figure 3)

Figure 3: Chlamydia Rates per 100,000 Population by Public Health Unit: Ontario, 2024



Health Unit			
Code	Name	Code	Name
ALG	District of Algoma	NPS	North Bay Parry Sound District
CHK	Chatham-Kent	NWR	Northwestern
DUR	Durham Regional	OTT	City of Ottawa
EOH	Eastern Ontario	OXE	Oxford Elgin St. Thomas
GBO	Grey Bruce	PEL	Peel Regional
GEH	Grand Erie	REN	Renfrew County and District
HAL	Halton Regional	SEH	South East
HAM	City of Hamilton	SMD	Simcoe Muskoka District
HNP	Haliburton Kawartha Northumberland Peterborough	SUD	Sudbury and District
		THB	Thunder Bay District
HPH	Huron Perth	TOR	City of Toronto
LAM	Lambton	WAT	Waterloo
MSL	Middlesex-London	WDG	Wellington-Dufferin-Guelph
NEH	Northeastern	WEC	Windsor-Essex County
NIA	Niagara Regional Area	YRK	York Regional

Data sources: iPHIS; Statistics Canada.[4]
Note: Data available in Appendix A: Table A1. Haliburton, Kawartha Northumberland Peterborough (HNP) refers to Lakelands Public Health. Oxford Elgin St. Thomas (OXE) refers to Southwestern Public Health.

Site of Infection

In 2024, 96.9% of chlamydia infections among females were detected from specimens collected at urogenital sites only. (Table 2) Among males, 76.4% of chlamydia infections involved urogenital sites only, while 21.7% involved extragenital sites only. Among the extragenital infections in males, rectal sites (79.2%) were more commonly reported than pharyngeal sites (10.7%).

Table 2: Chlamydia Cases by Site of Infection and Sex*: Ontario, 2024

Site of infection	Male n (%)	Female n (%)	Total n (%)
Urogenital Only**	**14,199 (76.4)**	**20,231 (96.9)**	**34,430 (87.2)**
Extragenital Only	**4,026 (21.7)**	**305 (1.5)**	**4,331 (11.0)**
Rectal	3,188 (79.2)	86 (28.2)	3,274 (75.6)
Pharyngeal	432 (10.7)	210 (68.9)	642 (14.8)
Both Rectal and Pharyngeal	406 (10.1)	9 (3.0)	415 (9.6)
Urogenital and Extragenital	**361 (1.9)**	**345 (1.7)**	**706 (1.8)**
Total†	**18,586 (100.0)**	**20,881 (100.0)**	**39,467 (100.0)**

Data source: iPHIS

*Excludes cases that reported their sex as transgender, other, or unknown due to small case counts when stratified by site of infection.

**Defined as those involving specimens collected from the urethra, urine, vagina (females only), and cervix (females only).

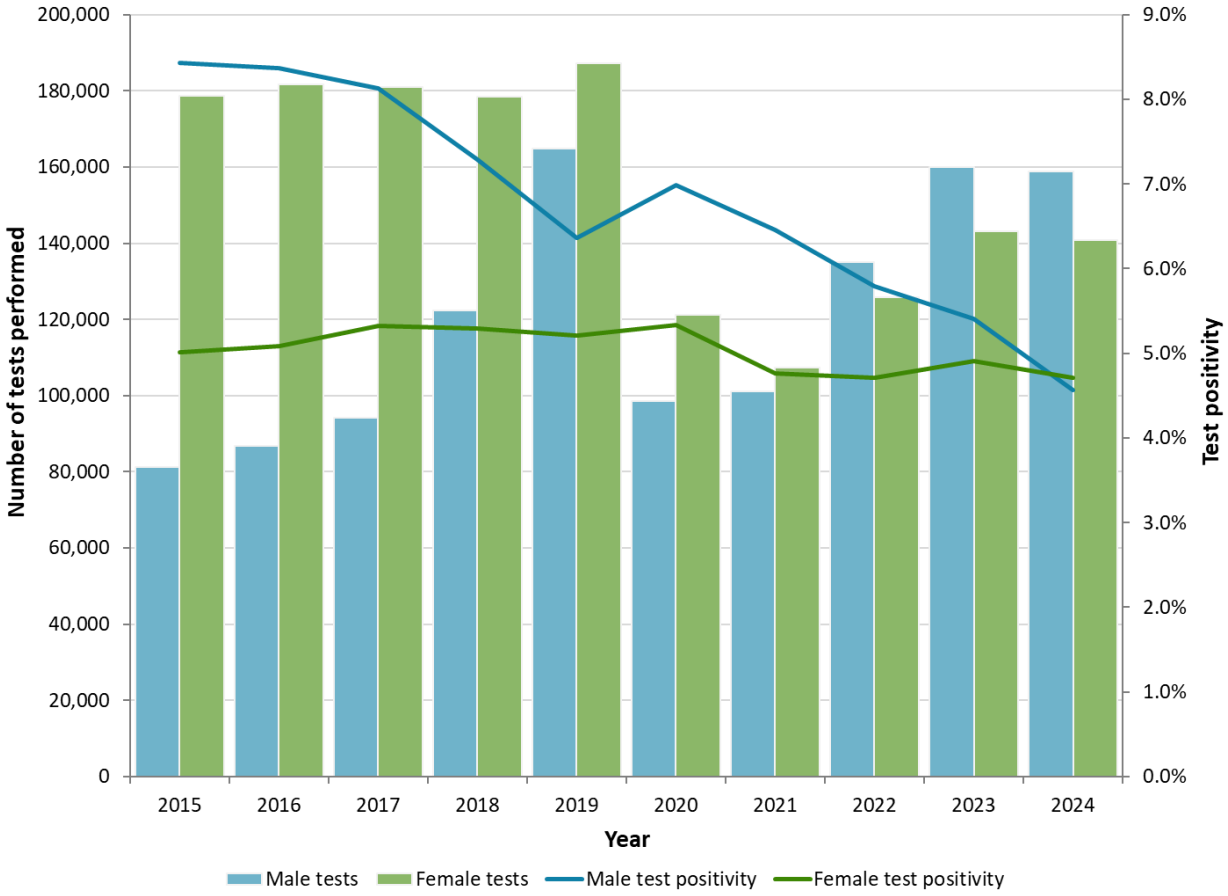
†Excludes 3,199 cases that either had a site of infection not classified as urogenital and/or extragenital site (i.e., nasopharyngeal, conjunctiva; n=2,872) or had no site of infection entered in iPHIS (n=327).

Testing

In 2024, PHO tested 140,781 specimens from females and 158,731 specimens from males for *C. trachomatis* using nucleic acid amplification tests (NAATs). Between 2015 and 2024, the overall test positivity among females remained stable at approximatley 5.0%, while positivity among males declined from 8.4% in 2015 to 4.6% in 2024. (Figure 4)

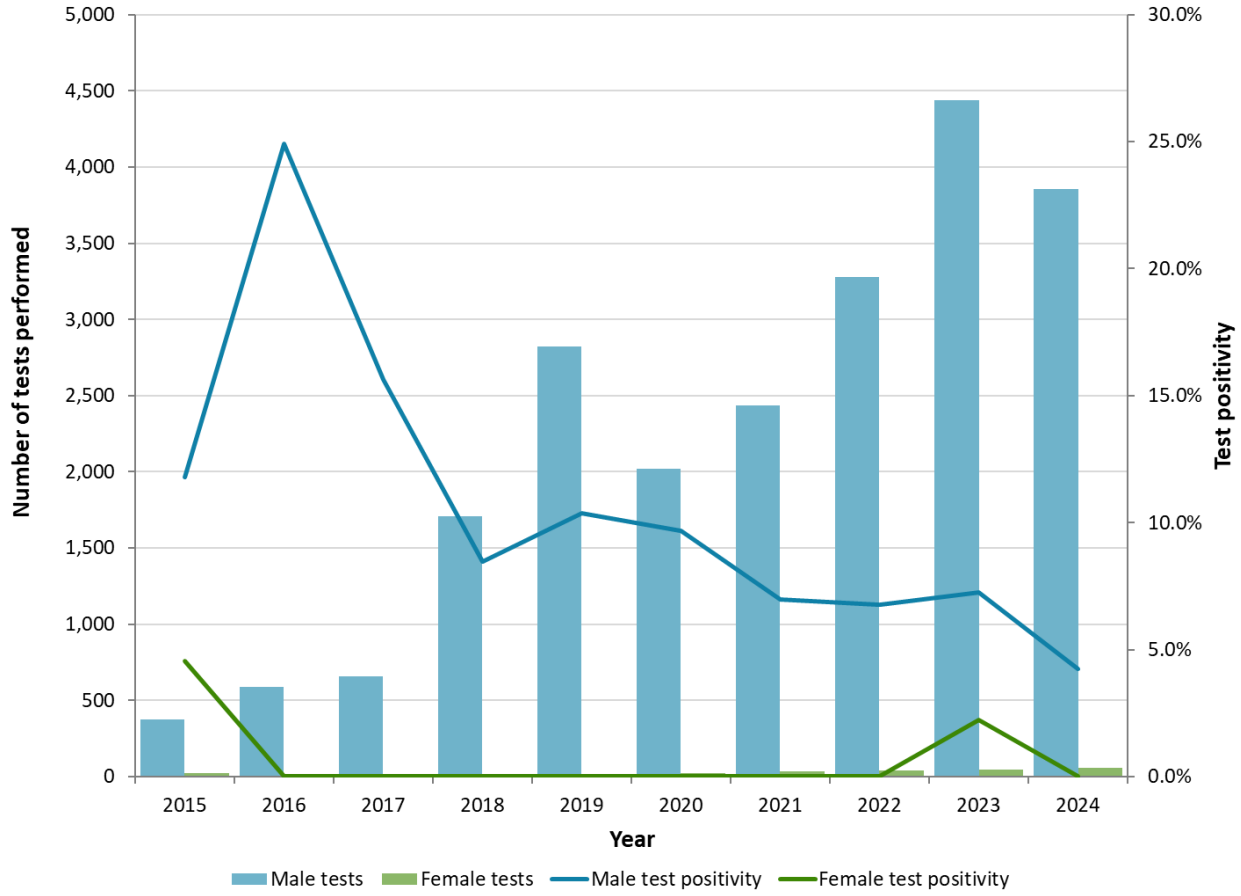
Lymphogranuloma venereum (LGV) is caused by *C. trachomatis* genotypes L1, L2 or L3. These genotypes are more invasive than non-LGV genotypes and may result in severe infection. In 2024, PHO received 3,857 specimens from males and 58 specimens from females for LGV testing. Among males, LGV test positivity peaked in 2016 (24.9%), followed by a steady decline to 4.2% in 2024. Among females, positivity remained at 0.0% from 2016 to 2024, with a brief increase to 2.2% in 2023, likely reflecting a small number of positive specimens. (Figure 5)

Figure 4: Number of Nucleic Acid Amplification Tests (NAATs) Performed by PHO* and Test Positivity for *C. trachomatis* by Year and Sex: Ontario, 2015-2024**



Data source: PHO Laboratory Information Management System (LIMS)
Note: Rectal and pharyngeal specimens accepted for NAAT at PHO since April 2018.
*Laboratory data only represent testing performed at PHO (i.e., does not include testing performed at community laboratories throughout the province that conduct a large proportion of testing for chlamydia in Ontario).
**Excludes cases that reported their sex as unknown. The general requisition used for *C. trachomatis* testing does not include options for reporting sex as transgender or other.

Figure 5: Number of PCR Tests and Test Positivity for *lymphogranuloma venereum* (LGV) by Year and Sex*: Ontario, 2015-2024



Data source: LIMS

Note: Since April 2018, rectal and pharyngeal specimens have been accepted for *C. trachomatis* nucleic acid amplification testing (NAAT) at PHO, likely contributing to the increase in LGV testing volumes from that point onward. As part of PHO's testing protocols, rectal specimens that test positive for *C. trachomatis* at PHO from males, trans-females and individuals assigned as male at birth are sent to the NML for LGV testing. This protocol likely explains the large difference in test volumes between males and females.

*Excludes cases that reported their sex as unknown. The general requisition used for *C. trachomatis* testing does not include options for reporting sex as transgender or other.

Technical Notes

Data Sources

Case Data

- The data for this report were based on information entered in the Ontario Ministry of Health (MOH) integrated Public Health Information System (iPHIS) database as of **July 7, 2025**.
- 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 **July 14, 2025** for *Chlamydia trachomatis* and **July 22, 2025** for LGV.

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; 2025 Feb 19 [extracted 2025 Feb 21].[4]

Data Caveats

- Surveillance and testing data for chlamydia 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 the subsequent recovery period.

iPHIS

- These data only represent laboratory-confirmed cases of chlamydia 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, which may depend on severity of illness, clinical practices, and changes in laboratory testing and reporting behaviours.
- Only chlamydia 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 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 Reportable Diseases in Ontario: Case Definition Changes and Associated Trends 1991-2016" and its associated appendix provide more detailed information on this topic.[5,6]

- Cases of chlamydia 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.
- 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.
- As of January 1, 2025, a number of public health units have merged:
    - Brant County Health Unit and Haldimand-Norfolk Health Unit have merged into Grand Erie Public Health;
    - Hastings and Prince Edward Counties Health Unit, Kingston, Frontenac and Lennox and Addington Health Unit and Leeds, Grenville and Lanark District Health Unit have merged into South East Health Unit;
    - Porcupine Health Unit and Timiskaming Health Unit have merged into Northeastern Public Health; and
    - Haliburton, Kawartha, Pine Ridge District Health Unit and Peterborough County-City Health Unit have merged into Lakelands Public Health Unit.
- Map breakpoints used in figure 3 were defined by dividing the 80th percentile value into four equal intervals, creating five total categories: four below the 80th percentile and one capturing higher outliers.
- 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 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.
- Extragenital infections of chlamydia are reported based on the body site of the positive laboratory specimen. Note, however, that not all cases of chlamydia have a body site entered in iPHIS.

Laboratory Information Management System

- Laboratory data only represent testing performed at or through PHO. These data do not include testing performed outside of PHO.
    - The data were based on unique specimens as opposed to unique individuals and may over-represent case counts due to submission of multiple specimens per patient (e.g., specimens received from multiple sites or repeated testing).
- The total test count may also exceed the combined counts for males and females due to tests with unspecified or unknown sex. The general requisition used for *C. trachomatis* testing does not include options for reporting sex as transgender or other.
- Specimens tested for LGV include specimens that tested positive for *C. trachomatis* at PHO, as well as positive specimens referred by external laboratories for additional testing.
- Test positivity for chlamydia is calculated as the number of specimens positive for *C. trachomatis* divided by the total number of specimens tested for *C. trachomatis* and presented as a percentage.
- Test positivity for LGV is calculated as the number of specimens positive for LGV divided by the total number of positive *C. trachomatis* specimens tested for LGV and presented as a percentage.
- On December 1, 2021, the Roche assay was implemented for NAAT. The change in assay made it no longer possible to request only *C. trachomatis* or *N. gonorrhoeae* testing. Therefore, any changes to NAAT testing after this date would have an impact on the testing of both *C. trachomatis* and *N. gonorrhoeae.* For this reason, the test volumes in 2021 and onward may not necessarily reflect screening practices for *C. trachomatis*.
- Login date was used to assign year of test.
- Demographic information is based on handwritten data submitted on the requisition accompanying the specimen and is thus subject to transcription errors.

References

1. Ontario. Ministry of Health. Ontario public health standards: requirements for programs, services and accountability. Infectious disease protocol. Appendix 1: Case definitions and disease-specific information. Disease: Chlamydia trachomatis infections. Effective: May 2022 [Internet]. Toronto, ON: King's Printer for Ontario; 2022 [cited 2025 Aug 6]. Available from: https://files.ontario.ca/moh-ophs-chlamydia-en-2022.pdf
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4. Statistics Canada. Table 17-10-0157-01 Population estimates, July 1, by health region and peer group, 2023 boundaries [database]. Ottawa, ON: Government of Canada; 2025 Feb 19 [extracted 2025 Feb 21].
5. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Factors affecting reportable diseases in Ontario (1991-2016). Toronto, ON: Queen's Printer for Ontario; 2018. Available from: https://www.publichealthontario.ca/-/media/documents/F/2018/factors-reportable-diseases-ontario-1991-2016.pdf
6. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Appendix: factors affecting case definition changes in Ontario (1991-2016). Toronto, ON: Queen's Printer for Ontario; 2018. Available from: https://www.publichealthontario.ca/-/media/documents/a/2018/appendix-factors-reportable-diseases-ontario-1991-2016.pdf?sc_lang=en

Appendix A

Table A1: Chlamydia Cases and Rate per 100,000 Population by Public Health Unit* and Year: Ontario, 2020-2024

Public Health Unit	2020	2021	2022	2023	2024
Algoma Public Health	262 (222.5)	321 (273.0)	270 (224.9)	253 (205.5)	253 (199.9)
Chatham-Kent Public Health	238 (221.9)	231 (213.4)	232 (212.0)	269 (243.4)	214 (191.6)
City of Hamilton Public Health Services	1,586 (269.6)	1,551 (261.1)	1,490 (247.3)	1,749 (283.7)	1,545 (244.4)
Durham Region Health Department	1,821 (255.1)	1,547 (212.6)	1,807 (242.4)	2,032 (264.8)	2,006 (253.1)
Eastern Ontario Health Unit	292 (134.4)	236 (107.0)	261 (116.2)	345 (150.6)	377 (161.6)
Grand Erie Public Health	562 (204.4)	565 (201.7)	532 (184.7)	660 (222.9)	599 (196.7)
Grey Bruce Health Unit	291 (164.3)	324 (179.1)	253 (136.5)	350 (185.9)	281 (147.0)
Halton Region Public Health	964 (157.2)	852 (137.3)	905 (143.5)	1,114 (172.8)	1,041 (158.5)
Huron Perth Public Health	265 (180.7)	273 (183.4)	256 (169.1)	292 (189.9)	259 (166.3)
Lakelands Public Health	678 (196.7)	580 (166.1)	599 (167.8)	768 (211.2)	650 (174.6)
Lambton Public Health	210 (156.5)	227 (168.6)	255 (184.9)	265 (188.5)	207 (144.6)
Middlesex-London Health Unit	1,572 (303.6)	1,582 (301.2)	1,788 (329.5)	1,857 (330.4)	1,573 (271.5)
Niagara Region Public Health	1,280 (261.0)	1,139 (229.1)	1,244 (244.5)	1,417 (270.3)	1,305 (242.0)
North Bay Parry Sound District Health Unit	266 (201.0)	287 (213.9)	252 (182.8)	303 (213.7)	260 (177.2)
Northeastern Public Health	381 (319.6)	348 (291.3)	314 (260.6)	384 (313.6)	386 (312.2)
Northwestern Health Unit	570 (692.0)	424 (509.8)	456 (548.4)	460 (553.1)	496 (595.3)

Public Health Unit	2020	2021	2022	2023	2024
Ottawa Public Health	2,604 (247.5)	2,522 (237.4)	3,070 (283.6)	3,437 (308.1)	3,374 (292.4)
Peel Public Health	3,513 (230.4)	3,371 (222.6)	3,931 (257.1)	4,686 (294.2)	4,358 (262.1)
Public Health Sudbury & Districts	722 (345.8)	569 (270.5)	551 (258.2)	618 (282.9)	581 (257.6)
Region of Waterloo Public Health and Emergency Services	1,425 (234.8)	1,325 (215.7)	1,387 (217.4)	1,550 (230.0)	1,356 (191.8)
Renfrew County and District Health Unit	198 (179.6)	167 (149.4)	172 (152.0)	200 (174.7)	191 (164.8)
Simcoe Muskoka District Health Unit	1,167 (190.9)	1,203 (192.4)	1,120 (174.0)	1,339 (203.4)	1,183 (176.0)
South East Health Unit	1,563 (273.4)	1,224 (211.2)	1,401 (236.7)	1,537 (255.8)	1,494 (244.8)
Southwestern Public Health	416 (188.7)	334 (148.3)	380 (165.0)	380 (161.4)	400 (166.4)
Thunder Bay District Health Unit	488 (305.8)	524 (329.9)	505 (315.7)	653 (403.5)	664 (406.0)
Toronto Public Health	10,394 (352.1)	10,378 (355.7)	11,920 (399.5)	14,776 (472.0)	14,002 (427.8)
Wellington-Dufferin-Guelph Public Health	651 (206.1)	558 (174.1)	666 (203.7)	764 (229.8)	670 (198.3)
Windsor-Essex County Health Unit	748 (170.5)	741 (168.4)	775 (171.2)	828 (176.6)	827 (170.9)
York Region Public Health	2,010 (165.9)	2,023 (165.7)	2,171 (176.4)	2,472 (197.4)	2,260 (175.9)
Total	**37,137 (251.6)**	**35,426 (238.7)**	**38,963 (257.3)**	**45,758 (292.9)**	**42,812 (265.5)**

Data sources: iPHIS; Statistics Canada.[4]
*See Data Caveats for a description of recent PHU mergers.

Citation

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