

SURVEILLANCE REPORT

Legionellosis in Ontario: January 1, 2024 to December 31, 2024

Published: May 2025

Introduction

This report summarizes the epidemiology of laboratory confirmed cases of legionellosis in Ontario with a focus on cases occurring in 2024 and comparisons to trends in recent years.

Legionella are bacteria found in natural water environments and can grow in human-made water systems, such as plumbing, cooling towers, hot tubs, showers and decorative fountains. Individuals can become infected with *Legionella* by breathing in small droplets or vapour of contaminated water. Legionellosis is a spectrum of illness caused by *Legionella* infection, ranging from mild flu-like illness (Pontiac fever) to severe lung infection/pneumonia (Legionnaires' disease) that can result in hospitalization and death.

Legionellosis is a disease of public health significance under [Ontario Regulation 135/18 of the Health Protection and Promotion Act](#).¹ For additional information regarding legionellosis, including the provincial case definition, visit the [Ontario Ministry of Health Appendix 1: Case Definitions and Disease Specific Information Disease: Legionellosis](#), the Public Health Ontario (PHO) [Legionellosis webpage](#), and the Ontario Ministry of Health [Legionella Investigation Reference Document](#).²⁻⁴

Key Messages

- *Legionella* bacteria are ubiquitous in the environment and most legionellosis cases reported in the province are sporadic and not linked to an identified outbreak.
- Legionellosis activity has been similar from 2019 to 2024 with no clear trend in reported incidence rates (range: 2.1 to 2.6 cases per 100,000 population per year).
- Similar to previous years, legionellosis activity in 2024 increased in the summer as expected, however, an outbreak in the Middlesex-London health unit included 30 confirmed cases. No common exposure source was identified during the outbreak investigation.⁵

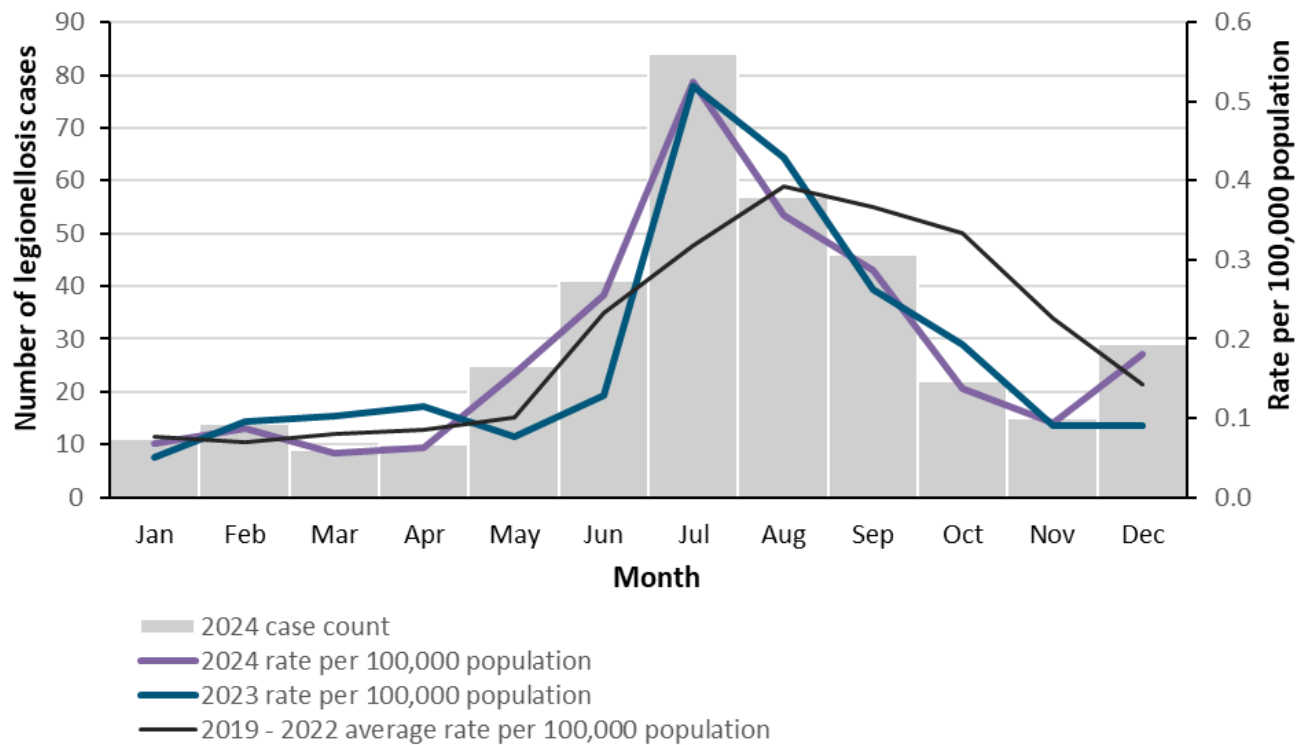
Highlights

- Most cases of legionellosis in Ontario occur between June and September, with the highest monthly case counts typically occurring in July ([Figure 1](#)).
- July case counts and rates in 2024 (n = 84, 0.5 cases per 100,000 population) and 2023 (n = 81, 0.5 cases per 100,000 population) were higher than the average for July from 2019 to 2022 (n = 38 cases, 0.3 cases per 100,000 population).

- From January 1, 2024, to December 31, 2024, a total of 363 (2.3 cases per 100,000) confirmed cases of legionellosis were reported in Ontario, which is similar to the annual average of 354 (2.4 cases per 100,000) cases reported between January 1, 2019 and December 31, 2023 ([Table 1](#)).
- The highest rates of legionellosis in Ontario typically occur among males and older adults ([Table 1](#)).
 - In 2024, the case rates in males (3.1 per 100,000 population) and females (1.5 per 100,000 population) were comparable to the average sex-specific case rates for the period from 2019 to 2023 (3.2 and 1.5 per 100,000 population for males and females, respectively).
 - In 2024, the legionellosis case rate was highest among adults aged 60 -79 years old (6.5 per 100,000 population), which differed from the average rate for 2019 to 2023 where adults in the 80 years and older age group reported the highest rates (6.8 per 100,000 population).
- Legionellosis rates vary by public health unit (PHU), with higher rates seen in southern Ontario in 2024 ([Figure 2](#)).
 - In 2024, Middlesex-London Health Unit (MLHU) reported the highest annual rate of legionellosis cases (7.7 cases per 100,000 population) in Ontario. High rates were partially due to an outbreak with a total of 30 confirmed cases of legionellosis.
 - After MLHU, the PHUs with the highest rates of legionellosis were Southwestern Public Health (4.6 cases per 100,000 population), Peterborough Public Health (4.4 cases per 100,000 population) and Windsor-Essex County Health Unit (4.3 cases per 100,00 population).
- In 2024, the proportion of positive tests among legionellosis tests conducted by PHO (percent positivity) peaked at the end of July at 6.4%, after which the trend generally declined ([Figure 3](#)).
- The proportion of legionellosis cases that resulted in hospitalization in 2024 (76.6%) was similar to the average for the period from 2019 to 2023 (75.1%) ([Table 2](#)).
 - In 2024, a higher proportion of female cases were hospitalized (79.5%) compared to male cases (75.1%). Both rates differed from the average from 2019 to 2023 (73.4% among females, and 76.0% among males, respectively).
- The proportion of legionellosis cases resulting in a fatal outcome in 2024 (5.2%) was lower than the average for the period from 2019 to 2023 (5.8%) ([Table 2](#)).
 - In 2024, a slightly higher proportion of cases amongst males (5.3%) had a fatal outcome compared to females (5.1%).

Trends

Figure 1: Confirmed Legionellosis Case Counts and Rates Per 100,000 Population in Ontario: Year 2024 Compared to Rates for the Previous Year (2023) and Average Rates for 2019 - 2022, by Month



Data Source: Ontario. Ministry of Health. Integrated Public Health Information System (iPHIS) [database]. Toronto, ON: King's Printer for Ontario [extracted 2025 February 3].

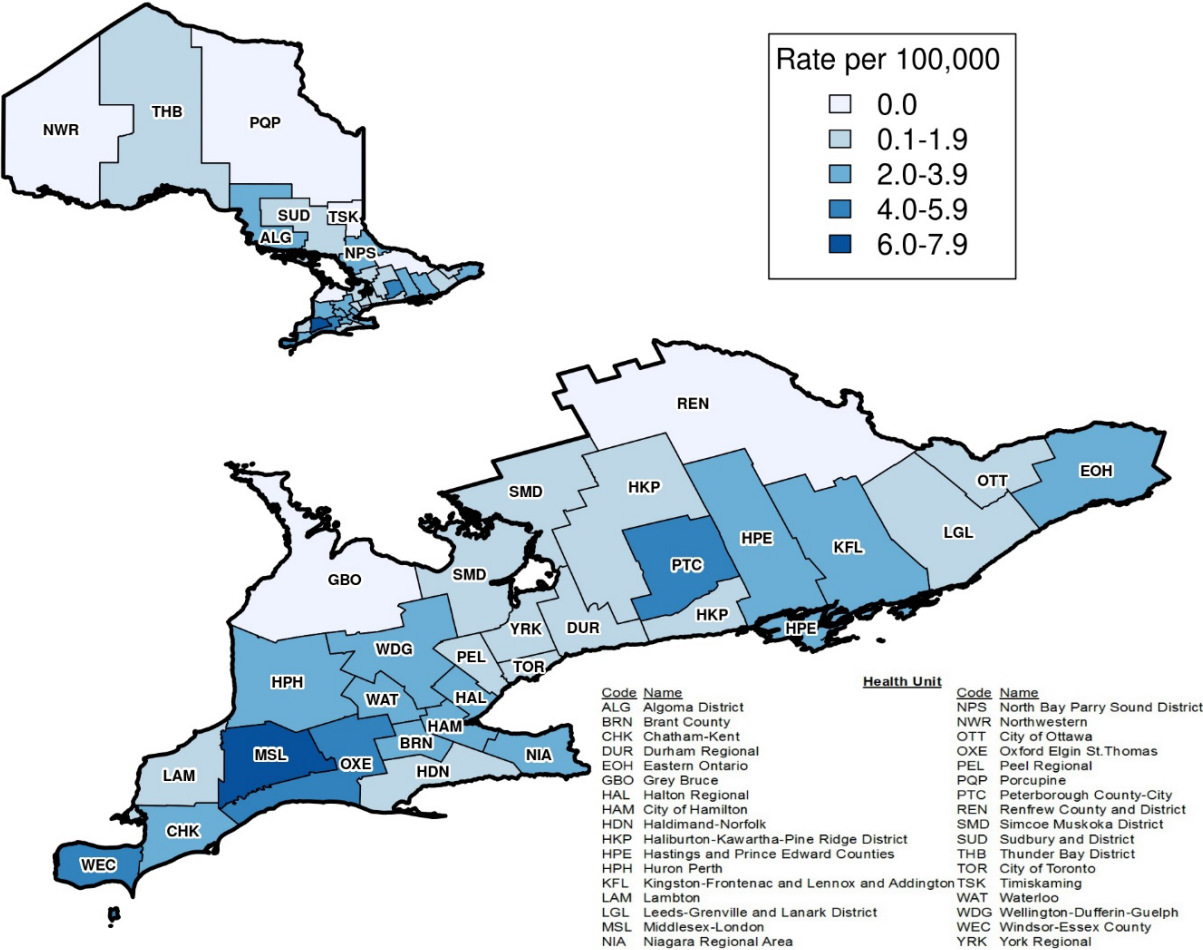
Table 1: Confirmed Legionellosis Case Counts and Rates Per 100,000 Population in Ontario, by Sex* and Age: Year 2024 Compared to the Average of the Previous Five Years (2019 - 2023)

Sex and Age Group (years)	Total Number of Cases Reported Between January 1, 2024 to December 31, 2024	Rate Per 100,000 Population Between January 1, 2024 to December 31, 2024	Average Number of Cases Reported Annually Between January 1, 2019 to December 31, 2023	Average Annual Rate Per 100,000 population Between January 1, 2019 to December 31, 2023
Female	117	1.5	115.6	1.5
Male	245	3.1	238.4	3.2
Did not specify	1	N/A	0.0	N/A
0 – 19	1	0.0	1.2	0.0
20 – 39	13	0.3	16.6	0.4
40 – 59	101	2.6	109.0	2.8
60 – 79	211	6.5	180.6	6.0
≥80	37	5.0	46.4	6.8
Unknown	0	N/A	0.2	N/A
Total	363	2.3	354	2.4

Data Source: Ontario. Ministry of Health. Integrated Public Health Information System (iPHIS) [database]. Toronto, ON: King's Printer for Ontario [extracted 2025 February 3].

*This report uses the terminology sex to reference the reported values for the gender field in iPHIS. Three values for sex are derived from the data entered in iPHIS: Male, Female, and Did Not Specify Male or Female; information from all three is combined when presenting total counts or rates.

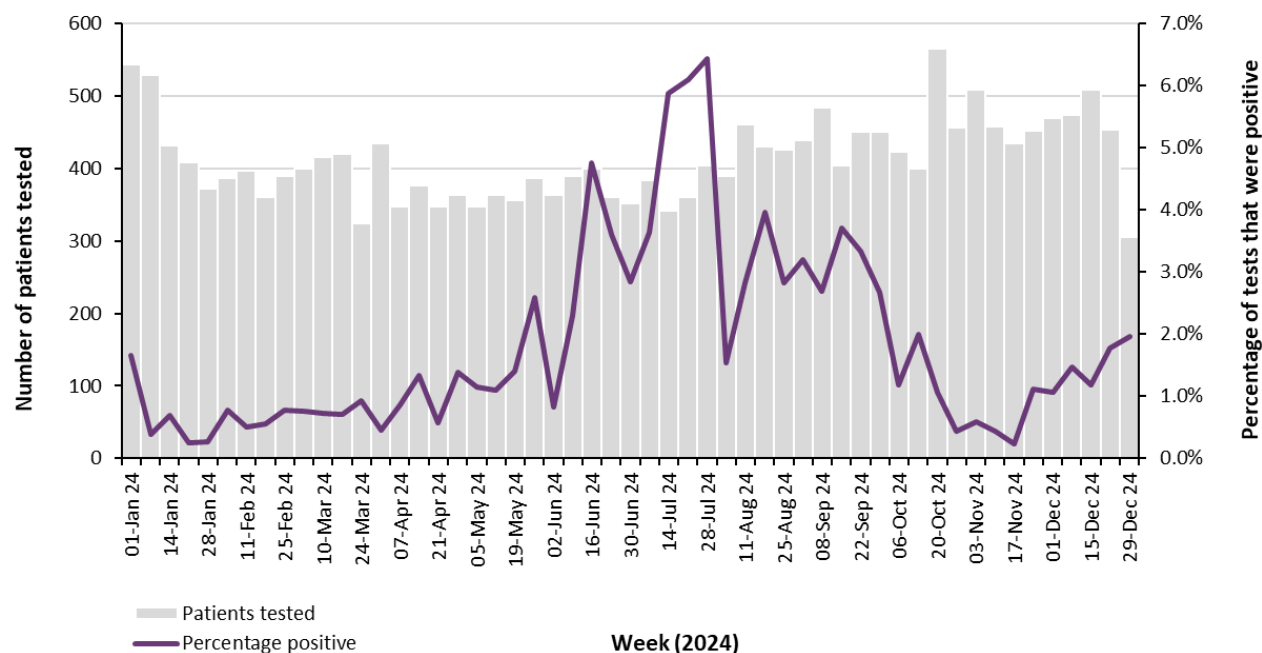
Figure 2: Rate of Confirmed Legionellosis Cases Reported in 2024 in Ontario, by Public Health Unit



Data Source: Ontario. Ministry of Health. Integrated Public Health Information System (iPHIS) [database]. Toronto, ON: King's Printer for Ontario [extracted 2025 February 3].

Testing

Figure 3: Number of Individuals Tested for *Legionella* and Percent Positivity in Ontario, by Week, 2024*



Data Source: PHO Laboratory Information Management System

Note: Includes all *Legionella* testing methods conducted by Public Health Ontario's laboratory. An individual is considered positive if a specimen was positive by any validated test method. Week was assigned based on the date the specimen was received at Public Health Ontario's laboratory; start dates of each week are presented on the x-axis.

*The first week (January 1 - January 6) and last week (December 29 - December 31) represent partial weeks as the graph only includes data from 2024.

Severity

Table 2: Hospitalizations and Deaths Among Confirmed Legionellosis Cases in Ontario, by Sex* and Age: Year 2024 Compared to the Average of the Previous Five Years (2019 - 2023)

Sex and Age Group (years)	Number (%) of Cases Hospitalized Between January 1, 2024 to December 31, 2024	Average Number (%) of Cases Hospitalized Per Year Between January 1, 2019 to December 31, 2023	Number (%) of Cases with a Fatal Outcome Between January 1, 2024 to December 31, 2024	Average Number (%) of Cases with a Fatal Outcome Per Year Between January 1, 2019 to December 31, 2023
Female	93/117 (79.5)	84.8/115.6 (73.4)	6/117 (5.1)	6.6/115.6 (5.7)
Male	184/245 (75.1)	181.2/238.4 (76.0)	13/245 (5.3)	14.0/238.4 (5.9)
Did not specify	1/1 (100.0)	0/0 (0.0)	0/1 (0.0)	0/0 (0.0)
0 – 19	1/1 (100.0)	1.0/1.2 (83.3)	0/1 (0.0)	0.0/1.2 (0.0)
20 – 39	9/13 (69.2)	11.6/16.6 (69.9)	0/13 (0.0)	0.8/16.6 (4.8)
40 – 59	79/101 (78.2)	80.8/109.0 (74.1)	2/101 (2.0)	2.4/109.0 (2.2)
60 – 79	159/211 (75.4)	137.6/180.6 (76.2)	13/211 (6.2)	12.6/180.6 (7.0)
≥80	30/37 (81.1)	35.0/46.4 (75.4)	4/37 (10.8)	4.8/46.4 (10.3)
Unknown	0/0 (0.0)	0.0/0.2 (0.0)	0/0 (0.0)	0.0/0.2 (0.0)
Total	278/363 (76.6)	266.0/354.0 (75.1)	19/363 (5.2)	20.6/354.0 (5.8)

Data Source: Ontario. Ministry of Health. Integrated Public Health Information System (iPHIS) [database]. Toronto, ON: King's Printer for Ontario [extracted 2025 February 3].

*This report uses the terminology sex to reference the reported values for the gender field in iPHIS. Three values for sex are derived from the data entered in iPHIS: Male, Female, and Did Not Specify Male or Female; information from all three is combined when presenting total counts or rates.

Technical Notes

Data Sources

- 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 9 a.m., February 3, 2025**.
- Testing and percent positivity data was obtained from PHO's Laboratory Information Management System **as of February 27, 2025**.
- Population estimates used to calculate rates for cases were calculated using the Ontario 2018 to 2022 population estimates⁶, sourced from Statistics Canada, and the Ontario 2023 and 2024 population projections⁷, sourced from the Ontario Ministry of Finance.

iPHIS Data Caveats

- 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.
- These data only represent laboratory-confirmed cases of legionellosis 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.
- Only legionellosis cases meeting the confirmed case classification as listed in the Ontario Ministry of Health (MOH) surveillance case definitions are included in the reported case counts.
 - Provincial surveillance case definitions available online under the [Infectious Diseases Protocol](#)² 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 Case Definition Changes in Ontario 1991-2016](#)⁹ provides more detailed information on this topic.
- Cases 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.
- Duplicate case records may be included if they were not identified and resolved at either the local or provincial level prior to data extraction from iPHIS.
- Public Health Ontario conducts the majority of *Legionella* testing in the province.
- Hospitalized legionellosis cases were determined based on a reported intervention type description of "Hospitalization" or "ICU" and a reported intervention start date on or after the case's episode date.
- Fatal legionellosis cases were determined based on a case outcome description of "Fatal" and the type of death not being reported as "Reportable disease was unrelated to cause of death."
- Cases for which the Diagnosing Health Unit (DHU) was reported as MOHLTC (to signify a case that is not a resident of Ontario) were excluded from this analysis.

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Appendix

Table A1: Confirmed Legionellosis Case Counts and Rates by Year

Year	Total Number of Cases Reported	Rates Per 100,000 Population
2019	378	2.6
2020	309	2.1
2021	387	2.6
2022	360	2.4
2023	336	2.2
2024	363	2.3

Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Legionellosis in Ontario: January 1, 2024 to December 31, 2024. Toronto, ON: King's Printer for Ontario; 2025.

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