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SURVEILLANCE REPORT

Invasive *Haemophilus influenzae* Disease in Ontario: 2025

Published: July 2026

This report includes the most current information available from Ontario's Integrated Public Health Information System (iPHIS) as of **March 13, 2026**.

Introduction

This summary reflects Ontario's invasive *Haemophilus influenzae* disease (Hi) activity in 2025, as reported in the integrated Public Health Information System (iPHIS). Trends over time for the years 2018 to 2024 are also included. Further information on data sources and methods can be found in the technical notes section.

Cases of invasive Hi are classified using a combination of clinical and laboratory criteria.[1] Only invasive Hi, the most severe presentation of *Haemophilus influenzae* infection, is a disease of public health significance, therefore less severe presentations (e.g., conjunctivitis, sinusitis, otitis media) are not captured in provincial surveillance. The majority of invasive Hi cases result in hospitalization and some also result in death.

Invasive Hi disease can be caused by both unencapsulated (non-typeable) and encapsulated (typeable) *Haemophilus influenzae*. The typeable forms are broken down into six distinct serotypes (A, B, C, D, E, F). As of May 1, 2018 all invasive forms of Hi disease became designated as diseases of public health significance (i.e., serotypes A, B, C, D, E, F, along with non-typeable and undifferentiated Hi).[1] Prior to this, only invasive Hi caused by serotype B (Hib) was reportable. Protection against Hib is offered through Ontario's routine publicly funded immunization program.[2] The primary childhood series includes four doses given between 2 and 18 months of age. There is also a program for people aged 5 and older who are at increased risk for Hib disease. Information on Hib immunization coverage and vaccine safety can be found in Public Health Ontario's Immunization Data Tool.[3]

Overview

- In 2025, there were 336 cases (336 confirmed and 0 probable; Table 1) of Hi reported in Ontario, with an incidence rate of 2.0 cases per 100,000 population (Figure 1).
- Monthly case counts from January to June, August and December 2025 were all above the five-year non-pandemic average. June counts were also above the five-year non-pandemic average plus two standard deviations (Figure 2).
- The majority of cases (88.7%) were among adults aged 20 and older (Table 1). The age group-specific rates were above the five-year non-pandemic average rate for children under one and adults aged 50 and older (Figure 3).

- Since 2018, the majority of disease was caused by non-typeable Hi (Figure 4). Serotype B (the only vaccine-preventable serotype) represented a small proportion of invasive Hi disease and accounted for 19 (5.7%) of all cases in 2025.
- The 336 cases were identified from all 29 of Ontario's public health units (Figure 4).

Trends Over Time

- Hi case counts and rates have fluctuated during the surveillance period of 2018 to 2025 (Figure 1).
  - The case counts and rates were highest in 2023 and 2024 with 348 and 347 cases (2.2 and 2.1 cases per 100,000 population, respectively).
  - The 2025 case count was lower than 2023 and 2024 with 336 cases and an incidence rate of 2.0 per 100,000 population.
  - Ontario had the lowest recorded case counts and rates during the height of the COVID-19 pandemic (2020-2021), with case counts and rates being particularly low for 2021 (n=83, 0.6 cases per 100,000 population).
- Between 2018 and 2025, Hi due to serotype B has averaged 10 cases per year (range: three cases in 2020 and 2021 to 21 cases in 2024).
- In 2025, January to June, along with August and December were above the five-year non-pandemic average. June was also above the five-year non-pandemic average plus two standard deviations (Figure 2).

Case Characteristics

- Females accounted for 171 (50.9%) of cases in 2025 (Table 1).
- Cases ranged in age from under 7 days old to 101 years with a median age of 66 years.
- Most cases (n=298; 88.7%) were in people aged 20 years and older with the 50+ age group having the highest number of cases with 246, representing 73.2% of all Hi cases reported in 2025 (Table 1).
- People under one year of age had a relatively low case count (n=14, 4.2% of all cases), but the highest age-group specific rate at 9.9 per 100,000 population (Figure 3).
- The highest age group-specific rates in 2025 were among the youngest age group (under 1 year) and the oldest age group (50+ years), which is consistent with trends seen in previous years. The 2025 age group specific rates are at or below the five-year non-pandemic average rates for all other age groups (Figure 3).

Severity

- Overall, 277 cases (82.4%) had a documented hospitalization in iPHIS (Table 1) with 21 of these hospitalizations including admission to the ICU.
  - 245 adult cases were hospitalized (aged 18 and older) including 20 in the ICU.
  - 32 pediatric cases were hospitalized, with 14 of these admissions among cases less than 1 year of age (including one ICU admission).
- There were also nine ER recorded visits (without an in-patient hospital admission). All nine were among adults aged 20 years and older.

- In 2025, 22 (6.5%) deaths were reported (Table 1).
  - Seventeen of the deaths in 2025 occurred in adults over 50 years of age (range 50-101 years, median 72).
  - Two deaths were in people aged 20-49 years of age.
  - Three deaths were in children aged between 3 and 12 years.
- Most Hi deaths are not vaccine preventable. In 2025, only one of the 22 reported deaths was related to serotype B, two had no typing results, and the rest were related to other types.
  - Since 2007, there have been five serotype B-related deaths recorded in Ontario. Four deaths were among adults (2007, 2011, 2020 and 2025) and one was in a child under one year of age (2024).

Immunization Status

- Among the 336 cases of invasive Hi identified in 2025, 82 were unimmunized (24.4%), 29 had been immunized (8.6%) and 225 (67.0%) cases have an unknown immunization history (Table 1).
  - The 29 immunized cases had received at least one Hib-containing immunization at least two weeks before disease onset; however, only four of these cases had vaccine-preventable Hi (i.e., due to serotype B).
  - Among the 19 cases with serotype B identified, 10 were unimmunized (52.6%), four were immunized (21.1%) and five (26.3%) had an unknown immunization history.

Serotype Distribution

- Since May 2018 when Hi due to all types became reportable, most cases of invasive Hi were caused by non-typeable Hi, ranging from 56.6% of cases in 2021 to 75.6% of cases in 2023 (Figure 4).
- Serotype B causes a relatively low number of cases annually, representing a range between 1.3-6.1% of cases between 2018-2025.
- Of the 336 Hi cases in 2025, 25 were serotype A (7.4%), 19 were serotype B (5.7%), 22 were serotype E (6.6%), 36 were serotype F (10.7%), 216 were non-typeable (64.3%) and 18 were missing (5.4%) (Table 2). In general, serotype data completeness tends to be high: between 2018 to 2025, completeness ranged between 93.9% and 99.2%.

Geography

- Cases were reported from all 29 public health units (Figure 5).
  - Three northern public health units had the highest rates: Northwestern, Thunder Bay and Algoma (9.5, 7.8 and 6.2 per 100,000 population, respectively).
  - Toronto had the highest number and proportion of cases in Ontario (n=56, 16.7%) but a relatively low case rate (1.7).

Figure 1: Hi Case Counts and Incidence Rates per 100,000 Population: Ontario, 2018-2025

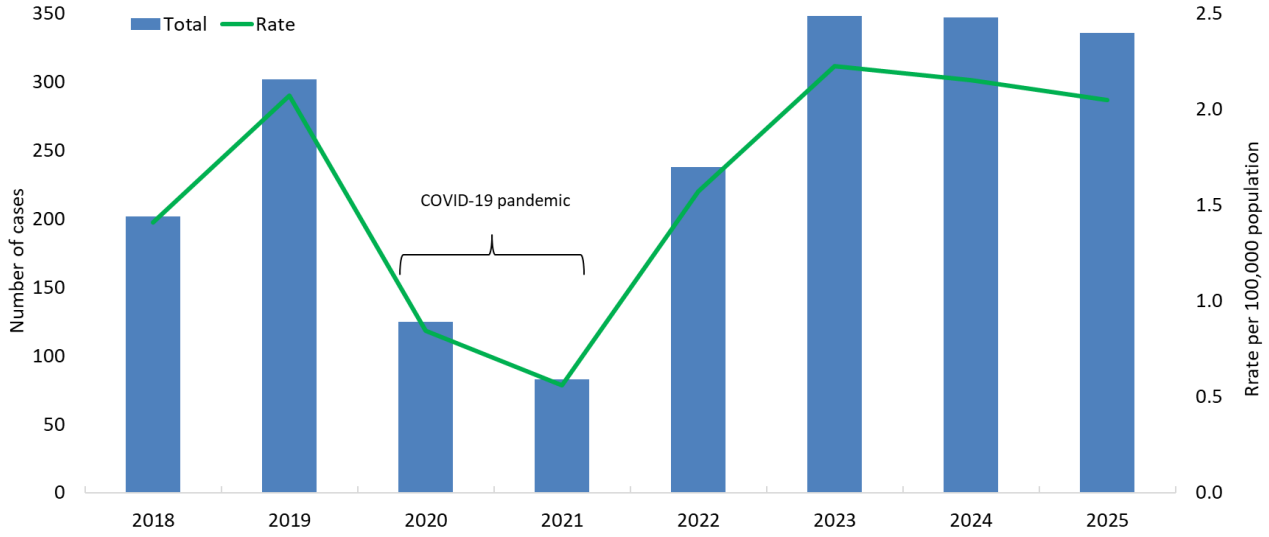
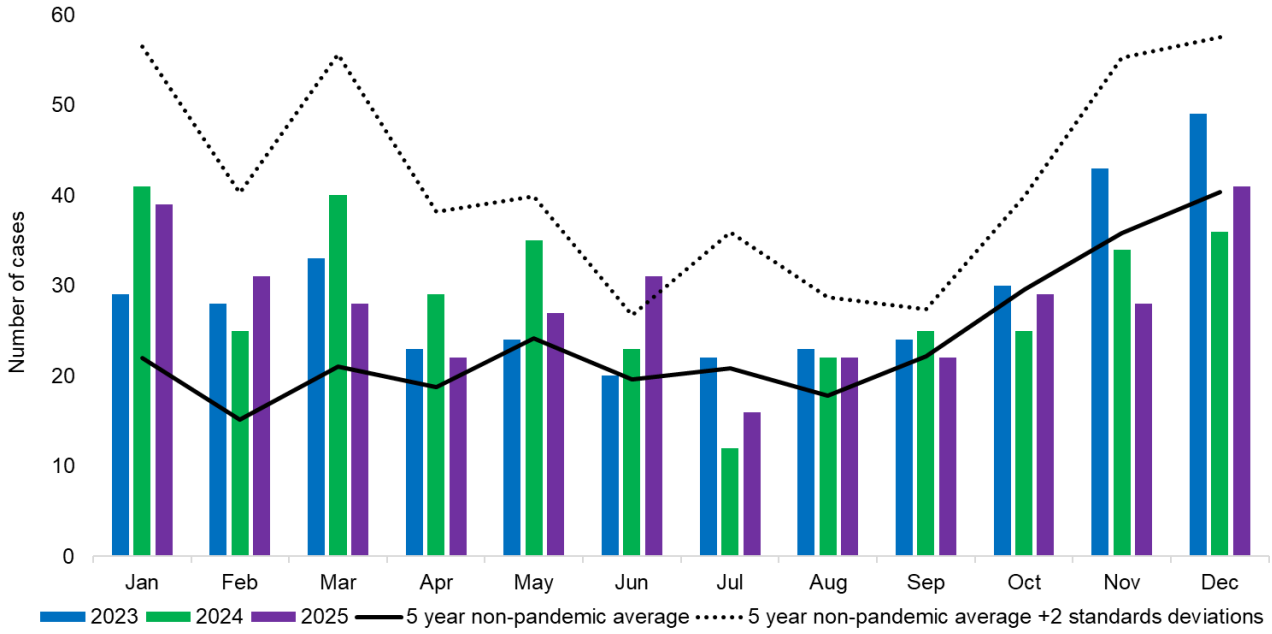


Figure 2: Number of Hi Cases by Month: Ontario, 2023-2025 and 5 Year Non-Pandemic Average*



*For Hi, the 5 year non-pandemic average was based on the years 2018, 2019, 2022, 2023 & 2024.

Characteristics of Hi Cases: Ontario, 2025

Table 1A: Classification

Case Characteristics (n=336)	n	%
Confirmed	336	100.0
Probable	0	-

Table 1B: Gender

Case Characteristics (n=336)	n	%
Female	171	50.9
Male	165	49.1

Table 1C: Age

Case Characteristics (n=336)	n	%
<1 year	14	4.2
1-4 years	12	3.6
5-9 years	8	2.4
10-14 years	1	0.3
15-19 years	3	0.9
20-49 years	52	15.5
50+ years	246	73.2

Table 1D: Hospitalizations

Case Characteristics (n=336)	n	%
Hospitalized (all cases)	277	82.4
< 1 year old	14	100.0%
1-4 years	12	100.0%
5-9 years	5	62.5%
10-14 years	0	-
15-19 years	3	100.0%
20-49 years	37	71.2%
50+ years	206	83.7%

Table 1E: Deaths

Case Characteristics (n=336)	n	%
Deaths (all cases)	22	6.5
< 1 year old	0	-
1-4 years	1	8.3
5-9 years	1	12.5
10-14 years	1	100.0
15-19 years	0	-
20-49 years	2	3.9
50+ years	17	6.9

Table 1F: Immunization Status

Case Characteristics (n=336)	n	%
Unknown	225	67.0
Unimmunized	82	24.4
Immunized	29	8.6

Figure 3: Hi Rates by Age Group: Ontario, 2025

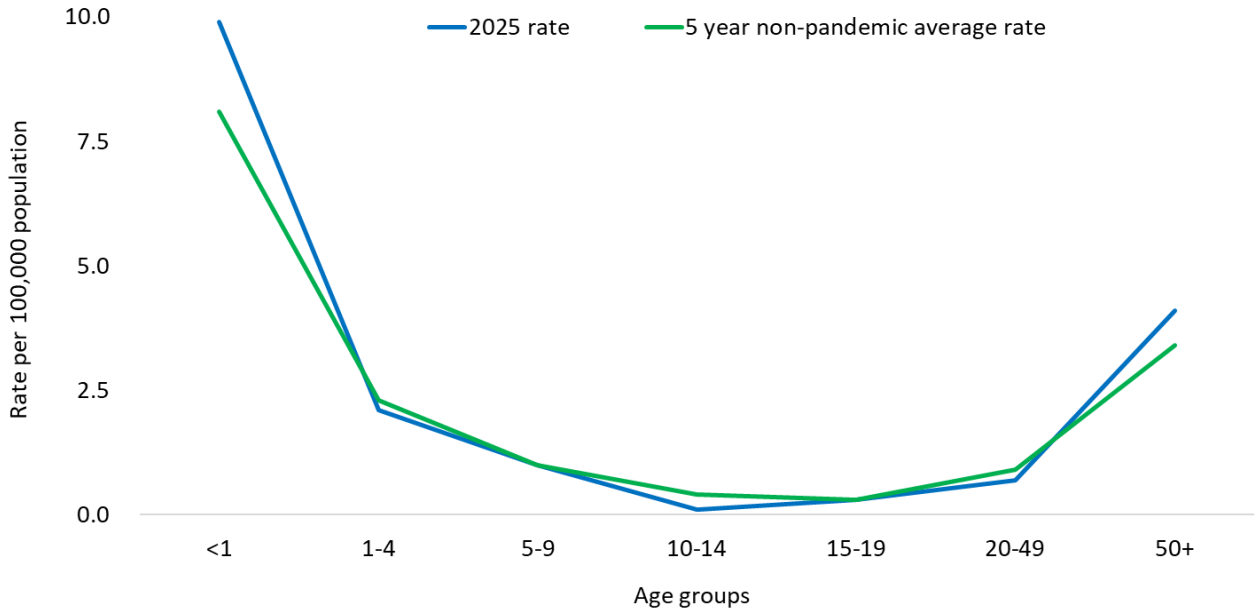
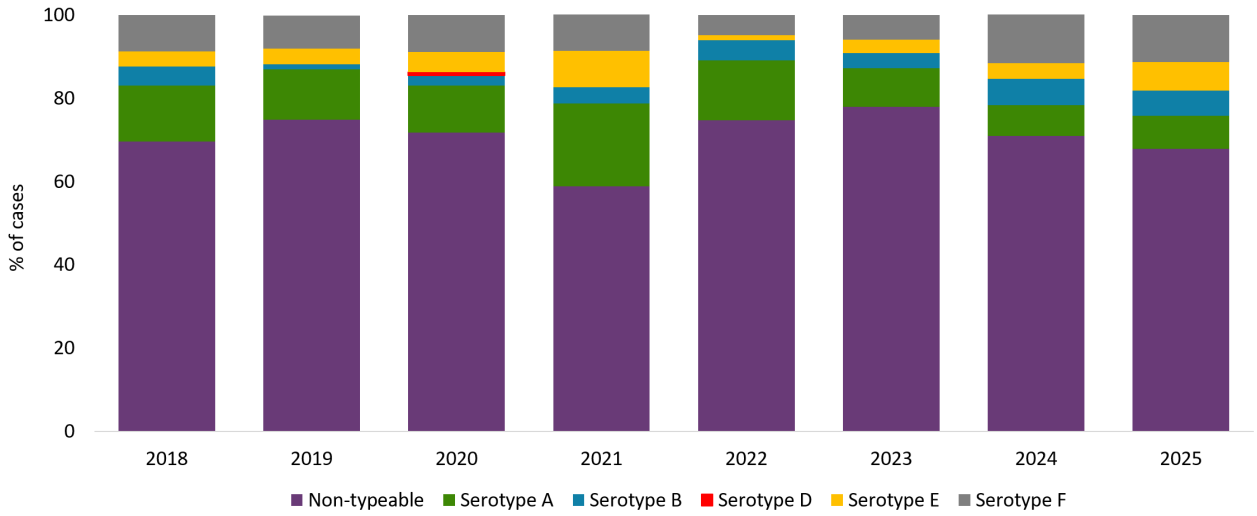
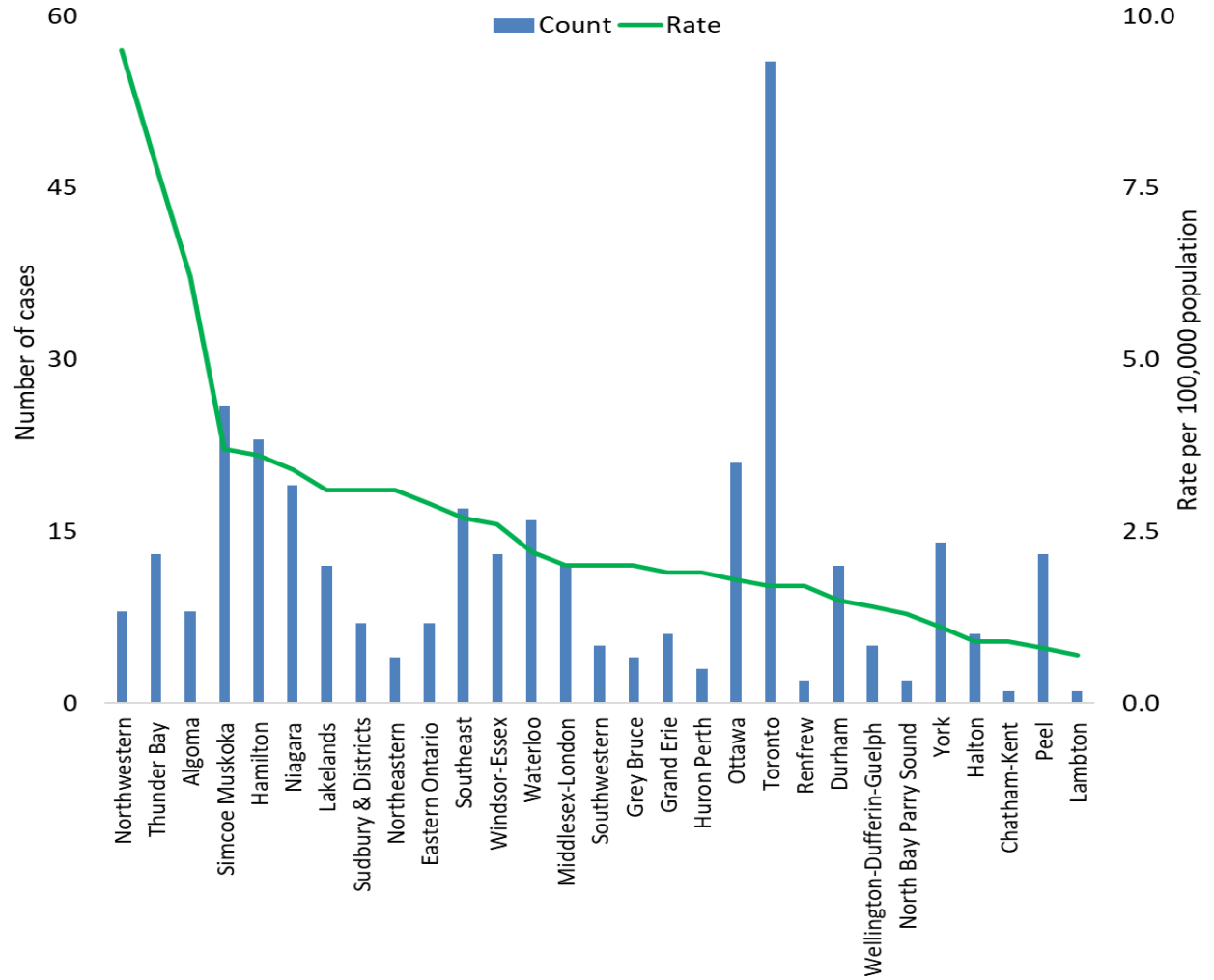


Figure 4: Percentage of Hi Cases by Serotype*: Ontario, 2018-2025



*Only includes cases with known serotypes (i.e., missing are excluded, representing between 0.8-6.1% cases each year)

Figure 5: Public Health Unit-Specific* Hi Case Counts and Rates: Ontario, 2025



*Refer to the technical notes section for a complete listing of public health unit names

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 March 13, 2026.
- 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.

Immunization Data

- In addition to the immunization data from iPHIS, *Haemophilus influenzae* immunization records were also extracted from Ontario's Digital Health Immunization Repository using the Panorama Enhanced Analytical Reporting (PEAR) tool. Data are current as of February 2, 2026.
- The PEAR data extract was linked to the iPHIS data to create a more robust immunization dataset. This linked dataset was used to assess immunization status and to count the number of valid doses a case had received prior to disease onset. For the 2018-2025 surveillance period, this resulted in an additional 196 cases with valid immunization records (including an additional 12 cases in 2025).

Ontario Population Data

Ontario population data were sourced from:

- Population estimates 2018-2024: Population Reporting. Population estimates county/municipality, 2001-2024 [data file]. Ottawa ON: Statistics Canada, Government of Canada [producer]; Toronto, ON: Ontario. Ministry of Health, IntelliHealth Ontario [distributor]; [data extracted 2025 Feb 21].
- Population projections 2025: Population Reporting. Population Projections Public Health Unit, 2024-2051 [data file]. Toronto ON: Ministry of Finance [producer]; Toronto, ON: Ontario. Ministry of Health, IntelliHealth Ontario [distributor]; [data extracted 2025 Sep 12].

Data Caveats

- As of 1 January 2025, Ontario moved from 34 to 29 public health units. The reduction is due to several mergers between public health units: Porcupine Health Unit and Timiskaming Health Unit merged to become Northeastern Public Health (NEH); Brant County Health Unit and Haldimand-Norfolk Health Unit merged to become Grand Erie Public Health (GEH); Haliburton, Kawartha, Pine Ridge District Health Unit and Peterborough Public Health merged to become Haliburton Kawartha Northumberland Peterborough Health Unit (HKNP); and Hastings Prince Edward Public Health, Leeds, Grenville & Lanark District Health Unit and Kingston, Frontenac and Lennox & Addington Public Health joined to become South East Health Unit (SEH).
- **List of Ontario Public Health Units:**
  - Algoma=Algoma Public Health (ALG)
  - Chatham-Kent=Chatham-Kent Public Health (CHK)
  - Durham=Durham Region Health Department (DUR)

- Eastern Ontario=Eastern Ontario Health Unit (EOH)
- Grey Bruce=Grey Bruce Public Health (GBO)
- Grand Erie=Grand Erie Public Health (GEH)
- Halton=Halton Region Public Health (HAL)
- Hamilton=City of Hamilton Public Health Services (HAM)
- Lakelands=Lakelands Public Health (HNP)
- Huron Perth=Huron Perth Public Health (HPH)
- Lambton=Lambton Public Health (LAM)
- Middlesex-London=Middlesex-London Health Unit (MSL)
- Northeastern=Northeastern Public Health (NEH)
- Niagara=Niagara Region Public Health (NIA)
- North Bay Parry Sound=North Bay Parry Sound District Health Unit (NPS)
- Northwestern=Northwestern Health Unit (NWR)
- Ottawa=Ottawa Public Health (OTT)
- Southwestern=Southwestern Public Health (OXE)
- Peel=Peel Public Health (PEL)
- Renfrew=Renfrew County and District Health Unit (REN)
- Southeast=Southeast Public Health (SEH)
- Simcoe Muskoka=Simcoe Muskoka District Health Unit (SMD)
- Sudbury & Districts=Public Health Sudbury & Districts (SUD)
- Thunder Bay=Thunder Bay District Health Unit (THB)
- Toronto=Toronto Public Health (TOR)
- Waterloo=Region of Waterloo Public Health and Paramedic Services (WAT)
- Wellington-Dufferin-Guelph=Wellington-Dufferin-Guelph Public Health (WDG)
- Windsor-Essex=Windsor-Essex County Health Unit (WEC)
- York=York Region Public Health (YRK)

- **Data reported for 2020-2021 should be interpreted with caution. Both testing and iPHIS data entry practices were likely impacted by the COVID-19 pandemic response.**
- The five-year non-pandemic average and five-year non-pandemic average plus two standard deviations were used to provide a historical context to Hi cases in Ontario. They were based on the years 2018, 2019, 2022, 2023 and 2024.
  - Although 2018 is a partial year (all causes of invasive Hi disease did not become reportable until May 1, 2018) and 2022 may still be considered to be part of the COVID-19 pandemic in Ontario, there are a sufficient number of cases in each year (>200) to be considered as representative of non-pandemic years.

- Only Hi cases meeting the confirmed and probable case classification as listed in the Ontario Ministry of Health surveillance case definitions are included in the reported case counts.[1]
    - 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 Ministry of Health 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.[4]
- Cases of Hi are reported based on the Episode Date, which is an estimate of the onset date of disease for a case. 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 and not necessarily the location of exposure.
    - 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.
- Incidence rates were calculated per 100,000 population.
- To determine immunization status of cases, only documented doses of a Hib vaccine product administered at least 14 days prior to disease onset were included.
- To be considered as a valid hospitalization, a case must have a hospital admission date that is no more than 60 days prior to disease onset or 90 days post disease onset.
- To be considered as a fatal case outcome, a case must have a death recorded that is not classified as "reportable disease was unrelated to cause of death".

References

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