

ENHANCED EPIDEMIOLOGICAL SUMMARY

Measles in Ontario

Updated: April 24, 2025

Introduction

Measles is a highly contagious respiratory virus. Symptoms of measles include fever, a red blotchy rash, red watery eyes and cough. Immunization is the best protection against measles. For children and most adults born in or after 1970, this means receiving two doses of measles containing-vaccine (e.g., MMR vaccine).

In Ontario, measles has historically been a rare disease, owing to the successful elimination of measles in Canada and high immunization coverage. Measles cases have typically been predominantly associated with travel (often referred to as “measles importations”). Due to an increase in measles activity globally in 2024, Ontario began to see more cases of measles. Presently, Ontario is part of a multi-jurisdictional measles outbreak with measles activity occurring in Ontario and several other provinces.²

This report describes the epidemiology of measles in Ontario between January 1, 2013 and April 23, 2025, with a focus on the current multi-jurisdictional measles outbreak. This report will be updated weekly until otherwise noted.

This report includes the most current information available from Ontario’s integrated Public Health Information System (iPHIS) as of April 23, 2025 at 7:53 am.

Highlights

Multi-Jurisdictional Measles Outbreak

October 18, 2024 to April 23, 2025

- On October 18, 2024, exposure to a travel-related case in New Brunswick led to measles cases in Ontario. While New Brunswick declared their outbreak over on January 7, 2025¹, Ontario and additional provinces² have reported measles cases related to this outbreak.
- From October 18, 2024 to April 23, 2025, Ontario has reported a total of 1,020 measles cases (884 confirmed, 136 probable) associated with this outbreak ([Figure 1](#)) occurring in 15 public health units ([Table 1](#)).
 - This represents an increase of 95 cases ([Figure 1](#)) since the previous epidemiological summary on April 17.
- The increase in the number of outbreak cases and the geographic spread in recent weeks is due to continued exposures and transmission among individuals who have not been immunized.

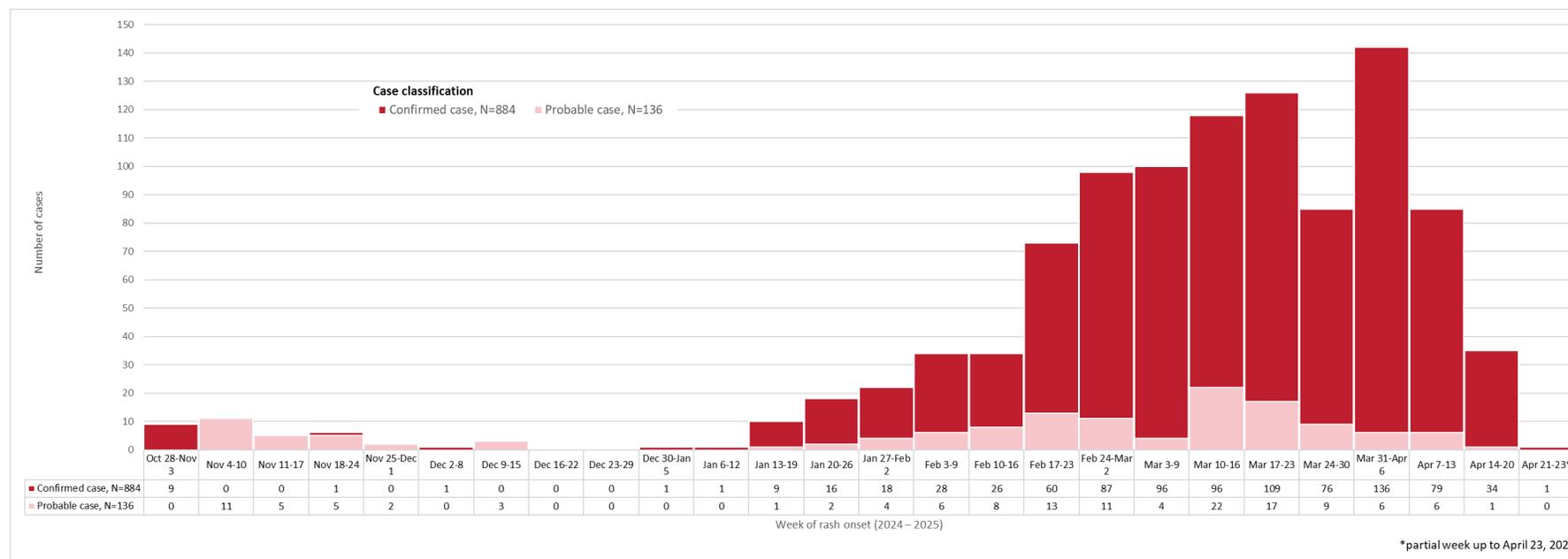
- A map showing the geographic distribution of the rate of all measles outbreak cases per 100,000 population by forward sortation area (FSA) over the entire period of the outbreak to date is shown in [Figure 2](#). As FSA boundaries do not align with public health unit boundaries and some FSAs span multiple health units, the number and rate of cases by public health unit in [Table 1](#) do not correspond to the FSA-level rates shown in the map.
 - The FSAs with the highest rates of outbreak cases to date are in southwestern Ontario, in addition to several FSAs in southeastern and northeastern Ontario ([Figure 2](#)).
- Among all outbreak cases, 74.6% (n=761) were in infants, children and adolescents, while 24.9% (n=254) were in adults, and 0.5% (n=5) had unknown age ([Table 2](#)).
 - 2.2% (n=22) of outbreak cases were pregnant.
 - 98.4% (n=1,004) of outbreak cases were born in or after 1970.
- Among infants, children and adolescents, 95.3% (n=725) were unimmunized, while among adults, 61.0% (n=155) were unimmunized ([Figure 3](#)).
- Seventy-six outbreak cases have required hospitalization ([Table 2](#)). Among all hospitalizations, 72 were unimmunized, including 57 children.
- Visit our [measles exposures webpage](#) for more information on places and dates of exposure to a case of measles in Ontario.

Measles Cases in 2025

January 1 to April 23, 2025

- In 2025, a total of 1,018 measles cases (908 confirmed, 110 probable) have been reported in Ontario, as of April 23 ([Figure 4](#)).
 - All but 35 cases were linked with the multi-jurisdictional outbreak described above. Of these, nine cases had a history of travel (i.e. measles acquired outside of Canada) and one case was epidemiologically-linked to a visitor to Ontario; 25 cases do not yet have a source of exposure reported.
 - Among these cases, six required hospitalization, all among unimmunized children and adolescents.
 - As of April 21, 2025, laboratory data shows that 24.0% of individuals (n=564) tested for acute measles infection using molecular PCR in 2025 have received positive test results.

Figure 1: Number of Measles Outbreak Cases by Week of Rash Onset and Case Classification: Ontario, October 28, 2024 – April 23, 2025



Notes:

- Rash onset date was unavailable for 35 cases at the time of analysis; as a result, episode date was used as a proxy instead.
- The incubation period for measles (i.e., period from exposure to prodromal symptoms) averages 10 to 12 days; the time from exposure to rash onset ranges from 7 to 21 days (average 14 days).^{3,4} Cases are considered to be infectious from four days before rash onset to four days after rash onset.³
- Based on the incubation and the infectious period, epidemiologically-linked cases may appear up to 25 days after the rash onset date of the most recently reported case of measles.
- Provincial surveillance definitions for confirmed and probable cases of measles are available in Appendix 1⁵ and have been adapted to reflect the specific circumstances of the outbreak under investigation.

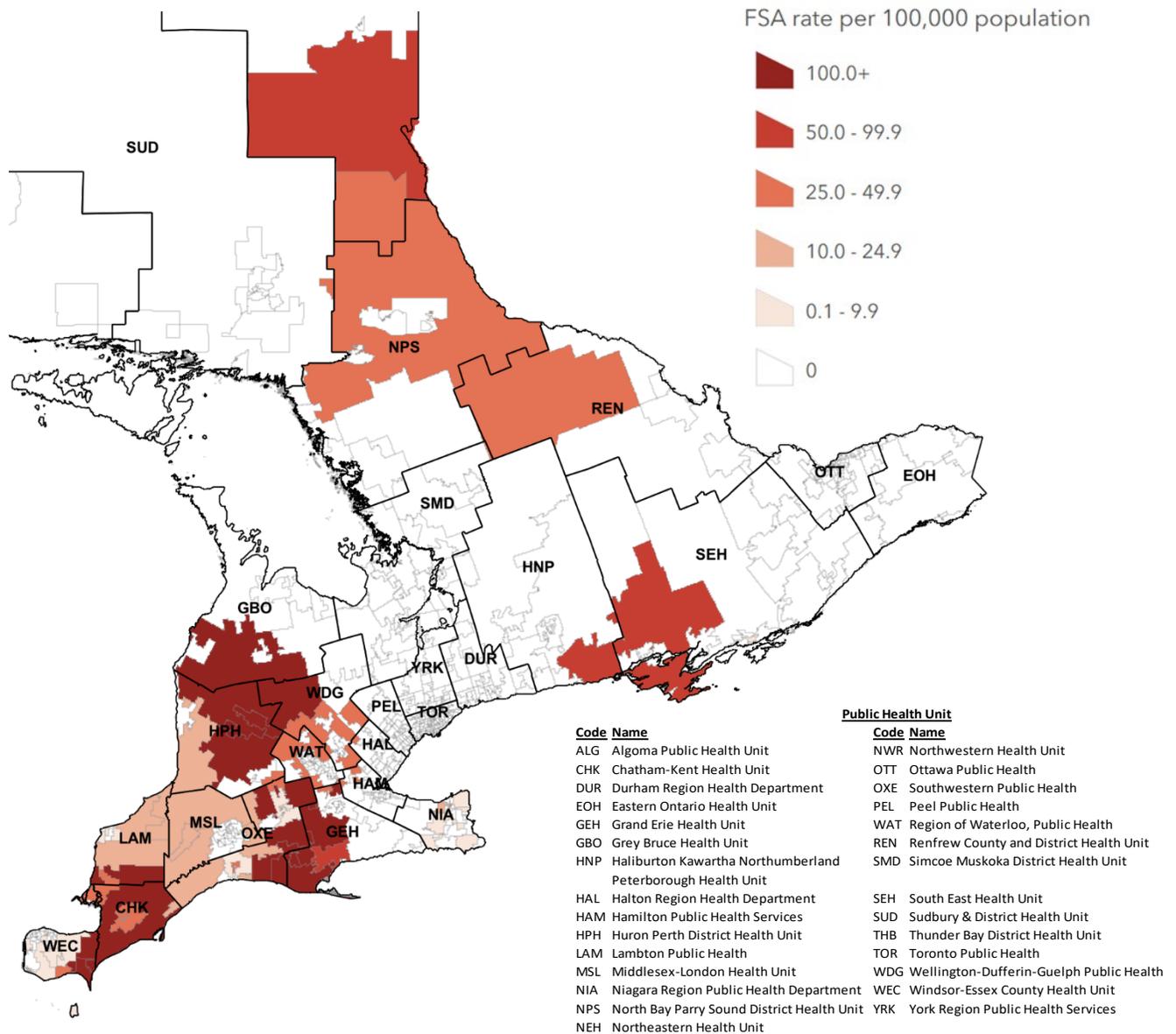
Table 1: Public Health Units of Measles Outbreak Cases: Ontario, October 28, 2024 – April 23, 2025

Public Health Unit	Case Count as of April 23	Change in Case Count since April 16	Rate per 100,000 Population as of April 23
Southwestern Public Health	372 (36.5%)	15	156.9
Grand Erie Public Health	137 (13.4%)	2	46.5
Huron Perth Public Health	121 (11.9%)	14	77.5
Chatham-Kent Public Health	117 (11.5%)	12	107.4
South East Health Unit	79 (7.7%)	10	13.5
Windsor-Essex County Health Unit	70 (6.9%)	18	15.7
Region of Waterloo Public Health and Emergency Services	30 (2.9%)	13	4.4
Wellington-Dufferin-Guelph Public Health	27 (2.6%)	11	7.9
Middlesex-London Health Unit	13 (1.3%)	0	2.3
North Bay Parry Sound District Health Unit	12 (1.2%)	0	9.0
Northeastern Public Health	11 (1.1%)	0	9.4
Grey Bruce Health Unit	10 (1.0%)	0	5.3
Lambton Public Health	10 (1.0%)	0	7.4
Niagara Region Public Health	10 (1.0%)	0	1.9
City of Hamilton Public Health Services	1 (0.1%)	0	0.2
Ontario	1,020 (100.0%)	95	6.4

Notes:

- This table is based on the public health unit corresponding to the location of the case at the time of illness onset or report to public health, and not necessarily the location of exposure or the residential address of the case.
- As of January 1, 2025, 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; and Porcupine Health Unit and Timiskaming Health Unit have merged into Northeastern Public Health.

Figure 2: Geographic Distribution of the Rate of Measles Outbreak Cases Per 100,000 Population by Forward Sortation Area (FSA) Among Regions in Ontario with Cases: October 28, 2024 – April 23, 2025



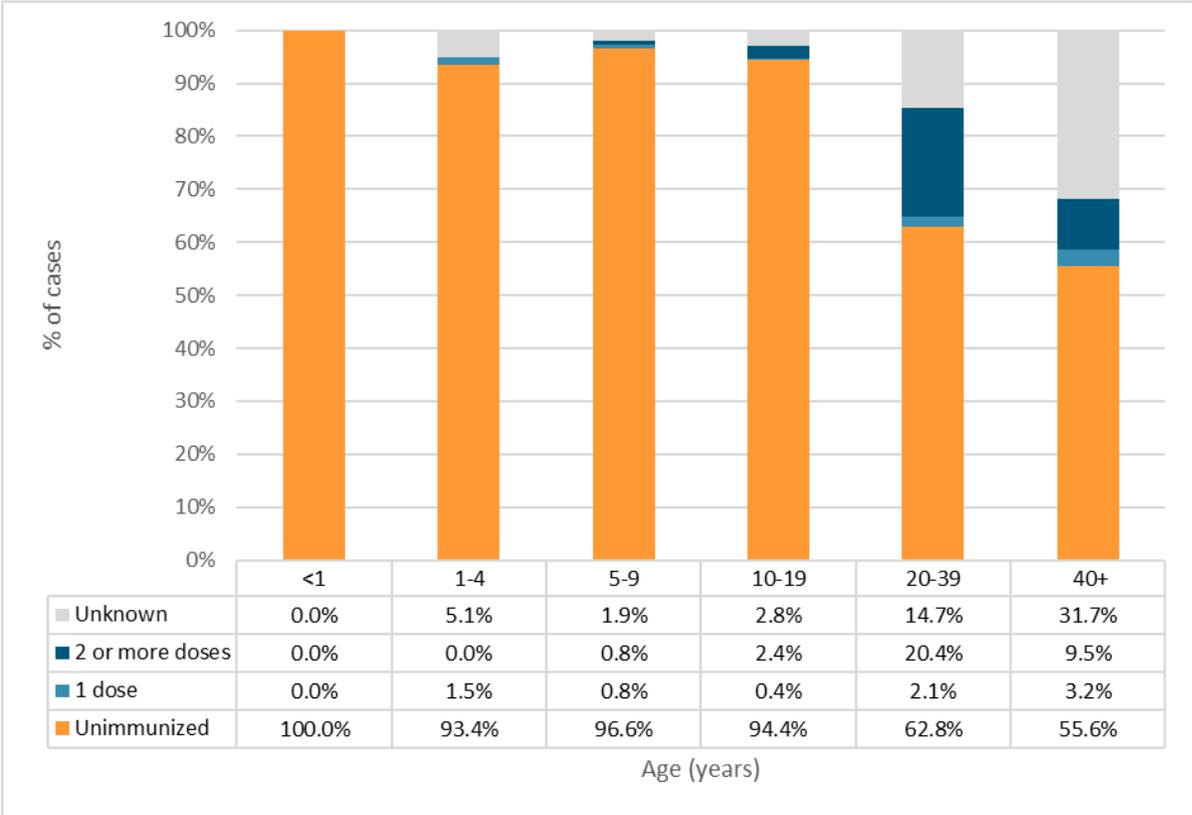
Notes:

- **FSA boundaries do not align with public health unit boundaries, and some FSAs span multiple public health units.** Therefore, the number and rate of cases by public health unit in [Table 1](#) do not correspond to the FSA-level rates shown in this map. Further, the rates in this map are by residential FSA, which may not correspond to the location of the case at the time of illness onset or report to public health.
- This map shows the cumulative rate of all measles outbreak cases since October 28, 2024 and does not represent the current number of measles cases that may be within their period of communicability.
- As of January 1, 2025, 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; and Porcupine Health Unit and Timiskaming Health Unit have merged into Northeastern Public Health.

Table 2: Characteristics of Measles Outbreak Cases: Ontario, October 28, 2024 – April 23, 2025

Case Characteristics	Case Count as of April 23
Total Cases	1,020 (100.0%)
Case Classification	
Confirmed	884 (86.7%)
Probable	136 (13.3%)
Gender	
Female	506 (49.6%)
Male	509 (49.9%)
Unknown	5 (0.5%)
Age (years)	
<1	53 (5.2%)
1-4	197 (19.3%)
5-9	263 (25.8%)
10-19	248 (24.3%)
20-39	191 (18.7%)
40+	63 (6.2%)
Unknown	5 (0.5%)
Pregnant	22 (2.2%)
Cases born in or after 1970	1,004 (98.4%)
Hospitalizations	
ICU	7 (0.7%)
Deaths	0 (0.0%)
Immunization Status	
Unimmunized	882 (86.5%)
1 dose	12 (1.2%)
2 or more doses	53 (5.2%)
Unknown/no proof of immunization	73 (7.2%)

Figure 3: Immunization Status of Measles Outbreak Cases by Age Group: Ontario, October 28, 2024 – April 23, 2025



Trends Over Time

- Between 2013 and 2023 there were 101 confirmed cases of measles reported in Ontario, while in 2024 there were 64 cases of measles reported in Ontario ([Figure 4](#)).
- Prior to the COVID-19 pandemic (2013–2019), the annual number of measles cases in Ontario ranged between seven and 22; in comparison, one case was reported during the pandemic (2020–2022) while seven cases were reported in 2023 ([Figure 4](#)). Similar trends were seen in [Canada](#) overall, where the number of measles cases decreased dramatically during the COVID-19 pandemic.
- Of the cases in 2024, 37 were associated with the outbreak (see above). Eighteen cases were associated with travel, two of whom resulted in six epidemiologically-linked cases in April and May. Three cases occurred in individuals with unknown sources of exposure (i.e., no history of travel and not epidemiologically-linked to another case).
- Between 2013 and 2023 94 cases (93.1%) occurred in individuals born after 1970, 28 cases (27.7%) were hospitalized, and there were no deaths. In 2024, all 64 cases (100.0%) occurred in individuals born after 1970, eight (12.5%) cases were hospitalized, and there was one death in a child less than 5 years old ([Table 3](#)).
- Most cases between 2013 and 2023 were unimmunized (i.e., no doses received; 62.4%) or had unknown immunization status (24.8%). In 2024, similarly most cases were unimmunized (79.7%), while five (7.8%) had at least two doses of measles containing vaccines, two (3.1%) had one dose, and six (9.4%) had unknown immunization status ([Table 3](#)).

Figure 4: Number of Measles Cases and Incidence Rate per Million Population: Ontario, January 1, 2013 – April 23, 2025

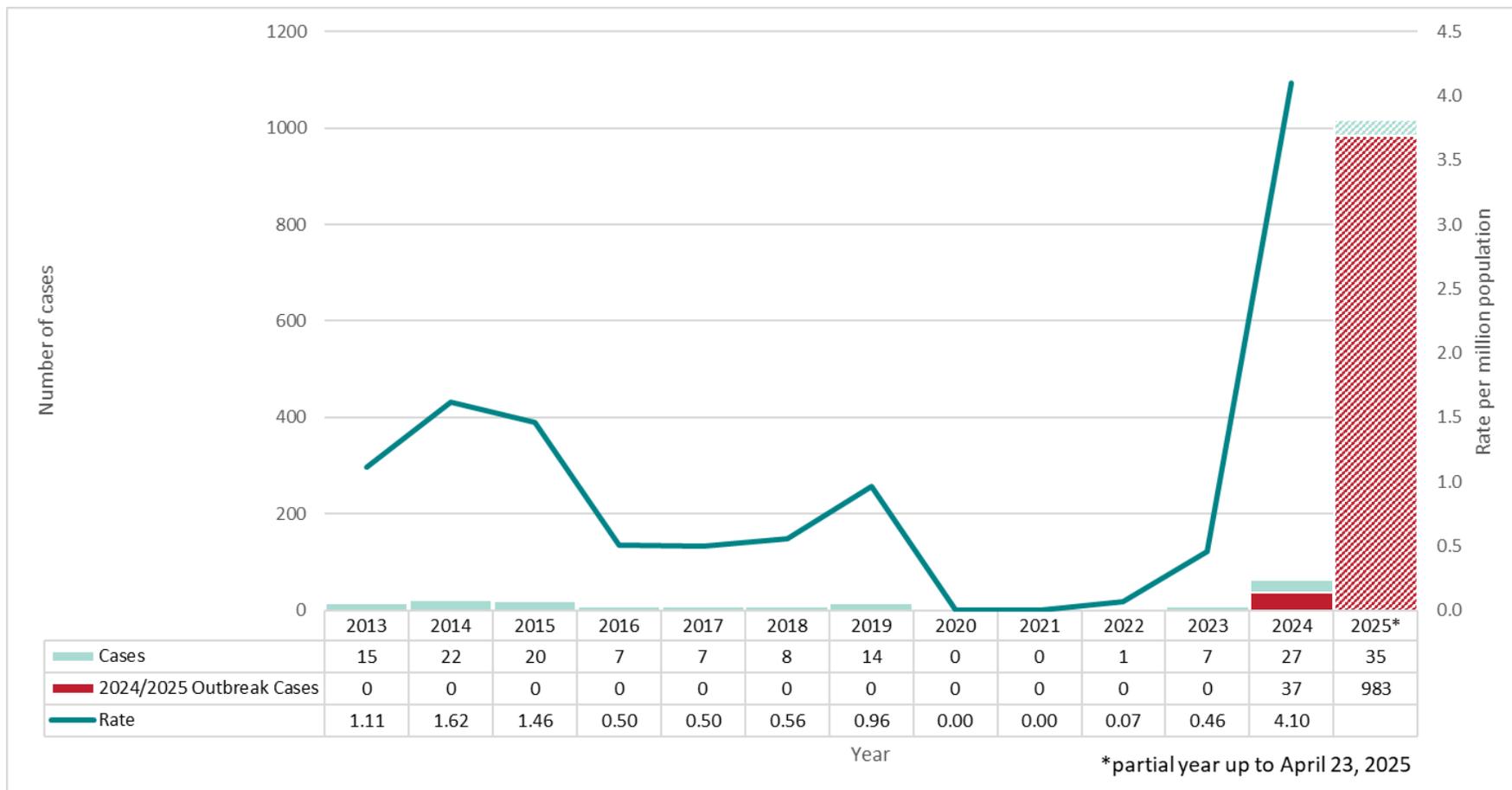


Table 3: Characteristics of Measles Cases: Ontario, January 1, 2013 – December 31, 2024

Case Characteristics	2013-2023	2024
Total Cases	101	64
Gender		
Female	49 (48.5%)	30 (46.9%)
Male	52 (51.5%)	34 (53.1%)
Age (years)		
<1	13 (12.9%)	3 (4.7%)
1-4	22 (21.8%)	14 (21.9%)
5-9	6 (5.9%)	12 (18.8%)
10-19	8 (7.9%)	15 (23.4%)
20-39	36 (35.6%)	18 (28.1%)
40+	16 (15.8%)	2 (3.1%)
Cases born in or after 1970	94 (93.1%)	64 (100.0%)
Hospitalizations	28 (27.7%)	8 (12.5%)
Deaths	0 (0.0%)	1 (1.6%)
Immunization Status		
Unimmunized	63 (62.4%)	51 (79.7%)
1 dose	6 (5.9%)	2 (3.1%)
2 or more doses	7 (6.9%)	5 (7.8%)
Unknown/no proof of immunization	25 (24.8%)	6 (9.4%)

Technical Notes

Data Sources

Case Data

- The case 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 April 23, 2025 at 7:53 am.
- Cases associated with the multi-jurisdictional measles outbreak were identified as cases linked to the provincial outbreak number (0000-2024-00016) in iPHIS.
- 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

- The most recent monthly summary of laboratory data was extracted from the Public Health Ontario Laboratory Information Management System on April 21, 2025 and reflect finalized molecular PCR results indicating acute measles infection for samples received between January 1, 2025 and April 21, 2025. Specimen collection date was used where available, otherwise login date was used. Counts represent unique individuals and may change in future reports as results are finalized.
- Due to differences in the dates of extraction for case and laboratory data, the number of cases and individuals testing positive by PCR may differ.

Ontario Population Data

Ontario population data were sourced from Statistics Canada and the Ministry of Finance:

- Statistics Canada. Table 17-10-0134-01: Population estimates (2016 census and administrative data), by age group and sex for July 1st, Canada, provinces, territories, health regions (2018 boundaries) and peer groups [Internet]. Ottawa, ON: Government of Canada; 2023 Mar 2 [extracted 2023 Mar 13]. Available from: <https://doi.org/10.25318/1710013401-eng>
- Statistics Canada. Table 98-10-0027-01: Population estimates (2021 census and administrative data), by age (in single years), average age and median age, gender, Canada and forward sortation areas [Internet]. Ottawa, ON: Government of Canada; 2022 Sept 9 [extracted 2024 June 7]. Available from: <https://doi.org/10.25318/9810002701-eng>
- Population projections 2023-2025: Population reporting. Population Projections Public Health Unit, 2022-2046 [data file]. Toronto ON: Ministry of Finance [producer]; Toronto, ON: Ontario. Ministry of Health, IntelliHealth Ontario [distributor]; [data extracted 2023 May 10].

Data Caveats

- Data reported for 2020-2022 should be interpreted with caution. Both testing and iPHIS data entry practices were likely impacted by the COVID-19 pandemic response.
- Only measles cases meeting the confirmed and probable case classification as listed in the Ontario MOH surveillance⁵ or outbreak case definitions are included in the reported case counts.
 - 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.⁶
- In [Figure 1](#), episode date was used as a proxy when rash onset date was unavailable. Episode date is an estimate of the onset date of disease for a case that is determined using the following hierarchy 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 and rates by geography in [Table 1](#) are based on the diagnosing health unit (DHU). DHU refers to the public health unit corresponding to the location of the case at the time of illness onset or report to public health, and does not necessarily indicate the location of exposure or the residential address of the case. Cases that were not residents of Ontario at the time of illness onset were excluded from the analysis.
 - In [Figure 2](#), the map shows the rate of measles cases by residential forward sortation area (FSA), which may not correspond to the location of the case at the time of illness onset or report to public health. Further, FSA boundaries do not align with public health unit boundaries.
- 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.
- To determine immunization status of cases, only documented doses of a measles-containing vaccine administered on or after the 1st birthday and at least 14 days prior to disease onset were included; a minimum interval of 28 days between doses was also applied to count valid doses.
- A case of measles is considered imported if the person travelled outside Canada 7 to 21 days prior to rash onset.
- To be considered as a fatal case outcome, a case must not have REPORTABLE DISEASE WAS UNRELATED TO CAUSE OF DEATH selected as the Death Type Description, at the time of data extraction.

References

1. Government of New Brunswick. News release: measles outbreak in zone 3 is over [Internet]. Fredericton, NB: Government of New Brunswick; 2025 [cited 2025 Feb 13]. Available from: https://www2.gnb.ca/content/gnb/en/news/news_release.2025.01.0003.html
2. Health Infobase. Measles and rubella weekly monitoring report: week 13 (March 23 to 29, 2025) [Internet]. Ottawa, ON: Government of Canada; 2025 [updated 2025 Apr 11; cited 2025 Apr 16]. Available from: <https://health-infobase.canada.ca/measles-rubella/>
3. Gastanaduy P, Haber P, Rota PA, Patel M. Measles. In: Centers for Disease Control and Prevention, author; Hall E, Wodi PA, Hamborsky J, Morelli V, Schillie S, editors. Epidemiology and prevention of vaccine-preventable diseases. 14th ed. Washington, DC: Public Health Foundation; 2021 [cited 2024 Mar 05]. Available from: <https://www.cdc.gov/vaccines/pubs/pinkbook/meas.html>
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6. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Factors affecting reportable diseases in Ontario: case definition changes and associated trends in Ontario: 1991-2016 [Internet]. Toronto, ON: Queen's Printer for Ontario; 2018 [cited 2024 Mar 05]. Appendix, Measles. Available from: <https://www.publichealthontario.ca/-/media/documents/F/2018/factors-reportable-diseases-ontario-1991-2016.pdf?la=en&hash=A10D37CEE72926746247664DEA6E8E503AFAE0B2>

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