Public Health Ontario | Santé publique Ontario

ENHANCED EPIDEMIOLOGICAL SUMMARY

Measles in Ontario

Updated: April 3, 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 been rare, owing to the successful elimination of measles in Canada and high immunization coverage. As a result, 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, New Brunswick[1], and Manitoba[2].

This report describes the epidemiology of measles in Ontario between January 1, 2013 and April 2, 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 2, 2025 at 7:00 am.

Highlights

Multi-Jurisdictional Measles Outbreak

(October 18, 2024 to April 2, 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, 2025[1], Ontario and Manitoba[2] have reported measles cases related to this outbreak.
- From October 18, 2024 to April 2, 2025, Ontario has reported a total of 661 measles cases (540 confirmed, 121 probable) associated with this outbreak (Figure 1) occurring in 13 public health units (Table 1).
    - This represents an increase of 89 cases (87 confirmed, 2 probable) (Figure 1) since the previous epidemiological summary on March 27.
- The sharp 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.

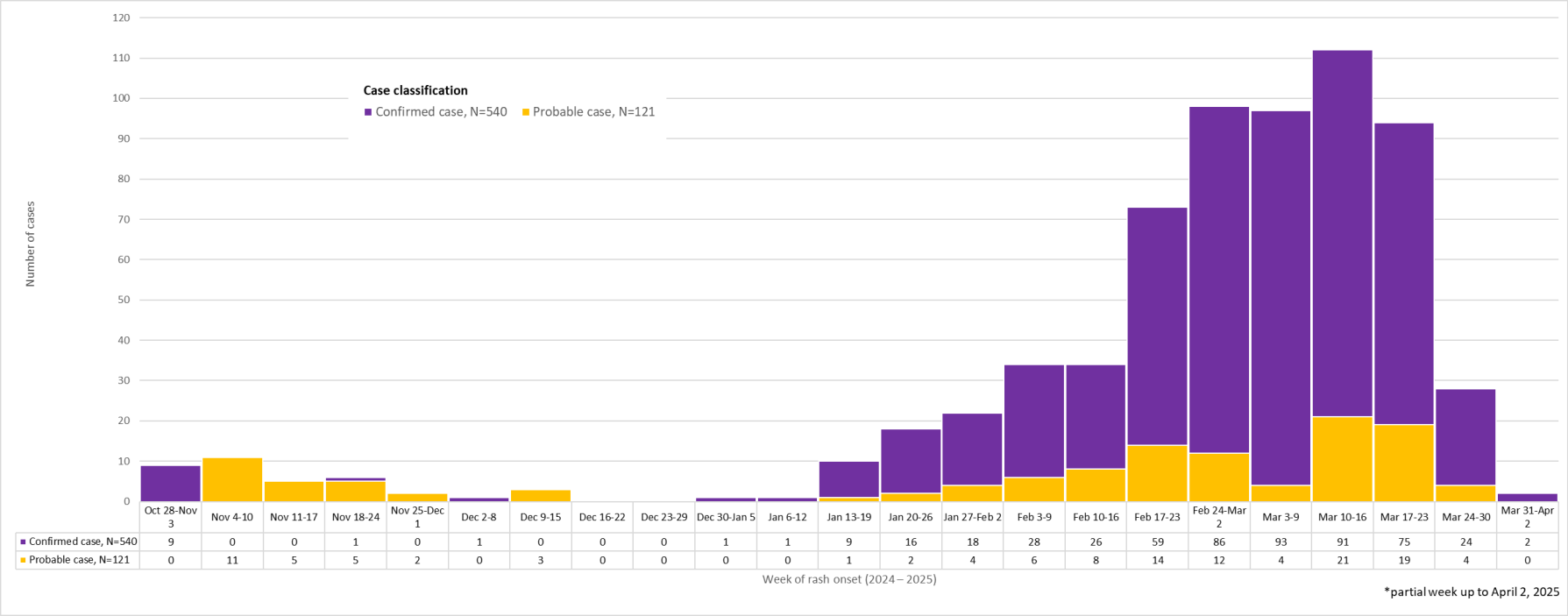
- Among all outbreak cases, 75.2% (n=497) were in infants, children and adolescents, while 24.2% (n=160) were in adults, and 0.6% (n=4) had unknown age (Table 2).
  - 2.1% (n=14) of outbreak cases were pregnant.
  - 98.8% (n=653) of outbreak cases were born in or after 1970.
- Among infants, children and adolescents, 94.4% (n=469) were unimmunized, while among adults, 62.5% (n=100) were unimmunized (Figure 2).
- Fifty-two outbreak cases have required hospitalization (Table 2). Among all hospitalizations, 50 were unimmunized, including 42 children.
- Visit our measles exposures webpage for more information on places and dates of exposure to a case of measles in Ontario.

2025 Highlights

(January 1 to April 2, 2025)

- In 2025, a total of 655 measles cases (560 confirmed, 95 probable) have been reported in Ontario, as of April 2 (Figure 3).
  - All but 31 cases were linked with the multi-jurisdictional outbreak described above. Of these, six cases had a history of travel (i.e. measles acquired outside of Canada) and one case was epidemiologically-linked to a visitor to Ontario. An additional 24 cases have not yet reported a source of exposure.
    - Among these cases, five required hospitalization, all among unimmunized children and adolescents.
  - As of March 24, 2025, laboratory data shows that 25.8% of individuals (n=298) 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 2, 2025



	Oct 28-Nov 3	Nov 4-10	Nov 11-17	Nov 18-24	Nov 25-Dec 1	Dec 2-8	Dec 9-15	Dec 16-22	Dec 23-29	Dec 30-Jan 5	Jan 6-12	Jan 13-19	Jan 20-26	Jan 27-Feb 2	Feb 3-9	Feb 10-16	Feb 17-23	Feb 24-Mar 2	Mar 3-9	Mar 10-16	Mar 17-23	Mar 24-30	Mar 31-Apr 2
Confirmed case, N=540	9	0	0	1	0	1	0	0	0	1	1	9	16	18	28	26	59	86	93	91	75	24	2
Probable case, N=121	0	11	5	5	2	0	3	0	0	0	0	1	2	4	6	8	14	12	4	21	19	4	0

Notes:

- Rash onset date was unavailable for 20 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 1[5] 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 2, 2025

Public Health Unit	Case Count As of April 2	Change in Case Count Since March 26	Rate per 100,000 Population As of April 2
Southwestern Public Health	296 (44.8%)	43	124.9
Grand Erie Public Health	119 (18.0%)	3	40.4
Huron Perth Public Health	73 (11.0%)	18	46.8
Chatham-Kent Public Health	43 (6.5%)	4	39.5
South East Health Unit	36 (5.4%)	1	6.1
Windsor-Essex County Health Unit	30 (4.5%)	7	6.7
Region of Waterloo Public Health and Emergency Services	14 (2.1%)	12	2.1
Middlesex-London Health Unit	12 (1.8%)	0	2.1
North Bay Parry Sound District Health Unit	11 (1.7%)	0	8.3
Niagara Region Public Health	10 (1.5%)	0	1.9
Grey Bruce Health Unit	9 (1.4%)	0	4.8
Lambton Public Health	6 (0.9%)	0	4.4
Wellington-Dufferin-Guelph Public Health	2 (0.3%)	1	0.6
Ontario	**661 (100.0%)**	**89**	**4.2**

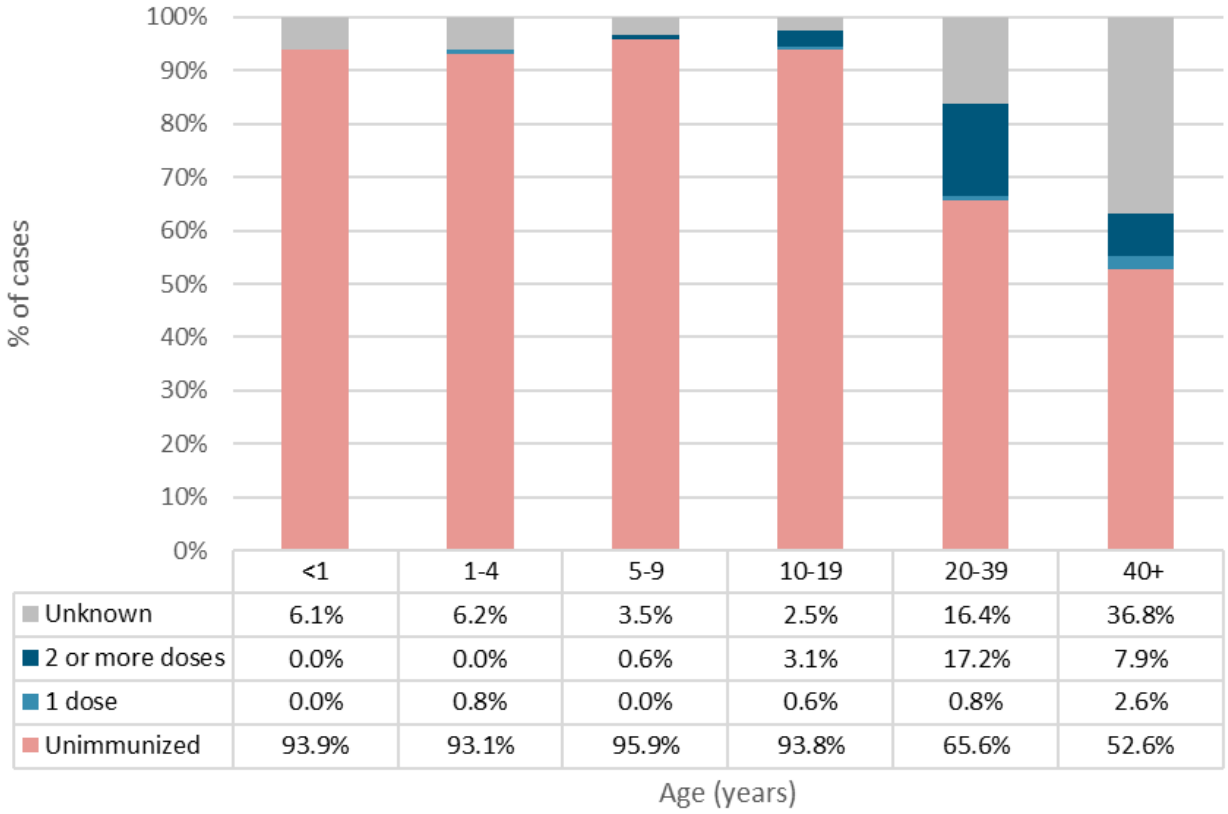
Notes:

- This table is based on the public health unit corresponding to where the case resided at the time of illness onset or report to public health – it may not necessarily reflect the location of exposure or the current residence of the case.
- As of January 1, 2025, Brant County Health Unit and Haldimand-Norfolk Health Unit have merged into Grand Erie Public Health; and 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

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

Case Characteristics	Case Count As of April 2
Total Cases	661 (100.0%)
Case Classification	
Confirmed	540 (81.7%)
Probable	121 (18.3%)
Gender	
Female	330 (49.9%)
Male	329 (49.8%)
Unknown	2 (0.3%)
Age (years)	
<1	33 (5.0%)
1-4	130 (19.7%)
5-9	172 (26.0%)
10-19	162 (24.5%)
20-39	122 (18.5%)
40+	38 (5.8%)
Unknown	4 (0.6%)
Pregnant	14 (2.1%)
Cases born in or after 1970	653 (98.8%)
Hospitalizations	52 (7.9%)
ICU	3 (0.5%)
Deaths	0 (0.0%)
Immunization Status	
Unimmunized	570 (86.2%)
1 dose	4 (0.6%)
2 or more doses	30 (4.5%)
Unknown/no proof of immunization	57 (8.6%)

Figure 2: Immunization Status of Measles Outbreak Cases by Age Group: Ontario, October 28, 2024 – April 2, 2025

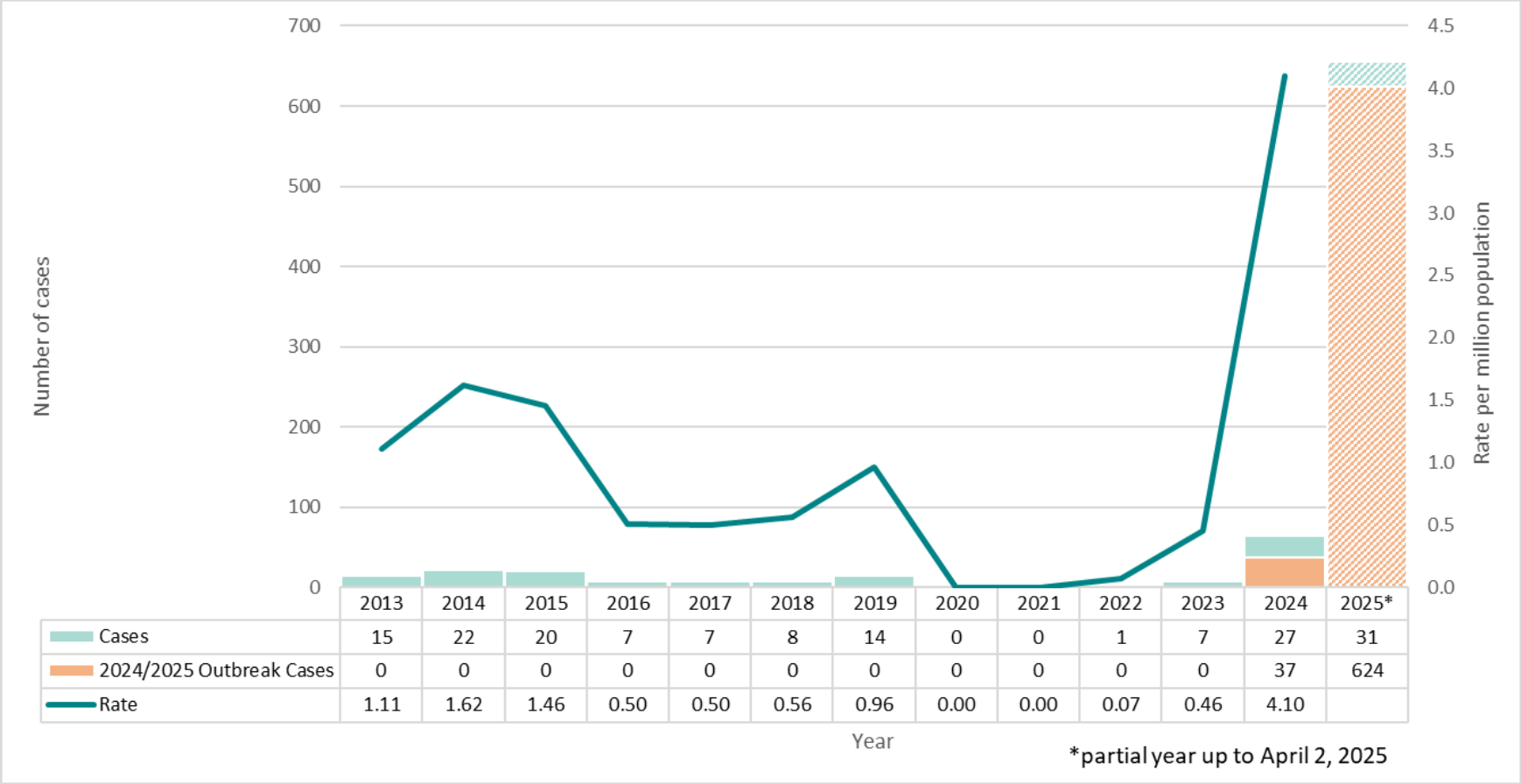


	<1	1-4	5-9	10-19	20-39	40+
Unknown	6.1%	6.2%	3.5%	2.5%	16.4%	36.8%
2 or more doses	0.0%	0.0%	0.6%	3.1%	17.2%	7.9%
1 dose	0.0%	0.8%	0.0%	0.6%	0.8%	2.6%
Unimmunized	93.9%	93.1%	95.9%	93.8%	65.6%	52.6%

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 3).
    - 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 3). 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 3: Number of Measles Cases and Incidence Rate per Million Population: Ontario, January 1, 2013 – April 2, 2025



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025*
Cases	15	22	20	7	7	8	14	0	0	1	7	27	31
2024/2025 Outbreak Cases	0	0	0	0	0	0	0	0	0	0	0	37	624
Rate	1.11	1.62	1.46	0.50	0.50	0.56	0.96	0.00	0.00	0.07	0.46	4.10	

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 2, 2025 at 7:00 am.
- 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 March 24, 2025 and reflect finalized molecular PCR results indicating acute measles infection for samples received between January 1, 2025 and March 24, 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. Population estimates 2013-2022: table 17-10-0134-01: estimates of population (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
- 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 surveillance[5] 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 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 that were not residents of Ontario at the time of illness onset were excluded from the 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.
- 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

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Citation

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