Public Health Ontario | Santé publique Ontario

ENHANCED EPIDEMIOLOGICAL SUMMARY

Measles in Ontario

Updated: May 8, 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 May 6, 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 May 6, 2025 at 7:00 am.

Highlights

Multi-Jurisdictional Measles Outbreak

October 18, 2024 to May 6, 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 additional provinces[2] have reported measles cases related to this outbreak.
- From October 18, 2024 to May 6, 2025, Ontario has reported a total of 1,440 measles cases (1,221 confirmed, 219 probable) associated with this outbreak (Figure 1) occurring in 17 public health units (Table 1).
  - This represents an increase of 197 cases (Figure 1) since the previous data extraction on April 29.
- 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.

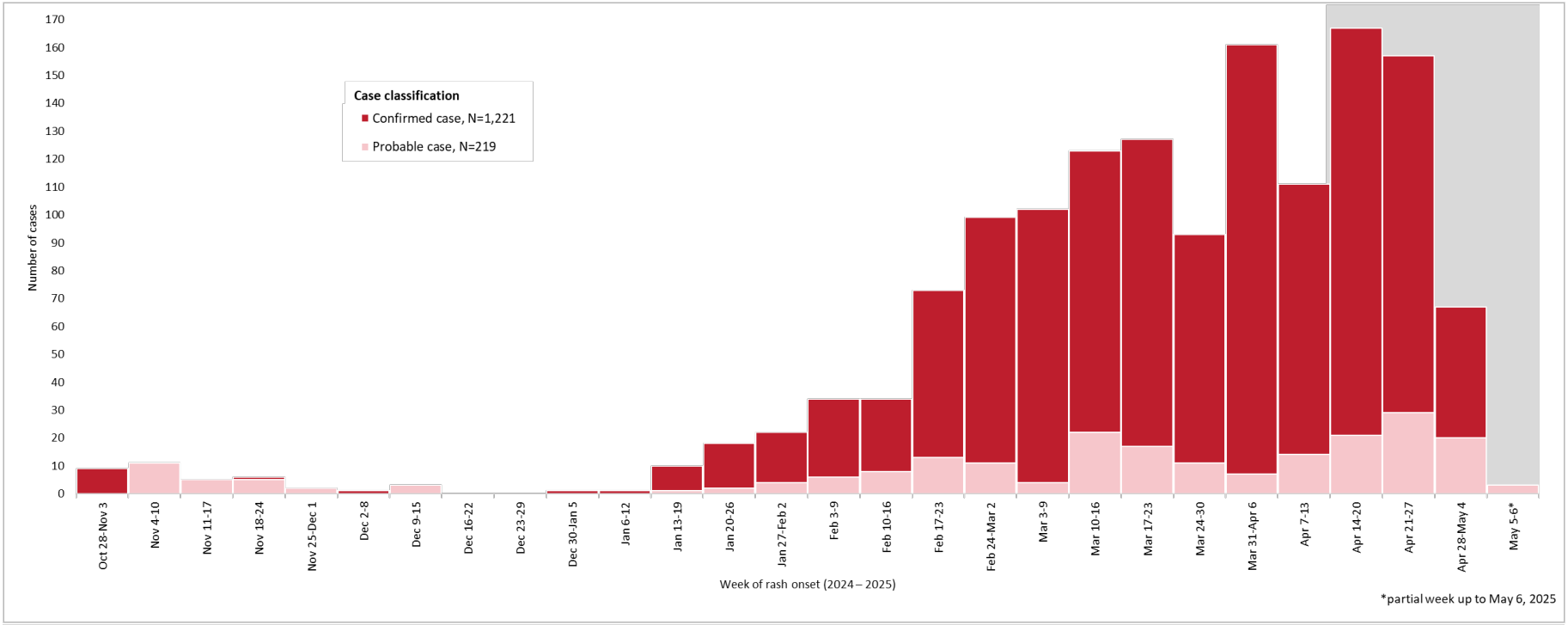
- A map showing the geographic distribution of the rate of all measles outbreak cases per 100,000 population by forward sortation area (FSA) over the entire period of the outbreak to date is shown in Figure 2A. Measles outbreak cases with a rash onset date within the last 21 days (the maximum incubation period for measles) per 100,000 population by FSA are mapped in Figure 2B.
    - 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 2A, Figure 2B).
    - As FSA boundaries do not align with public heath 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 maps.
- Among all outbreak cases, 76.4% (n=1,100) were in infants, children and adolescents, while 23.1% (n=332) were in adults, and 0.6% (n=8) had unknown age (Table 2).
    - 2.2% (n=31) of outbreak cases were pregnant.
    - 98.1% (n=1,413) of outbreak cases were born in or after 1970.
- Among infants, children and adolescents, 95.1% (n=1,046) were unimmunized, while among adults, 60.8% (n=202) were unimmunized (Figure 3).
- Overall, 7.0% (n=101) of outbreak cases have required hospitalization, and 0.6% (n=8) were admitted to the ICU (Table 2). Of those hospitalized, 94.1% (n=95) were unimmunized, including 75 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 May 6, 2025

- In 2025, a total of 1,453 measles cases (1,260 confirmed, 193 probable) have been reported in Ontario, as of May 6 (Figure 4).
    - All but 50 cases were linked with the multi-jurisdictional outbreak described above. Of these, 12 cases had a history of travel (i.e. measles acquired outside of Canada), one case was epidemiologically-linked to a visitor to Ontario, and 37 cases do not yet have a source of exposure reported.
        - Among these cases, eight required hospitalization, all among unimmunized children and adolescents.
    - As of May 5, 2025, laboratory data shows that 25.2% of individuals (n=748) 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 – May 6, 2025



Week of rash onset	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 6	Apr 7-13	Apr 14-20	Apr 21-27	Apr 28-May 4	May 5-6*
Confirmed case	9	0	0	1	0	1	0	0	0	1	1	9	16	18	28	26	60	88	98	101	110	82	154	97	146	128	47	0
Probable case	0	11	5	5	2	0	3	0	0	0	0	1	2	4	6	8	13	11	4	22	17	11	7	14	21	29	20	3
Total	**9**	**11**	**5**	**6**	**2**	**1**	**3**	**0**	**0**	**1**	**1**	**10**	**18**	**22**	**34**	**34**	**73**	**99**	**102**	**123**	**127**	**93**	**161**	**111**	**167**	**157**	**67**	**3**

Notes:

- The grey shaded area in the figure represents a case reporting lag; case counts during these weeks should be considered tentative.
- Rash onset date was unavailable for 28 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 – May 6, 2025

Public Health Unit	Case Count as of May 6	Change in Case Count since April 29	Rate per 100,000 Population as of May 6
Southwestern Public Health	496 (34.4%)	67	209.3
Grand Erie Public Health	201 (14.0%)	18	68.2
Huron Perth Public Health	175 (12.2%)	33	112.1
Chatham-Kent Public Health	145 (10.1%)	14	133.1
Windsor-Essex County Health Unit	111 (7.7%)	14	24.8
South East Health Unit	80 (5.6%)	1	13.6
Region of Waterloo Public Health and Emergency Services	48 (3.3%)	9	7.1
Wellington-Dufferin-Guelph Public Health	46 (3.2%)	10	13.5
Grey Bruce Health Unit	35 (2.4%)	14	18.6
North Bay Parry Sound District Health Unit	30 (2.1%)	8	22.5
Middlesex-London Health Unit	28 (1.9%)	5	5.0
Lambton Public Health	17 (1.2%)	2	12.6
Niagara Region Public Health	11 (0.8%)	1	2.1
Northeastern Public Health	11 (0.8%)	0	9.4
Algoma Public Health	3 (0.2%)	1	2.5
Renfrew County and District Health Unit	2 (0.1%)	0	1.8
City of Hamilton Public Health Services	1 (0.1%)	0	0.2
Ontario	**1,440 (100.0%)**	**197**	**9.1**

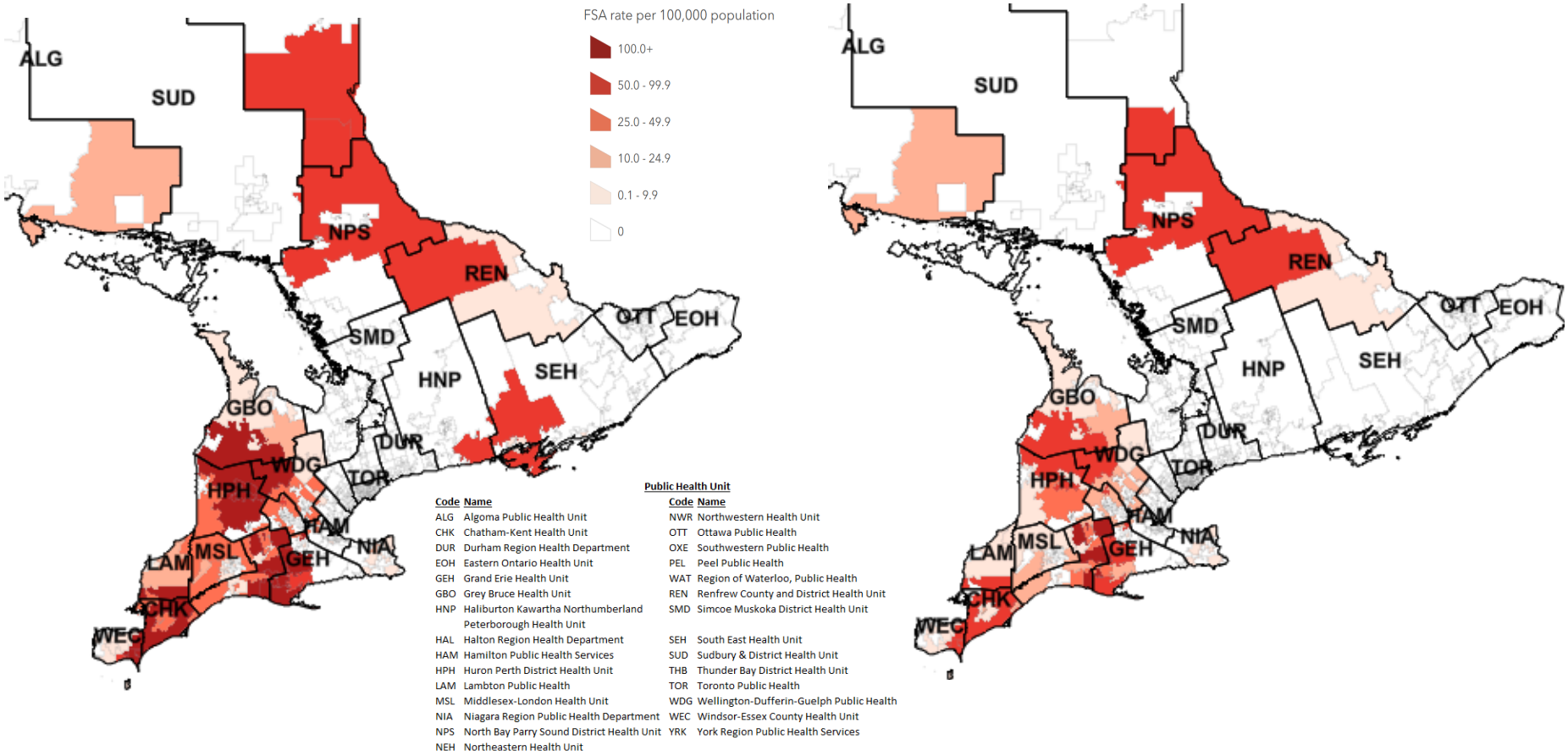
Notes:

- 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:

(A) Cumulative cases: October 28, 2024 – May 6, 2025

(B) Cases with rash onset in the last 21 days: April 15, 2024 – May 6, 2025



Code	Name
ALG	Algoma Public Health Unit
CHK	Chatham-Kent Health Unit
DUR	Durham Region Health Department
EOH	Eastern Ontario Health Unit
GEH	Grand Erie Health Unit
GBO	Grey Bruce Health Unit
HNP	Haliburton Kawartha Northumberland Peterborough Health Unit
HAL	Halton Region Health Department
HAM	Hamilton Public Health Services
HPH	Huron Perth District Health Unit
LAM	Lambton Public Health
MSL	Middlesex-London Health Unit
NIA	Niagara Region Public Health Department
NPS	North Bay Parry Sound District Health Unit
NEH	Northeastern Health Unit

Code	Name
NWR	Northwestern Health Unit
OTT	Ottawa Public Health
OXE	Southwestern Public Health
PEL	Peel Public Health
WAT	Region of Waterloo, Public Health
REN	Renfrew County and District Health Unit
SMD	Simcoe Muskoka District Health Unit
SEH	South East Health Unit
SUD	Sudbury & District Health Unit
THB	Thunder Bay District Health Unit
TOR	Toronto Public Health
WDG	Wellington-Dufferin-Guelph Public Health
WEC	Windsor-Essex County Health Unit
YRK	York Region Public Health Services

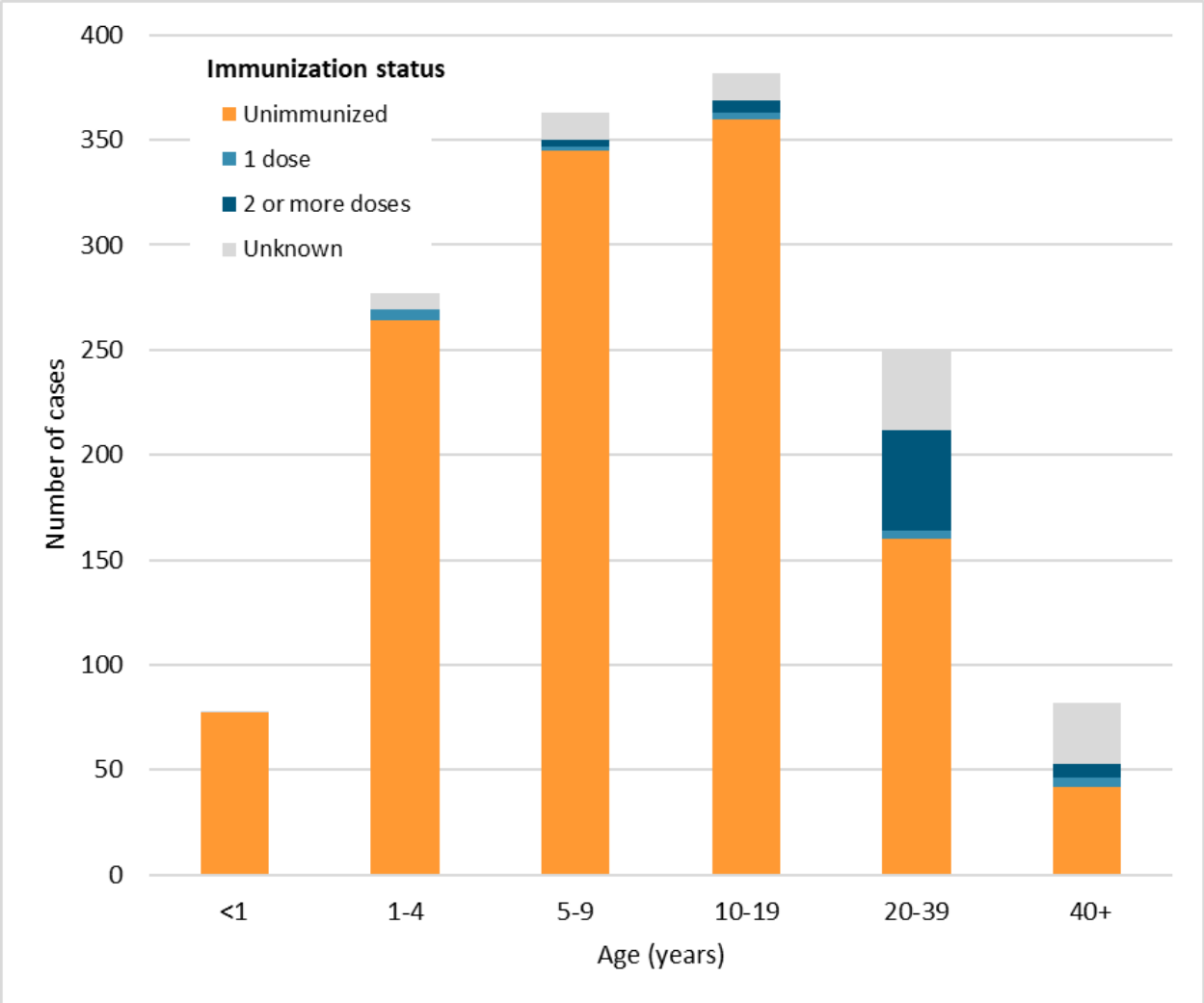
Notes:

- **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 these maps. Further, the rates in these maps 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.
- 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 – May 6, 2025

Case Characteristics	Case Count as of May 6
Total Cases	1,440 (100.0%)
Case Classification	
Confirmed	1,221 (84.8%)
Probable	219 (15.2%)
Gender	
Female	704 (48.9%)
Male	735 (51.0%)
Unknown	1 (0.1%)
Age (years)	
<1	78 (5.4%)
1-4	277 (19.2%)
5-9	363 (25.2%)
10-19	382 (26.5%)
20-39	250 (17.4%)
40+	82 (5.7%)
Unknown	8 (0.6%)
Pregnant	31 (2.2%)
Cases born in or after 1970	1,413 (98.1%)
Hospitalizations	101 (7.0%)
ICU	8 (0.6%)
Deaths	0 (0.0%)
Immunization Status	
Unimmunized	1,253 (87.0%)
1 dose	18 (1.3%)
2 or more doses	64 (4.4%)
Unknown/no proof of immunization	105 (7.3%)

Figure 3: Immunization Status of Measles Outbreak Cases by Age Group: Ontario, October 28, 2024 – May 6, 2025

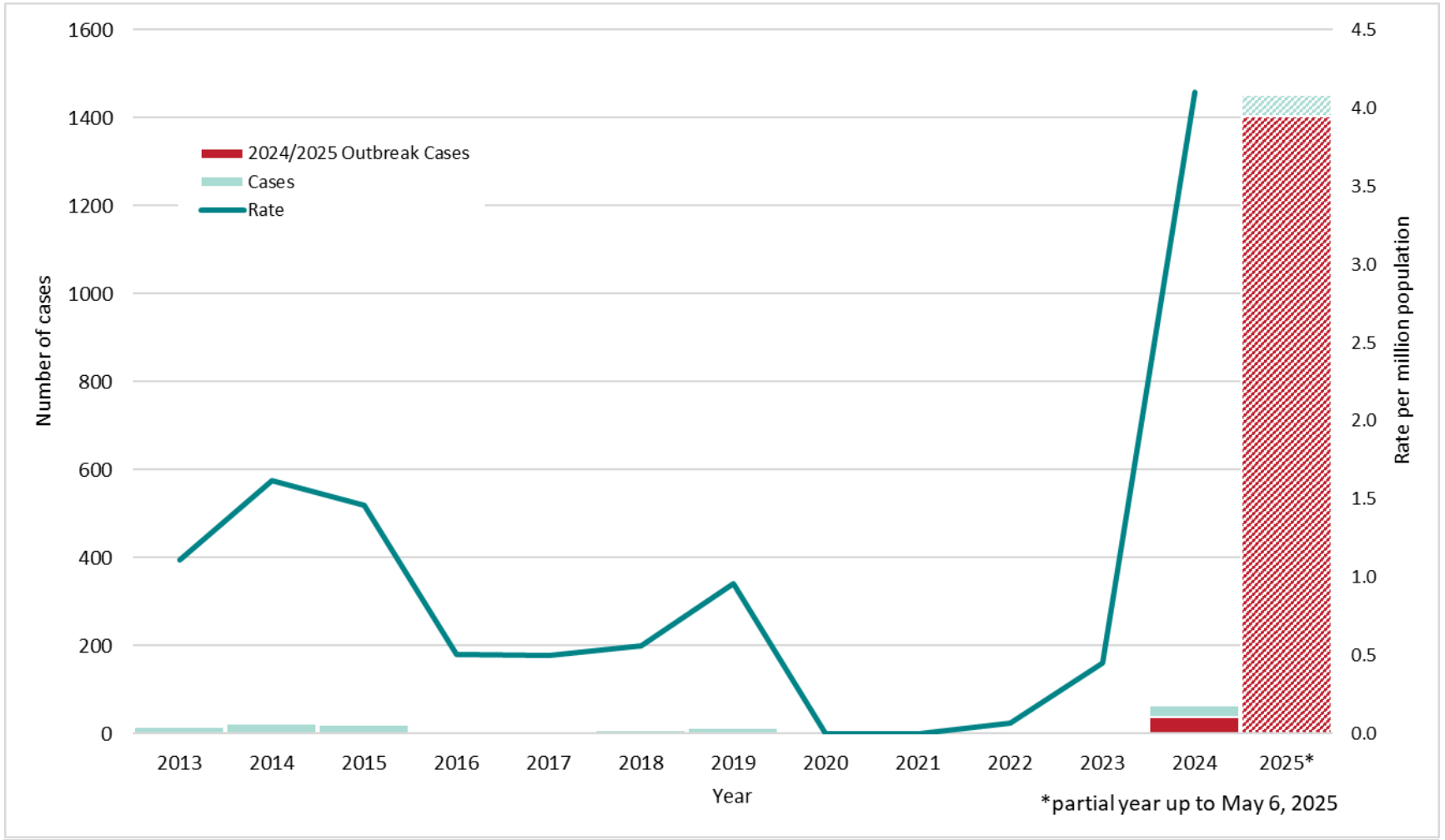


Age group	<1	1-4	5-9	10-19	20-39	40+
Unimmunized	98.7%	95.3%	95.0%	94.2%	64.0%	51.2%
1 dose	0.0%	1.8%	0.6%	0.8%	1.6%	4.9%
2 or more doses	0.0%	0.0%	0.8%	1.6%	19.2%	8.5%
Unknown	1.3%	2.9%	3.6%	3.4%	15.2%	35.4%

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 – May 6, 2025



Year	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	50
2024/2025 Outbreak Cases	0	0	0	0	0	0	0	0	0	0	0	37	1,403
Total	**15**	**22**	**20**	**7**	**7**	**8**	**14**	**0**	**0**	**1**	**7**	**64**	**1,453**
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 May 6, 2025 at 7:00 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 May 5, 2025 and reflect finalized molecular PCR results indicating acute measles infection for samples received between January 1, 2025 and May 5, 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 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 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 2A and Figure 2B, the maps 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
4. American Academy of Pediatrics, Committee on Infectious Diseases; Kimberlin DW, Barnett ED, Lynfield R, Sawyer MH, editors. Red Book: 2021-2024 report of the committee of infectious diseases [Internet]. 32nd ed. Itasca, IL: American Academy of Pediatrics; 2021. Available from: https://online.statref.com/Home/Resolve?id=23017&grpalias=HSICOTR
5. Ontario. Ministry of Health. Ontario public health standards: requirements for programs, services and accountability. Infectious diseases protocol. Appendix 1: case definitions and disease-specific information. Disease: measles. Effective: March 2024. Toronto, ON: Queen's Printer for Ontario; 2022. Available from: https://www.ontario.ca/files/2024-03/moh-measles-appendix-en-2024-03-19.pdf
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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