

SURVEILLANCE REPORT

Invasive Group A Streptococcal (iGAS) Disease in Ontario: 2023-24 Seasonal Summary

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Introduction

This report provides an epidemiologic overview of confirmed cases of invasive group A streptococcal disease reported in Ontario during the 2023-24 season (October 1, 2023 to September 30, 2024). It includes comparisons to the five seasons prior to the COVID-19 pandemic (October 1, 2014 to September 30, 2019) and to the most recent season (October 1, 2022 to September 30, 2023). The data in the report are based on information available in Ontario's integrated Public Health Information System (iPHIS) as of **January 20, 2025**.

Group A Streptococcal (GAS) disease is classified as invasive GAS (iGAS) when *Streptococcus pyogenes* bacteria enter a normally sterile part of the body (e.g., blood, deep tissue, lining of the brain). GAS is a common cause of milder infections but unlike iGAS, non-invasive GAS infections are not notifiable to public health in Ontario. Only cases meeting the [provincial confirmed iGAS case definition](#) are included in this report.¹ Cases in this report are placed in time based on iGAS seasons, defined as the period spanning October 1 of one year to September 30 of the following year.

Highlights

- The incidence of iGAS in Ontario in the 2023-24 season is the highest on record since iGAS became reportable in Ontario in 1995^{2,3}, with 1,960 reported cases and a corresponding rate of 12.2 cases per 100,000 population. The 2022-23 season was the second highest on record with 1,723 cases for a rate of 11.0 cases per 100,000 population.
- The percentage of cases with a fatal outcome in the 2023-24 season was similar to that of the 2022-23 season at approximately 12.0%, which is higher than the proportion observed in the pre-pandemic seasons⁴.
- Most public health units (23/34) had higher rates of iGAS in the 2023-24 season than in the 2022-23 season. iGAS incidence rates in 2023-24 were highest in northern Ontario public health units (i.e., Northwestern Health Unit, Thunder Bay District Health Unit, Porcupine Health Unit, Algoma Public Health and North Bay Parry Sound District Health Unit).
- The most commonly reported *emm* type was *emm1*, which accounted for over one-third (35.5%) of typed cases. Among *emm1* cases that were further subtyped, over half were identified as M1UK, with this lineage having higher hospitalization and case fatality rates relative to other *emm1* lineages (i.e., not M1UK).

- Increasing iGAS activity in Ontario, in the absence of a vaccine against GAS, underscores the importance of public health strategies that:
 - Continue to strengthen surveillance of iGAS in children and adults;
 - Support local public health units' capacity to provide timely management of iGAS cases, contacts and outbreaks, including within equity-seeking populations and communities (e.g., in Northern Ontario);
 - Promote collaboration with key public health and clinical partners to effectively communicate about iGAS with health care providers and the public; and
 - Promote staying up-to-date with eligible immunizations against viral infections such as influenza, chickenpox, and COVID-19 that can increase the likelihood of GAS infections and/or severe outcomes when they precede or occur concurrent to GAS infections⁵.

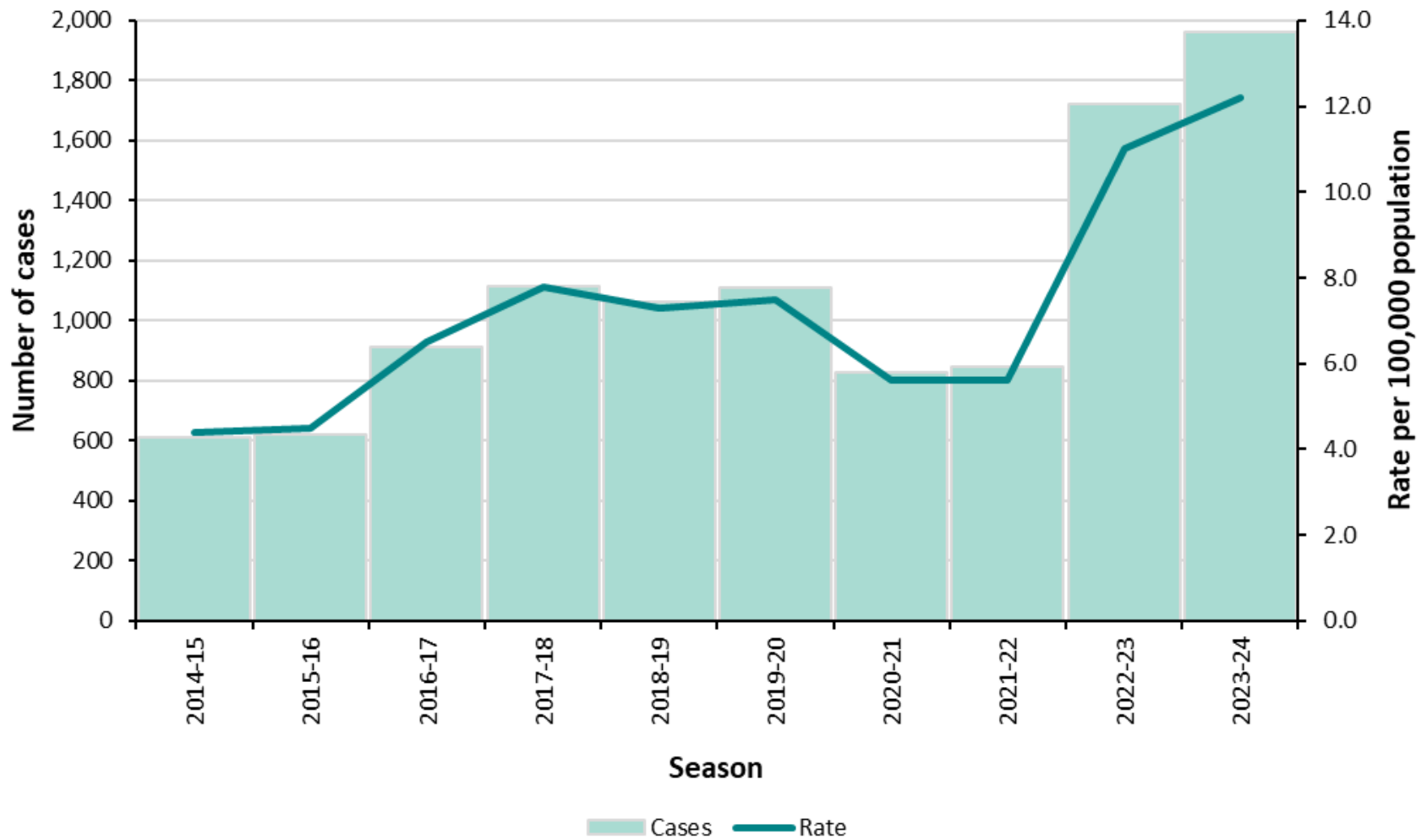
Trends

Since iGAS became reportable in Ontario in 1995, the highest number of cases in Ontario were reported in the 2022-23 (1,723 cases) and 2023-24 (1,960 cases) seasons.^{2,3} In the last 10 seasons from 2014-15 to 2023-24, the rate of cases per 100,000 population increased from 4.4 to 12.2, representing a 177.3% increase. Over this period, there were sustained higher levels of iGAS activity during the 2017-18 to 2019-20 seasons compared to preceding seasons, which was followed by a decrease in the 2020-21 and 2021-22 seasons that spanned the COVID-19 pandemic. This decline was followed by a sharp increase in 2022-23 that continued into the 2023-24 season ([Figure 1](#)).

In Ontario, iGAS cases typically increase in October before peaking in the winter months, followed by a decline through the spring and summer. The five pre-pandemic seasons (average peak: 97 cases) and the 2023-24 season (265 cases) followed this trend, peaking in January. The 2022-23 season peaked in May (208 cases), much later than usual. Despite declines in case counts following the peaks of the 2022-23 and 2023-24 season, monthly counts in both seasons were above the average monthly counts for each month of the five pre-pandemic seasons ([Figure 2](#)). Counts in the 2022-23 and 2023-24 seasons were elevated even in the summer.

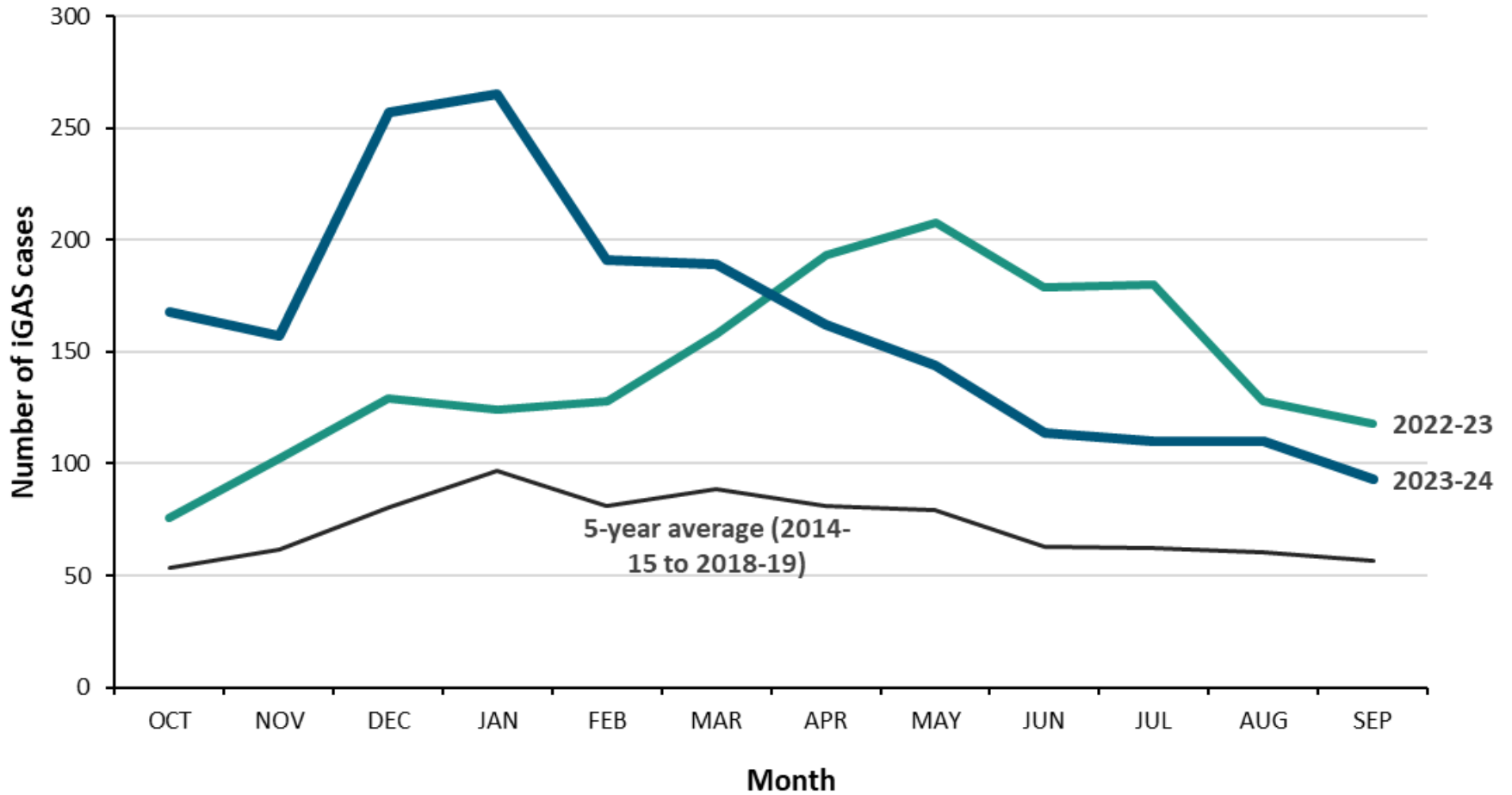
Compared to the 2022-23 season, monthly counts of iGAS cases were higher in the first half of the 2023-24 season (October to March) and lower in the second half of the season (April to September). This pattern was seen in both pediatric (under 18 years) and adult cases (18 years and older). Monthly rates among both age cohorts remained above their respective pre-pandemic rates overall ([Figure 3a](#); [Figure 3b](#)).

Figure 1: Incidence of iGAS by Season: Ontario, October 1, 2014 to September 30, 2024



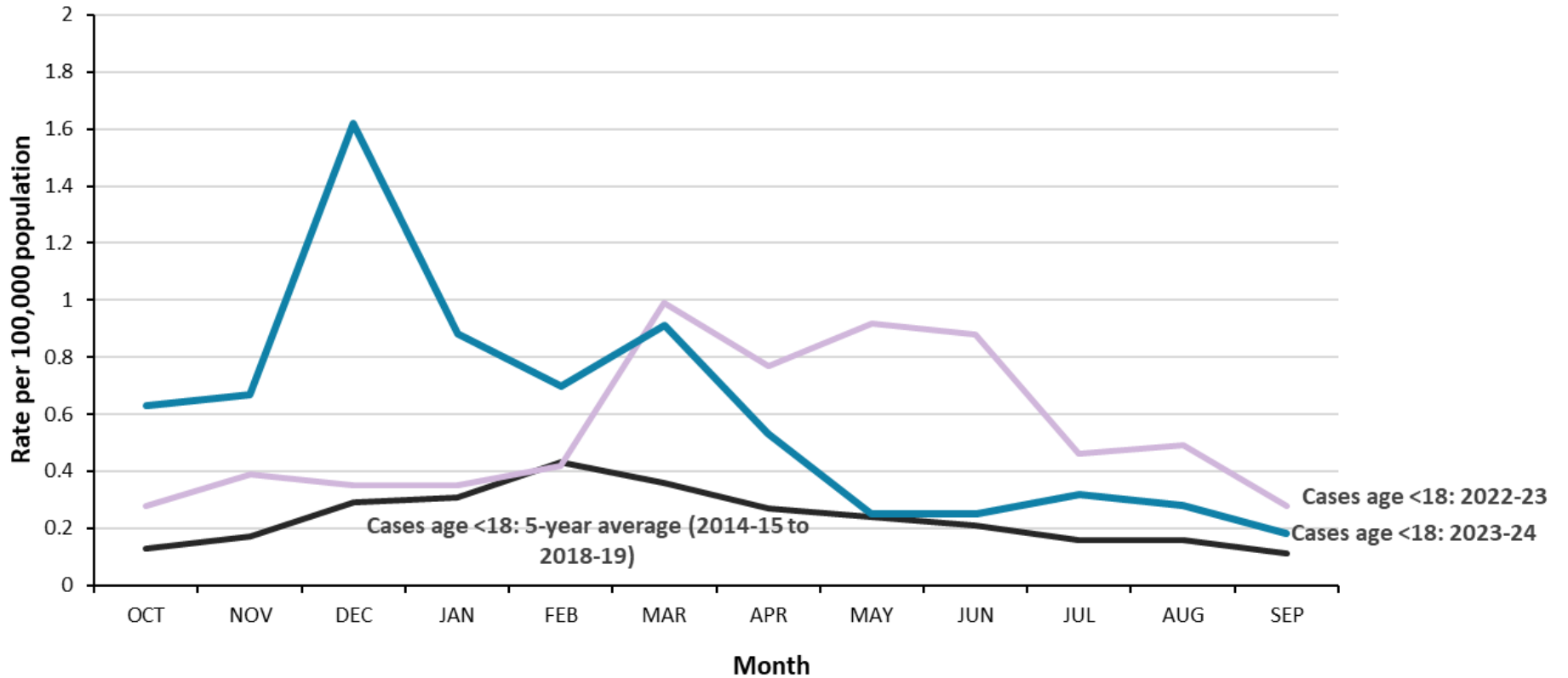
Data sources: Case data: Ontario. Ministry of Health; 2025.⁶ Population data: Statistics Canada; 2023⁷, Population Reporting.⁸

Figure 2: Confirmed iGAS Case Counts by Month: 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to the 2022-23 Season (October 1, 2022 – September 30, 2024) and Five Pre-Pandemic Seasons (October 1, 2014 – September 30, 2019)



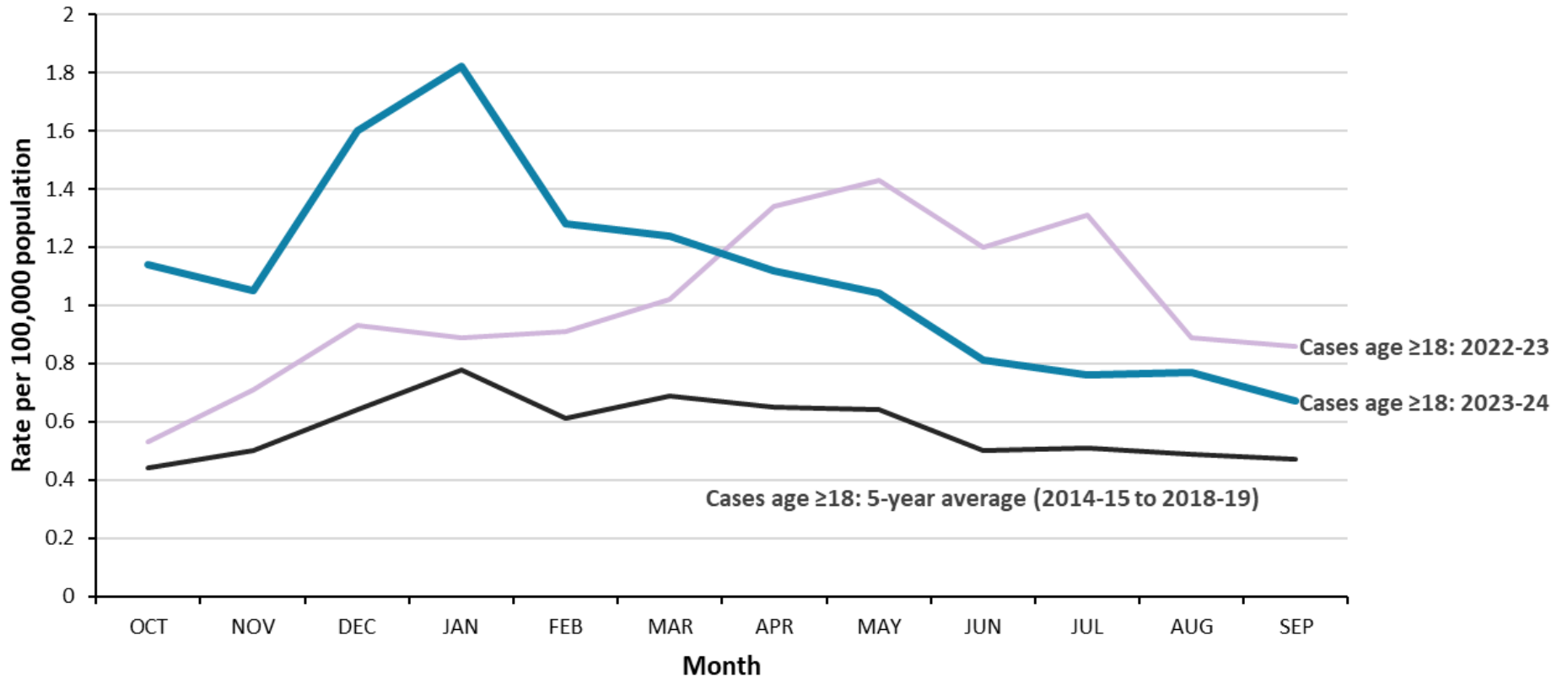
Data source: Ontario. Ministry of Health; 2025.⁶

Figure 3a: Rate (per 100,000 population) of Confirmed iGAS Cases among Cases Age < 18 Years by Month*: 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to the 2022-23 Season (October 1, 2022 – September 30, 2023) and Five Pre-Pandemic Seasons (October 1, 2014 – September 30, 2019)



Data sources: Case data: Ontario. Ministry of Health; 2025.⁶ Population data: Statistics Canada; 2023⁷, Population Reporting.⁸
 Note: *Excludes cases with unknown age

Figure 3b: Rate (per 100,000 population) of Confirmed iGAS Cases among Cases Age \geq 18 Years by Month*: 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to the 2022-23 Season (October 1, 2022 – September 30, 2023) and Five Pre-Pandemic Seasons (October 1, 2014 – September 30, 2019)



Data sources: Case data: Ontario. Ministry of Health; 2025.⁶ Population data: Statistics Canada; 2023⁷, Population Reporting.⁸
 Note: *Excludes cases with unknown age

Age Group

During the 2023-24 season, cases age 65 years and over had the highest rate (cases per 100,000 population) of iGAS, followed by cases 1 to 4 and 5 to 9 years of age. Except for cases <1 year and 1-4 years of age, the rates across all other age groups were higher in the 2023-24 season compared to the age-specific rates for the 2022-23 season. The largest percentage increases in rates occurred among cases age 14 to 17 years (+60.0%) and 5 to 9 years (+33.3%). The rate among cases under 1 year of age decreased by approximately half in the 2023-24 season ([Table 1](#)).

Table 1: Confirmed iGAS Cases and Rate (per 100,000 population) by Age Group: Ontario, 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to the 2022-23 Season (October 1, 2022 – September 30, 2023)

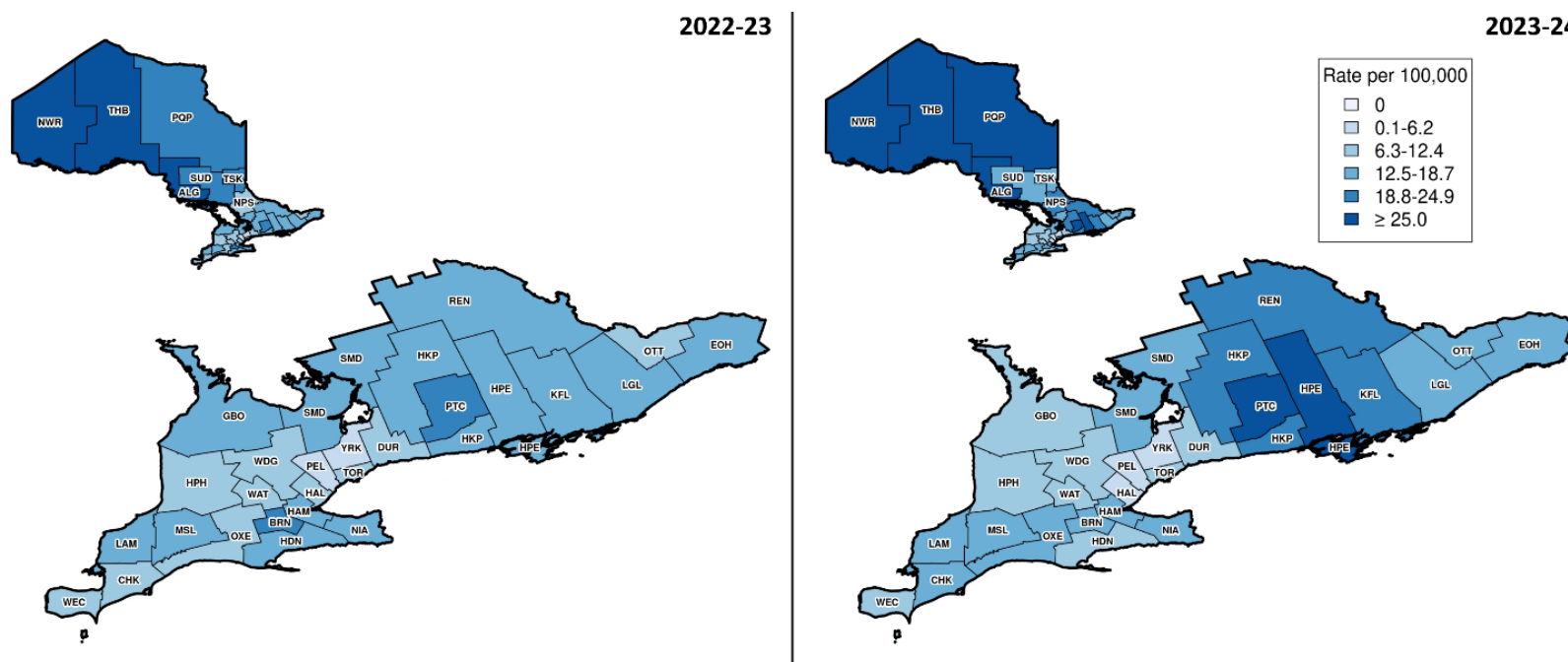
Age Group (years)	2023-24 Season: Total Number of Cases	2023-24 Season: Rate Per 100,000 Population	2022-23 Season: Average Number of Cases	2022-23 Season: Average Rate Per 100,000 Population	Percentage Change in 2023-24 Rate Compared to 2022-23 Season
< 1	12	7.7	20	14.5	-46.9%
1 – 4	66	11.3	70	12.2	-7.4%
5 – 9	87	11.2	67	8.4	+33.3%
10 – 13	24	3.7	20	3.0	+23.3%
14 – 17	16	2.4	10	1.5	+60.0%
18 – 64	1,106	10.8	942	9.5	+13.7%
≥ 65	646	21.8	593	20.7	+5.3%
Unknown	3	N/A	1	N/A	N/A
Total	1,960	12.2	1,723	11.0	+10.9%

Data sources: Case data: Ontario. Ministry of Health; 2025.⁶ Population data: Statistics Canada; 2023⁷, Population Reporting.⁸

Geography

In the 2023-24 season, 67.6% (23/34) of public health units had rates above the Ontario rate of 12.2 cases per 100,000 population. Consistent with the 2022-23 season, the highest rates were observed in northern Ontario in 2023-24. Northwestern Health Unit followed by Thunder Bay District Health Unit had the highest rates for the 2023-24 season. Rates reported across public health units varied over time, however most health units (20/34) had a higher rate in the 2023-24 season than in the 2022-23 season. The largest increases in rates occurred in North Bay Parry Sound District Health Unit (+188.1%), Kingston, Frontenac and Lennox & Addington Public Health (+84.0%) and Chatham-Kent Public Health (+73.1%). The lowest rates in the 2023-24 season were reported by Peel Public Health followed by York Region Public Health, which was consistent with the 2022-23 season (Figure 4).

Figure 4: Rate of Confirmed Cases of iGAS Reported in the 2023-24 Season and 2022-23 Season (October 1, 2022 – September 30, 2023) by Public Health Unit: Ontario



Code / Code Name / Nom	KFL Kingston, Frontenac and Lennox & Addington Public Health	REN Renfrew County and District Health Unit
ALG Algoma Public Health	LAM Lambton Public Health	SMD Simcoe Muskoka District Health Unit
BRN Brant County Health Unit	LGL Leeds, Grenville & Lanark District Health Unit	SUD Public Health Sudbury & Districts
CHK Chatham-Kent Public Health Unit	MSL Middlesex-London Health Unit	THB Thunder Bay District Health Unit
DUR Durham Region Health Department	NIA Niagara Region Public Health	TOR Toronto Public Health
EOH Easter Ontario Health Unit	NPS North Bay Parry Sound District Health Unit	TSK Timiskaming Health Unit
GBO Grey Bruce Health Unit	OTT Ottawa Public Health	WAT Region of Waterloo Public Health and Emergency Services
HAL Halton Region Public Health	OXE Southwestern Public Health	WDC Wellington-Dufferin-Guelph Public Health
HAM City of Hamilton Public Health Services	PEL Peel Public Health	WEC Windsor-Essex County Health Unit
HDN Halldimand-Norfolk Health Unit	POP Porcupine Health Unit	YRK York Region Public Health
HKP Haliburton, Kawartha, Pine Ridge District Health Unit	PTC Peterborough Public Health	
HPE Hastings Prince Edward Public Health		
HPH Huron Perth Public Health		

Data sources: Case data: Ontario. Ministry of Health; 2025.⁶ Population data: Statistics Canada; 2023,⁷ Population Reporting.⁸
 Note: Public health unit iGAS counts and rates are available in [Appendix A](#): Table A1.

Risk Factors

In the 2023-24 season, 88.3% (181/205) of iGAS cases under 18 years of age and 95.3% (1,669/1,752) of iGAS cases 18 years of age and over reported at least one risk factor in iPHIS. The most commonly reported medical risk factors in both pediatric and adult iGAS cases for the 2023-24 and 2022-23 seasons were having a ‘chronic illness or underlying medical condition’ followed by ‘dermatological conditions’ (Table 2a). As reported previously, a similar trend was observed in the five pre-pandemic seasons.⁴ Among adults, the most commonly reported behavioural risk factors in the 2023-24 season were experiencing ‘homelessness or inadequate housing’, ‘injection drug use’, and ‘alcohol use disorder’. All three risk factors decreased in proportion relative to the 2022-23 season. In the five pre-pandemic seasons, injection drug use was the most commonly reported behavioural risk factor among adults (17.9%)⁴ but has declined in the 2022-23 and 2024-25 seasons. A similar proportion of adult cases in the five pre-pandemic seasons had ‘alcohol use disorder’ and experiences of ‘homelessness or inadequate housing’ reported as the 2023-24 season.⁴ Among pediatric cases, the most commonly reported behavioural risk factors in the 2023-24 season were ‘close contact with a GAS case’, and being a ‘childcare centre attendee’. Reported close contact with a GAS case was also the most commonly reported behavioural risk factor among pediatric cases in the five pre-pandemic seasons at 6.2%,⁴ which increased to 10.4% in 2022-23 before decreasing to 5.5% in the 2023-24 season (Table 2b).

Table 2a: Medical Risk Factors for Confirmed iGAS Cases by Age Group and Season Among Cases Reporting At Least One Risk Factor*: Ontario, 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to the 2022-23 Season (October 1, 2022 – September 30, 2023)

Risk Factor	2023-24 Season: Number (%) of Cases Age < 18	2022-23 Season: Number (%) of Cases Age < 18	2023-24 Season: Number (%) of Cases Age ≥ 18	2022-23 Season: Number (%) of Cases Age ≥ 18
Chronic Illness or Underlying Medical Condition	35/181 (19.3%)	40/154 (26.0%)	1,042/1,669 (62.4%)	902/1,397 (64.6%)
Dermatological Condition	35/181 (19.3%)	36/154 (23.4%)	733/1,669 (43.9%)	607/1,397 (43.5%)
Diabetes	0/181 (0.0%)	0/154 (0.0%)	410/1,669 (24.6%)	335/1,397 (24.0%)
HIV Status	0/181 (0.0%)	0/154 (0.0%)	5/1,669 (0.3%)	1/1,397 (0.1%)
Immunocompromised	12/181 (6.6%)	9/154 (5.8%)	209/1,669 (12.5%)	211/1,397 (15.1%)
Case Reported Laboratory Confirmation of Other Viral Infection within Two Weeks of iGAS Infection**	12/181 (6.6%)	N/A	19/1,669 (1.1%)	N/A

Risk Factor	2023-24 Season: Number (%) of Cases Age < 18	2022-23 Season: Number (%) of Cases Age < 18	2023-24 Season: Number (%) of Cases Age ≥ 18	2022-23 Season: Number (%) of Cases Age ≥ 18
Case Reported Laboratory Confirmed Influenza Infection within Two Weeks of iGAS Infection**	6/181 (3.3%)	N/A	21/1,669 (1.3%)	N/A
Case Reported Laboratory Confirmed RSV Infection within Two Weeks of iGAS Infection**	0/181 (0.0%)	N/A	3/1,669 (0.2%)	N/A
Post-Exposure Prophylaxis Offered/Recommended if Close Contact of an iGAS Case**	4/47† (8.5%)	N/A	14/549† (2.6%)	N/A
Prenatal	1/181 (0.6%)	0/154 (0.0%)	7/1,669 (0.4%)	13/1,397 (0.9%)
Postpartum	1/181 (0.6%)	0/154 (0.0%)	26/1,669 (1.6%)	28/1,397 (2.0%)
Strep Infection within past 30 Days	16/181 (8.8%)	12/154 (7.8%)	56/1,669 (3.4%)	43/1,397 (3.1%)
Recent Varicella	1/181 (0.6%)	0/154 (0.0%)	5/1,669 (0.3%)	4/1,397 (0.3%)
Case Reported Test Confirmed SARS-CoV-2 Infection within Two Weeks of iGAS Infection**	2/181 (1.1%)	N/A	29/1,669 (1.7%)	N/A
Upper Respiratory Tract Infection Signs/Symptoms within Two Weeks of iGAS Infection**	32/181 (17.7%)	N/A	189/1,669 (11.3%)	N/A
Other Medical Risk Factor	18/181 (9.9%)	25/154 (16.2%)	248/1,669 (14.9%)	234/1,397 (16.8%)

Data source: Case data: Ontario. Ministry of Health; 2025.⁶

Note: Cases with an unknown age are excluded from this table.

*Excludes cases that only reported a risk factor of 'Unknown'. **Data available as of February 2, 2024 and therefore should be interpreted with caution as not all cases reported in the 2023-24 season will have had the risk factor reported in iPHIS. Data for these iPHIS risk factor are unavailable for cases reported in the 2022-23 season. Refer to the [technical notes](#) for a list of medical and behavioural risk factors and their definitions. Percentages may sum to more than 100% because cases may have more than one risk factor reported in iPHIS. †Denominator restricted to clinically severe cases with at least one risk factor reported as post-exposure prophylaxis is only recommended for clinically severe iGAS cases. For more details on how clinical severity was calculated refer to the technical notes.

Table 2b: Behavioural Risk Factors for Confirmed iGAS Cases by Age Group and Season Among Cases Reporting At Least One Risk Factor*: Ontario, 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to the 2022-23 Season (October 1, 2022 – September 30, 2023)

Risk Factor	2023-24 Season: Number (%) of Cases Age < 18	2022-23 Season: Number (%) of Cases Age < 18	2023-24 Season: Number (%) of Cases Age ≥ 18	2022-23 Season: Number (%) of Cases Age ≥ 18
Alcohol Use Disorder	0/181 (0.0%)	1/154 (0.6%)	197/1,669 (11.8%)	169/1,397 (12.1%)
Childcare Centre Attendee**	10/181 (5.5%)	N/A	N/A	N/A
Close Contact with a case	10/181 (5.5%)	16/154 (10.4%)	37/1,669 (2.2%)	31/1,397 (2.2%)
Close Contact with iGAS Case**	0/181 (0.0%)	N/A	5/1,669 (0.3%)	N/A
Injection Drug Use	1/181 (0.6%)	0/154 (0.0%)	199/1,669 (11.9%)	192/1,397 (13.7%)
Persons experiencing homelessness/inadequate housing	1/181 (0.6%)	1/154 (0.6%)	199/1,669 (11.9%)	223/1,397 (16.0%)
Resident of Correctional Facility**	0/181 (0.0%)	N/A	12/1,669 (0.7%)	N/A
Resident of Homeless Shelter**	0/181 (0.0%)	N/A	42/1,669 (2.5%)	N/A
Resident of Long-Term Care Home**	0/181 (0.0%)	N/A	28/1,669 (1.7%)	N/A
Resident of Retirement Home**	0/181 (0.0%)	N/A	29/1,669 (1.7%)	N/A
Other Behavioural Risk Factor	9/181 (5.0%)	15/154 (9.7%)	228/1,669 (13.7%)	205/1,397 (14.7%)

Data source: Case data: Ontario. Ministry of Health; 2025.⁶

Note: Cases with an unknown age are excluded from this table.

*Excludes cases that only reported a risk factor of 'Unknown'. **Data available as of February 2, 2024 and therefore should be interpreted with caution as not all cases reported in the 2023-24 season and no cases reported in the 2022-23 season (unless record was re-opened and updated) will have had the risk factor reported in iPHIS. Refer to the [technical notes](#) for a list of medical and behavioural risk factors. Percentages may sum to more than 100% because cases may have more than one risk factor reported in iPHIS.

Clinical Manifestations

‘Streptococcal toxic shock syndrome’ (STSS) is likely underreported. The proportion of adult cases with STSS was higher in 2023-24 (9.5%) compared to the 2022-23 season (5.5%) and the five pre-pandemic seasons (5.4%).⁴ Among pediatric cases, the proportion with STSS was lower in 2023-24 (8.3%) compared to the 2022-23 season (11.2%) though higher in comparison to the five pre-pandemic seasons (4.6%)⁴. The proportion of cases with ‘possible STSS manifestations’ reported among adults was higher in the 2023-24 season (41.2%) compared to the 2022-23 season (36.6%) and five pre-pandemic seasons (33.4%)⁴, and similar among pediatric cases in the 2023-24 and 2022-23 season (31.2% and 31.6%, respectively) though higher than the five pre-pandemic seasons (23.3%)⁴ (Table 3). Clinical severity amongst pediatric cases was also stable from 2022-23 to 2023-24 seasons, though higher than the five pre-pandemic seasons⁴ (Table 4).

Among adult cases, ‘fever or chills’, ‘cellulitis’, ‘skin rash’, ‘hypotension’, ‘headache or dizziness or confusion’ and ‘bacteremia’ were the most common clinical manifestations in the 2023-24 season, which was similar to the 2022-23 season with the exception of hypotension and bacteremia.

Among pediatric cases, most clinical manifestations were similar between the 2022-23 and 2023-24 seasons with the exception of ‘bacteremia’ which increased from 14.4% in 2022-23 to 21.5% in 2023-24. The most common clinical manifestations in the 2023-24 season were ‘fever or chills’, ‘vomiting or nausea’, ‘skin rash’, ‘sore throat’, ‘bacteremia’, and ‘pneumonia’, which was similar to the 2022-23 season.

Table 3: Clinical Manifestations* for Confirmed iGAS Cases by Age Group and Season: Ontario, 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to the 2022-23 Season (October 1, 2022 – September 30, 2023)

Symptoms/Complications*	2023-24 Season: Percentage (n) of Cases Age < 18	2022-23 Season: Percentage (n) of Cases Age < 18	2023-24 Season: Percentage (n) of Cases Age ≥ 18	2022-23 Season: Percentage (n) of Cases Age ≥ 18
Streptococcal toxic shock syndrome (STSS)	17/205 (8.3%)	21/187 (11.2%)	167/1,752 (9.5%)	85/1,535 (5.5%)
Possible STSS manifestation**	64/205 (31.2%)	59/187 (31.6%)	722/1,752 (41.2%)	562/1,535 (36.6%)
Septicemia	15/205 (7.3%)	9/187 (4.8%)	185/1,752 (10.6%)	112/1,535 (7.3%)
Hypotension	35/205 (17.1%)	38/187 (20.3%)	463/1,752 (26.4%)	332/1,535 (21.6%)
Renal impairment	13/205 (6.3%)	13/187 (7.0%)	275/1,752 (15.7%)	220/1,535 (14.3%)
Liver function abnormality	22/205 (10.7%)	16/187 (8.6%)	266/1,752 (15.2%)	185/1,535 (12.1%)
Acute respiratory distress syndrome (ARDS)	30/205 (14.6%)	36/187 (19.3%)	198/1,752 (11.3%)	158/1,535 (10.3%)
Disseminated intravascular coagulation (DIC)	17/205 (8.3%)	18/187 (9.6%)	122/1,752 (7.0%)	80/1,535 (5.2%)

Symptoms/Complications *	2023-24 Season: Percentage (n) of Cases Age < 18	2022-23 Season: Percentage (n) of Cases Age < 18	2023-24 Season: Percentage (n) of Cases Age ≥ 18	2022-23 Season: Percentage (n) of Cases Age ≥ 18
Rash desquamation	2/205 (1.0%)	4/187 (2.1%)	21/1,752 (1.2%)	18/1,535 (1.2%)
Soft tissue necrosis	12/205 (5.9%)	11/187 (5.9%)	236/1,752 (13.5%)	206/1,535 (13.4%)
Meningitis	5/205 (2.4%)	2/187 (1.1%)	13/1,752 (0.7%)	10/1,535 (0.7%)
Pneumonia	38/205 (18.5%)	39/187 (20.9%)	196/1,752 (11.2%)	122/1,535 (7.9%)
Bacteremia	44/205 (21.5%)	27/187 (14.4%)	395/1,752 (22.5%)	244/1,535 (15.9%)
Shock	22/205 (10.7%)	20/187 (10.7%)	189/1,752 (10.8%)	157/1,535 (10.2%)
Skin rash	64/205 (31.2%)	61/187 (32.6%)	463/1,752 (26.4%)	385/1,535 (25.1%)
Skin/muscle, extreme pain to touch	16/205 (7.8%)	22/187 (11.8%)	224/1,752 (12.8%)	206/1,535 (13.4%)
Osteomyelitis	3/205 (1.5%)	1/187 (0.5%)	10/1,752 (0.6%)	11/1,535 (0.7%)
Sore throat	50/205 (24.4%)	48/187 (25.7%)	237/1,752 (13.5%)	150/1,535 (9.8%)
Fever or chills	178/205 (86.8%)	155/187 (82.9%)	1090/1,752 (62.2%)	938/1,535 (61.1%)
Vomiting or nausea	79/205 (38.5%)	70/187 (37.4%)	368/1,752 (21.0%)	288/1,535 (18.8%)
Diarrhea	15/205 (7.3%)	14/187 (7.5%)	118/1,752 (6.7%)	86/1,535 (5.6%)
Cough	33/205 (16.1%)	39/187 (20.9%)	174/1,752 (9.9%)	103/1,535 (6.7%)
Myositis	6/205 (2.9%)	2/187 (1.1%)	14/1,752 (0.8%)	14/1,535 (0.9%)
Cellulitis	28/205 (13.7%)	28/187 (15.0%)	555/1,752 (31.7%)	504/1,535 (32.8%)
Headache or dizziness or confusion	31/205 (15.1%)	23/187 (12.3%)	442/1,752 (25.2%)	407/1,535 (26.5%)
Kidney inflammation	4/205 (2.0%)	8/187 (4.3%)	58/1,752 (3.3%)	51/1,535 (3.3%)
Lymphadenopathy	10/205 (4.9%)	10/187 (5.3%)	58/1,752 (3.3%)	37/1,535 (2.4%)

Symptoms/Complications*	2023-24 Season: Percentage (n) of Cases Age < 18	2022-23 Season: Percentage (n) of Cases Age < 18	2023-24 Season: Percentage (n) of Cases Age ≥ 18	2022-23 Season: Percentage (n) of Cases Age ≥ 18
Conjunctivitis	4/205 (2.0%)	5/187 (2.7%)	15/1,752 (0.9%)	11/1,535 (0.7%)
Other symptoms [†]	118/205 (57.6%)	114/187 (61.0%)	930/1,752 (53.1%)	792/1,535 (51.6%)
No symptoms reported	10/205 (4.9%)	7/187 (3.7%)	102/1,752 (5.8%)	109/1,535 (7.1%)
No complications reported	38/205 (18.5%)	46/187 (24.6%)	298/1,752 (17.0%)	388/1,535 (25.3%)
Neither symptoms nor complications reported	4/205 (2.0%)	4/187 (2.1%)	69/1,752 (3.9%)	88/1,535 (5.7%)

Data source: Case data: Ontario. Ministry of Health; 2025.⁶

Note: Cases with an unknown age are excluded from this table.

*Includes symptoms and complications reported for iGAS cases in iPHIS, some of which are not typical of iGAS. Cases may not have any or multiple symptoms and/or complications entered.

**Possible STSS manifestations are based on the [provincial confirmed iGAS case definition](#). Due to potential incomplete data, this category was developed to identify cases where at least one manifestation of STSS was reported. The 'possible STSS manifestation' category may include cases with the 'STSS' complication reported explicitly in iPHIS. Refer to the [technical notes](#) for further details on how clinical manifestations including possible STSS manifestations were determined for cases.

[†]Other symptoms include over 230 other symptom options available in iPHIS. Some of the most frequently reported symptoms categorized under this category for the 2023-24 season include: other [specify]; weak; malaise [general unwell feeling]; shortness of breath; fatigue; abdominal pain; swelling, localized; chest pain; lethargy.

Severity

Among pediatric cases, 64.4% (132/205) in the 2023-24 season and 55.6% (104/187) in the 2022-23 season had severity information reported. Among adult cases, 69.8% (1,223/1,752) in the 2023-24 season and 59.0% (905/1,535) in the 2022-23 season had severity information reported.

In the 2023-24 season, a greater proportion of cases were reported as non-severe compared to the prior season with approximately 37.1% of adult cases and 38.5% of pediatric cases categorized as non-severe. Relative to the 2022-23 season, the proportion of severe cases in the 2023-24 season remained relatively stable for both adult (30.1% to 32.7%) and pediatric (25.1% to 25.9%) cases ([Table 4](#)).

Overall, the proportion of cases hospitalized was 82.0% in the 2023-24 season compared to 79.5% in the 2022-23 season. Compared to the 2022-23 season, the proportion of cases hospitalized in the 2023-24 season increased the most in cases aged 5 to 9 and 18 to 64 years. Hospitalizations decreased by 10% or more among cases age 10 to 13 and 14 to 17 years ([Table 5](#)).

The proportion of fatalities among all cases was similar in the 2023-24 and 2022-23 seasons; however an increased proportion of fatal cases was reported among most pediatric age groups (<1, 1 to 4, 5 to 9 and 10 to 13) in the 2023-24 season ([Table 5](#)).

Table 4: Clinical Severity Among Confirmed iGAS Cases by Age Group and Season: Ontario, 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to Cases Reported in the 2022-23 Season (October 1, 2022 – September 30, 2023)

Clinical Severity	2023-24 Season: Cases Age < 18	2022-23 Season: Cases Age < 18	2023-24 Season: Cases Age ≥ 18	2022-23 Season: Cases Age ≥ 18
Non-Severe Complications	79/205 (38.5%)	57/187 (30.5%)	650/1,752 (37.1%)	443/1,535 (28.9%)
Severe Complications*	53/205 (25.9%)	47/187 (25.1%)	573/1,752 (32.7%)	462/1,535 (30.1%)
Severity Information Unavailable	73/205 (35.6%)	83/187 (44.4%)	529/1,752 (30.2%)	630/1,535 (41.0%)

Data source: Case data: Ontario. Ministry of Health; 2025.⁶

Note: Cases with an unknown age are excluded from this table.

*Clinical severity was calculated using the severity field, complications indicating a severe infection and the outcome field which includes information on fatality. For more details refer to the [technical notes](#).

Table 5: Hospitalizations and Fatal Outcomes for Confirmed iGAS Cases by Age Group and Season: Ontario, 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to the 2022-23 Season (October 1, 2022 – September 30, 2023)

Age Group (years)	2023-24 Season: Number (%) of Cases Hospitalized	2022-23 Season: Number (%) of Cases Hospitalized	2023-24 Season: Number (%) of Cases with a Fatal Outcome	2022-23 Season: Number (%) of Cases with a Fatal Outcome
< 1	10/12 (83.3%)	16/20 (80.0%)	1/12 (8.3%)	1/20 (5.0%)
1 – 4	55/66 (83.3%)	62/70 (88.6%)	7/66 (10.6%)	5/70 (7.1%)
5 - 9	79/87 (90.8%)	57/67 (85.1%)	6/87 (6.9%)	4/67 (6.0%)
10 - 13	18/24 (75.0%)	17/20 (85.0%)	2/24 (8.3%)	1/20 (5.0%)
14 - 17	10/16 (62.5%)	8/10 (80.0%)	0/16 (0.0%)	0/10 (0.0%)
18 - 64	902/1,106 (81.6%)	728/942 (77.3%)	117/1,106 (10.6%)	87/942 (9.2%)
≥65	533/646 (82.5%)	481/593 (81.1%)	104/646 (16.1%)	108/593 (18.2%)
Unknown	0/3 (0.0%)	1/1 (100.0%)	1/3 (33.3%)	0/1 (0.0%)
Total	1,607/1,960 (82.0%)	1,370/1,723 (79.5%)	238/1,960 (12.1%)	206/1,723 (12.0%)

Data source: Case data: Ontario. Ministry of Health; 2025.⁶

Emm Types

In the 2023-24 season, 81.0% (1,587/1,960) of iGAS cases had *emm* type data reported in iPHIS. [Table 6](#) lists the top 12 *emm* types reported in the 2023-24 season, sorted by descending frequency. The most commonly reported *emm* type in the 2023-24 season was *emm1* (35.5%). *Emm1* was also the most frequently reported among pediatric (64.1%) and adult cases (32.1%), although cases in adults were caused by a greater variety of *emm* types than in pediatric cases. The proportion of cases caused by *emm1* increased from 42.4% to 64.1% among pediatric cases and from 16.8% to 32.1% among adults in 2023-24 relative to 2022-23. In the 2022-23 season, *emm12* was the second most reported *emm* type overall but decreased by approximately 70.0% from 18.1% to 5.2% in 2023-24.

Table 6: Number (%*) of Most Commonly Reported *Emm* Types Among Confirmed iGAS Cases by Age Group: Ontario, 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to the 2022-23 Season (October 1, 2022 – September 30, 2023)**

Most Commonly Reported <i>Emm</i> Type by Rank	2023-24 Season: All Cases	2022-23 Season: All Cases	2023-24 Season: Cases Age ≥ 18	2022-23 Season: Cases Age ≥ 18	2023-24 Season: Cases Age < 18	2022-23 Season: Cases Age < 18
<i>emm1</i>	564 (35.5%)	262 (19.5%)	456 (32.1%)	201 (16.8%)	107 (64.1%)	61 (42.4%)
<i>emm74</i>	97 (6.1%)	55 (4.1%)	96 (6.8%)	55 (4.6%)	1 (0.6%)	0 (0.0%)
<i>emm49</i>	89 (5.6%)	121 (9.0%)	88 (6.2%)	116 (9.7%)	1 (0.6%)	5 (3.5%)
<i>emm12</i>	82 (5.2%)	243 (18.1%)	69 (4.9%)	191 (16.0%)	13 (7.8%)	52 (36.1%)
<i>emm80</i>	73 (4.6%)	73 (5.4%)	72 (5.1%)	72 (6.0%)	1 (0.6%)	1 (0.7%)
<i>emm92</i>	73 (4.6%)	36 (2.7%)	72 (5.1%)	36 (3.0%)	1 (0.6%)	0 (0.0%)
<i>emm82</i>	64 (4.0%)	102 (7.6%)	63 (4.4%)	102 (8.5%)	1 (0.6%)	0 (0.0%)
<i>emm41</i>	61 (3.8%)	38 (2.8%)	61 (4.3%)	37 (3.1%)	0 (0.0%)	1 (0.7%)
<i>emm59</i>	61 (3.8%)	27 (2.0%)	61 (4.3%)	27 (2.3%)	0 (0.0%)	0 (0.0%)
<i>emm2</i>	51 (3.2%)	14 (1.0%)	41 (2.9%)	10 (0.8%)	10 (6.0%)	4 (2.8%)
<i>emm4</i>	51 (3.2%)	14 (1.0%)	37 (2.6%)	11 (0.9%)	14 (8.4%)	3 (2.1%)
<i>emm28</i>	44 (2.8%)	25 (1.9%)	42 (3.0%)	21 (1.8%)	2 (1.2%)	4 (2.8%)
Other	277 (17.5%)	331 (24.7%)	261 (18.4%)	317 (26.5%)	16 (9.6%)	13 (9.0%)
Total with <i>emm</i> type	1,587 (81.0%)	1,341 (77.8%)	1,419 (81.0%)	1,196 (77.9%)	167 (81.5%)	144 (77.0%)
Total without <i>emm</i> type	373 (19.0%)	382 (22.2%)	333 (19.0%)	339 (22.1%)	38 (18.5%)	43 (23.0%)
Total	1,960 (100.0%)	1,723 (100.0%)	1,752 (100.0%)	1,535 (100.0%)	205 (100.0%)	187 (100.0%)

Data source: Case data: Ontario. Ministry of Health; 2025.⁶

**Emm* type percentages are among cases with *emm* type information available. **Cases with an unknown age are excluded from the age-related columns in this table.

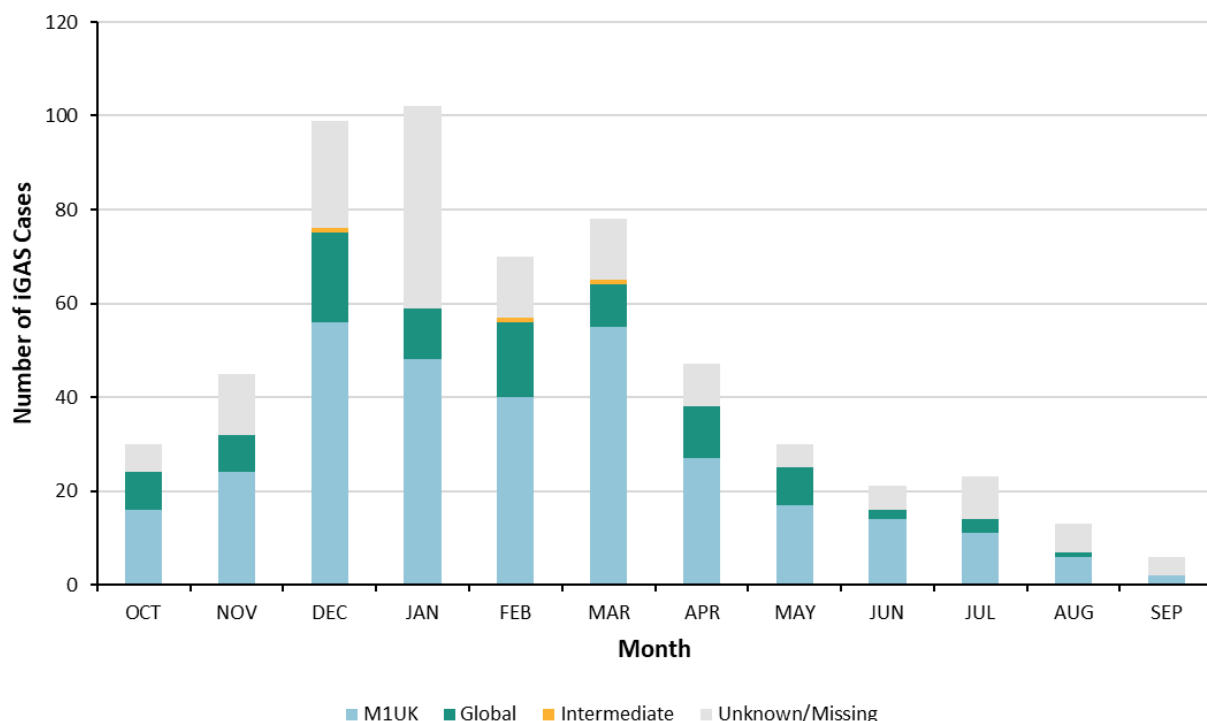
Emm Types: M1UK

The M1UK lineage was first identified in the United Kingdom in 2019 and is associated with increased production of streptococcal pyrogenic exotoxin A.⁹ Increased iGAS activity in recent years in the United Kingdom has been associated with M1UK.¹⁰ The percentage of *emm1* iGAS cases that are M1UK has recently increased in Canada as well.¹¹ In the 2023-24 season, 564 iGAS cases were reported as *emm1*. Among these cases, over half (n=316) were further subtyped as M1UK lineage with the remainder subtyped as *emm1*-global lineage (n=96), intermediate (n=3) and unknown *emm1* lineage (n=149). The monthly number of cases subtyped as M1UK peaked in December 2023 at 56 cases. Except for January, July, August and September, over half of all *emm1* cases reported in each month of the 2023-24 season were M1UK lineage (Figure 5).

More than half of all *emm1* cases across each age group were subtyped as M1UK lineage except for cases age 5 to 9, 10 to 13 and 14 to 17 years old (Table 7). Among M1UK cases, 88.0% were hospitalized compared to 84.4% of *emm1*-global lineage cases. The proportion of M1UK cases with a fatal outcome was also higher than that of *emm1*-global lineage cases (15.2% vs 12.5%, respectively) (Table 8).

The proportion of cases classified as severe were similar between M1UK and *emm1*-global lineage cases across both pediatric (M1UK: 29.3%; global: 31.8%) and adult (M1UK: 41.1%; global: 43.2%) age groups (Table 9). Risk factors were similar between M1UK and *emm1*-global lineage cases with ‘chronic illness or underlying medical condition’ and ‘dermatological condition’ being the most commonly reported risk factor among the two lineages. The most frequently reported clinical manifestations were also similar between M1UK and *emm1*-global lineage cases and included ‘fever and chills’, ‘possible STSS manifestation’ and ‘vomiting and/or nausea’. Compared to *emm1*-global lineage cases, a higher proportion of M1UK cases reported ‘shock’ (8.3% vs 16.8%), ‘disseminated intravascular coagulation (DIC)’ (6.3% vs 11.1%), ‘acute respiratory distress syndrome (ARDS)’ (11.5% vs 17.4%) and ‘hypotension’ (24.0% vs 35.8%).

Figure 5: *Emm1* iGAS Cases Stratified by *emm1* Lineage and Month: Ontario, 2023-24 Season



Data source: Case data: Ontario. Ministry of Health; 2025.⁶

Table 7: Confirmed iGAS Cases Subtyped as M1UK Lineage and *emm1*-Global Lineage Among *emm1* Cases by Age Group: Ontario, 2023-24 Season

Case Characteristics	M1UK: Total Number of Cases	<i>emm1</i> Global Lineage: Total Number of Cases
< 1	2/3 (66.7%)	0/3 (0.0%)
1 – 4	23/34 (67.6%)	1/34 (2.9%)
5 – 9	25/51 (49.0%)	13/51 (25.5%)
10 – 13	6/14 (42.9%)	6/14 (42.9%)
14 – 17	2/5 (40.0%)	2/5 (40.0%)
18 – 64	156/270 (57.8%)	47/270 (17.4%)
≥ 65	102/186 (54.8%)	27/186 (14.5%)
Unknown	0/1 (0.0%)	0/1 (0.0%)
Total	316/564 (56.0%)	96/564 (17.0%)

Data source: Case data: Ontario. Ministry of Health; 2025.⁶

Notes: Excludes cases reported as *emm1* intermediate (n=3) and missing further differentiation subtype information (n=149).

Table 8: Hospitalizations and Fatal Outcomes for Confirmed iGAS Cases Subtyped as M1UK Lineage Compared to Cases Subtyped as *emm1*-Global Lineage by Age Group: Ontario, 2023-24 Season (October 1, 2023 – September 30, 2024)

Case Characteristics	M1UK: Number of Cases Hospitalized	<i>emm1</i> Global Lineage: Number of Cases Hospitalized	M1UK: Number of Cases with a Fatal Outcome	<i>emm1</i> Global Lineage: Number of Cases with a Fatal Outcome
< 1	2/2 (100.0%)	0/0 (0.0%)	0/2 (0.0%)	0/0 (0.0%)
1 – 4	20/23 (87.0%)	1/1 (100.0%)	2/23 (8.7%)	0/1 (0.0%)
5 – 9	24/25 (96.0%)	10/13 (76.9%)	1/25 (4.0%)	2/13 (15.4%)
10 – 13	4/6 (66.7%)	6/6 (100.0%)	1/6 (16.7%)	0/6 (0.0%)
14 – 17	2/2 (100.0%)	2/2 (100.0%)	0/2 (0.0%)	0/2 (0.0%)
18 – 64	140/156 (89.7%)	37/47 (78.7%)	25/156 (16.0%)	3/47 (6.4%)
≥ 65	86/102 (84.3%)	25/27 (92.6%)	19/102 (18.6%)	7/27 (25.9%)
Unknown	0/0 (0.0%)	0/0 (0.0%)	0/0 (0.0%)	0/0 (0.0%)
Total	278/316 (88.0%)	81/96 (84.4%)	48/316 (15.2%)	12/96 (12.5%)

Data source: Case data: Ontario. Ministry of Health; 2025.⁶

Notes: Excludes cases reported as *emm1* intermediate (n=3) and missing subtype information (n=149).

Table 9: Clinical Severity Among Confirmed iGAS Cases Subtyped as M1UK Lineage Compared to Cases Subtyped as *Emm1*-Global Lineage Cases by Age Group: Ontario, 2023-24 Season (October 1, 2023 – September 30, 2024)

Clinical Severity	M1UK: Cases Age < 18	<i>emm1</i> Global Lineage: Cases Age < 18	M1UK: Cases Age ≥ 18	<i>emm1</i> Global Lineage: Cases Age ≥ 18
Non-Severe Complications	21/58 (36.2%)	8/22 (36.4%)	77/258 (29.8%)	26/74 (35.1%)
Severe Complications*	17/58 (29.3%)	7/22 (31.8%)	106/258 (41.1%)	32/74 (43.2%)
Severity Information Unavailable	20/58 (34.5%)	7/22 (31.8%)	75/258 (29.1%)	16/74 (21.6%)

Data source: Case data: Ontario. Ministry of Health; 2025.⁶

Note: Cases with an unknown age are excluded from this table. Cases identified as *emm1* Intermediate (n=3) and missing *emm1* subtyping (n=149) are excluded.

*Clinical severity was calculated using the severity field, complications indicating a severe infection and the outcome field. For more details refer to the [technical notes](#).

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 9 a.m., January 20, 2025.⁶

Ontario Population Data

- Ontario population estimates were sourced from Statistics Canada. Table 17-10-0157-01 Population estimates, July 1, by health region and peer group, 2023 boundaries [Internet]. Ottawa, ON: Government of Canada; 2024 Jun 19 [extracted 2024 Jun 28]⁷
- Ontario population projections were sourced from Population Reporting. Population Projections Public Health Unit, 2023-2046 [data file]. Toronto ON: Ministry of Finance [producer]; Toronto, ON: Ontario. Ministry of Health, IntelliHealth Ontario [distributor]; [data extracted 2024 Jun 10]⁸

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 iGAS 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, which may depend on severity of illness, clinical practices, and changes in laboratory testing and reporting behaviours.
- Population estimates used to calculate rates for total cases, total hospital admissions and total deaths were calculated using the Ontario 2023 population estimates⁷, sourced from Statistics Canada, and the Ontario 2024 population projections⁸, sourced from the Ontario Ministry of Finance.
- Only iGAS 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.¹
 - Provincial surveillance case definitions available online under the Infectious Diseases Protocol 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 Reporting Diseases in Ontario: Case Definition Changes and Associated Trends 1991-2016" and its associated appendix provide more detailed information on this topic.²

- 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.
- Clinical manifestation data includes records where the clinical manifestation was reported as either a symptom or complication in iPHIS. Not all cases have a symptom and/or complication reported in iPHIS. Not all clinical manifestations listed may be typical symptoms of iGAS disease. “Other” symptoms include over 230 other symptom options available in iPHIS. For information on common iGAS clinical manifestations and symptoms preceding onset of iGAS disease please refer to the [provincial confirmed iGAS case definition](#).¹
 - ‘Possible STSS manifestations’ were based on the [provincial confirmed iGAS case definition](#).¹ Cases may have one or more possible STSS manifestations recorded in iPHIS. While some cases reported as having STSS have one or more of these signs entered in iPHIS there are also some cases reported as having STSS that do not have any of the listed signs of STSS recorded specifically in iPHIS. Therefore, due to potential incomplete data, this category was developed to identify cases where at least one manifestation of STSS was reported. The ‘possible STSS manifestation’ category may include cases with the ‘STSS’ complication reported explicitly in iPHIS.
- Cases may have more than one risk factor reported in iPHIS. Data entry for risk factors may not be complete due to reporting and/or data entry lags.
- Cases that reported “Yes” to each of the included risk factors in iPHIS were included. The definitions for the included risk factors are detailed below.
 - iPHIS - Medical risk factors:
 - Chronic Illness/Underlying medical condition: Any self-reported secondary chronic medical condition that puts the individual at greater risk of acquiring the disease or having a more severe outcome due to their infection. Many underlying medical conditions may also be considered co-morbidities. Cases may have this risk factor selected in addition to the risk factors for ‘diabetes’, ‘dermatological conditions’ and ‘immunocompromised’.
 - Dermatological conditions: Include dermatological condition / chronic dermatitis / wound causing break in skin integrity. Self-reported dermatological conditions involving inflammation of the skin. Cases may have this risk factor selected in addition to the risk factor for ‘chronic illness/underlying medical condition’.
 - Diabetes: An individual who self-reports they have been diagnosed with diabetes. Cases may have this risk factor selected in addition to the risk factor for ‘chronic illness/underlying medical condition’.
 - HIV status: Users select values corresponding to a case’s HIV status: Negative, Positive, Test Not Offered, Test Refused, and Unknown. This report only includes cases where HIV Status is reported as Positive.
 - Immunocompromised: Person is less capable of battling infections because of an immune response that is not properly functioning. This can be brought about by illness/disease or medication/treatment. Cases may have this risk factor selected in addition to the risk factor for ‘chronic illness/underlying medical condition’.

- Case reported laboratory confirmed influenza infection within two weeks of iGAS infection: The case self-reported that they had a laboratory confirmed influenza infection concurrently or within two weeks of their iGAS infection.
- Case reported laboratory confirmed RSV infection within two weeks of iGAS infection: The case self-reported that they had a laboratory confirmed RSV infection concurrently or within two weeks of their iGAS infection.
- Case reported laboratory confirmation of other viral infection within two weeks of iGAS infection (specify): The case self-reported that they had laboratory confirmation of another respiratory virus concurrently or within two weeks of their iGAS infection.
- Prenatal: Covers any period in time during pregnancy up to and including the day/date of delivery, with reference to the mother.
- Postpartum: Covers any period in time after the date of delivery up to 30 days after the date of delivery, with reference to the mother. For example, if the date of delivery is 01 January 2018 the postpartum period will start on 02 January 2018.
- Post-exposure prophylaxis offered/recommended if close contact of an iGAS case: The case was a contact of another iGAS case prior to their illness and was offered post-exposure prophylaxis.
- Received current season influenza vaccine: The case received an influenza vaccine for the current or most recent influenza season at least two weeks prior to their iGAS infection.
- Received a COVID-19 vaccination in the past 6 months: The case received a COVID-19 vaccine in the past six months and at least two weeks prior to their iGAS infection.
- Strep infection within past 30 days: The individual has been infected with a non-invasive form of strep within the past 30 days.
- Recent varicella infection (<1 month): The individual has been infected with the varicella virus less than one month before their invasive group A streptococcal infection.
- Case reported test confirmed SARS-CoV-2 infection within two weeks of iGAS infection: The case self-reported that they had a COVID-19 infection indicated by molecular or rapid antigen testing concurrently or within two weeks of their iGAS infection.
- Upper respiratory tract infection signs/symptoms within two weeks of iGAS infection: The case self-reported that they had a viral respiratory illness concurrently or within two weeks of their iGAS infection.
- Varicella immunization up to date: The case is up to date with recommended varicella immunizations (chickenpox) for those born on/after January 1, 2000.
- iPHIS - Behavioural risk factors:
 - Alcohol abuse (presented as Alcohol Use Disorder): A pattern of drinking or dependency on alcohol that results in harm to one's health, interpersonal relationships or ability to work.
 - Childcare centre attendee: The case attends a childcare centre, including before and/or after school programming in a childcare centre, which may be located in schools or independent licensed childcare centres. Cases \geq 18 years of age with this risk factor selected were not included in table 2b.

- Close contact with a case: An individual who has been in close contact for a period of time with a confirmed case of a communicable disease. This may include contact with a person with a group A streptococcal infection that was not invasive.
- Close contact with iGAS case: The case had close contact with another confirmed iGAS case prior to their illness.
- Experiencing homelessness/Inadequate housing: Lacks a fixed regular and adequate night-time residence and has a night-time residence that is: A supervised publicly or privately operated shelter designed to provide temporary living accommodations; An institution that provides a temporary residence for individuals intended to be institutionalized; A public or private place not designed for, or ordinarily used as, a regular sleeping accommodation for human beings
- Injection Drug Use: Recreational/illicit drug use or steroids administered using a needle or syringe pierced through the skin into the body.
- Resident of long-term care home: The case lives in a long-term care home.
- Resident of retirement home: The case lives in a retirement home.
- Resident of homeless shelter: The case has resided in a homeless shelter at least some of the time in the past month (includes temporary emergency shelters and newcomer shelters).
- Resident of correctional facility: The case is currently or was recently an inmate in custody at a correctional facility (e.g., correctional centre, detention centre, treatment centre) within the past 30 days.
- Resident of other congregate living setting: The case lives in a congregate living setting not specifically listed (e.g., youth justice, complex continuing care facility, boarding homes, bail bed programs, dormitories, group home).
- Other: A risk factor of interest that is not currently specified on the Risks screen in iPHIS for the case/episode/encounter under investigation.
- Unknown: No known factor which could have caused the infection, or the reportable disease/event could be identified by the client, or the health unit was unable to collect any risk factor information from the client. Excluded from analyses of cases with at least one risk factor.
- Severity was determined using data reported in iPHIS for the outcome (fatal), symptom and complications fields. A case is categorized as severe if Complication: Severe = Yes or Complication: STSS= Yes or Complication: Necrotizing Fasciitis= Yes or Symptom: Soft tissue necrosis/necrotizing fasciitis/necrotizing myositis/gangrene = Yes or Complication/Symptom: Meningitis=Yes or Outcome= FATAL and Cause of death is not 'unrelated'.
- Hospitalized iGAS 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 iGAS 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."
- 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.
- Cases for which the Diagnosing Health Unit (DHU) was reported as MOHLTC (to signify a case that is not a resident of Ontario) or MUSKOKA-PARRY SOUND (a public health unit that no longer exists) were excluded from this analysis.

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Appendix A

Table A1: Count and Rate (per 100,000 population) of Confirmed iGAS Cases by Public Health Unit and Season: Ontario, 2023-24 Season (October 1, 2023 – September 30, 2024) Compared to the 2022-23 Season (October 1, 2022 – September 30, 2023) and Five Pre-Pandemic Seasons

Diagnosing Health Unit	2014-15 Season	2015-16 Season	2016-17 Season	2017-18 Season	2018-19 Season	2022-23 Season	2023-24 Season
Algoma Public Health	6 (5.1)	3 (2.6)	21 (18.1)	18 (15.5)	8 (6.8)	33 (26.6)	32 (25.8)
Brant County Health Unit	11 (7.6)	3 (2.1)	17 (11.5)	25 (16.7)	24 (15.7)	40 (23.6)	31 (18.3)
Chatham-Kent Public Health	7 (6.7)	7 (6.7)	12 (11.4)	8 (7.6)	8 (7.5)	12 (10.8)	21 (18.7)
City of Hamilton Public Health Services	28 (5.1)	24 (4.3)	34 (6.0)	49 (8.6)	50 (8.6)	89 (14.5)	92 (14.7)
Durham Region Health Department	13 (2.0)	33 (5.0)	23 (3.4)	32 (4.7)	36 (5.2)	86 (11.2)	95 (12.2)
Eastern Ontario Health Unit	5 (2.4)	4 (1.9)	13 (6.2)	24 (11.3)	10 (4.7)	33 (14.4)	34 (14.9)
Grey Bruce Health Unit	11 (6.7)	4 (2.4)	8 (4.7)	8 (4.7)	14 (8.0)	28 (14.8)	22 (11.6)
Haldimand-Norfolk Health Unit	3 (2.7)	8 (7.1)	5 (4.4)	6 (5.2)	10 (8.5)	20 (15.7)	15 (11.5)
Haliburton, Kawartha, Pine Ridge District Health Unit	11 (6.1)	8 (4.4)	14 (7.5)	14 (7.4)	20 (10.5)	33 (16.2)	38 (18.9)
Halton Region Public Health	24 (4.3)	17 (3.0)	15 (2.6)	25 (4.3)	19 (3.2)	44 (6.8)	40 (6.1)
Hastings Prince Edward Public Health	8 (4.9)	5 (3.0)	10 (6.0)	18 (10.6)	14 (8.1)	30 (16.1)	48 (26.0)
Huron Perth Public Health	3 (2.2)	10 (7.2)	8 (5.7)	14 (9.8)	13 (9.0)	15 (9.7)	12 (7.7)
Kingston, Frontenac and Lennox & Addington Public Health	10 (5.1)	19 (9.5)	14 (6.9)	14 (6.8)	31 (14.7)	28 (12.5)	51 (23.0)
Lambton Public Health	10 (7.7)	9 (6.9)	9 (6.9)	13 (9.8)	9 (6.7)	25 (17.7)	18 (12.9)
Leeds, Grenville & Lanark District Health Unit	6 (3.5)	6 (3.5)	4 (2.3)	12 (6.8)	9 (5.0)	28 (14.5)	34 (18.0)
Middlesex-London Health Unit	18 (3.9)	38 (8.0)	95 (19.6)	68 (13.7)	67 (13.2)	99 (17.6)	97 (16.7)

Diagnosing Health Unit	2014-15 Season	2015-16 Season	2016-17 Season	2017-18 Season	2018-19 Season	2022-23 Season	2023-24 Season
Niagara Region Public Health	20 (4.4)	25 (5.4)	41 (8.7)	51 (10.7)	50 (10.3)	92 (17.5)	70 (13.4)
North Bay Parry Sound District Health Unit	7 (5.5)	6 (4.7)	7 (5.4)	13 (10.0)	19 (14.5)	12 (8.4)	34 (24.2)
Northwestern Health Unit	31 (38.6)	38 (47.2)	52 (64.1)	57 (69.9)	48 (58.6)	49 (58.9)	50 (60.9)
Ottawa Public Health	41 (4.3)	34 (3.5)	67 (6.8)	67 (6.6)	68 (6.6)	109 (9.8)	185 (16.4)
Peel Public Health	44 (3.1)	31 (2.2)	39 (2.7)	55 (3.7)	52 (3.4)	79 (5.0)	85 (4.8)
Peterborough Public Health	9 (6.4)	2 (1.4)	9 (6.2)	16 (10.8)	21 (14.0)	35 (21.5)	44 (28.0)
Porcupine Health Unit	2 (2.3)	7 (8.1)	16 (18.6)	11 (12.9)	12 (14.0)	20 (22.5)	26 (29.7)
Public Health Sudbury & Districts	14 (7.0)	15 (7.4)	25 (12.3)	28 (13.6)	21 (10.1)	51 (23.3)	38 (17.4)
Region of Waterloo Public Health and Emergency Services	22 (4.1)	22 (4.0)	27 (4.8)	30 (5.2)	34 (5.7)	58 (8.6)	79 (11.2)
Renfrew County and District Health Unit	3 (2.8)	3 (2.8)	4 (3.7)	3 (2.8)	9 (8.2)	15 (13.1)	23 (20.6)
Simcoe Muskoka District Health Unit	27 (4.9)	26 (4.7)	31 (5.4)	63 (10.8)	51 (8.5)	90 (13.6)	92 (13.7)
Southwestern Public Health	9 (4.4)	5 (2.4)	17 (8.1)	11 (5.2)	18 (8.3)	27 (11.5)	31 (13.0)
Thunder Bay District Health Unit	44 (28.2)	30 (19.2)	62 (39.5)	76 (48.1)	42 (26.4)	42 (25.9)	55 (34.4)
Timiskaming Health Unit	1 (2.9)	1 (3.0)	1 (3.0)	3 (9.0)	1 (3.0)	7 (20.4)	6 (17.1)
Toronto Public Health	98 (3.5)	115 (4.1)	138 (4.8)	188 (6.5)	183 (6.2)	249 (8.0)	327 (10.1)
Wellington-Dufferin-Guelph Public Health	16 (5.6)	18 (6.1)	15 (5.0)	20 (6.5)	10 (3.2)	21 (6.3)	22 (6.5)
Windsor-Essex County Health Unit	10 (2.5)	16 (3.9)	28 (6.7)	27 (6.3)	37 (8.5)	53 (11.3)	41 (8.8)
York Region Public Health	37 (3.3)	29 (2.5)	31 (2.7)	47 (4)	46 (3.9)	71 (5.7)	72 (5.7)
Ontario	609 (4.4)	621 (4.5)	912 (6.5)	1,114 (7.8)	1,064 (7.3)	1,723 (11.0)	1,960 (12.2)

Data source: Case data: Ontario. Ministry of Health; 2025.⁵ Population data: Statistics Canada; 2023⁶, Population Reporting.⁷

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