

## WEEKLY EPIDEMIOLOGICAL SUMMARY

**(Archived)** COVID-19 cases with Lineage B.1.1.529 (Omicron) or S-Gene Target Failure (SGTF) in Ontario: October 31, 2021 to December 29, 2021

Published: January 2022

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**ARCHIVED DOCUMENT**

This archived content is being made available for historical research and reference purposes only. The content is no longer being updated and it may not reflect current evidence or guidance.

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This report provides a focused analysis on confirmed COVID-19 cases with the variant of concern (VOC) lineage B.1.1.529 (Omicron) or, if lineage information is unavailable, S-Gene Target Failure (SGTF) detected (a marker for the Omicron variant). This report includes the most current information available from Public Health Case and Contact Management Solution (CCM) for all public health units (PHUs) in Ontario as of December 30, 2021.

For more information about whole genome sequencing, please see the Public Health Ontario's (PHO) [SARS CoV-2 Whole Genome Sequencing in Ontario Report](#). Please visit the interactive [Ontario COVID-19 Data Tool](#) to explore other recent COVID-19 data by public health unit, age group, sex, and trends over time. A [Daily Epidemiological Summary](#), a [Weekly Epidemiological Summary](#), as well as additional Enhanced Epidemiological Reports are also available on the Public Health Ontario webpage, [COVID-19 Data and Surveillance](#).

## Highlights

- As of December 29, 2021, Ontario has reported a total of 2,628 COVID-19 cases with lineage B.1.1.529 (Omicron), and 27,698 cases which had S-Gene Target Failure detected (SGTF), resulting in 30,326 total omicron/SGTF cases.
- Omicron/SGTF cases have been confirmed in 34/34 public health units and 7/7 geographic regions in the province.
- Approximately 49.7% of Omicron/SGTF cases are females and 46.2% are between 20 and 30 years of age.

- Of the Omicron/SGTF cases reported, 63.4% of cases are symptomatic, 0.6% of cases are considered re-infections and 0.1% of cases reported at least one medical comorbidity.
- Across vaccination status, 14.4% of Omicron/SGTF cases were reported as unvaccinated and 77.3% were reported as breakthrough cases.
- 1.2% of the Omicron/SGTF cases reported a travel exposure as the likely source of acquisition. A likely acquisition of close contact of a confirmed case was reported in 14.4 % of cases and outbreak-associated was reported in 6.2% of cases.
- A total of 2 fatalities has been reported among Omicron/SGTF cases (case fatality: <0.1%); 79 hospitalizations (0.3%) have been reported among the Omicron/SGTF cases.
- Since October 31, there have been 166 outbreaks with Omicron or SGTF reported as the outbreak lineage or mutation, respectively.

Due to changes in the availability of testing, driven by increasing COVID-19 cases related to the Omicron variant, case counts in this report are an underestimate of the true number of individuals with COVID-19 in Ontario. As such, data should be interpreted with caution. For more information, please see our data caveats and check out our [blog](#).

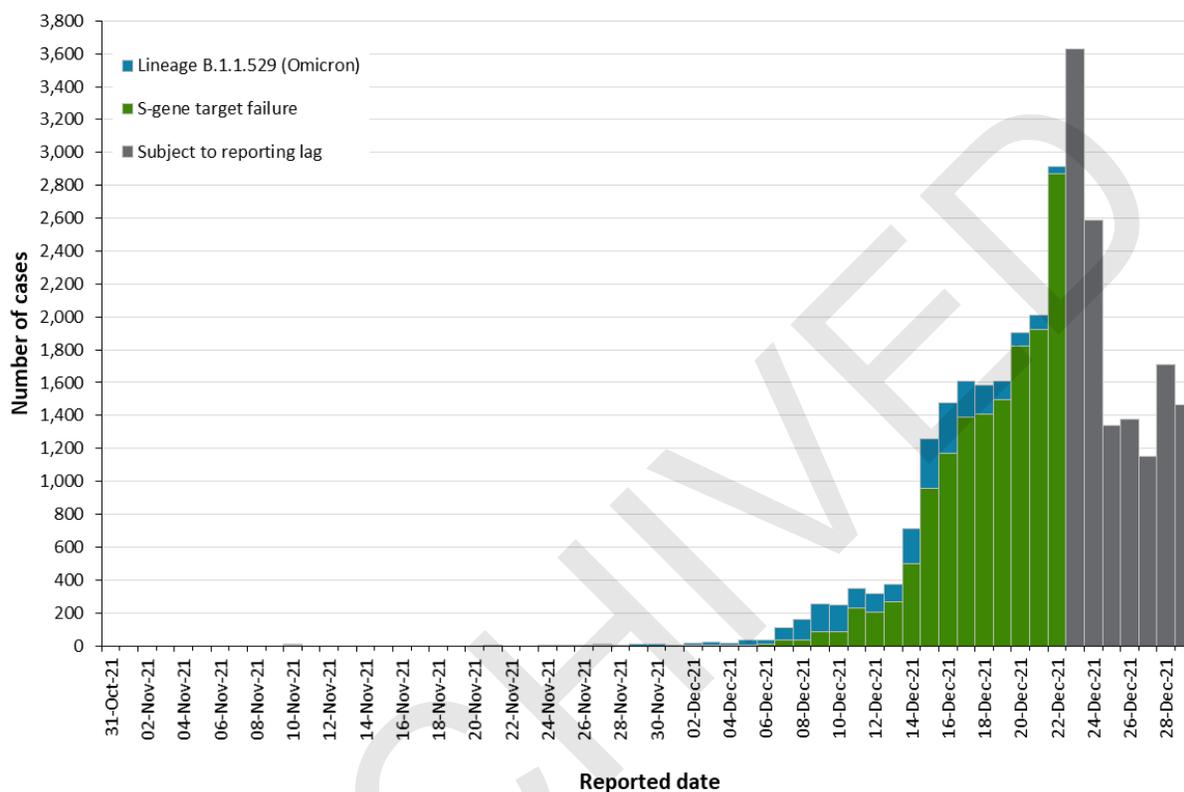
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The term public health unit reported date in this document refers to the date local public health units were first notified of the case. Data corrections or updates can result in case records being removed and or updated from past reports. Thus comparisons of case counts by public health unit reported date may not align with daily 'new' cases publicly reported by the province for the same time period, which reflects the difference in cumulative counts between one day and the next.

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## Case Characteristics

**Figure 1. Confirmed cases of COVID-19 lineage B.1.1.529 (Omicron) or S-gene target failure\* detected by public health unit reported date: Ontario, October 31, 2021 to December 29, 2021**

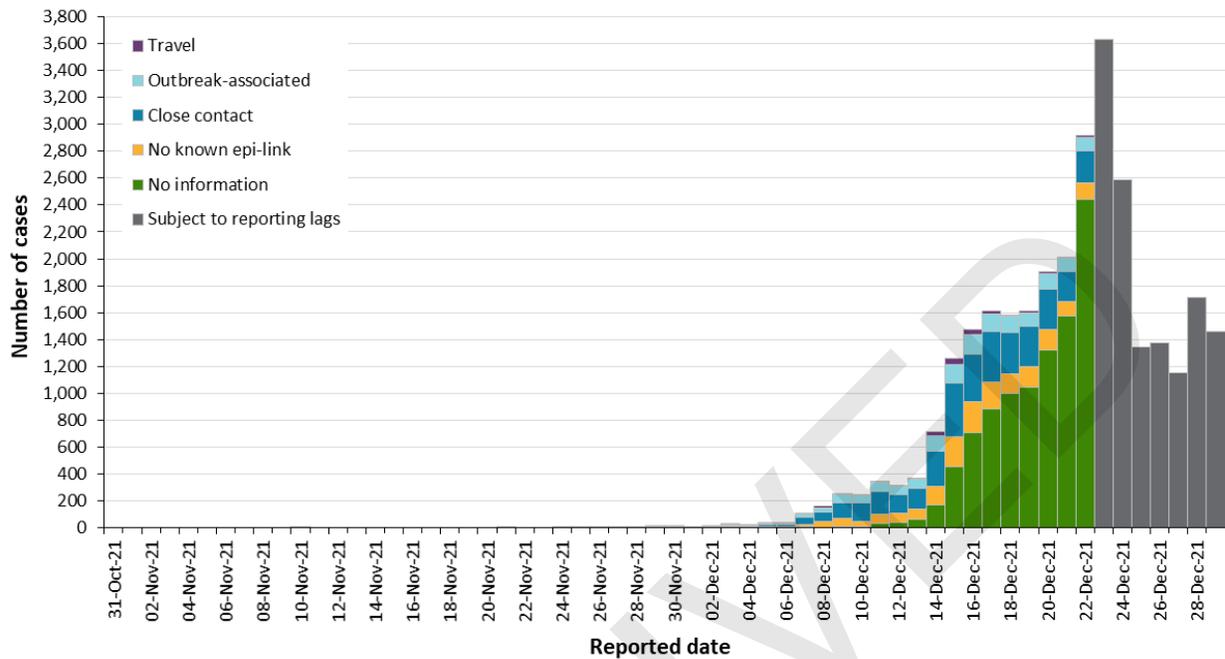


**Note:** Reported date is the date the case was reported, not the date that the VOC was identified. Details on testing for variants of concern are in the [Technical Notes](#). Interpret the VOC trends with caution due to the varying time required to complete testing and/or genomic analysis following the initial positive test for SARS-CoV-2. The grey bar represents days where data may change as a result of lags in case identification, reporting and/or data entry (for COVID-19 cases), and additionally, as a result of lags in sequencing (for COVID-19 variants of concern cases).

\*Cases with S-gene target failure without lineage information identified by PCR assay and reported in CCM as of the extraction time. If a VOC is identified through genomic analysis, cases initially classified as a mutation may be updated and moved to the appropriate lineage (e.g. B.1.1.529).

**Data Source:** CCM

**Figure 2. Confirmed cases of COVID-19 lineage B.1.1.529 (Omicron) or SGTF\* by likely acquisition and public health unit reported date: Ontario, October 31, 2021 to December 29, 2021**



**Note:** Reported date is based on the date the case was reported, not the date that the VOC was identified. Details on testing for variants of concern are in the [Technical Notes](#). Interpret the VOC trends with caution due to the varying time required to complete testing and/or genomic analysis following the initial positive test for SARS-CoV-2. The grey bar represents days where data may change as a result of lags in case identification, reporting and/or data entry (for COVID-19 cases), and additionally, as a result of lags in sequencing (for COVID-19 variants of concern cases).

\*Includes all confirmed COVID-19 cases with lineage B.1.1.529 (Omicron) identified by genomic analysis as well as cases with S-gene target failure without lineage information identified by PCR assay and reported in CCM as of the extraction time.

**Data Source:** CCM

**Table 1. Number of confirmed COVID-19 cases of B.1.1.529 (Omicron) or SGTF\* by sex and age group: Ontario**

Sex and Age Group (Years)	Cumulative case count up to December 29, 2021	Cumulative percentage
Sex: Male	15,187	50.1%
Sex: Female	15,066	49.7%
Ages: 0-4	585	1.9%
Ages: 5-11	2,308	7.6%
Ages: 12-19	3,727	12.3%
Ages: 20-39	14,009	46.2%
Ages: 40-59	7,510	24.8%
Ages: 60-79	1,898	6.3%
Ages: 80 and over	285	0.9%
<b>Total</b>	<b>30,326</b>	<b>100.0%</b>

**Note:** Not all cases have a reported sex or age. Data corrections or updates can result in case records being removed and/or updated from past reports and may result in subset totals (i.e., sex, age group) differing from past publicly reported case counts.

\*Includes all confirmed COVID-19 cases with lineage B.1.1.529 (Omicron) identified by genomic analysis as well as cases with S-gene target failure without lineage information identified by PCR assay and reported in CCM as of the extraction time.

**Data Source:** CCM

**Table 2. Confirmed cases of B.1.1.529 (Omicron) or SGTF\* by symptom status: Ontario**

Symptom status	Cumulative case count up to December 29, 2021	Cumulative percentage
Symptomatic	19,212	63.4%
Asymptomatic	2,150	7.1%
Unknown**	8,964	29.6%
<b>Total</b>	<b>30,326</b>	<b>100.0%</b>

**Note:** \*Includes all confirmed COVID-19 cases with lineage B.1.1.529 (Omicron) identified by genomic analysis as well as cases with S-gene target failure without lineage information identified by PCR assay and reported in CCM as of the extraction time.

\*\*No symptom data was recorded in CCM including specifying that the case was asymptomatic.

**Data Source:** CCM

**Table 3: Summary of reinfection cases of B.1.1.529 (Omicron) or SGTF\*: Ontario**

Reinfection	Cumulative case count up to December 29, 2021	Percentage of all cases
Number of reinfection cases	186	0.6%

**Note:** Cases identified as reinfections meeting the Ministry of Health: Case Definition – Coronavirus Disease (COVID-19) as indicated by public health units selecting the reinfection checkbox.

\*Includes all confirmed COVID-19 cases with lineage B.1.1.529 (Omicron) identified by genomic analysis as well as cases with S-gene target failure without lineage information identified by PCR assay and reported in CCM as of the extraction time.

**Data Source:** CCM

**Table 4: Summary of comorbidities of B.1.1.529 (Omicron) or SGTF\* cases: Ontario**

Comorbidity	Cumulative case count up to December 29, 2021	Percentage of all cases
Any medical comorbidity reported	27	0.1%
No medical comorbidities reported**	30,299	99.9%

**Note:** Information for how cases are grouped within each category is available in the [Technical Notes](#).

\*Includes all confirmed COVID-19 cases with lineage B.1.1.529 (Omicron) identified by genomic analysis as well as cases with S-gene target failure without lineage information identified by PCR assay and reported in CCM as of the extraction time.

\*\*May include cases that have a medical co-morbidity, but the information was not recorded in CCM

**Data Source:** CCM

## Vaccine Status

**Table 5. Summary of confirmed cases of COVID-19 lineage B.1.1.529 (Omicron) or SGTF\* by vaccine status: Ontario**

Vaccine status	Cumulative case count up to December 29, 2021	Percentage of all cases	Rate per 1,000,000 person days***
Unvaccinated	4,380	14.4%	24.2
Partially vaccinated	948	3.1%	N/A
Breakthrough	23,445	77.3%	36.3
Post-dose 3	780	2.6%	30.5
Unknown**	766	2.5%	N/A

**Note:** This table is updated once per week and was last updated December 30, 2021 to include vaccine status data (COVaxON) accurate as of December 29, 2021 and investigation lineage and/or mutation data (CCM) accurate as of December 30, 2021. Vaccine category definitions are included in the [Technical Notes](#). The rate for partially vaccinated cases is not available due to instability of the denominator due to small counts. As the Ontario population becomes more highly vaccinated the number of post-vaccination cases, including breakthrough cases, will likely increase.

\*Includes all confirmed COVID-19 cases with lineage B.1.1.529 (Omicron) identified by genomic analysis as well as cases with S-gene target failure without lineage information identified by PCR assay and reported in CCM as of the extraction time.

\*\*Vaccination status may be unknown for cases reported to CCM after COVaxON data was extracted and linked to CCM data on December 29, 2021.\*\*\*Rates in cases are not necessarily indicative of the severity of illness (e.g. symptomatic and asymptomatic infections are captured) in these cases.

**Data Source:** CCM, COVaxON

## Exposure

**Table 6. Summary of confirmed lineage B.1.1.529 (Omicron) or SGTF\* cases likely source of acquisition: Ontario**

Exposure	Cumulative case count up to December 29, 2021	Cumulative percentage
Travel	350	1.2
Outbreak-associated	1,892	6.2
Close contact of a confirmed case	4,382	14.4
No known epidemiological link	2,223	7.3
Information missing or unknown	21,479	70.8
<b>Total</b>	<b>30,326</b>	<b>100.0</b>

**Note:** Information for how cases are grouped within each category is available in the [Technical Notes](#).

\*Includes all confirmed COVID-19 cases with lineage B.1.1.529 (Omicron) identified by genomic analysis as well as cases with S-gene target failure without lineage information identified by PCR assay and reported in CCM as of the extraction time.

**Data Source:** CCM

## Severity

**Table 7. Confirmed cases of COVID-19 lineage B.1.1.529 (Omicron) or SGTF\* by severity and outcome: Ontario**

Severity	Cumulative case count up to December 29, 2021	Percentage of all cases
Ever hospitalized	79	0.3%
Ever in intensive care unit (ICU)	3	<0.1%
Fatal outcome	2	<0.1%

**Note:** The determination of severity and outcome indicators are described in the [Technical Notes](#).

Data corrections or updates can result in case records being removed and/or updated and may result in totals differing from past publicly reported case counts.

\*Includes all confirmed COVID-19 cases with lineage B.1.1.529 (Omicron) identified by genomic analysis as well as cases with S-gene target failure without lineage information identified by PCR assay and reported in CCM as of the extraction time.

**Data Source:** CCM

## Geography

**Table 8. Number of confirmed COVID-19 cases of B.1.1.529 (Omicron) or SGTF\* by public health unit and region: Ontario**

Public Health Unit and Region	Cumulative case count up to December 29, 2021	Percentage of cumulative cases
Northwestern Health Unit	15	<0.1%
Thunder Bay District Health Unit	44	0.1%
<b>TOTAL NORTH WEST</b>	<b>59</b>	<b>0.1%</b>
Algoma Public Health	52	0.2%
North Bay Parry Sound District Health Unit	40	0.1%
Porcupine Health Unit	171	0.6%
Public Health Sudbury & Districts	136	0.4%
Timiskaming Health Unit	26	0.1%
<b>TOTAL NORTH EAST</b>	<b>425</b>	<b>1.4%</b>
Ottawa Public Health	2,236	7.4%
Eastern Ontario Health Unit	161	0.5%
Hastings Prince Edward Public Health	257	0.8%
Kingston, Frontenac and Lennox & Addington Public Health	1,730	5.7%
Leeds, Grenville & Lanark District Health Unit	361	1.2%
Renfrew County and District Health Unit	62	0.2%
<b>TOTAL EASTERN</b>	<b>4,807</b>	<b>15.8%</b>
Durham Region Health Department	1,707	5.6%
Haliburton, Kawartha, Pine Ridge District Health Unit	173	0.6%
Peel Public Health	4,018	13.2%
Peterborough Public Health	346	1.1%
Simcoe Muskoka District Health Unit	872	2.9%

Public Health Unit and Region	Cumulative case count up to December 29, 2021	Percentage of cumulative cases
York Region Public Health	2,571	8.5%
<b>TOTAL CENTRAL EAST</b>	<b>9,687</b>	<b>31.9%</b>
Toronto Public Health	6,037	19.9%
<b>TOTAL TORONTO</b>	<b>6,037</b>	<b>19.9%</b>
Chatham-Kent Public Health	45	0.1%
Grey Bruce Health Unit	134	0.4%
Huron Perth Public Health	53	0.2%
Lambton Public Health	116	0.4%
Middlesex-London Health Unit	962	3.2%
Southwestern Public Health	164	0.5%
Windsor-Essex County Health Unit	135	0.4%
<b>TOTAL SOUTH WEST</b>	<b>1,609</b>	<b>5.2%</b>
Brant County Health Unit	497	1.6%
City of Hamilton Public Health Services	2,091	6.9%
Haldimand-Norfolk Health Unit	263	0.9%
Halton Region Public Health	2,985	9.8%
Niagara Region Public Health	475	1.6%
Region of Waterloo Public Health and Emergency Services	817	2.7%
Wellington-Dufferin-Guelph Public Health	574	1.9%
<b>TOTAL CENTRAL WEST</b>	<b>7,702</b>	<b>25.4%</b>
<b>TOTAL ONTARIO</b>	<b>30,326</b>	<b>100.0%</b>

**Note:** Details on testing for variants of concern are in the [Technical Notes](#). Interpret the VOC trends with caution due to the varying time required to complete testing and/or genomic analysis following the initial positive test for SARS-CoV-2.

\*Includes all confirmed COVID-19 cases with lineage B.1.1.529 (Omicron) identified by genomic analysis as well as cases with S-gene target failure without lineage information identified by PCR assay and reported in CCM as of the extraction time.

**Data Source:** CCM

## Outbreaks

**Table 9. Number of public health unit declared COVID-19 lineage B.1.1.529 (Omicron) or SGTF\* outbreaks by setting type: Ontario**

Setting Type	Number of ongoing outbreaks	Cumulative number of outbreaks reported to December 29
<b>Congregate Care</b>	<b>23</b>	<b>23</b>
Long-term care homes	9	9
Retirement homes	5	5
Hospitals	9	9
<b>Congregate Living</b>	<b>15</b>	<b>20</b>
Correctional facility	1	2
Shelter	1	1
Group Home/supportive housing	9	9
Short-term accommodations	0	1
Congregate other	4	7
<b>Education and Childcare</b>	<b>43</b>	<b>63</b>
Child care	10	12
Camp – Day	0	0
Camp – Overnight	0	0
Camp – Unspecified	0	0
School – Elementary	20	33
School – Elementary/secondary	0	0
School – Secondary	13	16
School – Post-secondary	0	2
<b>Other settings</b>	<b>11</b>	<b>60</b>
Bar/restaurant/nightclub	2	9
Medical/health services	1	2

Setting Type	Number of ongoing outbreaks	Cumulative number of outbreaks reported to December 29
Personal service settings	0	0
Recreational fitness	3	18
Retail	0	5
Other recreation/community	1	7
Workplace – Farm	0	1
Workplace - Food processing	0	0
Other types of workplaces	3	12
Other	1	2
Unknown	0	4
<b>Total number of outbreaks</b>	<b>92</b>	<b>166</b>

**Note:** Reported date is based on the outbreak reported date, and if unavailable, the date the public health unit created the outbreak. Ongoing outbreaks are those that are reported in CCM as 'Open' and without a 'Declared Over Date' recorded. Interpret information with caution due to reporting lags. Outbreak categories are mutually exclusive. Retail includes settings such as grocery stores, pharmacies, malls, etc. Other types of workplaces include settings such as offices as well as warehousing, shipping and distribution, manufacturing facilities, mines and construction sites, etc. Other recreation/community includes settings such as entertainment and event venues, gatherings (e.g., weddings), religious facilities, etc. Medical/health services refer to settings such as doctor's office or clinic, wellness clinics, etc., and excludes categories listed in the congregate care setting group.

\*Includes all confirmed COVID-19 outbreaks with outbreak lineage field reported as 'lineage B.1.1.529' as well as outbreaks where the outbreak mutation field reported 'S-gene target failure'. Ongoing re-classification of settings for reported outbreaks can result in outbreak counts that may differ from previously reported counts. Outbreaks in settings outside of Ontario are excluded from all outbreak counts.

**Data Source:** CCM

**Table 10. Confirmed cases of COVID-19\* associated with COVID-19 lineage B.1.1.529 (Omicron) or SGTF outbreaks by setting type: Ontario**

Cases associated with the outbreak setting type	Cumulative number of cases
<b>Congregate Care</b>	<b>190</b>
Long-term care homes	90
Retirement homes	29
Hospitals	71
<b>Congregate Living</b>	<b>259</b>
Correctional facility	55
Shelter	39
Group Home/supportive housing	92
Short-term accommodations	42
Congregate other	31
<b>Education and Childcare</b>	<b>445</b>
Child care	52
Camp – Day	0
Camp – Overnight	0
Camp – Unspecified	0
School – Elementary	211
School – Elementary/secondary	0
School – Secondary	180
School – Post-secondary	2
<b>Other settings</b>	<b>500</b>
Bar/restaurant/nightclub	132
Medical/health services	16
Personal service settings	0

Cases associated with the outbreak setting type	Cumulative number of cases
Recreational fitness	149
Retail	29
Other recreation/community	72
Workplace – Farm	3
Workplace - Food processing	0
Other types of workplaces	65
Other	18
Unknown	16
<b>Total number of cases</b>	<b>1,394</b>

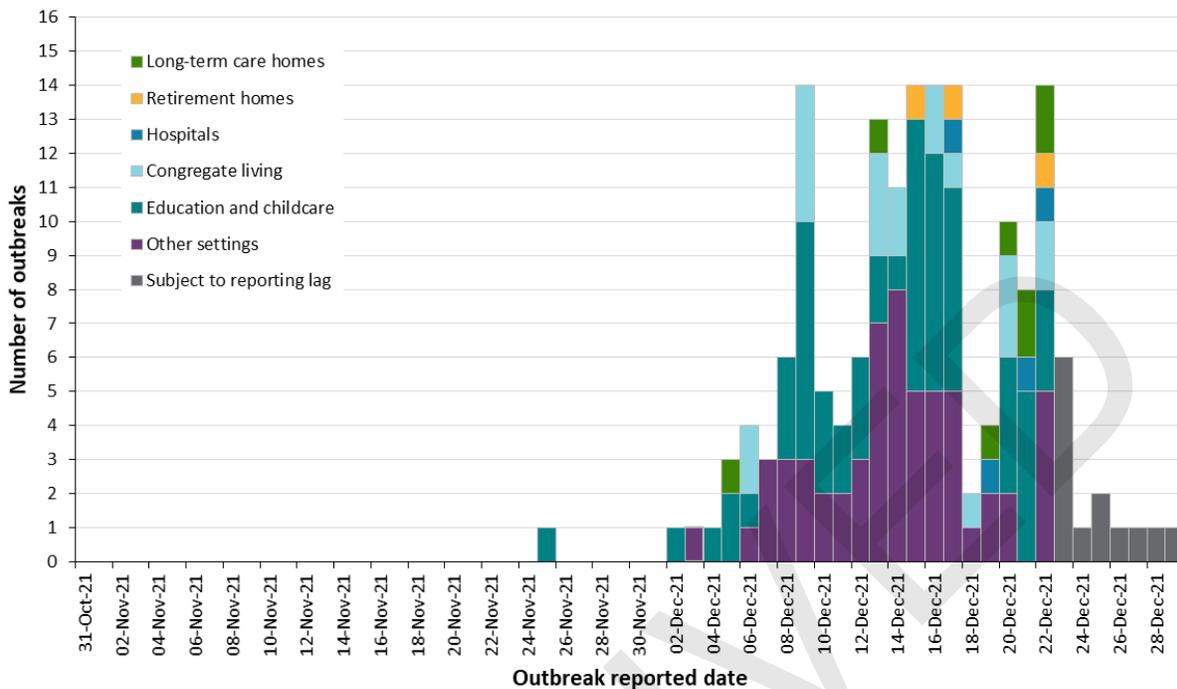
**Note:** Interpret case counts with caution due to reporting lags. Outbreak categories are mutually exclusive. Retail includes settings such as grocery stores, pharmacies, malls, etc. Other types of workplaces include settings such as offices as well as warehousing, shipping and distribution, manufacturing facilities, mines, and construction sites, etc. Other recreation/community includes settings such as entertainment and event venues, gatherings (e.g., weddings), religious facilities, etc. Medical/health services refer to settings such as doctor’s office or clinic, wellness clinics, etc., and excludes categories listed in the congregate care setting group.

\*Includes all cases linked to outbreaks where the outbreak lineage field is lineage B.1.1.529 (Omicron) or outbreak mutation field is S-gene Target Failure regardless of the case’s lineage or mutation information (i.e., outbreak associated cases may include cases identified as lineage B.1.1.529 (Omicron), other COVID-19 lineages and cases without a lineage recorded in CCM).

Ongoing re-classification of settings for reported outbreaks can result in case counts that may differ from previously reported counts. Cases associated with outbreaks outside of Ontario are excluded from case counts in this table.

**Data Source:** CCM

**Figure 3. Public health unit declared COVID-19 lineage B.1.1.529 (Omicron) or SGTF\* outbreaks by outbreak setting type and public health unit reported date: Ontario**



**Note:** If public health unit outbreak reported date is unavailable, the date the public health unit created the outbreak is used. Congregate living include group homes, shelters, correctional facilities, etc. Other settings include outbreaks within workplaces, restaurants, recreation etc.

\*Includes all confirmed COVID-19 outbreaks with outbreak lineage field reported as 'lineage B.1.1.529' as well as outbreaks where the outbreak mutation field reported 'S-gene target failure'.

**Data Source:** CCM

# Technical Notes

## Data Sources

- The data for this report were based on information successfully extracted from the Public Health Case and Contact Management Solution (CCM) for all PHUs by PHO as of **December 30, 2021 at 1 p.m.**
- COVID-19 vaccination data were based on information successfully extracted from the Ontario Ministry of Health's COVaxON application as of **December 29, 2021 at approximately 7 a.m.** COVaxON data was subsequently linked to COVID-19 case data based on information successfully extracted from the Public Health Case and Contact Management Solution (CCM) for all PHUs by PHO as of **December 29, 2021 at 1 p.m.**
- CCM and COVaxON are dynamic disease reporting systems, which allow ongoing updates to data previously entered. As a result, data extracted from CCM and COVaxON represent a snapshot at the time of extraction and may differ from previous or subsequent reports.

## Data Caveats

- The data represent case and vaccination information reported to public health units and recorded in CCM or COVaxON. As a result, all counts will be 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 practice, changes in laboratory testing, and reporting behaviours.
- Lags in CCM data entry due to weekend staffing may result in lower case counts than would otherwise be recorded.
- Only cases meeting the confirmed case classification as listed in the Ministry of Health: Case Definition – Coronavirus Disease (COVID-19) are included in the report counts from CCM.
- Cases of confirmed reinfection, as defined in the provincial case definitions, are counted as unique investigations. Reinfection cases include cases for persons (CCM clients) with two or more confirmed case investigations where the case investigations after the first one have the reinfection checkbox marked as 'Yes'.
- Case classification information may be updated for individuals with a positive result issued from a point-of-care assay.
- Reported date is the date the case was reported to the public health unit.
- Symptomatic cases were defined as those with symptom information (e.g. cough) reported.
- Asymptomatic cases were defined as those where asymptomatic was reported as 'yes' and no symptom information (e.g. cough) was reported.
- 'Any medical comorbidity reported' includes cases where at least one of the following medical risk factors in CCM were reported as 'Yes': Anemia or hemoglobinopathy, Asthma, Chronic obstructive pulmonary disease, Cardiovascular disease, Cancer, Diabetes, Immunocompromised, Liver disease, Neurologic disorder, Obesity, Postpartum, Pregnant, Renal disease, Tuberculosis, Chronic illness/underlying medical condition, Other.

- Medical co-morbidities are likely to be underreported in CCM.
  - The data are collected and recorded by public health units. Information was not linked to health administrative databases containing co-morbidity information.
  - Co-morbidity data may be self-reported by the cases or their proxies to the public health units and may not be confirmed or reported by a health care provider.
  - Cases categorized under 'no co-morbidity' likely include cases with an existing medical co-morbidity but the information was either not collected, reported to public health units or recorded in CCM.
- Hospitalization includes all cases for which a hospital admission date was reported or hospitalization/ICU was reported as 'Yes' at the time of data extraction. It includes cases that have been discharged from hospital as well as cases that are currently hospitalized. Emergency room visits are not included in the number of reported hospitalizations.
- ICU admission includes all cases for which an ICU admission date was reported at the time of data extraction. It is a subset of the count of hospitalized cases. It includes cases that have been treated or that are currently being treated in an ICU.
- Orientation of case counts by geography is based on the permanent health unit. This is equivalent to the diagnosing health unit (DHU) in iPHIS. DHU refers to the case's public health unit of residence at the time of illness onset and not necessarily the location of exposure. Cases for which the DHU was reported as MOH (to signify a case that is not a resident of Ontario) have been excluded from the analyses.
- Male/Female information presented in this report are sourced from the Sex field in CCM and are intended to represent sex assigned at birth.
- Likely source of acquisition is determined by examining the epidemiologic link and epidemiologic link status fields in CCM. If no epidemiologic link is identified in those fields the risk factor fields are examined to determine whether a case travelled, was associated with a confirmed outbreak, was a contact of a case, had no known epidemiological link (sporadic community transmission) or was reported to have an unknown source/no information was reported. Some cases may have no information reported if the case is untraceable, was lost to follow-up or referred to FNIHB. Cases with multiple risk factors were assigned to a single likely acquisition source group which was determined hierarchically in the following order:
  - For cases with an episode date *on or after* April 1, 2020: Outbreak-associated > close contact of a confirmed case > travel > no known epidemiological link > information missing or unknown.
  - For cases with an episode date *before* April 1, 2020: Travel > outbreak-associated > close contact of a confirmed case > no known epidemiological link > information missing or unknown.
- Deaths are determined by using the outcome field in CCM. Any case marked 'Fatal' is included in the deaths data. The CCM field Type of Death is not used to further categorize the data.
  - If the date of death is missing the outcome date field is used as a proxy for cases marked as 'Fatal' in the outcome field.

- COVID-19 cases from CCM for which the Classification and/or Disposition was reported as ENTERED IN ERROR, DOES NOT MEET DEFINITION, IGNORE, DUPLICATE, or any variation on these values have been excluded. The provincial case count for COVID-19 may include some duplicate records, if these records were not identified and resolved.
- Ongoing outbreaks are those that are reported in CCM as 'Open' and without a 'Declared Over Date' recorded. Closed outbreaks are 'Closed' or have a 'Declared Over Date' recorded in CCM or where the outbreak start date (determined by the onset date of first case, or if missing the reported date, or if missing the created date) is more than 5 months from the current date, even for outbreaks where the outbreak status value selected in CCM is 'OPEN'.
- Outbreaks are declared by the local medical officer of health or their designate in accordance to the Health Protection and Promotion Act and criteria outlined in Ministry guidance documents.
- 'Cases associated with school outbreaks' includes cases that are linked to an outbreak, by school classification type (Elementary, Elementary/Secondary, Secondary, Post-Secondary), that met the definition of a school outbreak as per the Ministry of Health's: [COVID-19 Guidance: School Case, Contact and Outbreak Management](#).
- School classification types are defined by the Ministry of Education.
  - Elementary/Secondary schools include public or private schools educating children in a combination of elementary and secondary grades (e.g., Kindergarten to Grade 8, Grades 9 to 12, and Kindergarten to Grade 12).
- Public Health Ontario conducts testing and genomic analyses for SARS-CoV-2 positive specimens using the criteria outlined in PHO's [SARS-CoV-2 \(COVID-19 Virus\) Variant of Concern \(VoC\) S Screening and Genomic Sequencing for Surveillance](#).
  - As of December 6, 2021 all eligible COVID-19 PCR-positive specimens in Ontario will be screened for S-gene target failure (SGTF) as a marker for the Omicron variant.
- Lineage nomenclature is dynamic. PANGO lineage naming and assignment may change from previous reports as more samples are sequenced and analyzed.
- Variant status may be updated based on scientific evidence. Variants designated as a VOC in Canada is available on the Public Health Agency of Canada's [SARS-CoV-2 variants: National definitions, classifications and public health actions](#) webpage.
- The laboratory detection of a variant of concern is a multi-step process. Samples that test positive for SARS-CoV-2 and have a cycle threshold (Ct) value  $\leq 30$ , may then undergo genomic analyses to identify the VOC lineage.
- Includes all confirmed COVID-19 cases with a lineage of B.1.1.529 (Omicron) identified by genomic analysis or if missing lineage information screened for and identified as having S-gene target failure (SGTF) and reported in CCM as of the extraction time.
- Interpret the VOC trends with caution due to the varying time required to complete genomic analysis following the initial positive test for SARS-CoV-2.
- Due to the nature of the genomic analysis, test results may be completed in batches.
- Data for calculating the cumulative case counts uses data from the Investigation Lineage and Investigation Mutation fields only. Changes to the VOC testing algorithm may impact counts and trends.

- If a VOC is identified through genomic analysis cases initially classified as a mutation may be updated and moved to the appropriate lineage (e.g.B.1.1.529)

## Data Caveats and Methods: COVaxON

- Linking COVaxON and CCM data is dependent on availability of personal identifiers reported in both databases. For example, if a client was reported in both COVaxON and CCM, but personal identifiers (e.g. such as health card number, date of birth) were not available, then sufficient information would not have been available to identify the client and the client would not have been included in the linkage.
- Methods for processing COVaxON vaccine uptake data are described in the Technical Notes of the PHO surveillance report, [COVID-19 Vaccine Uptake and Program Impact in Ontario](#).
- Cases that received one or more doses of a non-Health Canada authorized vaccine are excluded from post-vaccination case counts.
- The following definitions, were used to describe COVID-19 infection following vaccination. Note: These definitions are subject to change.
  - **Unvaccinated case:** Confirmed COVID-19 cases with no evidence of having received a valid COVID-19 vaccine dose following data linkage between CCM and COVAXON, as well as cases that are not yet protected from vaccination (0 to 13 days following the first dose of a Health Canada authorized COVID-19 vaccine) as this time period from vaccination is not sufficient to develop immunity, therefore these cases are not considered protected from vaccination.
  - **Partially vaccinated case:** Cases with a symptom onset date that was 14 or more days following the first dose of a 2-dose series of a Health Canada authorized COVID-19 vaccine or 0 to <14 days after receiving the second dose of a 2-dose Health Canada authorized COVID-19 vaccine series. This time period from vaccination may be sufficient to develop some degree of immunity, but these cases are not considered fully protected as they have not yet received the second dose or have only recently received the second dose.
  - **Breakthrough (i.e., fully vaccinated) case:** Cases with a symptom onset date that was 14 or more days following receipt of the second dose of a 2-dose series of a Health Canada authorized COVID-19 vaccine, 14 or more days following the first dose of a Health Canada authorized COVID-19 vaccine product with a 1-dose schedule, or 0 to <14 days after receiving the third dose of a Health Canada authorized COVID-19 vaccine. These cases are considered fully protected from vaccination, however, as vaccine effectiveness is not 100%, it is expected that a small number of cases will occur among fully vaccinated individuals.
  - **Post-dose 3 cases (i.e. cases following a third dose):** Cases with a symptom onset date that was 14 or more days following the receipt of a third dose of a Health Canada authorized COVID-19 vaccine, following two doses of Health Canada authorized COVID-19 vaccine products. The third dose is recommended to complete a primary series for select immunocompromised individuals and as a booster for waning immunity in select populations, including older adults.
- For additional information and technical notes related to COVID-19 infection following vaccination, please refer to PHO's Confirmed Cases of COVID-19 Following Vaccination in Ontario.

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