Public Health Ontario | Santé publique Ontario

WEEKLY EPIDEMIOLOGICAL SUMMARY

COVID-19 in Ontario: Focus on December 25, 2022 to December 31, 2022 (Week 52)

Published: January 6, 2023

Figures and tables in this report present the most recent 52 weeks of data for Ontario, ranging from **January 2, 2022 to December 31, 2022**. This report includes the most current information available from the Public Health Case and Contact Management Solution (CCM), unless otherwise specified.

Interpretation notes:

- Testing and case, contact, and outbreak management in Ontario is currently restricted to high-risk populations and settings in January 2022. Counts in this report are an underestimate of the extent of COVID-19 activity in Ontario.
- Observed trends over time should be interpreted with caution for the most recent period due to reporting and/or data entry lags.
- Severe outcomes are a lagging indicator, meaning that severe outcomes often occur after (e.g. days or weeks) cases are initially reported to public health. As such, counts for severe outcomes in more recent reporting periods may increase as more outcomes are reported.

Please visit the interactive Ontario COVID-19 Data Tool to explore data from the entire COVID-19 pandemic (i.e. February 2020 onward) by public health unit, age group, sex, and trends over time

Highlights

Case Trends and Percent Positivity

- **Weekly case numbers similar (+/- 10%) compared to last week among those eligible for testing**: The number of reported cases in Ontario was 6,586 this week, compared to 6,527 last week. A gradual increase has been observed since late November. Current projections suggest weekly case numbers may remain similar over the next two weeks.
    - Among Ontario's seven regions, case rates were similar in four, higher in two, and lower in one region this week. Among the 34 public health units, case rates were similar in eight, higher in 14, and lower in 12 compared to last week.
    - Case rates were similar in the four oldest age groups, higher in one age group, and lower in two compared to last week.
- **Percent positivity up 11.2% and testing volumes down 10.6% compared to last week:** Percent positivity was 16.5% this week, up from 14.9% observed last week. Testing volume this week was 42,849 compared to 47,956 tests last week.

Severity

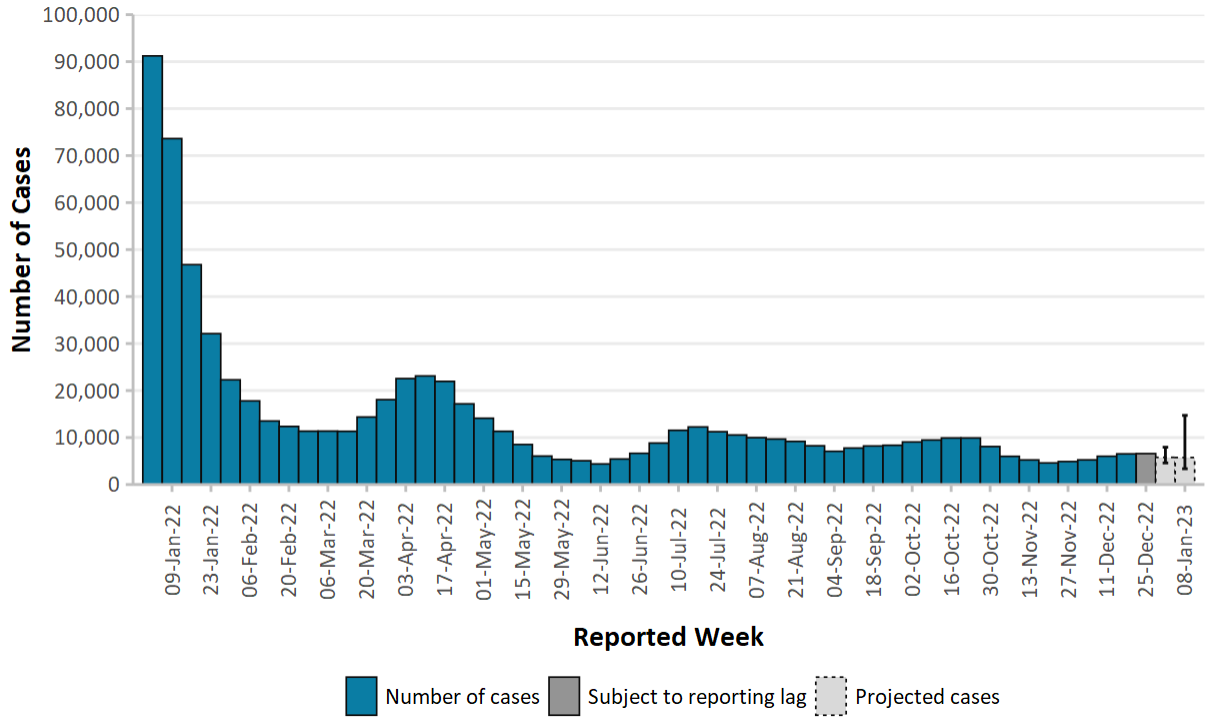
- **Hospital admissions similar (+/- 10%) compared to last week:** There were 329 hospital admissions reported this week, compared to 358 last week. There were 25 deaths reported this week, compared to 68 last week. Hospital admission and death counts, particularly for more recent weeks, may increase as these outcomes are lagging indicators.

Outbreaks

- **Outbreaks in high-risk settings down 31.6% compared to last week:** The total number of outbreaks in high-risk settings was 117 this week, compared to 171 last week. Compared to last week, this week there were fewer outbreaks reported in all congregate care settings.
- **Outbreak-associated cases in high-risk settings down 24.5% compared to last week**: There were 1,399 outbreak-associated cases reported this week in high-risk settings, compared to 1,852 last week. Compared to last week, this week there were fewer outbreak-associated cases reported in all congregate care settings, as well as correctional facilities and group homes/supportive housing.

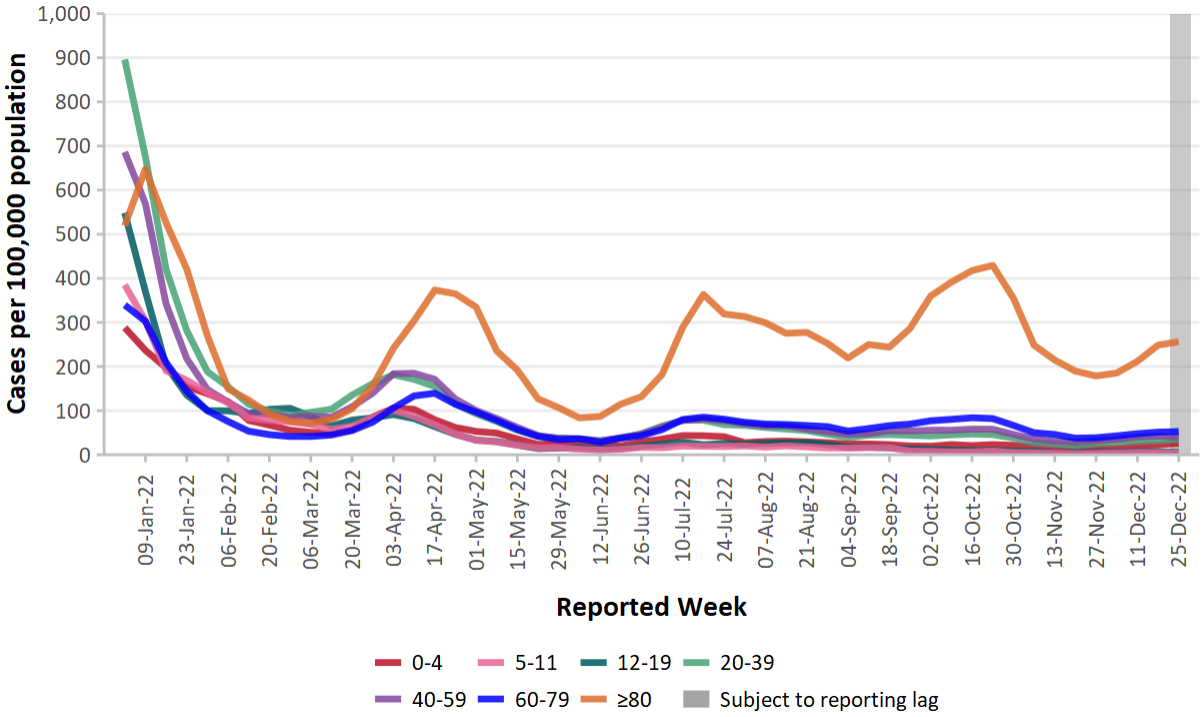
Cases

Figure 1a. Confirmed and projected cases of COVID-19 by reported week



Note: Projections were estimated using the daily distribution of SARS-CoV-2 lineages and COVID-19 cases over time to forecast COVID-19 cases into the future by 14 days. The error bars on the projected cases represent the 75% credible interval. For more information refer to Appendix E. Projections are made based on our current knowledge of COVID-19, and thus cannot predict introductions of new lineages, which may impact model accuracy. Projections presented above were based on whole genome sequencing data from the week of December 18, 2022 (see Data Sources) as whole genome sequencing data for the week of December 25, 2022 were unavailable. This may impact the accuracy of the projected case counts in Figure 1A.

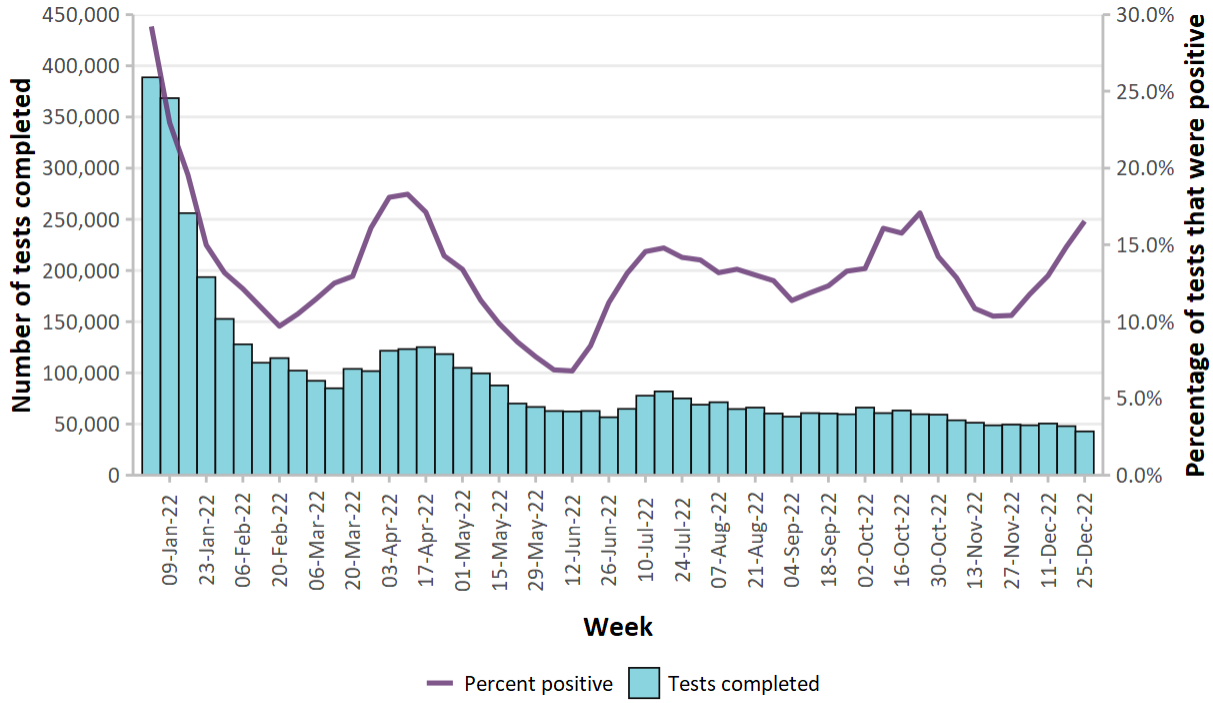
Figure 1b. Confirmed cases of COVID-19 (per 100,000 population), by age group and report week



Note: Not all cases have an age reported.

Testing

Figure 2. Weekly COVID-19 tests completed and percent positivity



Data Source: The Provincial COVID-19 Diagnostics Network, data reported by member microbiology laboratories.

Hospital Admissions

Figure 3a. Confirmed COVID-19 cases that were admitted to hospital, by hospital admission week

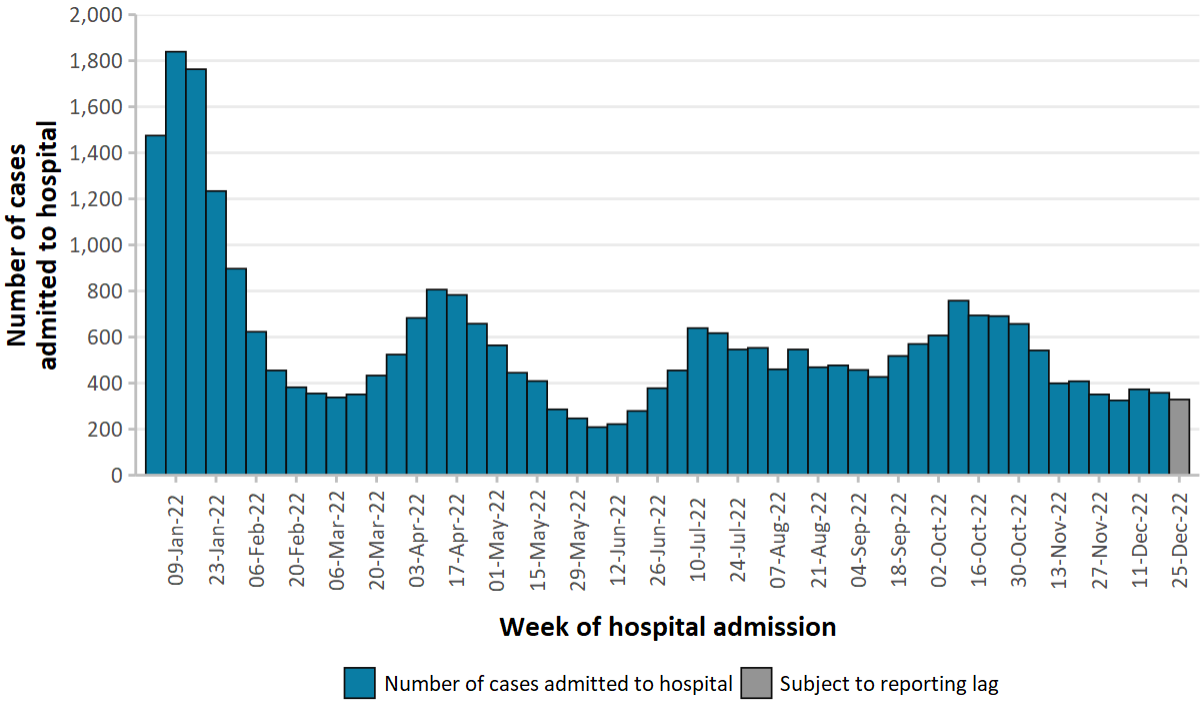
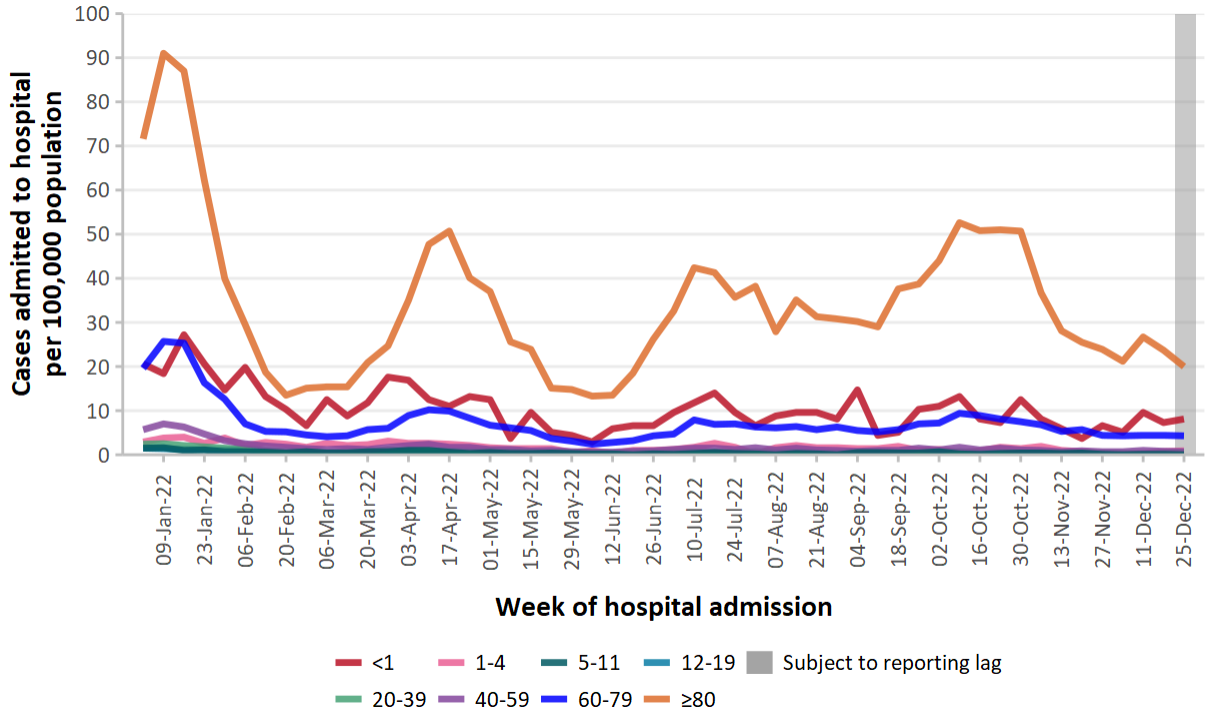


Figure 3b. Confirmed COVID-19 cases that were admitted to hospital (per 100,000 population), by age group and hospital admission date



Note: Not all cases have an age reported.

Deaths

Figure 4a. Confirmed COVID-19 deaths, by cause and week of death

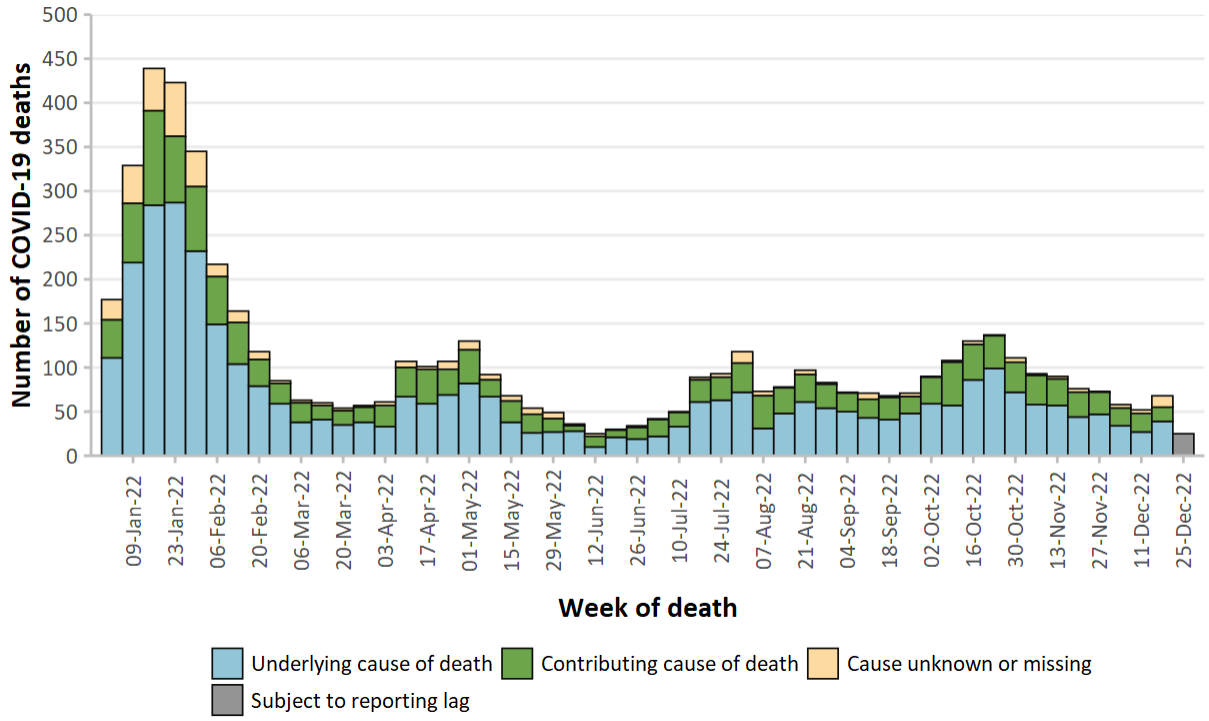
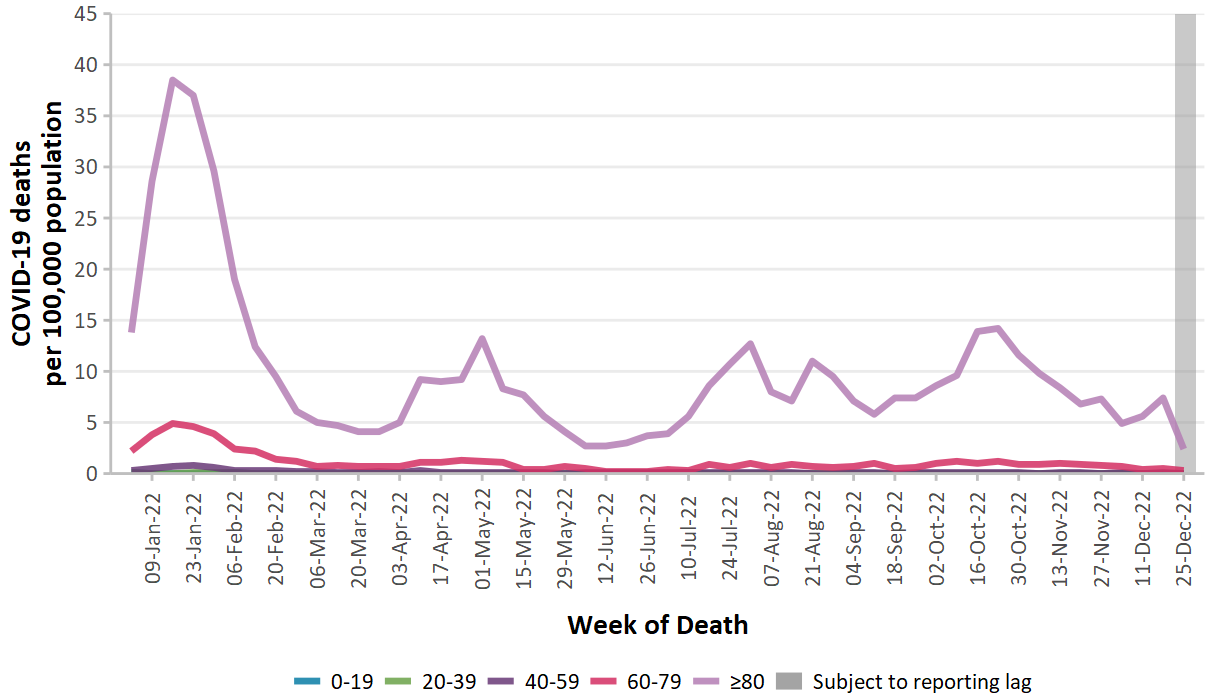
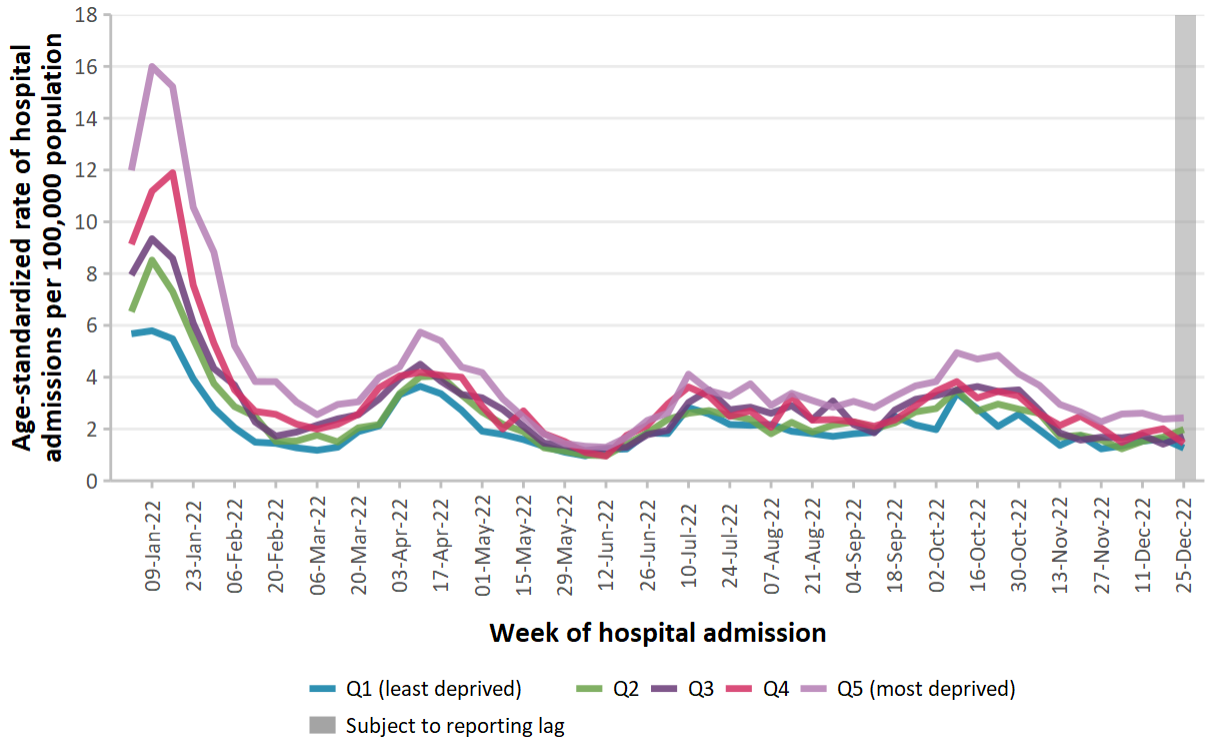


Figure 4b. Confirmed COVID-19 deaths (per 100,000 population), by age group and week of death



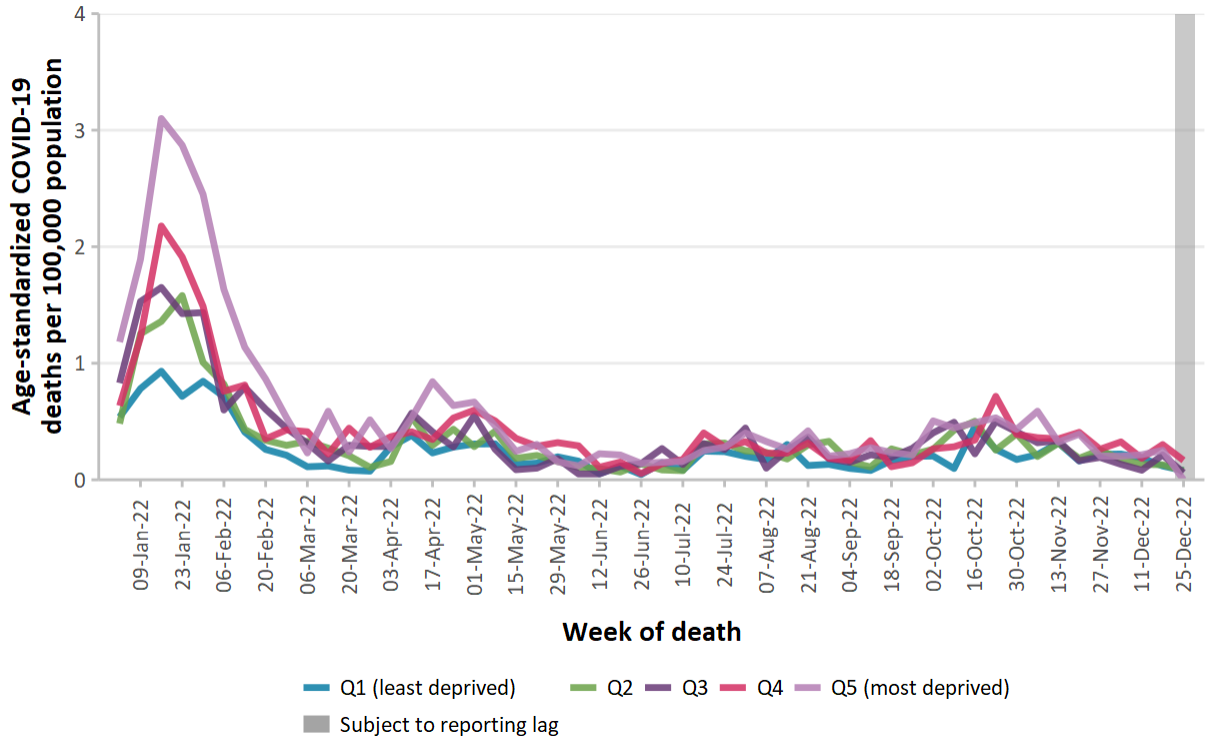
Severity by Neighbourhood Material Deprivation

Figure 5a. Confirmed COVID-19 cases that were admitted to hospital (per 100,000 population), by quintile of neighbourhood material deprivation and hospital admission week



Data Source: CCM, ON-Marg 2016

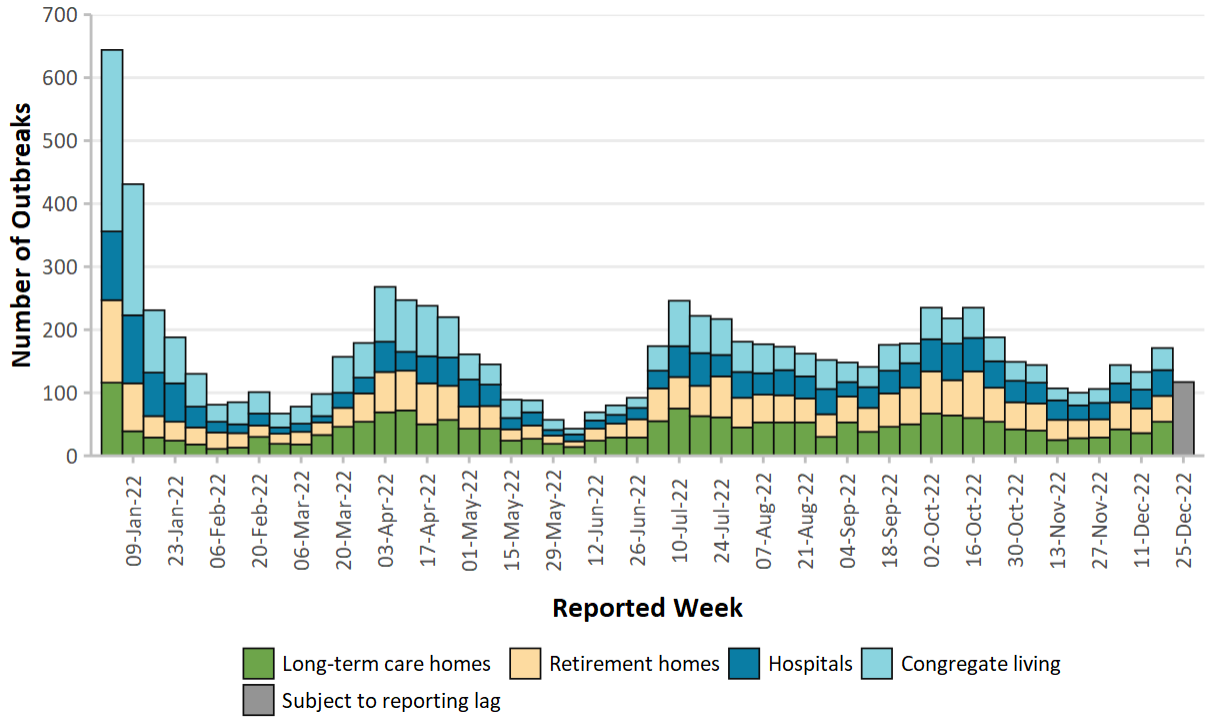
Figure 5b. Confirmed COVID-19 deaths (per 100,000 population), by quintile of neighbourhood material deprivation and week of death



Data Source: CCM, ON-Marg 2016

Outbreaks

Figure 6. Confirmed COVID-19 outbreaks, by setting type and reported week



Note: Congregate living includes group homes, shelters, and correctional facilities.

Table 1. Confirmed COVID-19 outbreaks, by setting type

Setting Type	Reported December 18 to December 24, 2022	Reported December 25 to December 31, 2022	Ongoing Outbreaks	Reported Past 52 Weeks (January 2 to December 31, 2022)
Congregate Care Total	**136**	**94**	**332**	**6,162**
Long-term care homes	54	40	152	2,206
Retirement homes	41	24	105	2,131
Hospitals	41	30	75	1,825
Congregate Living Total	**35**	**23**	**57**	**2,499**
Correctional facility	4	0	4	143
Shelter	5	2	7	423
Group homes/supportive housing	26	21	46	1,933
Total number of outbreaks*	**171**	**117**	**389**	**8,661**

*Only includes outbreaks in the setting types above

Table 2. Confirmed outbreak-associated COVID-19 cases, by setting type and reported week

Cases associated with the outbreak setting type	Reported December 18 to December 24, 2022	Reported December 25 to December 31, 2022	Reported Past 52 Weeks (January 2 to December 31, 2022)
Congregate Care Total	**1,793**	**1,363**	**109,344**
Long-term care homes	1,039	809	64,510
Retirement homes	505	412	28,956
Hospitals	249	142	15,878
Congregate Living Total	**59**	**36**	**13,498**
Correctional facility	7	2	3,951
Shelter	5	2	2,231
Group homes/supportive housing	47	32	7,316
Total number of cases*	**1,852**	**1,399**	**122,842**

*Only includes cases associated to outbreaks in the setting types above

Technical Notes

Details on data caveats and methods are documented in Technical Notes of the Ontario COVID-19 Data Tool. For information on data caveats and methods related to Ontario Marginalization Index (ON-Marg), please visit PHO's ON-Marg webpage.

Data Sources

- The data for this report were based on information successfully extracted from the CCM for all PHUS by PHO as of:
    - **January 3, 2023 at 1 p.m**. for cases reported March 1, 2022 onwards
    - **January 3, 2023 at 9 a.m**. for cases reported August 1, 2021 to February 28, 2022
    - **December 12, 2022 at 9 a.m**. for cases reported up to July 31, 2021
- Hospital and ICU bed occupancy data were obtained from the Ministry of Health on **January 4, 2023**. The same data is available weekly from Ontario's Data Catalogue (dataset: COVID-19 cases in hospital and ICU, by Ontario Health (OH) region). The 'date' field was adjusted to account for reporting lags. Specifically, hospital occupancy counts ('hospitalizations') correspond to the 'date' field minus two days, and ICU occupancy counts ('icu_crci_total') correspond to the 'date' field minus one day.
- Ontario population estimate data were sourced from Statistics Canada. Population estimates 2001-2021: Table 1 annual population estimates by age and sex for July 1, 2001 to 2021, health regions, Ontario [unpublished data table]. Ottawa, ON: Government of Canada; 2022 [received April 12, 2022].
- Statistics Canada Postal Code Conversion File Plus (PCCF+), version 7E.
- The health equity (material deprivation) analyses use data from the 2016 Ontario Marginalization Index (ON-Marg), and population counts from the Ontario Health Insurance Plan (OHIP) Registered Person Database (RPDB) as of May 1, 2021 (provided by the Institute for Clinical Evaluative Sciences [ICES]). For more information, please visit PHO's ON-Marg webpage.
- Whole genome sequencing data used in the short-term projection model were based on information extracted on **December 21**, **2022** from PHO and **December 20, 2022** from partner laboratories in the Ontario COVID-19 Genomics Network. For more information on SARS-CoV-2 whole genome sequencing surveillance please see the report SARS-CoV-2 Genomic Surveillance in Ontario report.

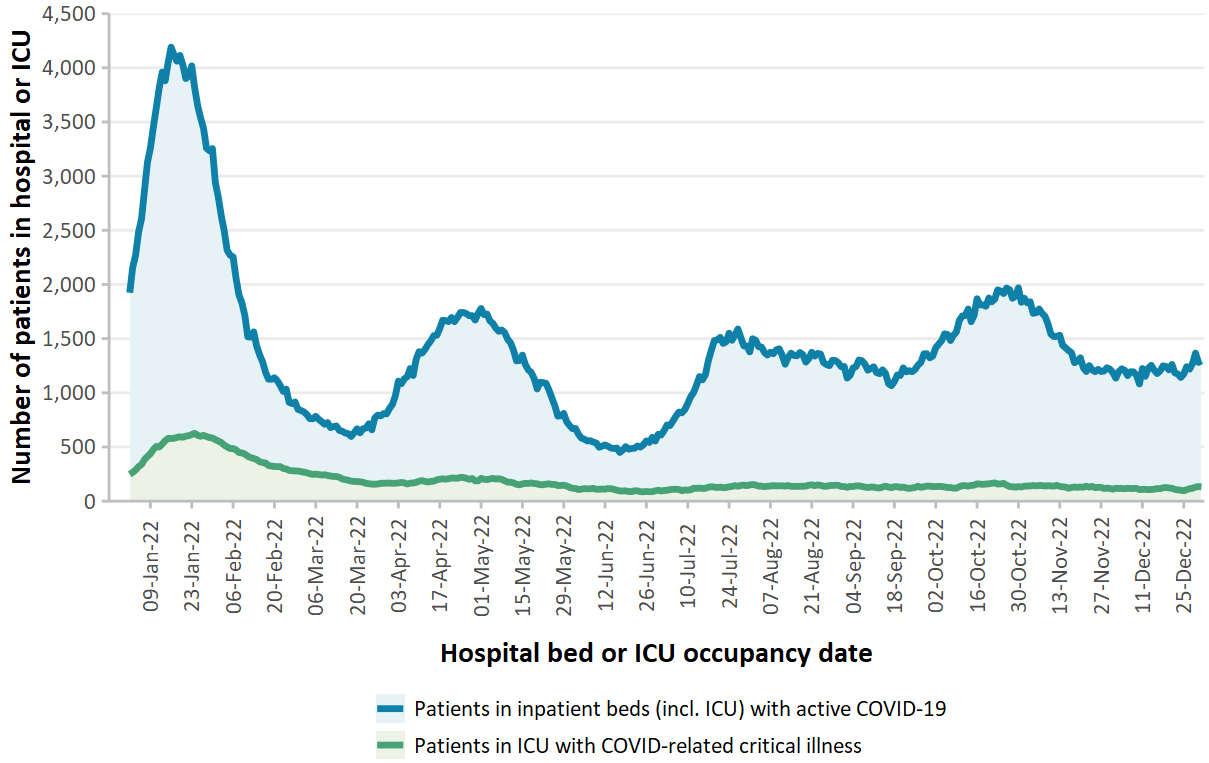
Appendix A: Hospital Bed Occupancy

This graph shows a daily count of:

1. the number of people in hospital (including intensive care unit (ICU)) with active COVID-19 (i.e. testing positive); and
2. the number of people in ICU because of COVID-19.

These counts differ from hospital admissions data in this report (Figures 3a, 3b, and Table 4), which count the number of people admitted to hospital each week due to COVID-19.

Figure 7. Hospital and ICU bed occupancy, by day



Data Source: Ontario Ministry of Health
Note: Hospital bed occupancy data comes from the Hospital Daily Bed Census and ICU bed occupancy data comes from the Critical Care Information System.

Appendix B: Cases by Public Health Unit

Figure 8. Confirmed cases of COVID-19 (per 100,000 population), by region and reported week

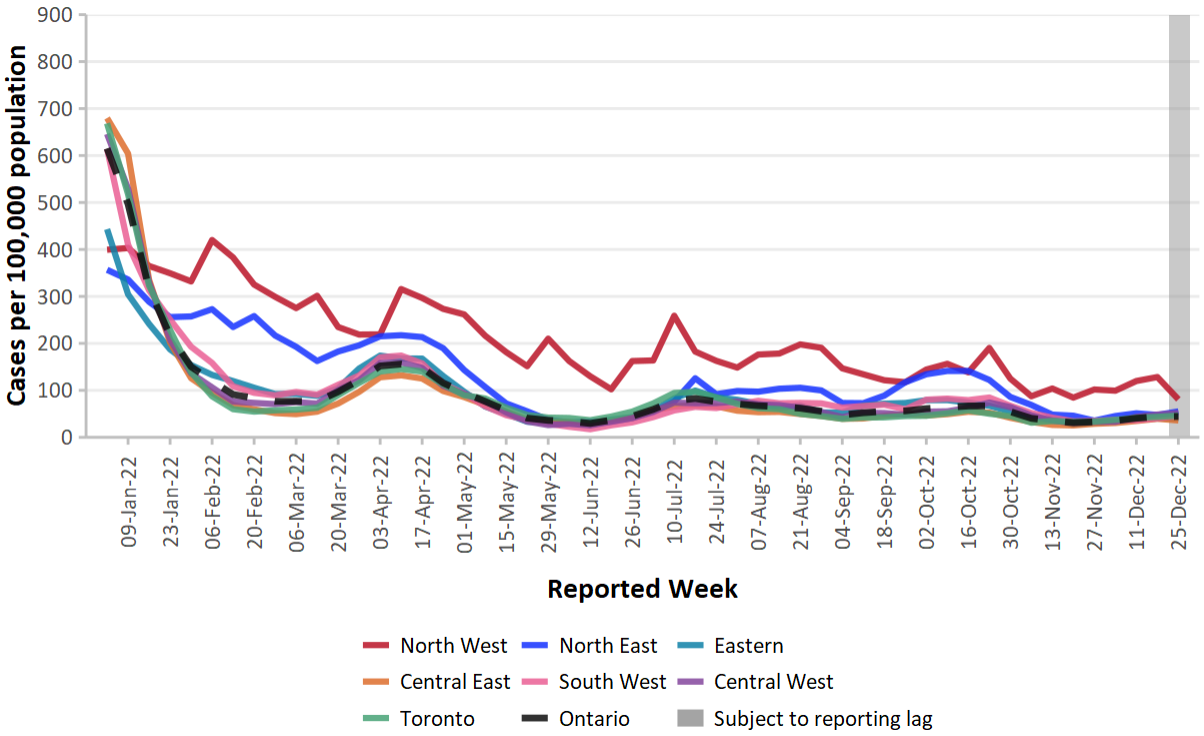


Table 3. Confirmed cases of COVID-19, by public health unit and region

Public Health Unit Name	Cases December 18 to December 24, 2022	Cases per 100,000 population December 18 to December 24, 2022	Cases December 25 to December 31, 2022	Cases per 100,000 population December 25 to December 31, 2022	Cases per 100,000 population Past 52 weeks (January 2 to December 31, 2022)
Northwestern Health Unit	123	150.7	59	72.3	14,792.1
Thunder Bay District Health Unit	182	116.7	133	85.2	8,605.2
TOTAL NORTH WEST	**305**	**128.3**	**192**	**80.8**	**10,730.0**
Algoma Public Health	52	44.4	50	42.7	7,795.0
North Bay Parry Sound District Health Unit	48	36.7	85	65.0	5,488.3
Porcupine Health Unit	47	55.8	47	55.8	6,792.1
Public Health Sudbury & Districts	116	56.5	106	51.6	7,274.2
Timiskaming Health Unit	9	26.3	27	79.0	6,035.7
TOTAL NORTH EAST	**272**	**47.6**	**315**	**55.1**	**6,827.4**
Ottawa Public Health	333	31.6	316	30.0	4,013.4
Eastern Ontario Health Unit	123	56.4	92	42.2	4,953.1
Hastings Prince Edward Public Health	44	25.3	95	54.6	5,665.5

Public Health Unit Name	Cases December 18 to December 24, 2022	Cases per 100,000 population December 18 to December 24, 2022	Cases December 25 to December 31, 2022	Cases per 100,000 population December 25 to December 31, 2022	Cases per 100,000 population Past 52 weeks (January 2 to December 31, 2022)
Kingston, Frontenac and Lennox & Addington Public Health	113	53.9	152	72.5	7,657.8
Leeds, Grenville & Lanark District Health Unit	118	65.0	113	62.2	5,185.9
Renfrew County and District Health Unit	50	45.7	38	34.8	5,284.3
TOTAL EASTERN	**781**	**40.1**	**806**	**41.4**	**4,839.3**
Durham Region Health Department	239	32.9	268	36.8	4,786.8
Haliburton, Kawartha, Pine Ridge District Health Unit	86	44.5	45	23.3	4,308.0
Peel Public Health	597	38.0	522	33.2	4,368.8
Peterborough Public Health	58	39.3	32	21.7	4,885.3
Simcoe Muskoka District Health Unit	224	36.3	272	44.1	5,262.5
York Region Public Health	565	46.7	467	38.6	4,414.1
TOTAL CENTRAL EAST	**1,769**	**39.6**	**1,606**	**36.0**	**4,587.0**
Toronto Public Health	1,296	43.6	1,376	46.3	4,860.3
TOTAL TORONTO	**1,296**	**43.6**	**1,376**	**46.3**	**4,860.3**

Public Health Unit Name	Cases December 18 to December 24, 2022	Cases per 100,000 population December 18 to December 24, 2022	Cases December 25 to December 31, 2022	Cases per 100,000 population December 25 to December 31, 2022	Cases per 100,000 population Past 52 weeks (January 2 to December 31, 2022)
Chatham-Kent Public Health	36	33.4	50	46.3	6,334.1
Grey Bruce Health Unit	71	39.7	75	42.0	4,158.0
Huron Perth Public Health	48	32.4	64	43.3	3,937.9
Lambton Public Health	56	42.2	61	46.0	6,345.6
Middlesex-London Health Unit	199	38.6	228	44.3	5,052.9
Southwestern Public Health	113	50.7	73	32.7	4,597.0
Windsor-Essex County Health Unit	179	42.0	243	57.0	5,992.5
TOTAL SOUTH WEST	**702**	**40.5**	**794**	**45.9**	**5,216.8**
Brant County Health Unit	92	58.8	102	65.2	4,755.7
City of Hamilton Public Health Services	327	55.7	466	79.4	6,237.3
Haldimand-Norfolk Health Unit	96	78.6	58	47.5	4,973.1
Halton Region Public Health	224	36.2	200	32.3	4,417.9
Niagara Region Public Health	324	66.8	244	50.3	5,466.1

Public Health Unit Name	Cases December 18 to December 24, 2022	Cases per 100,000 population December 18 to December 24, 2022	Cases December 25 to December 31, 2022	Cases per 100,000 population December 25 to December 31, 2022	Cases per 100,000 population Past 52 weeks (January 2 to December 31, 2022)
Region of Waterloo Public Health and Emergency Services	217	35.5	254	41.5	4,453.4
Wellington-Dufferin-Guelph Public Health	122	38.5	173	54.6	4,018.9
TOTAL CENTRAL WEST	**1,402**	**48.4**	**1,497**	**51.7**	**4,967.5**
TOTAL ONTARIO	**6,527**	**44.0**	**6,586**	**44.4**	**5,007.7**

Note: Access to testing can vary across the province and as a result may impact the reported confirmed case rates by public health unit.

Appendix C: Severity Measures by Age and Sex

Table 4. Confirmed COVID-19 cases that were admitted to hospital, by sex and age group

Sex and age group	Hospital admissions December 18 to December 24, 2022	Hospital admissions per 100,000 population December 18 to December 24, 2022	Hospital admissions December 25 to December 31, 2022	Hospital admissions per 100,000 population December 25 to December 31, 2022	Hospital admissions Past 52 weeks (January 2 to December 31, 2022)	Hospital admissions per 100,000 population Past 52 weeks (January 2 to December 31, 2022)
Total Cases	358	2.4	329	2.2	29,864	201.4
Sex: Female	169	2.3	168	2.2	13,766	183.6
Sex: Male	189	2.6	161	2.2	16,043	219.0
Sex: Did not specify female or male	0	N/A	0	N/A	55	N/A
Ages: <1	10	7.3	11	8.1	737	541.5
Ages: 1 – 4	4	0.7	5	0.9	503	87.2
Ages: 5 – 11	1	0.1	0	0.0	235	21.9
Ages: 12 – 19	1	0.1	3	0.2	269	20.6
Ages: 20 – 39	17	0.4	20	0.5	1,539	36.8
Ages: 40 – 59	32	0.8	27	0.7	3,288	84.9
Ages: 60 – 79	133	4.4	128	4.3	11,331	378.4
Ages: 80 and over	160	23.7	135	20.0	11,960	1771.9
Ages: Unknown	0	N/A	0	N/A	2	N/A

Table 5. Confirmed COVID-19 deaths, by sex and age group

Sex and age group	Deaths December 18 to December 24, 2022	Deaths per 100,000 population December 18 to December 24, 2022	Deaths December 25 to December 31, 2022	Deaths per 100,000 population December 25 to December 31, 2022	Deaths Past 52 weeks (January 2 to December 31, 2022)	Deaths per 100,000 population Past 52 weeks (January 2 to December 31, 2022)
Total Cases	68	0.5	25	0.2	5,541	37.4
Sex: Female	38	0.5	8	0.1	2,504	33.4
Sex: Male	30	0.4	17	0.2	3,026	41.3
Sex: Did not specify female or male	0	N/A	0	N/A	11	N/A
Ages: 0 – 19	0	0.0	0	0.0	13	0.4
Ages: 20 – 39	0	0.0	0	0.0	48	1.1
Ages: 40 – 59	2	0.1	1	<0.1	288	7.4
Ages: 60 – 79	16	0.5	8	0.3	1,741	58.1
Ages: 80 and over	50	7.4	16	2.4	3,451	511.3
Ages: Unknown	0	N/A	0	N/A	0	N/A

Appendix D: All Time Severe Outcomes

Table 6. Confirmed COVID-19 cases and deaths among LTCH residents, by wave[1]

Wave	Number of LTCH Resident Cases	Number of LTCH Resident COVID-19 deaths	Case Fatality Rate (CFR)
Wave 1 (February 26, 2020 to August 31, 2020)	6,012	1,906	31.7%
Wave 2 (September 1, 2020 to February 28, 2021)	9,085	1,949	21.5%
Wave 3 (March 1, 2021 to July 31, 2021)	414	60	14.5%
Wave 4 (August 1, 2021 to December 14, 2021)	247	45	18.2%
Wave 5 (December 15, 2021 to February 28, 2022)	10,177	483	4.7%
Wave 6 (March 1, 2022 to June 18, 2022)	7,708	203	2.6%
Wave 7 (June 19, 2022 to December 31, 2022)[2]	24,638	691	2.8%
Total	**58,281**	**5,337**	**9.2%**

Notes:
1. As of August 31, 2022, only LTCH resident cases linked to an outbreak are required to be identified as LTCH residents in CCM. As a result, fewer LTCH resident cases will be identified. The number of LTCH resident cases, deaths, and CFR should be interpreted with this reporting change in mind. 2. The case fatality rate for this time period may change as new cases are reported.

Appendix E: Short-term Projections of COVID-19 in Ontario

- A multinomial logistic regression model (from the R package, *nnet*[1]) of whole genome sequencing (WGS) data, was used to estimate the proportion of each SARS-CoV-2 lineage over the last three months. Lineages with at least fourteen days of non-zero case counts were included in the model. Proportions of the top five lineages with at least one day of an estimated prevalence of 5% or greater during the 18 week period (12 observed and 6 projected) were then applied to the reported daily COVID-19 cases to determine the daily estimated number of cases for each lineage.

- The R package, *EpiNow2*[2], was used to project the daily number of cases forward 14 days. The model was run by lineage to ensure potential differences in lineage-specific transmission were accounted for. *EpiNow2*[2] calculates these projections using Bayesian latent variable modelling[3]. Model inputs included an incubation period of 4 days[4,5] and a generation time of 2.5 days[6]. The reporting delay was estimated to be about 3 days using the symptom onset date. The results by lineage were then summed to generate the projected total number of cases and 75% credible interval. Modelling results of past weeks were compared with reported cases to confirm model accuracy.

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