Public Health Ontario | Santé publique Ontario

WEEKLY EPIDEMIOLOGICAL SUMMARY

COVID-19 in Ontario: Focus on December 26, 2021 to January 1, 2022

This report includes the most current information available from CCM as of **January 4, 2022.**

Please visit the interactive Ontario COVID-19 Data Tool to explore recent COVID-19 data by public health unit, age group, sex, and trends over time.

A daily summary is available and provides an epidemiologic summary of recent COVID-19 activity in Ontario. This weekly report provides an epidemiologic summary of COVID-19 activity in Ontario over time.

Highlights

There are a total of 800,344 confirmed cases of COVID-19 in Ontario with a public health unit reported date up to January 1, 2022.

For the period with a public health unit (PHU) reported date between December 26, 2021 to January 1, 2022(week 52):

A total of 96,829 cases were reported to public health compared to 51,587 cases the previous week (December 19 to 25, 2021).

Rates of cases per 100,000 population in week 52 were higher for age groups 20-39 (976.8), 12-19 (749.8) and 40-59 (681.7) than for the 5-11 age group (602.5), which represented the age group with the highest case rates up to week 50.

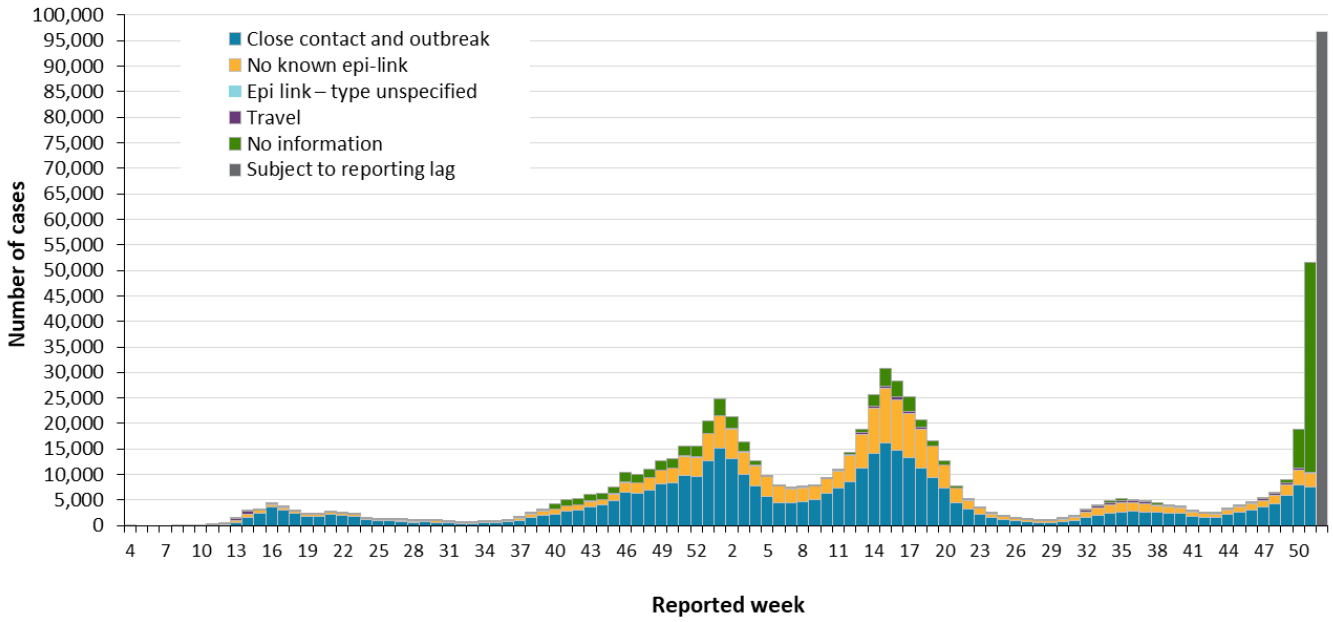
Outbreaks reported in congregate care settings (long-term care homes, retirement homes and hospitals) accounted for 52.8% of all outbreaks reported in week 52, up from 33.4% of all outbreaks in week 51.

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.

> 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 change in cases publicly reported by the province for the same time period, which reflects the difference in cumulative counts between one day and the next.

Cases Over Time

Figure 1. Confirmed cases of COVID-19 by likely source of acquisition and public health unit reported week: Ontario



Note: Include cases with reported dates ranging from week-4 (January 19 and 25, 2020) to week 52 (December 26, 2021 and January 1, 2022). See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.

Data Source: CCM

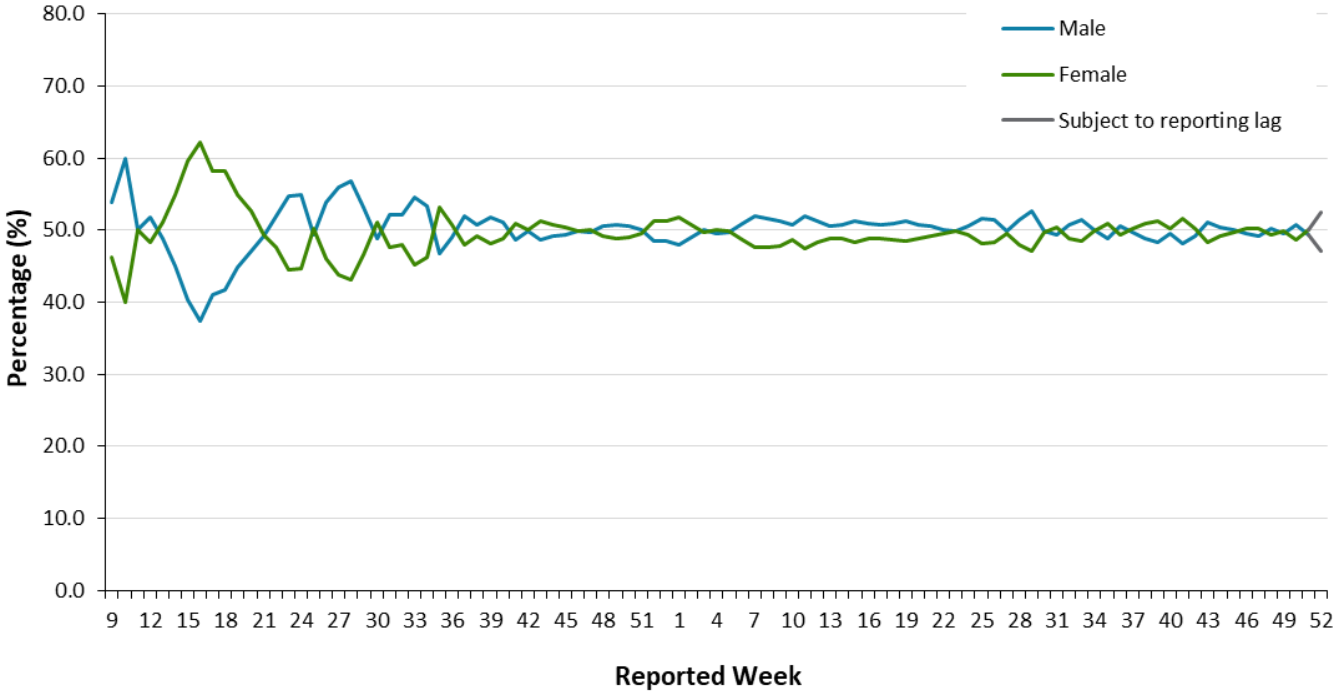
Case Characteristics

Table 1. Summary of confirmed cases of COVID-19 by public health unit reported date: Ontario

	Reported week 51 (December 19 to 25)	Reported week 52 (December 26, 2021 to January 1, 2022)	Cumulative case count up to January 1, 2022	Cumulative rate per 100,000 population
Total number of cases	51,587	96,829	800,344	5,431.9
Sex: Male	25,420	45,641	397,101	5,455.1
Sex: Female	25,840	50,728	400,225	5,368.9
Ages: 0-4	1,399	3,042	23,785	3,289.7
Ages: 5-11	4,059	6,498	50,689	4,699.8
Ages: 12-19	5,258	9,969	73,268	5,511.0
Ages: 20-39	23,828	40,554	307,525	7,406.9
Ages: 40-59	12,622	26,556	220,111	5,650.4
Ages: 60-79	3,883	8,514	95,549	3,295.1
Ages: 80 and over	523	1,664	29,257	4,461.0
Number resolved	N/A	N/A	683,145	N/A

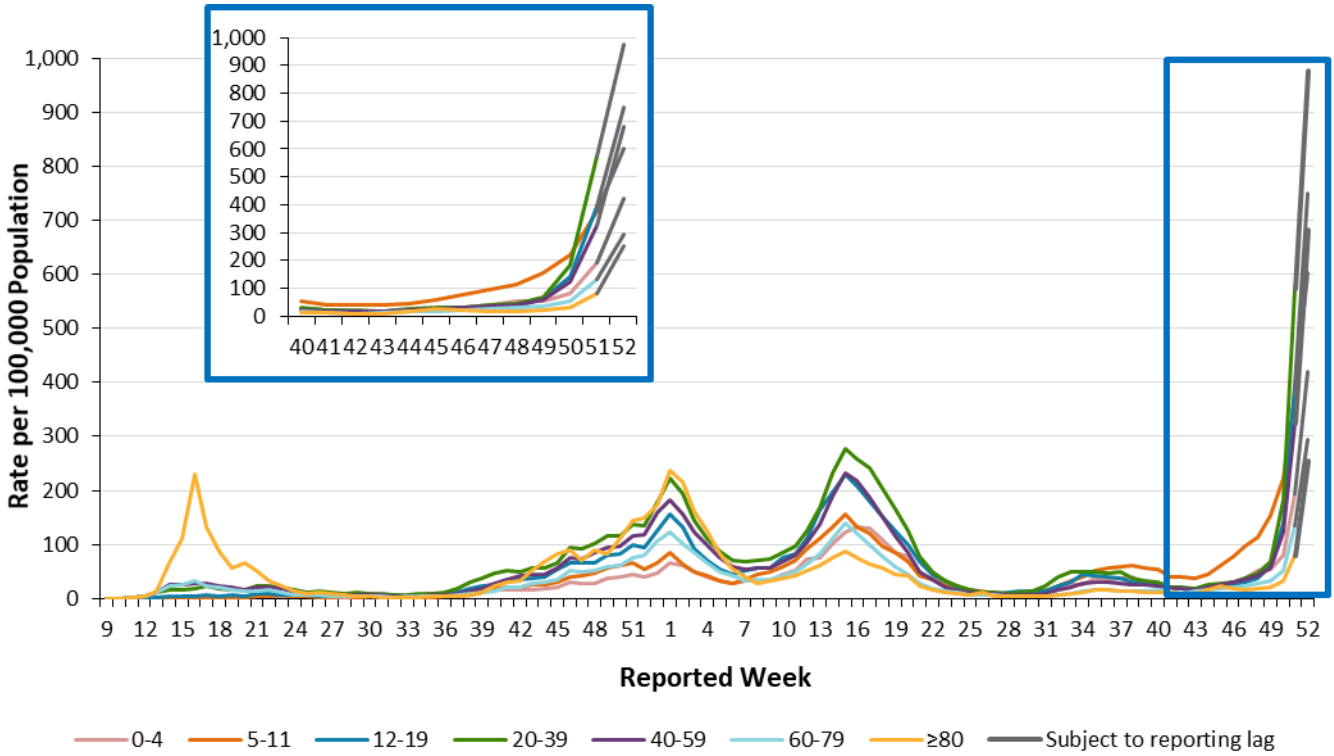
Note: Not all cases have an age or sex reported. Interpret information for the most recent week with caution due to reporting lags.
Data Source: CCM

Figure 2. Percentage of confirmed cases of COVID-19 by sex and public health unit reported week: Ontario



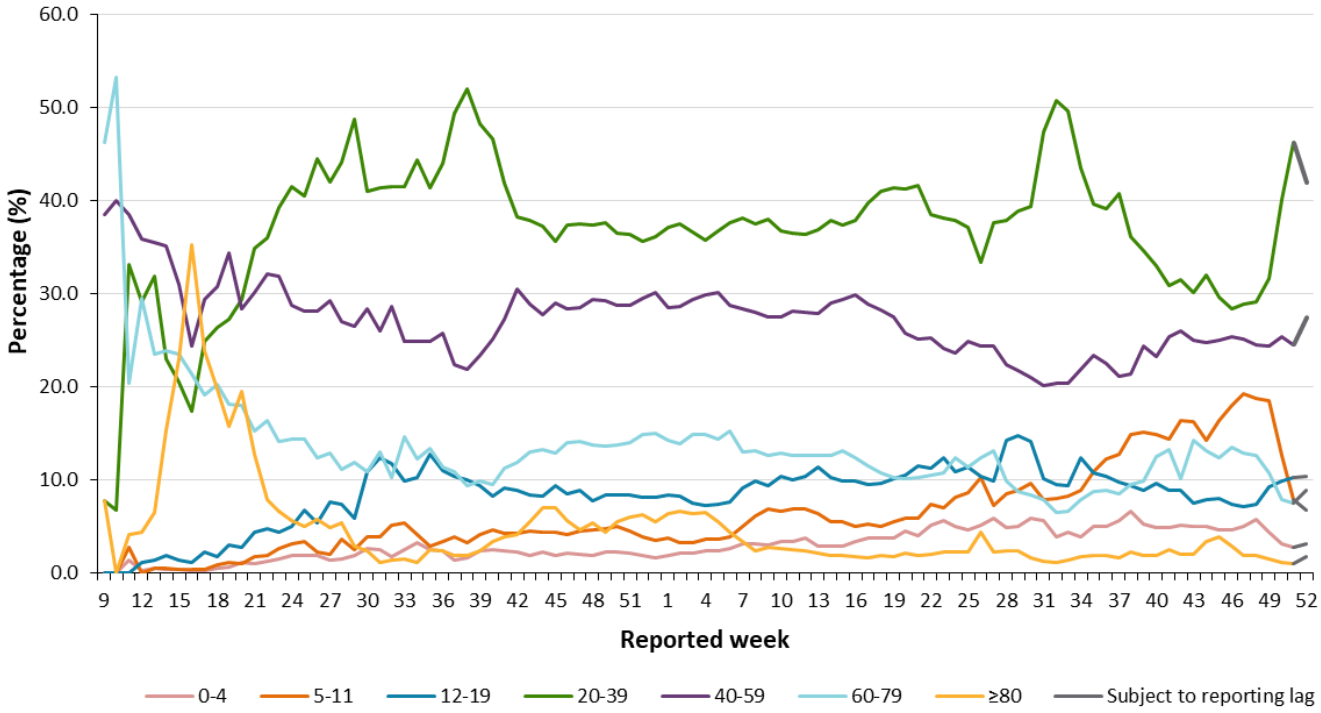
Note: Not all cases have a sex reported. The denominator for calculating weekly percentages includes all cases. Only weeks with more than 10 cases by public health unit reporting date are included (starting in week-9). Include cases with reported dates ranging from week-9 (February 23 and 29, 2020) to week 52 (December 26, 2021 and January 1, 2022). See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.
Data Source: CCM

Figure 3a. Rate of confirmed cases of COVID-19 per 100,000 population by age group and public health unit reported week: Ontario



Note: Not all cases have an age reported. Only weeks with more than 10 cases by public health unit reporting date are included (starting in week 9). Include cases with reported dates ranging from week 9 (February 23 and 29, 2020) to week 52 (December 26, 2021 and January 1, 2022). See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.
Data Source: CCM

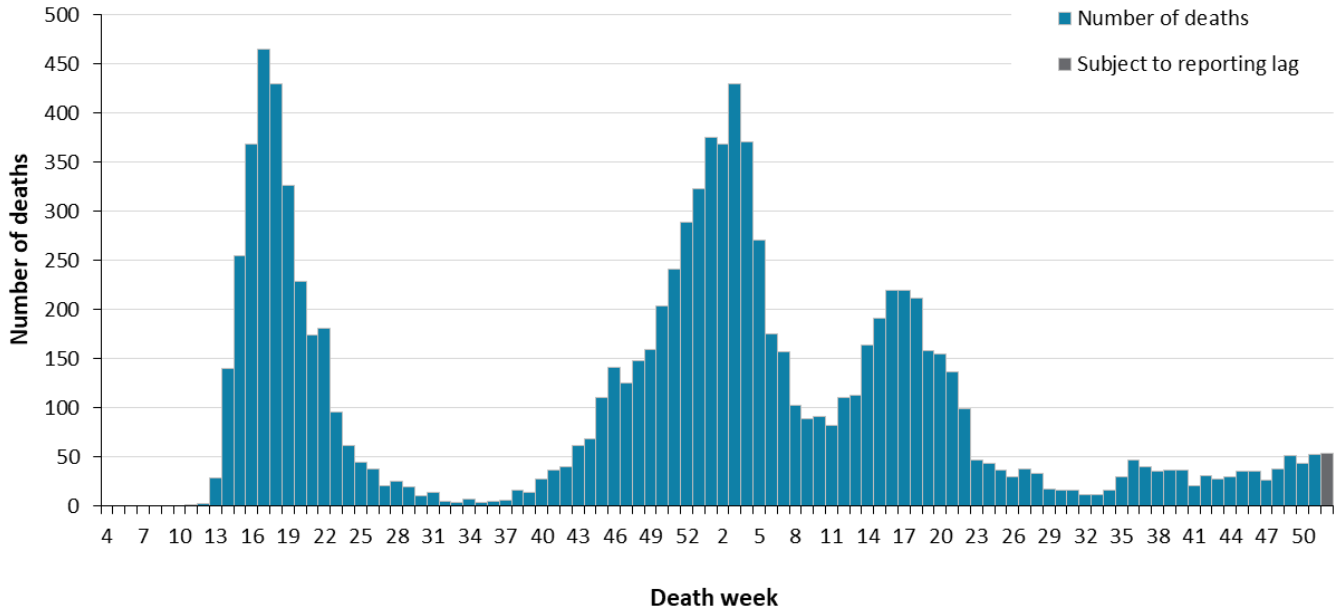
Figure 3b. Percentage of confirmed cases of COVID-19 by age group and public health unit reported week: Ontario



Note: Only weeks with more than 10 cases by public health unit reporting date are included (starting in week-9). Include cases with reported dates ranging from week-9 (February 23 and 29, 2020) to week 52 (December 26, 2021 and January 1, 2022). See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.
Data Source: CCM

Deaths

Figure 4. Deaths among confirmed cases of COVID-19 by week of death: Ontario



Note: Cases without a death date are not included in the figure. Include cases with date of death ranging from week-4 (January 19 and 25, 2020) to week 52 (December 26, 2021 and January 1, 2022). See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.
Data Source: CCM

Table 2. Summary of deaths among confirmed cases of COVID-19 by public health unit reported week: Ontario

Deaths	Reported week 51 (December 19 to 25)	Reported week 52 (December 26, 2021 to January 1, 2022)	Cumulative case count up to January 1, 2022	Cumulative rate per 100,000 population
Number of deaths	38	26	10,248	69.6
Sex: Male	20	18	5,301	72.8
Sex: Female	17	8	4,891	65.6
Ages: 19 and under	1	1	9	0.3
Ages: 20-39	1	0	113	2.7
Ages: 40-59	5	2	739	19.0
Ages: 60-79	15	10	3,399	117.2
Ages: 80 and over	16	13	5,987	912.9

Note: Age and sex may not be reported for all cases. Reported week is the week the case was reported to the public health unit. This is different than the "week of death" presented in Figure 5 which reflects the week the case was reported to have a 'Fatal' outcome. Interpret information for the most recent week with caution due to reporting lags.
Data Source: CCM

Exposure

Table 3. Confirmed cases of COVID-19 by likely source of acquisition and public health unit reported week: Ontario

	Reported week 51 (December 19 to 25)	Percentage	Reported week 52 (December 26, 2021 to January 1, 2022)	Percentage	Cumulative case count up to January 1, 2022	Cumulative percentage
Travel	298	0.6%	181	0.2%	16,073	2.0%
Outbreak-associated or close contact of a confirmed case	7,468	14.5%	6,750	7.0%	402,665	50.3%
Epidemiological link – type unspecified	0	0.0%	0	0.0%	44	0.0%
No known epidemiological link	2,710	5.3%	2,178	2.2%	190,534	23.8%
Information missing or unknown	41,111	79.7%	87,720	90.6%	191,028	23.9%
Total	**51,587**		**96,829**		**800,344**	

Note: Information for how cases are grouped within each category is available in the technical notes.
Interpret information for the most recent week with caution due to reporting lags.
Data Source: CCM

Sub-populations of interest

Table 4. Summary of cases of COVID-19 among health care workers: Ontario

Health care workers	Reported week 51 (December 19 to 25)	Reported week 52 (December 26, 2021 to January 1, 2022)	Cumulative case count up to January 1, 2022
Number of cases	445	545	26,743
Ever hospitalized	1	2	488
Ever in ICU	0	0	100

Note: Interpret information for the most recent week with caution due to reporting lags.
Data Source: CCM

Table 5. Summary of cases of COVID-19 associated with long-term care home outbreaks: Ontario

Long-term care home associated cases	Reported week 51 (December 19 to 25)	Reported week 52 (December 26, 2021 to January 1, 2022)	Cumulative case count up to January 1, 2022
Residents	95	398	16,207
Deaths among residents	1	4	4,038
Health care workers	59	177	7,701
Deaths among health care workers	0	0	10

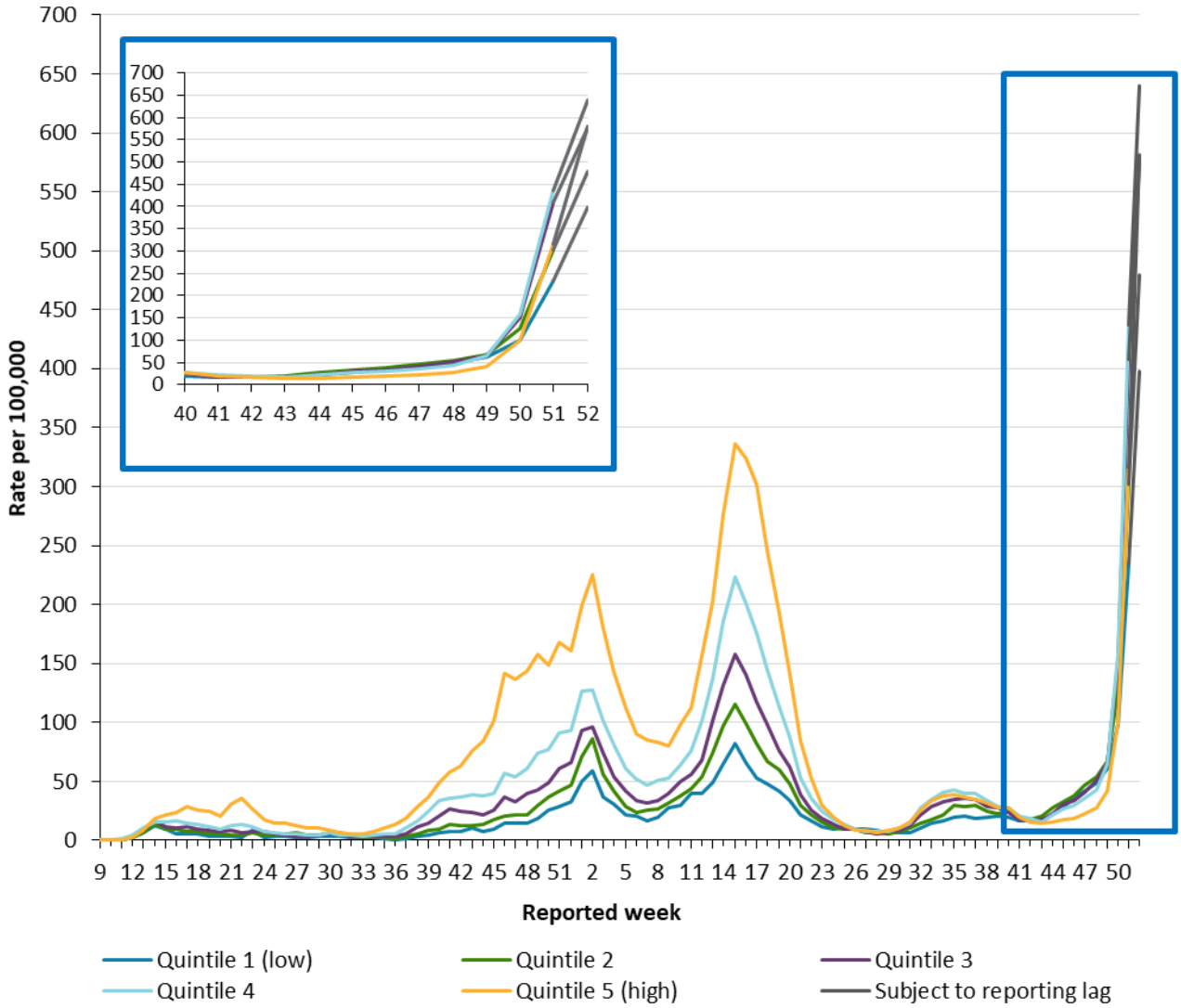
Note: Information on how long-term care home residents and health care workers are identified is available in the technical notes. Interpret information for the most recent week with caution due to reporting lags.
Data Source: CCM

Table 6: Summary of reinfection cases of COVID-19 by age group and public health unit reported week: Ontario

Age Group	Reported week 51 (December 19 to 25)	Reported week 52 (December 26, 2021 to January 1, 2022)	Cumulative count from November 1, 2020 up to January 1, 2022	Percent of reinfection cases
Ages: 0-4	1	5	28	2.5%
Ages: 5-11	6	9	41	3.7%
Ages: 12-19	19	30	101	9.1%
Ages: 20-39	112	185	555	50.2%
Ages: 40-59	56	91	279	25.2%
Ages: 60-79	14	21	79	7.1%
Ages: 80 and over	1	9	23	2.1%
Total reinfection cases	**209**	**350**	**1,106**	**100.0%**

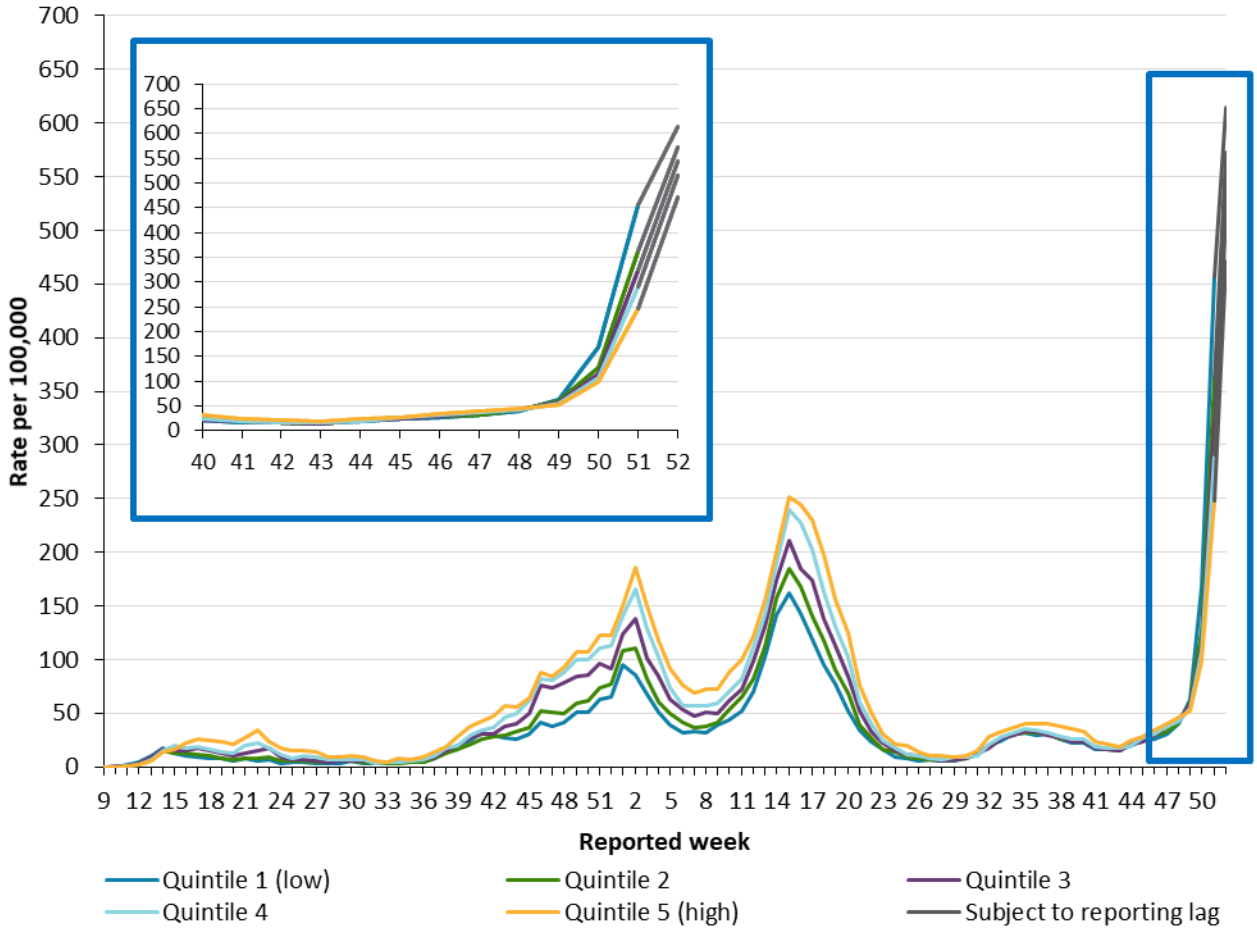
Note: Cases identified as reinfections meeting the provincial definition as indicated by public health units selecting the reinfection checkbox. Cumulative counts include cases of COVID-19 reinfection reported starting week-45 (November 1 to 7, 2020). Not all cases have a reported age or sex. Data corrections or updates can result in case records being removed and or updated from past reports and may result in subset totals (i.e., age group, sex) differing from past publicly reported case counts.
Data Source: CCM

Figure 5. Rate of confirmed cases of COVID-19 per 100,000 population by quintile of neighbourhood diversity and public health unit reported week: Ontario



Note: Neighbourhood diversity is measured using the ethnic concentration dimension of the Ontario Marginalization Index. The ethnic concentration dimension is based on the proportion of non-white and non-Indigenous residents and/or the proportion of immigrants that arrived in Canada within the past five years. Only weeks with more than 10 cases by public health unit reporting date are included (starting in week 9). Include cases with reported dates ranging from weeks 9 (February 23 to 29, 2020) to week 52 (December 26, 2021 to January 1, 2022). As of June 8, all rate denominators were changed to the 2021 OHIP RPDB population, and as a result, rates shown here may differ from previous reports. See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.
Data Source: CCM, Ontario Marginalization Index

Figure 6. Rate of confirmed cases of COVID-19 per 100,000 population by quintile of neighbourhood material deprivation and public health unit reported week: Ontario



Note: Neighbourhood material deprivation is measured using the material deprivation dimension of the Ontario Marginalization Index. The material deprivation dimension uses Canadian census data on income, quality of housing, educational attainment and family structure characteristics to assess the ability of individuals and communities to access and attain basic material needs. Only weeks with more than 10 cases by public health unit reporting date are included (starting in week 9). Include cases with reported dates ranging from weeks 9 (February 23 to 29, 2020) to week 52 (December 26, 2021 to January 1, 2022). As of June 8, all rate denominators were changed to the 2021 OHIP RPDB population, and as a result, rates shown here may differ from previous reports. See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.
Data Source: CCM, Ontario Marginalization Index

Table 7: Summary of cases of COVID-19 by quintile of neighbourhood diversity and public health unit reported week: Ontario

	Cases Reported Week 51 (December 19 to 25)	Cases Reported Week 52 (December 26, 2021 to January 1, 2022)	Cumulative case count up to January 1, 2022	Cumulative rate per 100,000 population up to January 1, 2022
Quintile 1 (least diverse)	5,203	8,825	58,723	2,643.7
Quintile 2	7,159	11,359	81,405	3,437.5
Quintile 3	10,576	14,938	113,057	4,361.6
Quintile 4	13,675	20,008	173,441	5,545.4
Quintile 5 (most diverse)	13,647	25,116	330,073	7,636.6

Note: Neighbourhood diversity is measured using the ethnic concentration dimension of the Ontario Marginalization Index. The ethnic concentration dimension is based on the proportion of non-white and non-Indigenous residents and/or the proportion of immigrants that arrived in Canada within the past five years. Cumulative counts and rates include cases of COVID-19 reported starting week 9 (February 23 to 29, 2020).
Data Source: CCM, Ontario Marginalization Index

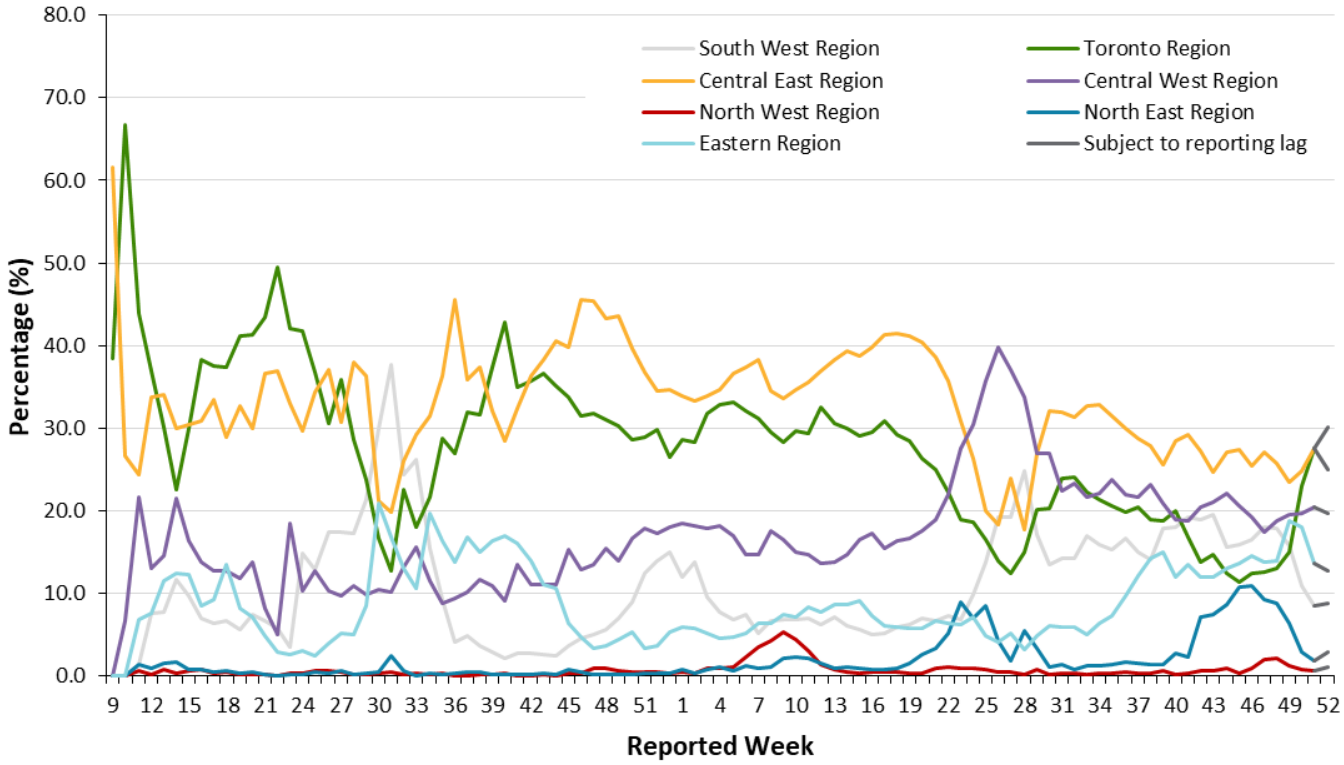
Table 8: Summary of cases of COVID-19 by quintile of neighbourhood material deprivation and public health unit reported week: Ontario

	Cases Reported Week 51 (December 19 to 25)	Cases Reported Week 52 (December 26, 2021 to January 1, 2022)	Cumulative case count up to January 1, 2022	Cumulative rate per 100,000 population up to January 1, 2022
Quintile 1 (least material deprivation)	15,738	21,174	151,243	4,388.7
Quintile 2	11,246	17,772	143,650	4,626.9
Quintile 3	8,978	15,113	144,013	5,193.5
Quintile 4	7,660	13,565	149,221	5,679.1
Quintile 5 (most material deprivation)	6,638	12,622	168,572	6,290.0

Note: Neighbourhood material deprivation is measured using the material deprivation dimension of the Ontario Marginalization Index. The material deprivation dimension uses Canadian census data on income, quality of housing, educational attainment and family structure characteristics to assess the ability of individuals and communities to access and attain basic material needs. Cumulative counts and rates include cases of COVID-19 reported starting week 9 (February 23 to 29, 2020).
Data Source: CCM, Ontario Marginalization Index

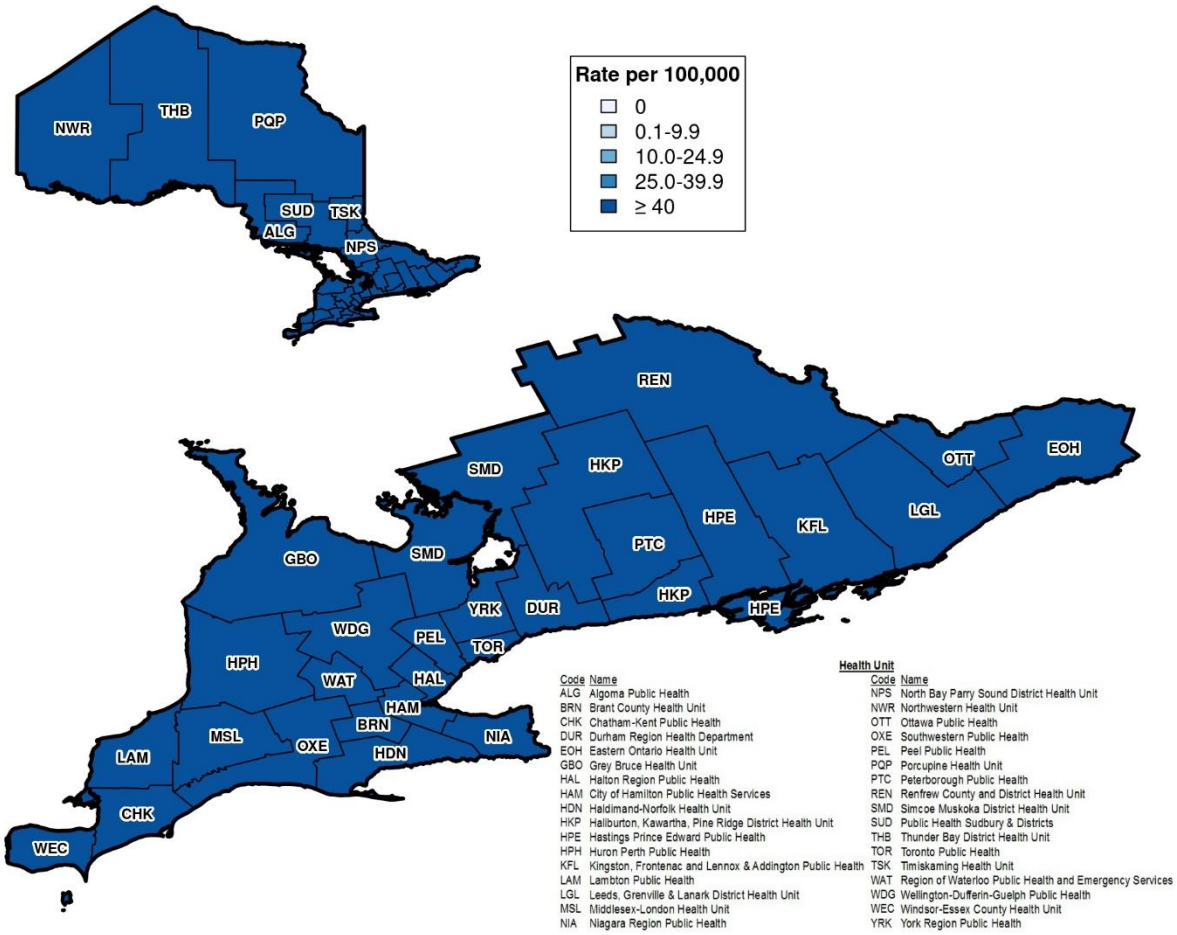
Geography

Figure 7. Percentage of COVID-19 cases by geographic region and public health unit reported week: Ontario



Note: Only weeks with more than 10 cases by public health unit reporting date are included (starting in week-9). Include cases with reported dates ranging from week-9 (February 23 and 29, 2020) to week 52 (December 26, 2021 and January 1, 2022). Table 2A in Appendix A has a listing of public health units by region.
Data Source: CCM

Figure 8. Rate of confirmed cases of COVID-19 in public health reported week 52 (December 26, 2021 to January 1, 2022) by public health unit: Ontario



Note: The provincial rate of confirmed cases of COVID-19 reported in week 52 was 657.2 cases per 100,000 population.
Data Source: CCM

Outbreaks

Table 9. Number of public health unit declared COVID-19 outbreaks by setting type: Ontario

Setting Type	Reported week 52 (December 26, 2021 to January 1, 2022)	Number of ongoing outbreaks	Cumulative number of outbreaks reported to January 1, 2022
Congregate Care	**218**	**482**	**3,526**
Long-term care homes	102	254	1,791
Retirement homes	69	118	1,026
Hospitals	47	110	709
Congregate Living	**105**	**219**	**1,688**
Correctional facility	4	14	87
Shelter	18	43	343
Group Home/supportive housing	63	130	975
Short-term accommodations	0	0	52
Congregate other	20	32	231
Education and Childcare	**57**	**178**	**4,312**
Child care	32	92	1,365
Camp – Day*	0	0	22
Camp – Overnight*	0	0	1
Camp – Unspecified*	1	1	2
School – Elementary**	10	65	2,293
School – Elementary/secondary**	3	7	105
School – Secondary**	9	10	461
School – Post-secondary**	2	3	63
Other settings	**33**	**94**	**5,449**

Setting Type	Reported week 52 (December 26, 2021 to January 1, 2022)	Number of ongoing outbreaks	Cumulative number of outbreaks reported to January 1, 2022
Bar/restaurant/nightclub	3	8	469
Medical/health services	4	6	195
Personal service settings	0	0	40
Recreational fitness	2	11	253
Retail	1	2	556
Other recreation/community	0	5	365
Workplace – Farm	0	1	262
Workplace - Food processing	1	1	294
Other types of workplaces	12	43	2,882
Other	3	9	29
Unknown	7	8	104
Total number of outbreaks	**413**	**973**	**14,975**

Note: Reported week 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 for the most recent week 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.
*Cumulative counts include COVID-19 camp outbreaks reported starting week-27 of 2021 (July 4 to 10, 2021).
**Cumulative counts include COVID-19 school outbreaks reported starting week-36 (August 30 to September 5, 2020).
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

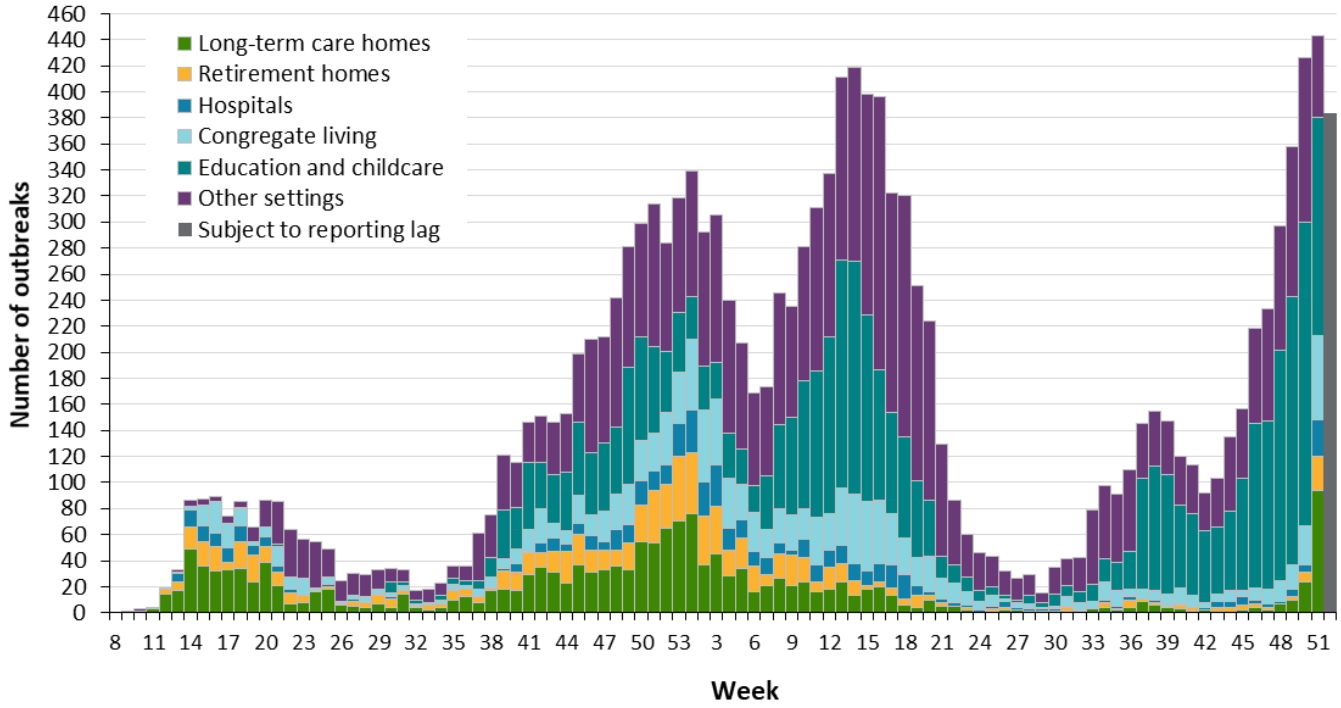
Table 10. Confirmed cases of COVID-19 associated with COVID-19 outbreaks by setting type and public health unit reported week: Ontario

Cases associated with the outbreak setting type	Reported week 51 (December 19 to 25)	Reported week 52 (December 26, 2021 to January 1, 2022)	Cumulative number of cases
Congregate Care	**551**	**1,745**	**43,785**
Long-term care homes	317	1,196	28,607
Retirement homes	72	250	7,937
Hospitals	162	299	7,241
Congregate Living	**329**	**402**	**12,022**
Correctional facility	74	104	2,382
Shelter	86	91	3,167
Group Home/supportive housing	149	179	4,275
Short-term accommodations	0	0	317
Congregate other	20	28	1,881
Education and Childcare	**816**	**197**	**18,868**
Child care	143	93	5,260
Camp – Day*	0	0	111
Camp – Overnight*	0	0	11
Camp – Unspecified*	2	2	6
School – Elementary**	408	40	10,471
School – Elementary/secondary**	22	3	505
School – Secondary**	239	55	2,040
School – Post-secondary**	2	4	464
Other settings	449	180	42,138
Bar/restaurant/nightclub	105	5	2,462

Cases associated with the outbreak setting type	Reported week 51 (December 19 to 25)	Reported week 52 (December 26, 2021 to January 1, 2022)	Cumulative number of cases
Medical/health services	26	7	845
Personal service settings	0	0	140
Recreational fitness	103	11	1,655
Retail	11	3	2,986
Other recreation/community	33	12	4,379
Workplace - Farm	12	0	3,267
Workplace - Food processing	0	0	4,021
Other types of workplaces	87	25	21,467
Other	33	107	247
Unknown	39	10	669
Total number of cases	**2,145**	**2,524**	**116,813**

Note: Interpret case counts for the most recent week 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.
*Cumulative counts include cases of COVID-19 camp outbreaks reported starting week-27 of 2021 (July 4 to 10, 2021).
**Cumulative counts include cases of COVID-19 associated with school outbreaks reported starting week-36 (August 30 to September 5, 2020).
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 9. Public health unit declared COVID-19 outbreaks by outbreak setting type and public health unit reported week: Ontario



Note: If public health unit outbreak reported date is unavailable, the date the public health unit created the outbreak is used. Week 8 refers to February 16 and 22, 2020 and week 52 refers to December 26, 2021 and January 1, 2022. Congregate living include group homes, shelters, correctional facilities, etc. Other settings include outbreaks within workplaces, restaurants, recreation etc.
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 **January 4, 2022 at 1 p.m.** for cases reported from February 1, 2021 onwards and as of **January 4, 2022 at 9 a.m.** for cases reported up January 31, 2021.

- Ontario population estimate data were sourced from Statistics Canada. Population estimates 2001-2020: Table 1 annual population estimates by age and sex for July 1, 2001 to 2020, health regions, Ontario [unpublished data table]. Ottawa, ON: Government of Canada; 2021 [received April 22, 2021].

- Statistics Canada Postal Code Conversion File Plus (PCCF+), version 7B.

- The health equity (neighbourhood-level diversity and 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]):

    - Matheson FI; van Ingen T. 2016 Ontario marginalization index. Toronto, ON: Providence St. Joseph's and St. Michael's Healthcare; 2018. Joint publication with Public Health Ontario.

    - Chung H, Fung K, Ishiguro L, Paterson M, et al. Characteristics of COVID-19 diagnostic test recipients, Applied Health Research Questions (AHRQ) # 2021 0950 080 000. Toronto: Institute for Clinical Evaluative Sciences; 2020.

Data Caveats and Methods: Case Data

- 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.

- The data represent case information reported to public health units and recorded in CCM. As a result, all 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 practice, changes in laboratory testing, and reporting behaviours.

- Observed trends over time should be interpreted with caution for the most recent period due to reporting and/or data entry lags.

- Only cases meeting the confirmed case classification as listed in the MOH Case Definition – Coronavirus Disease (COVID-19) document are included in the report counts from CCM. This includes persons with:
    - laboratory confirmation by a validated NAAT assay
    - a validated point-of-care (POC) assay deemed acceptable to provide a final result
    - a validated laboratory-based serological assay SARS-CoV-2
- 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 assays.
- 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.
- Reported date is the date the case was reported to the public health unit. This is different than the daily change in cases released by the Province for the same time period, which reflects the difference in cumulative counts reported to the Province between one day and the next.
- Reported weeks were created to align with the Public Health Agency of Canada (PHAC) influenza surveillance weeks.
- Cases with unknown or missing ages were excluded from age-specific analyses.
- Health care worker includes cases that reported 'Yes' to any of the following occupations: health care worker, doctor, nurse, dentist, dental hygienist, midwife, other medical technicians, personal support worker, respiratory therapist, first responder.
- Resolved cases are determined only for COVID-19 cases that have not died. Cases that have died are considered fatal and not resolved. The following cases are considered resolved:
    - Cases that are reported as 'recovered' in CCM based on local public health unit assessment
    - Cases that are not hospitalized and are 14 days past their symptom onset date or specimen collection date (where symptom onset date is not known)
    - Cases that are currently hospitalized (no hospitalization end date entered) and have a case status of 'closed' indicating that public health follow up is complete and are 14 days past their symptom onset date or specimen collection date

- Data on hospital admissions, ICU admissions and deaths are likely under-reported as these events may occur after the completion of public health follow up of cases. Cases that were admitted to hospital or died after follow-up was completed may not be captured in CCM.

- 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.

    - The date of death is determined using the outcome date field for cases marked as 'Fatal' in the outcome field.

- 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.

- Male/Female information presented in this report are sourced from the Sex field in CCM and are intended to represent sex assigned at birth. On October 14, 2021, changes were made in CCM to enable reporting on the Sex field where this data field is supplemented by archived Male/Female information previously entered in the Gender field.

- Likely source of acquisition is determined by examining the epidemiologic link and epidemiologic link status fields in CCM and local systems. 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 an Epidemiological link with type unspecified, 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

    - Case episode date represents an estimate of disease onset. This date is calculated based on the earliest date of symptom onset, specimen collection/test date, or the date reported to the public health unit.

- ‘Long-term care home residents’ includes cases that reported ‘Yes’ to the risk factor ‘Resident of a long-term care home’; or ‘Yes’ to the risk factor ‘Resident of nursing home or other chronic care facility’ and reported to be part of an outbreak assigned as a long-term care home (via the Outbreak number or case comments field); or were reported to be part of an outbreak assigned as a long-term care home (via the outbreak number or case comments field) with an age over 70 years and did not report ‘No’ to the risk factors ‘Resident of long-term care home’ or ‘Resident of nursing home or other chronic care facility’. ‘Long-term care home residents’ excludes cases that reported ‘Yes’ to any of the health care worker occupational risk factors.

- ‘Health care workers associated with long-term care outbreaks’ includes ‘health care workers’ reported to be part of an outbreak assigned as a long-term care home (via the outbreak number or case comments field). Excludes cases that reported ‘Yes’ to risk factors ‘Resident of long-term care home’ or ‘Resident of nursing home or other chronic care facility’ and ‘Yes’ to the calculated ‘health care workers’ variable.

- ‘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.

- 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).

- 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.

    - GTA health units include: Durham Region Health Department, Peel Public Health, Toronto Public Health and York Region Public Health

- 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.

- School outbreaks include outbreaks declared on or after week-36 (August 30 to September 5, 2020).

Data Caveats and Methods: ON-Marg

- ON-Marg is a data tool that combines a wide range of demographic indicators into multiple distinct dimensions of marginalization. It is an area-based index which assigns a measure of marginalization based on neighbourhood versus individual characteristics. As such, the broader demographic trends of an area may not reflect all residents of a neighbourhood owing to the inherent heterogeneity of demographic characteristics which can vary substantially especially across large rural geographies. For more information, please visit PHO's ON-Marg website.

- Neighbourhood diversity is defined using the ethnic concentration dimension of ON-Marg, which measures populations who may experience marginalization related to racism and discrimination. It is based on the proportion of non-white and non-Indigenous residents (visible minority) and/or the proportion of immigrants that arrived in Canada within the past five years. 'Visible minority' is a term used by Statistics Canada that, although is considered to be outdated, is used here to be consistent with the Canadian census.

- Neighbourhood material deprivation is defined using the material deprivation dimension of ON-Marg, which is closely connected to poverty. It refers to the inability of individuals and communities to access and attain basic material needs. The indicators included in this dimension measure income, quality of housing, educational attainment and family structure characteristics.

- "Neighbourhoods" are considered to be Statistic Canada dissemination areas (DA). Cases were probabilistically matched to a DA based on their postal code using Statistics Canada's PCCF+ version 7B file, and subsequently assigned to a quintile of marginalization that contained 20% of Ontario neighbourhoods. The quintiles for the ethnic concentration and the material deprivation dimensions are ordered from quintiles 1 to 5, with quintile 1 having the lowest level of marginalization (i.e., least diverse or least deprived) and quintile 5 having the highest level of marginalization (i.e., most diverse or most deprived).

- The following were not included in analyses that summarize the impact of COVID-19 among Ontarians who may experience marginalization:
    - People who have tested positive for COVID-19 that reside in institutional and congregate settings are not included in the census data from which the marginalization indicators (ethnic concentration and material deprivation) are derived. Although these cases represent a large number of cases overall and deaths, their exclusion ensures appropriate comparisons since institutional and congregate setting residents are excluded from ON-Marg.
    - People who have tested positive for COVID-19 that reside in census dissemination areas where data has been suppressed, and cases that have missing or invalid postal codes could not be assigned to a quintile of marginalization.
    - Due to data suppression for some census indicators on Indian Reserves in Ontario, residents of Indian Reserves could not be included in ON-Marg and therefore people who have tested positive for COVID-19 and are living on Indian Reserves could not be assigned to a quintile of marginalization. While Indigenous individuals living off reserves are included in this analysis, Indigeneity data is not currently collected or captured in dimensions of ON-Marg.
- Population counts used in rate denominators were provided by ICES. Individuals alive and eligible for the Ontario Health Insurance Plan (OHIP) as of January 1st, 2021 using the OHIP RPDB were included.
    - Individuals residing in long-term care (LTC) homes were excluded. Recent health care transaction records (e.g., OHIP physician billings, Ontario Drug Benefit [ODB] Plan claims) and Resident Assessment Instrument (RAI) assessments from the Continuing Care Reporting System (CCRS) were used to identify individuals residing in a LTC home near the period prior to the index date.
    - Postal codes were assigned to individuals according to the most recent residential address available in the OHIP RPDB.
- This work is supported by the Applied Health Research Questions (AHRQ) Portfolio at ICES, which is funded by the Ontario Ministry of Health, and Ontario Health Data Platform (OHDP), a Province of Ontario initiative to support Ontario's ongoing response to COVID-19 and its related impacts. Parts of this material are based on data and information compiled and provided by the Ontario Ministry of Health. The analyses, conclusions, opinions and statements expressed herein are solely those of the authors and do not reflect those of ICES, the OHDP or the funding or data sources; no endorsement is intended or should be inferred. For more information on AHRQ and how to submit a request, please visit www.ices.on.ca/DAS/AHRQ.

Appendix A

Table 1A. Confirmed cases of COVID-19 by public health unit reported week: Ontario

Reported Week	Start date	End date	Number of cases	Cumulative count
2	January 5, 2020	January 11, 2020	0	0
3	January 12, 2020	January 18, 2020	0	0
4	January 19, 2020	January 25, 2020	3	3
5	January 26, 2020	February 1, 2020	0	3
6	February 2, 2020	February 8, 2020	0	3
7	February 9, 2020	February 15, 2020	0	3
8	February 16, 2020	February 22, 2020	1	4
9	February 23, 2020	February 29, 2020	13	17
10	March 1, 2020	March 7, 2020	15	32
11	March 8, 2020	March 14, 2020	148	180
12	March 15, 2020	March 21, 2020	447	627
13	March 22, 2020	March 28, 2020	1,325	1,952
14	March 29, 2020	April 4, 2020	2,794	4,746
15	April 5, 2020	April 11, 2020	3,165	7,911
16	April 12, 2020	April 18, 2020	4,262	12,173
17	April 19, 2020	April 25, 2020	3,649	15,822
18	April 26, 2020	May 2, 2020	2,900	18,722
19	May 3, 2020	May 9, 2020	2,353	21,075
20	May 10, 2020	May 16, 2020	2,223	23,298
21	May 17, 2020	May 23, 2020	2,617	25,915
22	May 24, 2020	May 30, 2020	2,611	28,526
23	May 31, 2020	June 6, 2020	2,301	30,827

Reported Week	Start date	End date	Number of cases	Cumulative count
24	June 7, 2020	June 13, 2020	1,472	32,299
25	June 14, 2020	June 20, 2020	1,226	33,525
26	June 21, 2020	June 27, 2020	1,251	34,776
27	June 28, 2020	July 4, 2020	1,085	35,861
28	July 5, 2020	July 11, 2020	866	36,727
29	July 12, 2020	July 18, 2020	931	37,658
30	July 19, 2020	July 25, 2020	993	38,651
31	July 26, 2020	August 1, 2020	808	39,459
32	August 2, 2020	August 8, 2020	591	40,050
33	August 9, 2020	August 15, 2020	610	40,660
34	August 16, 2020	August 22, 2020	728	41,388
35	August 23, 2020	August 29, 2020	850	42,238
36	August 30, 2020	September 5, 2020	976	43,214
37	September 6, 2020	September 12, 2020	1,506	44,720
38	September 13, 2020	September 19, 2020	2,371	47,091
39	September 20, 2020	September 26, 2020	3,123	50,214
40	September 27, 2020	October 3, 2020	4,223	54,437
41	October 4, 2020	October 10, 2020	5,036	59,473
42	October 11, 2020	October 17, 2020	5,276	64,749
43	October 18, 2020	October 24, 2020	6,039	70,788
44	October 25, 2020	October 31, 2020	6,389	77,177
45	November 1, 2020	November 7, 2020	7,602	84,779
46	November 8, 2020	November 14, 2020	10,441	95,220
47	November 15, 2020	November 21, 2020	10,038	105,258
48	November 22, 2020	November 28, 2020	11,137	116,395

Reported Week	Start date	End date	Number of cases	Cumulative count
49	November 29, 2020	December 5, 2020	12,682	129,077
50	December 6, 2020	December 12, 2020	13,062	142,139
51	December 13, 2020	December 19, 2020	15,660	157,799
52	December 20, 2020	December 26, 2020	15,624	173,423
53	December 27, 2020	January 2, 2021	20,450	193,873
1	January 3, 2021	January 9, 2021	24,871	218,744
2	January 10, 2021	January 16, 2021	21,380	240,124
3	January 17, 2021	January 23, 2021	16,402	256,526
4	January 24, 2021	January 30, 2021	12,769	269,295
5	January 31, 2021	February 6, 2021	9,779	279,074
6	February 7, 2021	February 13, 2021	7,899	286,973
7	February 14, 2021	February 20, 2021	7,456	294,429
8	February 21, 2021	February 27, 2021	7,685	302,114
9	February 28, 2021	March 6, 2021	7,932	310,046
10	March 7, 2021	March 13, 2021	9,481	319,527
11	March 14, 2021	March 20, 2021	11,021	330,548
12	March 21, 2021	March 27, 2021	14,391	344,939
13	March 28, 2021	April 3, 2021	18,945	363,884
14	April 4, 2021	April 10, 2021	25,578	389,462
15	April 11, 2021	April 17, 2021	30,886	420,348
16	April 18, 2021	April 24, 2021	28,343	448,691
17	April 25, 2021	May 1, 2021	25,208	473,899
18	May 2, 2021	May 8, 2021	20,754	494,653
19	May 9, 2021	May 15, 2021	16,524	511,177
20	May 16, 2021	May 22, 2021	12,650	523,827

Reported Week	Start date	End date	Number of cases	Cumulative count
21	May 23, 2021	May 29, 2021	7,758	531,585
22	May 30, 2021	June 5, 2021	5,215	536,800
23	June 6, 2021	June 12, 2021	3,484	540,284
24	June 13, 2021	June 19, 2021	2,418	542,702
25	June 20, 2021	June 26, 2021	1,881	544,583
26	June 27, 2021	July 3, 2021	1,473	546,056
27	July 4, 2021	July 10, 2021	1,226	547,282
28	July 11, 2021	July 17, 2021	1,045	548,327
29	July 18, 2021	July 24, 2021	1,108	549,435
30	July 25, 2021	July 31, 2021	1,350	550,785
31	August 1, 2021	August 7, 2021	1,906	552,691
32	August 8, 2021	August 14, 2021	3,171	555,862
33	August 15, 2021	August 21, 2021	4,144	560,006
34	August 22, 2021	August 28, 2021	4,775	564,781
35	August 29, 2021	September 4, 2021	5,183	569,964
36	September 5, 2021	September 11, 2021	5,056	575,020
37	September 12, 2021	September 18, 2021	4,917	579,937
38	September 19, 2021	September 25, 2021	4,398	584,335
39	September 26, 2021	October 2, 2021	3,953	588,288
40	October 3, 2021	October 9, 2021	3,843	592,131
41	October 10, 2021	October 16, 2021	2,902	595,033
42	October 17, 20210	October 23, 2021	2,626	597,659
43	October 24, 2021	October 30, 2021	2,502	600,161
44	October 31, 2021	November 6, 2021	3,289	603,450
45	November 7, 2021	November 13, 2021	3,981	607,431

Reported Week	Start date	End date	Number of cases	Cumulative count
46	November 14, 2021	November 20, 2021	4,572	612,003
47	November 21, 2021	November 27, 2021	5,433	617,436
48	November 28, 2021	December 4, 2021	6,580	624,016
49	December 5, 2021	December 11, 2021	8,979	632,995
50	December 12, 2021	December 18, 2021	18,933	651,928
51	December 19, 2021	December 25, 2021	51,587	703,515
52	December 26, 2021	January 1, 2022	96,829	800,344

Table 2A. Confirmed cases of COVID-19 by public health unit and region: Ontario

Public Health Unit Name	Cases reported week 51	Rate per 100,000 population Reported week 51	Cases reported week 52	Rate per 100,000 population Reported week 52
Northwestern Health Unit	167	205.7	455	560.4
Thunder Bay District Health Unit	125	79.3	559	354.5
TOTAL NORTH WEST	**292**	**122.2**	**1,014**	**424.5**
Algoma Public Health	147	124.7	476	403.9
North Bay Parry Sound District Health Unit	205	158.5	467	361.2
Porcupine Health Unit	234	275.3	602	708.2
Public Health Sudbury & Districts	341	166.1	1,050	511.6
Timiskaming Health Unit	45	132.8	148	436.8
TOTAL NORTH EAST	**972**	**170.1**	**2,743**	**480.1**
Ottawa Public Health	4,035	386.8	6,604	633.1
Eastern Ontario Health Unit	736	341.0	1,729	801.0
Hastings Prince Edward Public Health	553	320.0	1,089	630.1
Kingston, Frontenac and Lennox & Addington Public Health	990	473.2	1,335	638.1
Leeds, Grenville & Lanark District Health Unit	538	299.0	1,079	599.6
Renfrew County and District Health Unit	152	140.1	444	409.3
TOTAL EASTERN	**7,004**	**363.0**	**12,280**	**636.4**
Durham Region Health Department	2,393	336.4	4,586	644.6

Public Health Unit Name	Cases reported week 51	Rate per 100,000 population Reported week 51	Cases reported week 52	Rate per 100,000 population Reported week 52
Haliburton, Kawartha, Pine Ridge District Health Unit	362	189.8	828	434.1
Peel Public Health	4,808	307.5	10,261	656.2
Peterborough Public Health	409	276.1	710	479.3
Simcoe Muskoka District Health Unit	1,657	274.1	3,554	587.9
York Region Public Health	4,602	383.4	9,202	766.7
TOTAL CENTRAL EAST	**14,231**	**322.1**	**29,141**	**659.5**
Toronto Public Health	14,225	476.0	24,151	808.2
TOTAL TORONTO	**14,225**	**476.0**	**24,151**	**808.2**
Chatham-Kent Public Health	215	201.7	363	340.5
Grey Bruce Health Unit	377	214.0	695	394.6
Huron Perth Public Health	284	194.2	570	389.8
Lambton Public Health	470	353.5	862	648.3
Middlesex-London Health Unit	1,713	335.5	3,108	608.7
Southwestern Public Health	485	221.6	971	443.6
Windsor-Essex County Health Unit	804	186.6	1,941	450.4
TOTAL SOUTH WEST	**4,348**	**252.4**	**8,510**	**494.1**
Brant County Health Unit	389	253.3	1,017	662.3
City of Hamilton Public Health Services	2,724	468.3	5,024	863.6
Haldimand-Norfolk Health Unit	319	265.8	621	517.5
Halton Region Public Health	3,021	494.8	4,451	729.0

Public Health Unit Name	Cases reported week 51	Rate per 100,000 population Reported week 51	Cases reported week 52	Rate per 100,000 population Reported week 52
Niagara Region Public Health	1,307	271.3	2,246	466.2
Region of Waterloo Public Health and Emergency Services	1,690	279.2	3,491	576.8
Wellington-Dufferin-Guelph Public Health	1,065	341.4	2,140	685.9
TOTAL CENTRAL WEST	**10,515**	**367.0**	**18,990**	**662.9**
TOTAL ONTARIO	**51,587**	**350.1**	**96,829**	**657.2**

Note: Interpret information for the most recent week with caution due to reporting lags.

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