

WEEKLY EPIDEMIOLOGICAL SUMMARY

COVID-19 in Ontario: Focus on April 18, 2021 to April 24, 2021

This report includes the most current information available from CCM as of April 27, 2021.

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

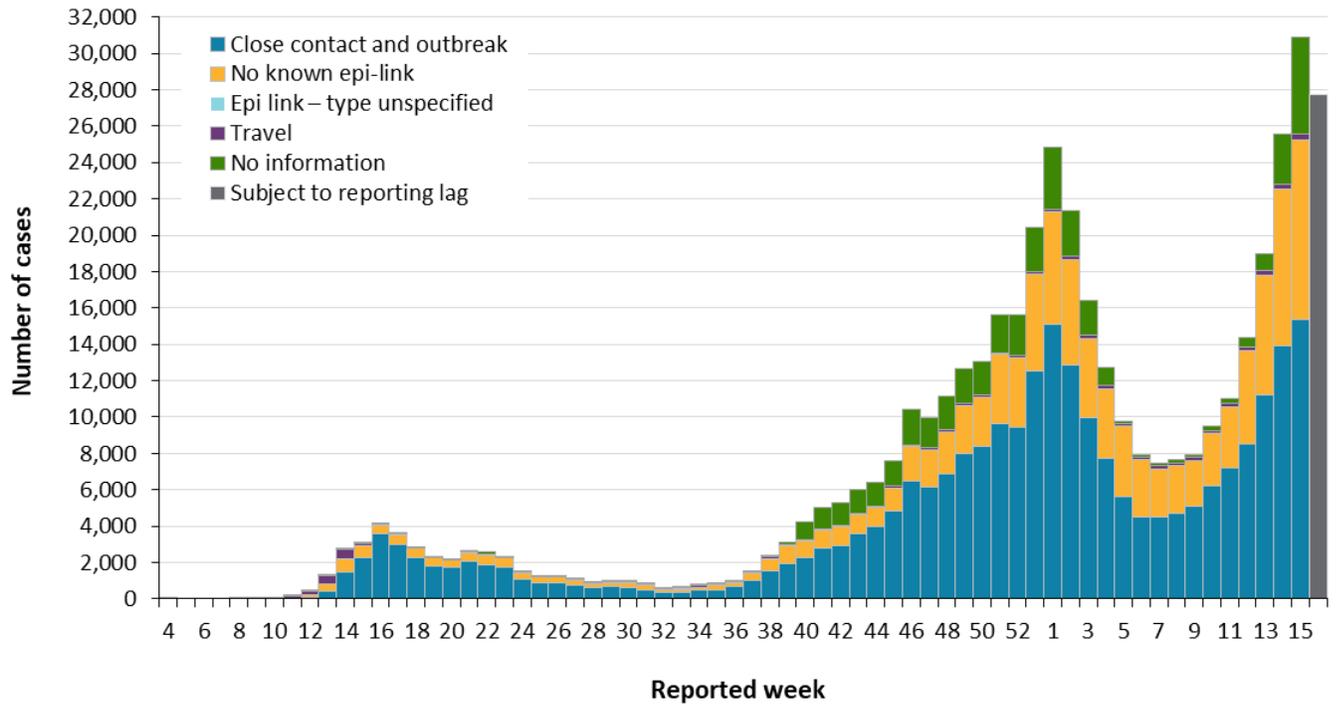
- There are a total of 447,708 confirmed cases of COVID-19 in Ontario with a public health unit reported date up to April 24, 2021.
- For the period with a public health unit reported date between April 18 to 24, 2021 (week 16):
 - A total of 27,736 cases were reported to public health compared to 30,884 cases the previous week (April 11 to 17, 2021).
 - In week 16 there was a 10.2% decrease in cases (n=27,736) compared to the previous week (n=30,884). Cases decreased across all age groups, with the largest decrease seen among those 60 years of age and older (14.2% decrease in cases).
 - While most health regions saw a decrease in cases ranging between 4.0% and 32.9% compared to the previous week, the North West region saw a 48.9% increase in cases.

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

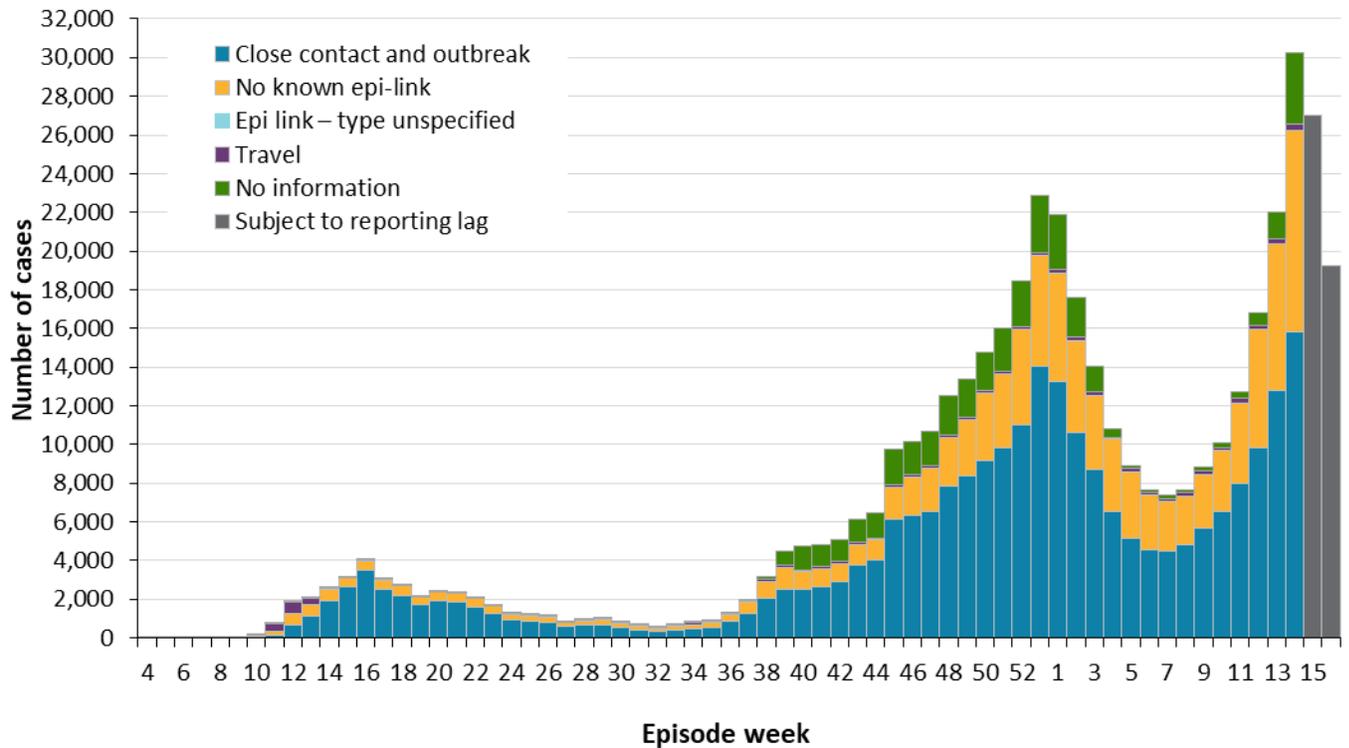
Figure 1. Confirmed cases of COVID-19 by likely source of acquisition and public health unit reported week: Ontario



Note: Include cases with reported dates ranging from week-4 (January 19 and 25, 2020) to week 16 (April 18 and 24, 2021). See [Table 1A](#) in Appendix A for a list of the weeks and corresponding start and end dates.

Data Source: CCM

Figure 2. Confirmed cases of COVID-19 by likely source of acquisition and approximation of symptom onset week: Ontario



Note: Not all cases have an episode date. Cases without an episode date are not included in the figure. The definition for how episode date is defined is available in the technical notes. Include cases with episode dates ranging from week-4 (January 19 and 25, 2020) to week 16 (April 18 and 24, 2021). 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

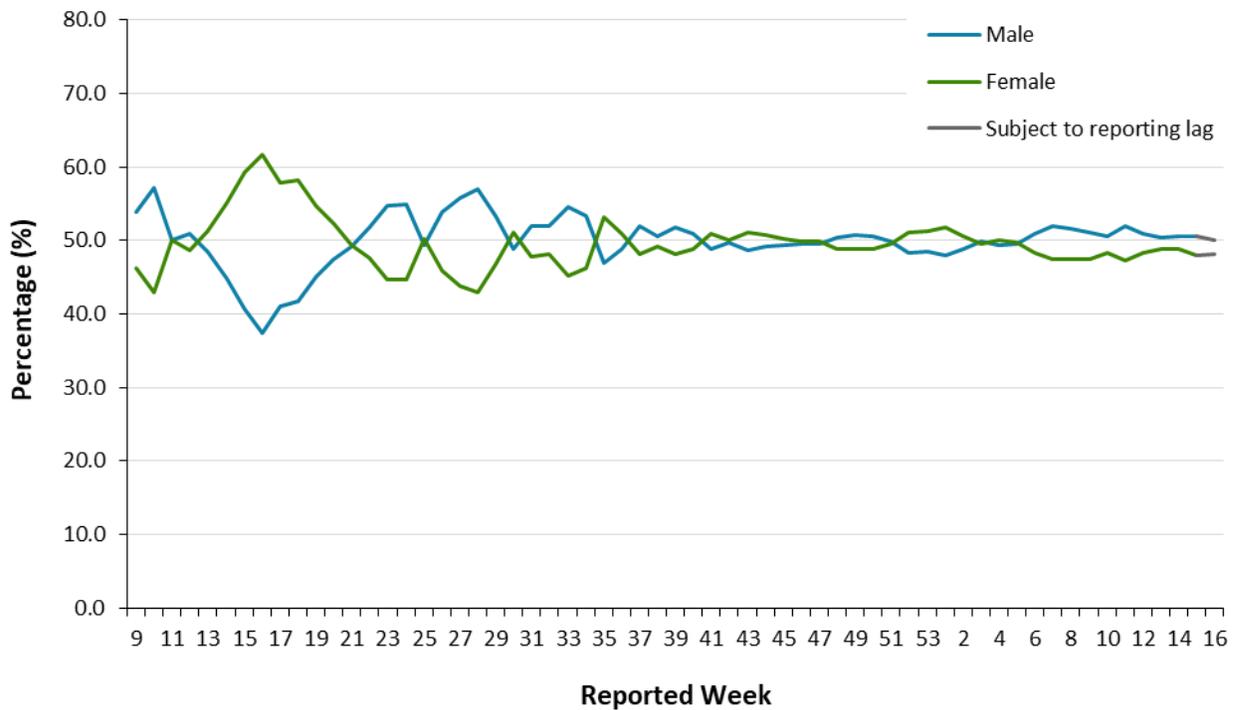
	Reported week 15 (April 11 to 17)	Reported week 16 (April 18 to 24)	Cumulative case count up to April 24	Cumulative rate per 100,000 population
Total number of cases	30,884	27,736	447,708	3,011.9
Gender: Male	15,603	13,888	222,316	3,037.4
Gender: Female	14,836	13,352	222,253	2,945.6
Ages: 19 and under	5,659	5,088	68,457	2,182.6
Ages: 20-39	11,491	10,325	164,770	3,964.4
Ages: 40-59	9,084	8,320	129,159	3,280.2
Ages: 60-79	4,069	3,491	61,968	2,097.1
Ages: 80 and over	573	492	23,248	3,422.5
Number resolved	N/A	N/A	408,577	N/A

Note: Not all cases have an age or gender reported.

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

Data Source: CCM

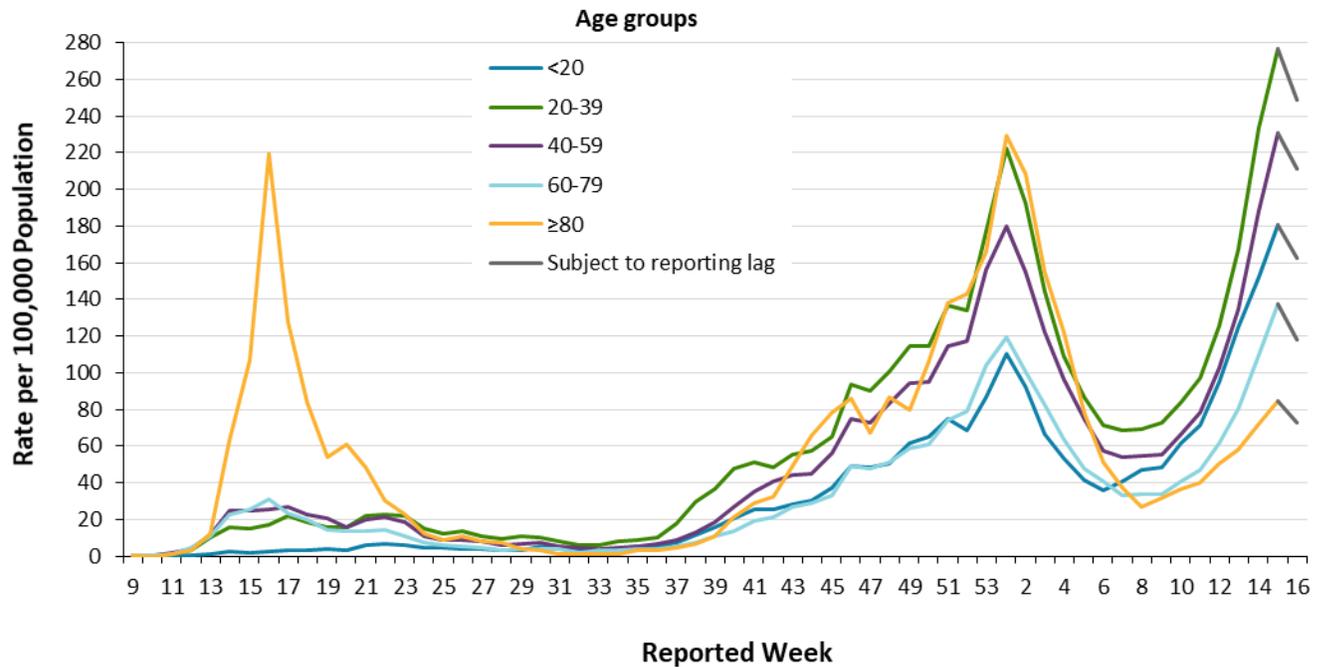
Figure 3. Percentage of confirmed cases of COVID-19 by gender and public health unit reported week: Ontario



Note: Not all cases have a gender 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 16 (April 18 and 24, 2021). See [Table 1A](#) in Appendix A for a list of the weeks and corresponding start and end dates.

Data Source: CCM

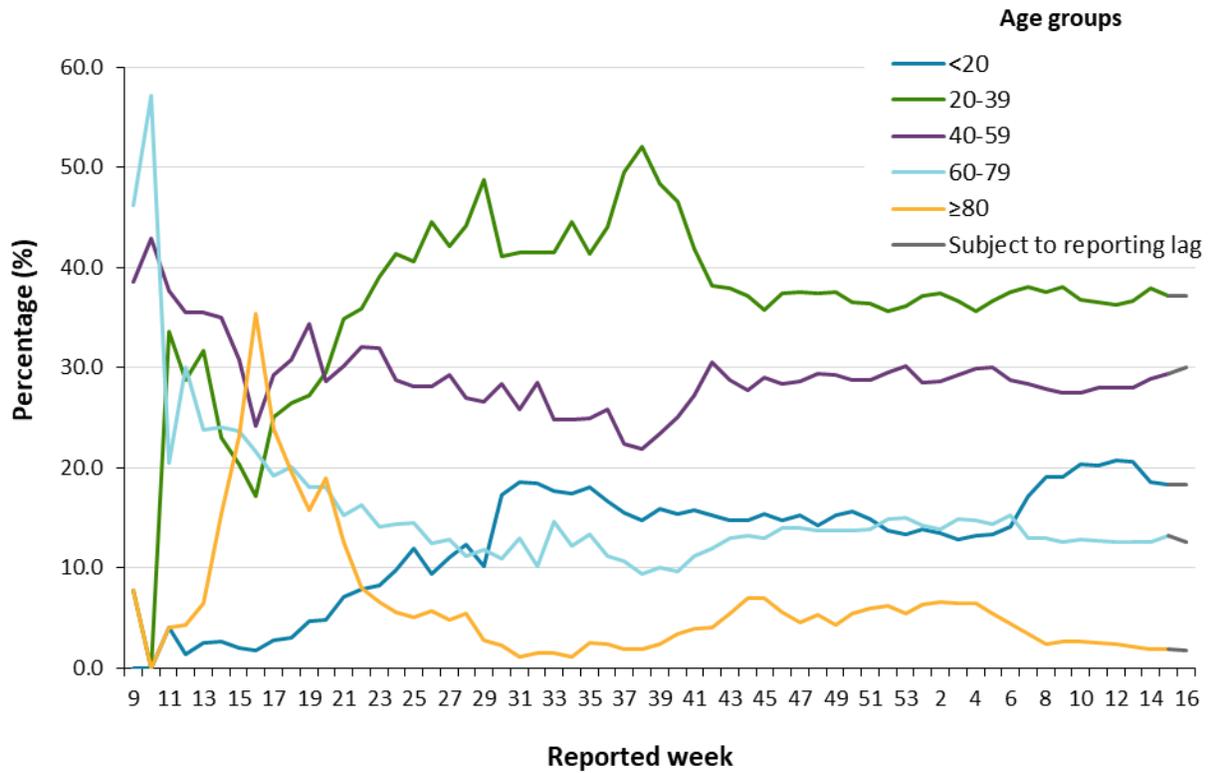
Figure 4a. Rate of confirmed cases of COVID-19 per 100,000 population by age group and public health unit reported week: Ontario



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 16 (April 18 and 24, 2021). See [Table 1A](#) in Appendix A for a list of the weeks and corresponding start and end dates.

Data Source: CCM

Figure 4b. Percentage of confirmed cases of COVID-19 by age group and public health unit reported week: Ontario

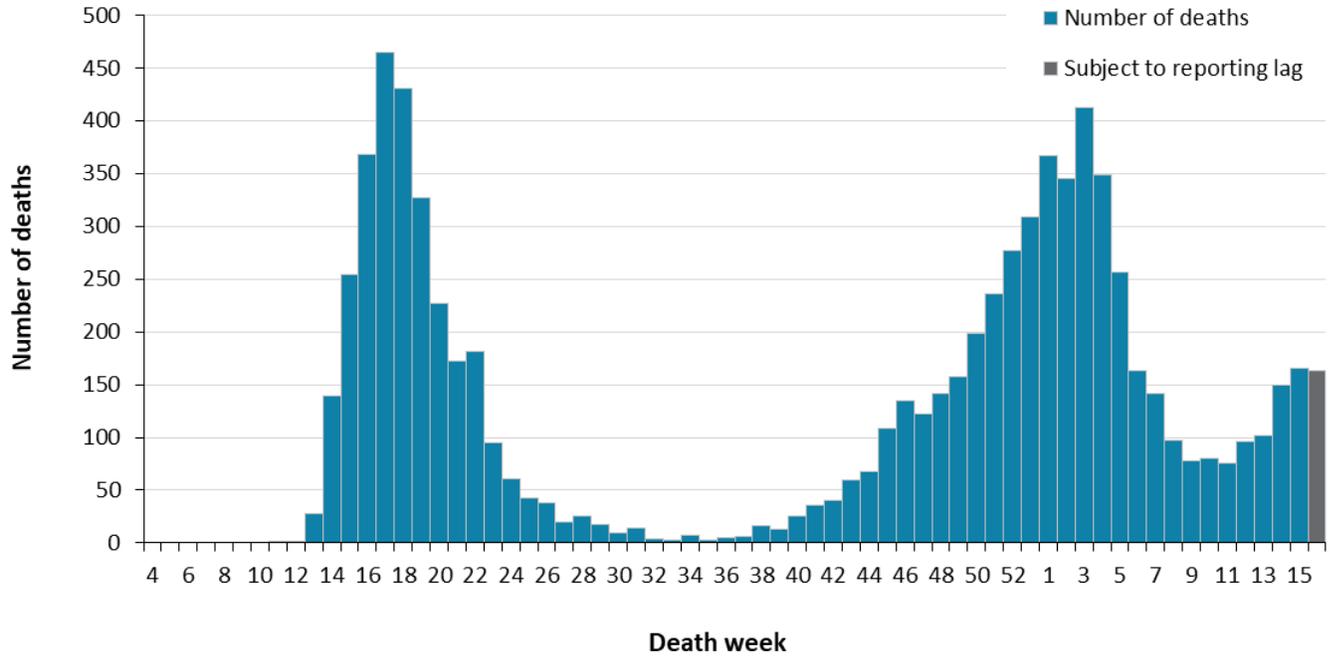


Note: Only weeks with more than 10 cases by public health unit reporting date are included (starting in week 9). Include cases with reported dates ranging from week 9 (February 23 and 29, 2020) to week 16 (April 18 and 24, 2021). See [Table 1A](#) in Appendix A for a list of the weeks and corresponding start and end dates.

Data Source: CCM

Deaths

Figure 5. 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 16 (April 18 and 24, 2021). 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 15 (April 11 to 17)	Reported week 16 (April 18 to 24)	Cumulative case count up to April 24	Cumulative rate per 100,000 population
Number of deaths	120	36	7,987	53.7
Gender: Male	63	19	3,918	53.5
Gender: Female	52	14	4,013	53.2
Ages: 19 and under	0	1	3	0.1
Ages: 20-39	4	2	50	1.2
Ages: 40-59	8	6	373	9.5
Ages: 60-79	55	16	2,354	79.7
Ages: 80 and over	53	11	5,206	766.4

Note: Age and gender 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 15 (April 11 to 17)	Percentage	Reported week 16 (April 18 to 24)	Percentage	Cumulative case count up to April 24	Cumulative percentage
Travel	335	1.1%	311	1.1%	7,296	1.6%
Outbreak-associated or close contact of a confirmed case	15,344	49.7%	12,347	44.5%	268,082	59.9%
Epidemiological link – type unspecified	0	0.0%	0	0.0%	163	0.0%
No known epidemiological link	9,860	31.9%	8,451	30.5%	121,384	27.1%
Information missing or unknown	5,345	17.3%	6,627	23.9%	50,783	11.3%
Total	30,884		27,736		447,708	

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 15 (April 11 to 17)	Reported week 16 (April 18 to 24)	Cumulative case count up to April 24
Number of cases	381	312	21,863
Ever hospitalized	6	1	412
Ever in ICU	1	0	90

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 15 (April 11 to 17)	Reported week 16 (April 18 to 24)	Cumulative case count up to April 24
Residents	39	26	15,133
Deaths among residents	2	1	3,919
Health care workers	20	17	6,950
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

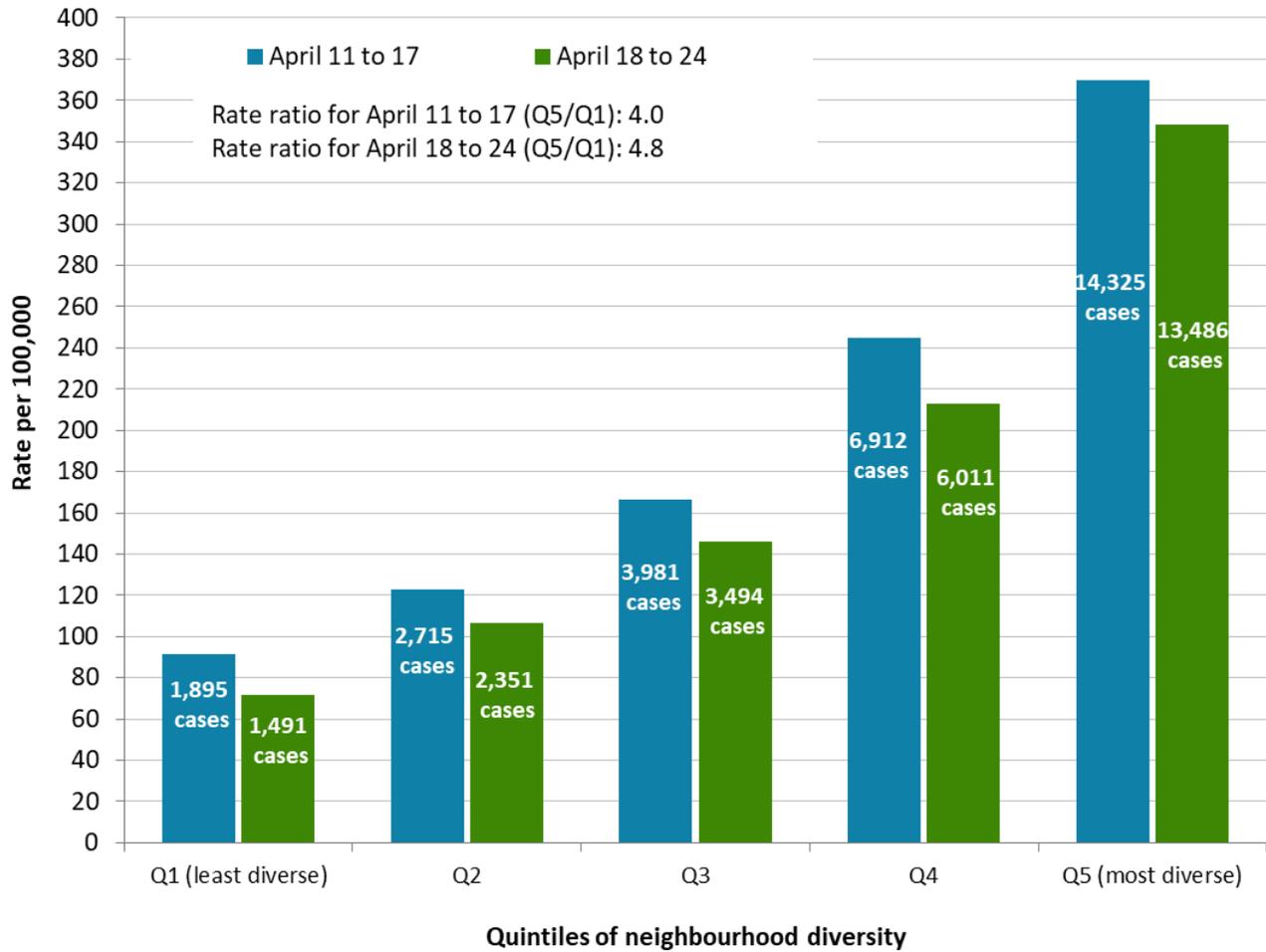
Table 6: Summary of cases of COVID-19 among school aged children by age group: Ontario

	Reported week 15 (April 11 to 17)	Reported week 16 (April 18 to 24)	Cumulative case count from August 30 up to April 24
Ages: 4-8	1,084	948	12,402
Ages: 9-13	1,420	1,148	16,098
Ages: 14-17	1,392	1,287	16,073

Note: Interpret information for the most recent week with caution due to reporting lags. Includes all confirmed cases of COVID-19 for specified ages, regardless of school attendance. Cumulative counts include cases of COVID-19 reported starting week-36 (August 30 to September 5, 2020).

Data Source: CCM

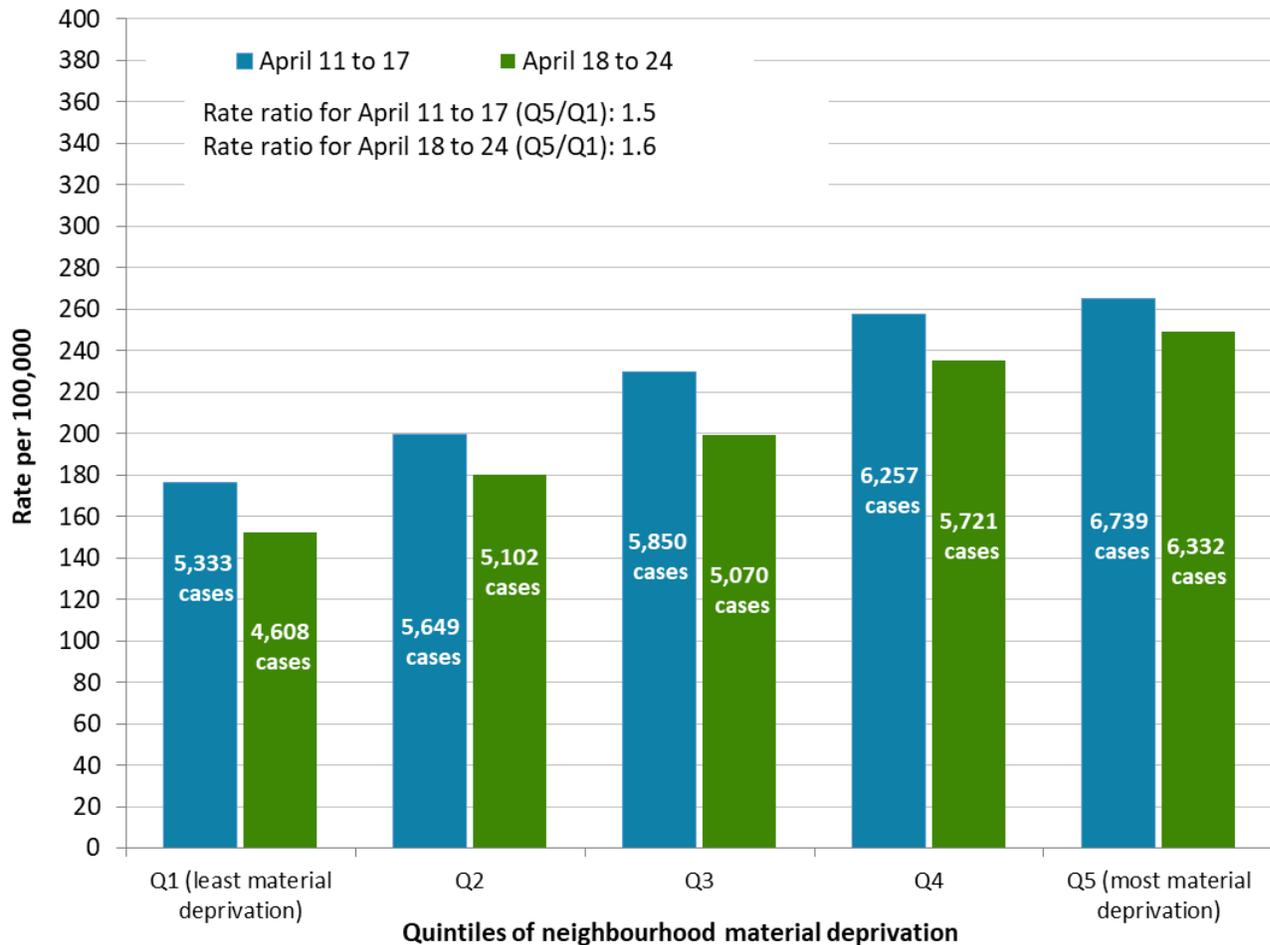
Figure 6. Rate and number of confirmed cases of COVID-19 for each quintile of neighbourhood diversity: Ontario, week 15 (April 11 to 17, 2021) and week 16 (April 18 to 24, 2021)



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.

Data Source: CCM, Ontario Marginalization Index

Figure 7. Rate and number of confirmed cases of COVID-19 for each quintile of neighbourhood material deprivation: Ontario, week 15 (April 11 to 17, 2021) and week 16 (April 18 to 24, 2021).

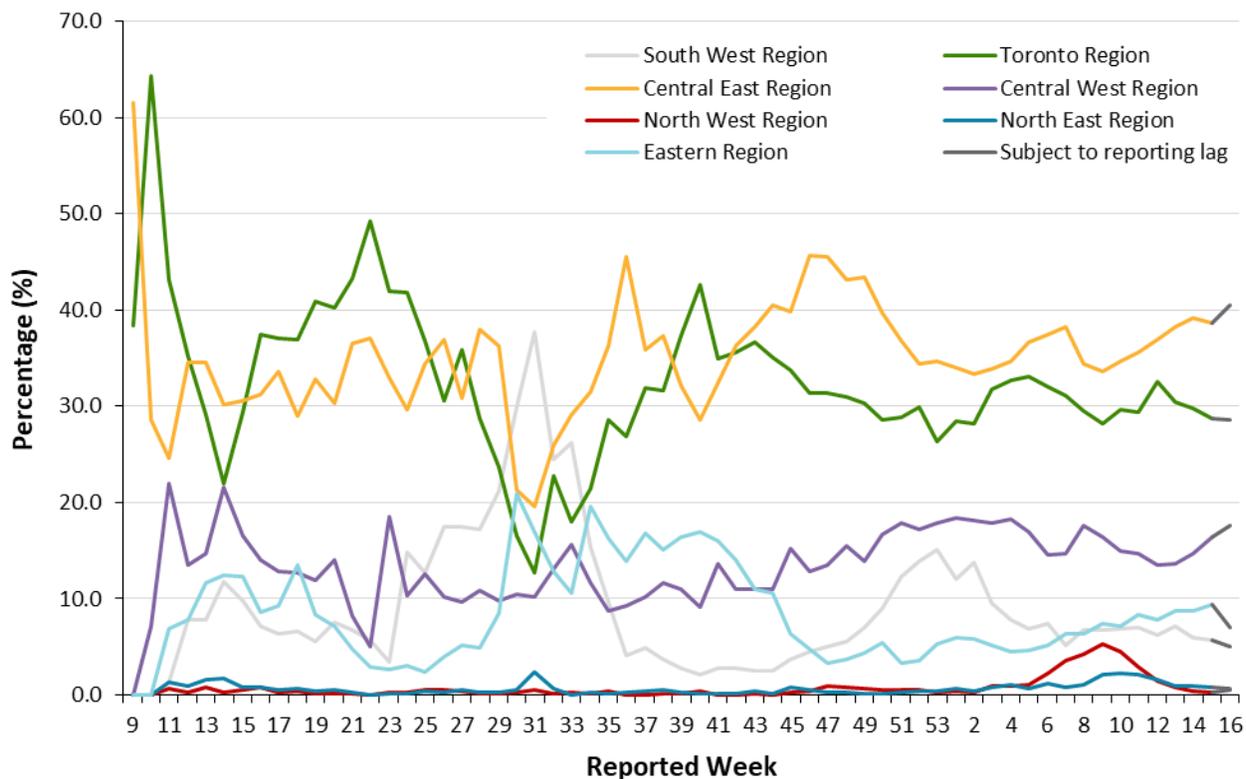


Note: Neighbourhood material deprivation is measured using the material deprivation dimension of the Ontario Marginalization Index. The material deprivation dimension uses Canadian census data on income, quality of housing, educational attainment and family structure characteristics to assess the ability of individuals and communities to access and attain basic material needs.

Data Source: CCM, Ontario Marginalization Index

Geography

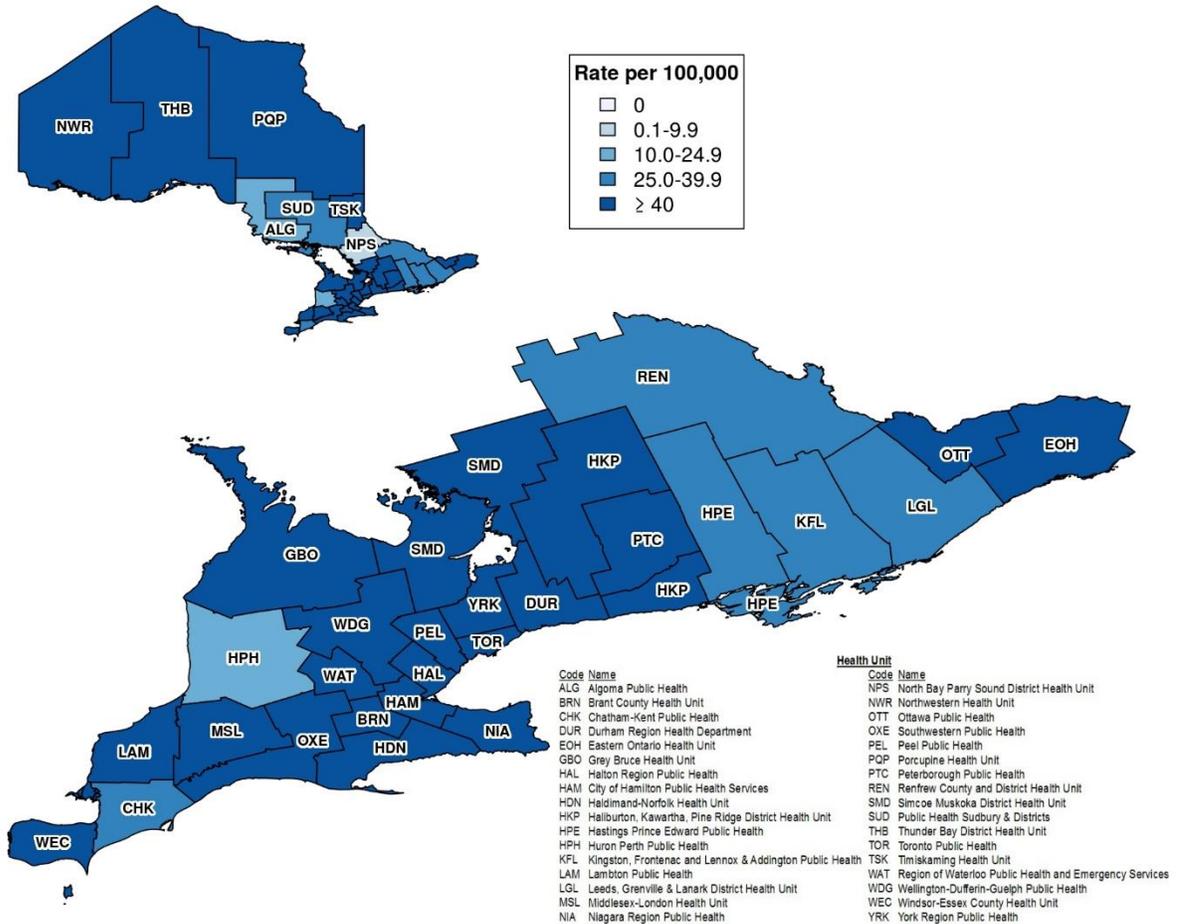
Figure 8. Percentage of COVID-19 cases by geographic region and public health unit reported week: Ontario



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 16 (April 18 and 24, 2021). [Table 2A](#) in Appendix A has a listing of public health units by region.

Data Source: CCM

Figure 9. Rate of confirmed cases of COVID-19 in public health reported week 16 (April 18 to 24, 2021) by public health unit: Ontario



Note: The provincial rate of confirmed cases of COVID-19 reported in week 16 was 186.6 cases per 100,000 population.

Data Source: CCM

Outbreaks

Table 7. Number of public health unit declared COVID-19 outbreaks by setting type: Ontario

Setting Type	Reported week 16 (April 18 to 24)	Number of ongoing outbreaks	Cumulative number of outbreaks reported to April 24
Congregate Care	29	95	2,783
Long-term care homes	14	47	1,430
Retirement homes	1	12	838
Hospitals	14	36	515
Congregate Living	38	124	1,110
Correctional facility	1	4	46
Shelter	3	34	228
Group Home/supportive housing	31	70	666
Short-term accommodations	0	1	25
Congregate other	3	15	145
Education	89	160	2,100
Child care	49	120	701
School – Elementary*	24	30	1,051
School – Elementary/secondary*	3	1	61
School – Secondary*	12	8	250
School – Post-secondary*	1	1	37
Other settings	178	363	3,224
Bar/restaurant/nightclub	10	17	241
Medical/health services	1	4	127
Personal service settings	0	0	27
Recreational fitness	2	2	86

Setting Type	Reported week 16 (April 18 to 24)	Number of ongoing outbreaks	Cumulative number of outbreaks reported to April 24
Retail	23	36	340
Other recreation/community	11	27	188
Workplace – Farm	7	21	170
Workplace - Food processing	3	17	207
Other types of workplaces	112	221	1,797
Other	4	11	14
Unknown	5	7	27
Total number of outbreaks	334	742	9,217

Note: Reported week is based on the outbreak reported date, and if unavailable, the date the public health unit created the outbreak. Ongoing outbreaks includes all outbreaks that are 'Open' in CCM without a 'Declared Over Date' recorded 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'. 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, construction, 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 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.

Data Source: CCM

Table 8. 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 15 (April 11 to 17)	Reported week 16(April 18 to 24)	Cumulative number of cases
Congregate Care	210	184	38,479
Long-term care homes	67	70	25,542
Retirement homes	60	22	7,093
Hospitals	83	92	5,844
Congregate Living	348	183	8,371
Correctional facility	38	10	1,329
Shelter	63	45	2,392
Group Home/supportive housing	140	98	3,202
Short-term accommodations	0	1	133
Congregate other	107	29	1,315
Education	541	337	8,718
Child care	237	260	2,577
School – Elementary*	235	55	4,383
School – Elementary/secondary*	19	4	311
School – Secondary*	48	17	1,069
School – Post-secondary*	2	1	378
Other settings	1,430	909	24,718
Bar/restaurant/nightclub	54	36	1,037
Medical/health services	15	10	582
Personal service settings	3	0	104
Recreational fitness	26	6	693
Retail	109	77	1,653

Cases associated with the outbreak setting type	Reported week 15 (April 11 to 17)	Reported week 16(April 18 to 24)	Cumulative number of cases
Other recreation/community	141	56	2,253
Workplace - Farm	25	16	2,699
Workplace - Food processing	135	73	2,684
Other types of workplaces	881	599	12,805
Other	22	18	50
Unknown	19	18	158
Total number of cases	2,529	1,613	80,286

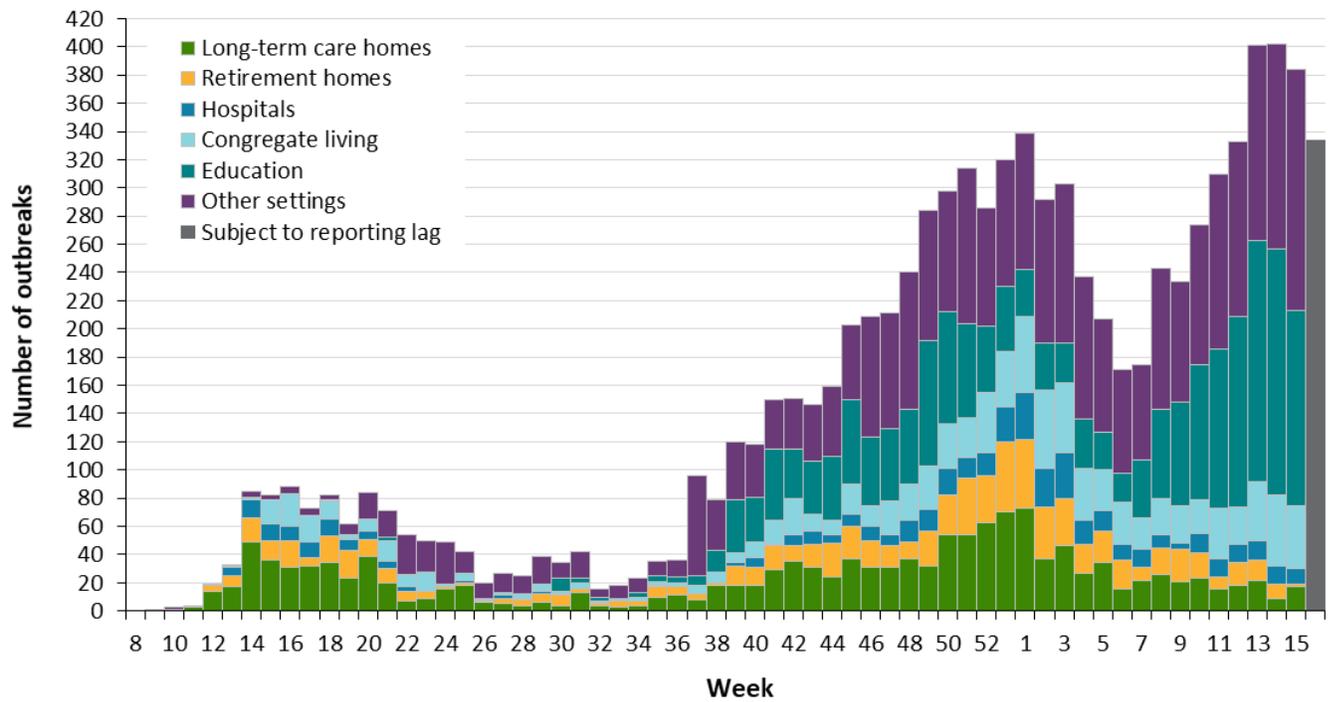
Note: Interpret case counts for the most recent week with caution due to reporting lags. Outbreak categories are mutually exclusive. Retail includes settings such as grocery stores, pharmacies, malls, etc. Other types of workplaces include settings such as offices as well as warehousing, shipping and distribution, construction, 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 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.

Data Source: CCM

Figure 10. 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 16 refers to April 18 and 24, 2021. Congregate living include group homes, shelters, correctional facilities, etc. Other settings include outbreaks within workplaces, childcare, schools, restaurants, recreation etc.

Data Source: CCM

Variant COVID-19 Cases

Table 9. Summary of confirmed COVID-19 cases with a mutation or VOC detected by age group and gender: Ontario

	Lineage B.1.1.7*	Lineage B.1.351	Lineage P.1	Mutations**	Cumulative case count as of April 24, 2021
Gender: Male	30,157	122	208	15,628	46,115
Gender: Female	28,707	96	189	14,781	43,773
Ages: 19 and under	10,861	26	65	5,984	16,936
Ages: 20-39	21,522	78	135	11,421	33,156
Ages: 40-59	18,088	75	131	8,843	27,137
Ages: 60-79	7,675	32	67	3,748	11,522
Ages: 80 and over	1,120	9	7	656	1,792

Note: Not all cases have an age or gender reported. 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, gender) differing from past publicly reported case counts. Data for cases with a B.1.1.7, B.1.351, and P.1 lineage detected are determined using the Investigation Subtype field only. Changes to the VOC testing algorithm may impact counts and trends. Further details can be found in the data caveats section.

* Includes all confirmed COVID-19 cases where lineage B.1.1.7 was identified by genomic analysis and those presumed to be B.1.1.7 based on a positive N501Y and negative E484K mutation.

** Mutations includes all confirmed COVID-19 cases with the following mutations detected, reported from the Investigation Subtype field: N501Y and E484K, N501Y (E484K unknown), E484K (N501Y negative), E484K (N501Y unknown)

Data Source: CCM

Table 10. Summary of confirmed COVID-19 cases with a mutation or VOC detected by likely source of acquisition: Ontario

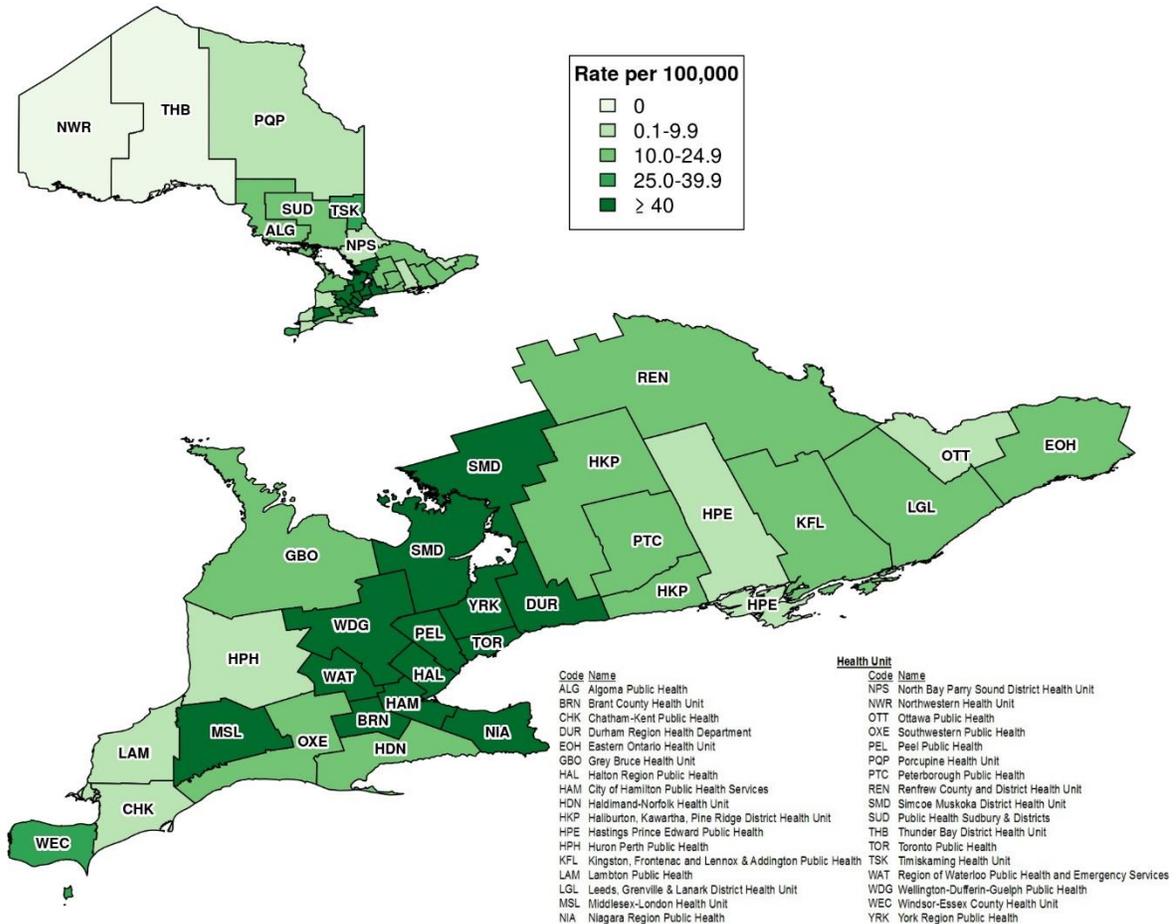
	Lineage B.1.1.7*	%	Lineage B.1.351	%	Lineage P.1	%	Mutations**	%	Cumulative case count up to April 24, 2021	Cumulative percentage
Travel	365	0.6%	11	5.0%	4	1.0%	345	1.1%	725	0.8%
Outbreak-associated or close contact of a confirmed case	33,936	57.3%	144	65.5%	266	65.7%	18,374	59.9%	52,720	58.2%
Epidemiological link – type unspecified	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
No known epidemiological link	20,169	34.0%	53	24.1%	120	29.6%	9,462	30.9%	29,804	32.9%
Information missing or unknown	4,801	8.1%	12	5.5%	15	3.7%	2,474	8.1%	7,302	8.1%
Total	59,271		220		405		30,655		90,551	

Note: Information for how cases are grouped within each category is available in the technical notes. Data for cases with a B.1.1.7, B.1.351, and P.1 lineage detected are determined using the Investigation Subtype field only.* Includes all confirmed COVID-19 cases where lineage B.1.1.7 was identified by genomic analysis and those presumed to be B.1.1.7 based on a positive N501Y and negative E484K mutation.

** Mutations includes all confirmed COVID-19 cases with the following mutations detected, reported from the Investigation Subtype field: N501Y and E484K, N501Y (E484K unknown), E484K (N501Y negative), E484K (N501Y unknown)

Data Source: CCM

Figure 11. Rates of confirmed cases of COVID-19 with lineage B.1.1.7* detected in public health reported week 16 (April 18 to 24, 2021) by public health unit: Ontario

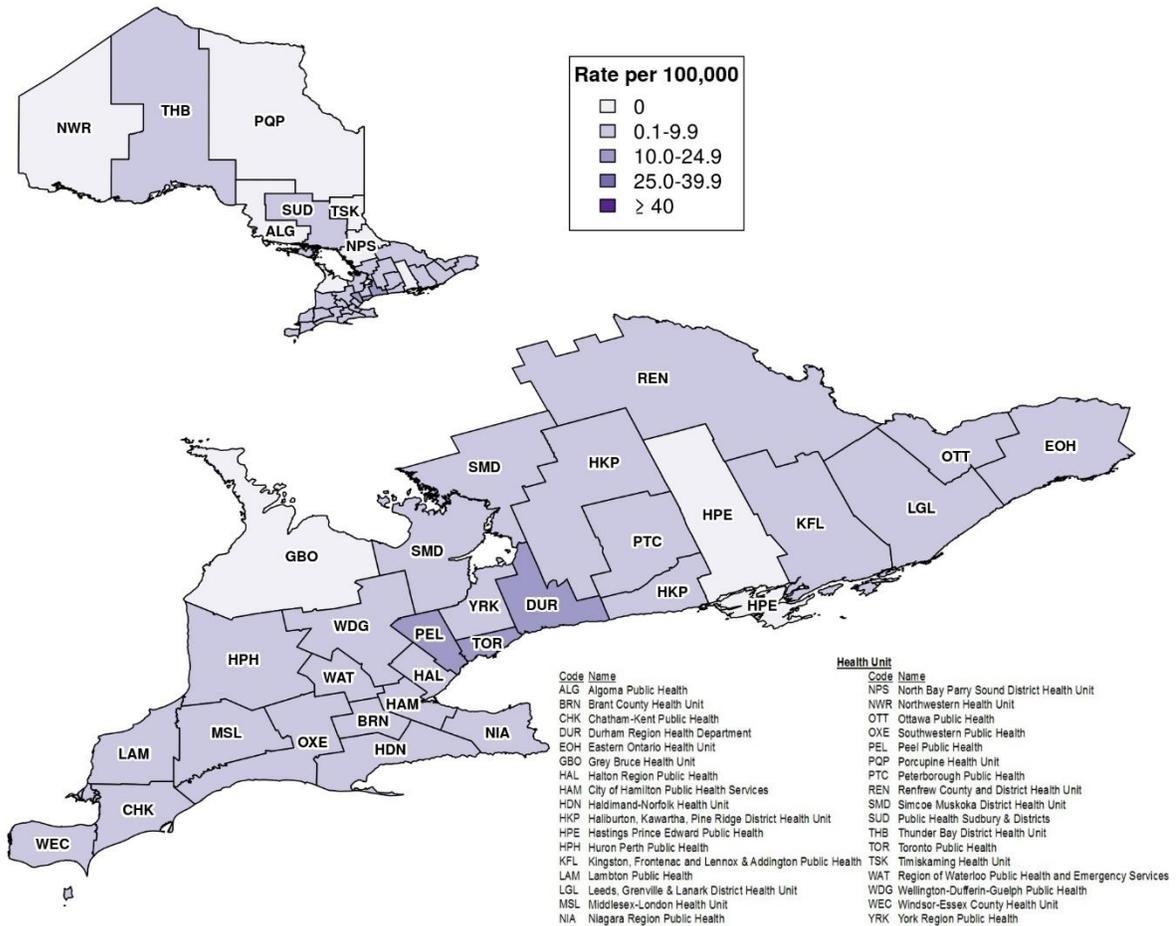


Note: The provincial rate of confirmed cases of COVID-19 with lineage B.1.1.7* reported in week 16 was 77.4 cases per 100,000 population. Changes to the VOC testing algorithm may impact counts and trends. Further details can be found in the data caveats section.

*Includes all confirmed COVID-19 cases where lineage B.1.1.7 was identified by genomic analysis and those presumed to be B.1.1.7 based on a positive N501Y and negative E484K mutation, using the Investigation Subtype field only.

Data Source: CCM

Figure 12. Rates of confirmed cases of COVID-19 with lineage B.1.351, P.1 or mutation 'N501Y+ and E484K+' detected in public health reported week 16 (April 18 to 24, 2021) by public health unit: Ontario



Note: The provincial rate of confirmed cases of COVID-19 with lineage B.1.351, P.1 or mutation N501Y+ and E484K+ reported in week 16 was 8.0 cases per 100,000 population. Data for cases with a B.1.351, P.1 lineage or an 'N501Y and E484K' mutation detected are determined using the Investigation Subtype field only. Changes to the VOC testing algorithm may impact counts and trends. Further details can be found in the data caveats section.

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 **April 27, 2021 at 1 p.m.** for cases reported in 2021 and as of April 26, 2021 at 9 a.m. for cases reported in 2020
- CCM is a dynamic disease reporting system, which allow ongoing updates to data previously entered. As a result, data extracted from CCM represent a snapshot at the time of extraction and may differ from previous or subsequent reports.
- Ontario population projection data for 2020 were sourced from Ministry, IntelliHEALTH Ontario. Data were extracted on November 26, 2019.
- Statistics Canada Postal Code Conversion File (PCCF), reference date of February 2021.
- The health equity (neighbourhood-level diversity and material deprivation) analyses use data from the 2016 Ontario Marginalization Index and population counts from the 2016 Canada Census:
 - 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.
 - Statistics Canada. Census of Population, 2016: Profile for Canada, Provinces, Territories, Census Divisions, Census Subdivisions and Dissemination Areas. Retrieved from: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/download-telecharger/comp/GetFile.cfm?Lang=E&FILETYPE=CSV&GEONO=044_ONTARIO.

Data Caveats and Methods: Case Data

- The data only represent cases 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.
- 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.
- Case episode date is based on an estimate of the best date of disease onset. This date is calculated based on either the date of symptom onset, specimen collection/test date, or the date reported to the public health unit.
- 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 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.
- 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
- '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 diagnosing health unit (DHU). 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).
- PANGO lineage B.1.1.7: This lineage was first detected in England in September, 2020. Early evidence suggests that the N501Y mutation may increase SARS-CoV-2 transmissibility. The PANGO lineage B.1.1.7 is assigned to genome sequences with at least 5 of the 17 defining B.1.1.7 SNPs.
- PANGO lineage B.1.351 (also known as 501Y.V2): This lineage was first detected October, 2020 in South Africa and has several mutations of concern, including spike (S) gene: N501Y, K417N, and E484K. Early evidence suggests that these mutations may increase SARS-CoV-2 transmissibility and decrease vaccine efficacy. The PANGO lineage B.1.351 will be assigned to genome sequences at least 5 of the 9 defining B.1.351 SNPs.
- PANGO lineage P.1 (also known as 501Y.V3): This lineage was first detected January, 2021 in Brazil and has several mutations of concern, including spike (S) gene N501Y, K417T, and E484K. Early evidence suggests that these mutations may increase SARS-CoV-2 transmissibility and decrease vaccine efficacy. The PANGO lineage P.1 is assigned to genome sequences with more than 10 of the 17 defining P.1 SNPs.
- Public Health Ontario conducts testing and genomic analyses for SARS-CoV-2 positive specimens using the criteria outlined here: <https://www.publichealthontario.ca/en/laboratory-services/test-information-index/covid-19-voc>
- Changes to the VOC testing algorithm may occur over time and trends should be interpreted with caution. Since February 3, 2021 all PCR positive SARS-CoV-2 specimens with CT values ≤ 35 are tested for a N501Y mutation. Starting March 22, 2021, these specimens are tested for the E484K mutation as well. Specimens that are positive for the N501Y mutation only are not being forwarded for further genomic analysis. Specimens that are E484K positive (with or without N501Y) are forwarded for genomic analysis.
- 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 ≤ 35 can be tested for mutations common to variants of concern. If positive for the mutation of interest these samples may then undergo genomic analyses to identify the VOC. VOC lineages may still be confirmed using genomic analysis despite specific S gene mutation(s) being documented as 'unable to complete' due to poor sequence quality at the genome position.

- If a VOC is identified through genomic analysis cases initially classified as a mutation may be updated and moved to the appropriate lineage (B.1.1.7, B.1.351 and P.1)

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). The Single Link Indicator Postal Code Conversion File (PCCF) was used to match individuals to a DA based on their postal code, which were 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.

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	14	31
11	March 8, 2020	March 14, 2020	146	177
12	March 15, 2020	March 21, 2020	437	614
13	March 22, 2020	March 28, 2020	1,307	1,921
14	March 29, 2020	April 4, 2020	2,778	4,699
15	April 5, 2020	April 11, 2020	3,135	7,834
16	April 12, 2020	April 18, 2020	4,205	12,039
17	April 19, 2020	April 25, 2020	3,631	15,670
18	April 26, 2020	May 2, 2020	2,889	18,559
19	May 3, 2020	May 9, 2020	2,343	20,902
20	May 10, 2020	May 16, 2020	2,192	23,094
21	May 17, 2020	May 23, 2020	2,614	25,708
22	May 24, 2020	May 30, 2020	2,599	28,307
23	May 31, 2020	June 6, 2020	2,303	30,610

Reported Week	Start date	End date	Number of cases	Cumulative count
24	June 7, 2020	June 13, 2020	1,473	32,083
25	June 14, 2020	June 20, 2020	1,229	33,312
26	June 21, 2020	June 27, 2020	1,250	34,562
27	June 28, 2020	July 4, 2020	1,084	35,646
28	July 5, 2020	July 11, 2020	869	36,515
29	July 12, 2020	July 18, 2020	930	37,445
30	July 19, 2020	July 25, 2020	992	38,437
31	July 26, 2020	August 1, 2020	805	39,242
32	August 2, 2020	August 8, 2020	593	39,835
33	August 9, 2020	August 15, 2020	610	40,445
34	August 16, 2020	August 22, 2020	730	41,175
35	August 23, 2020	August 29, 2020	852	42,027
36	August 30, 2020	September 5, 2020	978	43,005
37	September 6, 2020	September 12, 2020	1,502	44,507
38	September 13, 2020	September 19, 2020	2,373	46,880
39	September 20, 2020	September 26, 2020	3,120	50,000
40	September 27, 2020	October 3, 2020	4,224	54,224
41	October 4, 2020	October 10, 2020	5,040	59,264
42	October 11, 2020	October 17, 2020	5,275	64,539
43	October 18, 2020	October 24, 2020	6,036	70,575
44	October 25, 2020	October 31, 2020	6,385	76,960
45	November 1, 2020	November 7, 2020	7,606	84,566
46	November 8, 2020	November 14, 2020	10,431	94,997
47	November 15, 2020	November 21, 2020	9,986	104,983
48	November 22, 2020	November 28, 2020	11,124	116,107

Reported Week	Start date	End date	Number of cases	Cumulative count
49	November 29, 2020	December 5, 2020	12,685	128,792
50	December 6, 2020	December 12, 2020	13,053	141,845
51	December 13, 2020	December 19, 2020	15,657	157,502
52	December 20, 2020	December 26, 2020	15,627	173,129
53	December 27, 2020	January 2, 2021	20,446	193,575
1	January 3, 2021	January 9, 2021	24,864	218,439
2	January 10, 2021	January 16, 2021	21,364	239,803
3	January 17, 2021	January 23, 2021	16,395	256,198
4	January 24, 2021	January 30, 2021	12,728	268,926
5	January 31, 2021	February 6, 2021	9,774	278,700
6	February 7, 2021	February 13, 2021	7,893	286,593
7	February 14, 2021	February 20, 2021	7,454	294,047
8	February 21, 2021	February 27, 2021	7,676	301,723
9	February 28, 2021	March 6, 2021	7,930	309,653
10	March 7, 2021	March 13, 2021	9,476	319,129
11	March 14, 2021	March 20, 2021	11,023	330,152
12	March 21, 2021	March 27, 2021	14,402	344,554
13	March 28, 2021	April 3, 2021	18,961	363,515
14	April 4, 2021	April 10, 2021	25,573	389,088
15	April 11, 2021	April 17, 2021	30,884	419,972
16	April 18, 2021	April 24, 2021	27,736	447,708

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

Public Health Unit Name	Cases reported week 15	Rate per 100,000 population Reported week 15	Cases reported week 16	Rate per 100,000 population Reported week 16
Northwestern Health Unit	52	59.3	67	76.4
Thunder Bay District Health Unit	38	25.3	67	44.7
TOTAL NORTH WEST	90	37.9	134	56.4
Algoma Public Health	26	22.7	24	21.0
North Bay Parry Sound District Health Unit	15	11.6	10	7.7
Porcupine Health Unit	75	89.9	79	94.7
Public Health Sudbury & Districts	140	70.3	55	27.6
Timiskaming Health Unit	8	24.5	27	82.6
TOTAL NORTH EAST	264	47.2	195	34.9
Ottawa Public Health	2,287	216.8	1,507	142.9
Eastern Ontario Health Unit	312	149.5	205	98.2
Hastings Prince Edward Public Health	102	60.5	65	38.6
Kingston, Frontenac and Lennox & Addington Public Health	78	36.7	79	37.1
Leeds, Grenville & Lanark District Health Unit	102	58.9	69	39.8
Renfrew County and District Health Unit	37	34.1	32	29.5
TOTAL EASTERN	2,918	151.5	1,957	101.6
Durham Region Health Department	1,687	236.8	1,596	224.0

Public Health Unit Name	Cases reported week 15	Rate per 100,000 population Reported week 15	Cases reported week 16	Rate per 100,000 population Reported week 16
Haliburton, Kawartha, Pine Ridge District Health Unit	167	88.4	96	50.8
Peel Public Health	5,688	354.2	5,963	371.3
Peterborough Public Health	112	75.7	68	46.0
Simcoe Muskoka District Health Unit	730	121.8	648	108.1
York Region Public Health	3,540	288.8	2,874	234.5
TOTAL CENTRAL EAST	11,924	266.1	11,245	251.0
Toronto Public Health	8,860	283.9	7,935	254.3
TOTAL TORONTO	8,860	283.9	7,935	254.3
Chatham-Kent Public Health	31	29.2	31	29.2
Grey Bruce Health Unit	149	87.7	70	41.2
Huron Perth Public Health	47	33.6	29	20.8
Lambton Public Health	76	58.0	74	56.5
Middlesex-London Health Unit	838	165.1	665	131.0
Southwestern Public Health	176	83.2	137	64.8
Windsor-Essex County Health Unit	437	102.9	391	92.0
TOTAL SOUTH WEST	1,754	103.7	1,397	82.6
Brant County Health Unit	264	170.1	285	183.6
City of Hamilton Public Health Services	1,218	205.7	1,154	194.9
Haldimand-Norfolk Health Unit	200	175.3	175	153.4
Halton Region Public Health	1,119	180.8	965	155.9

Public Health Unit Name	Cases reported week 15	Rate per 100,000 population Reported week 15	Cases reported week 16	Rate per 100,000 population Reported week 16
Niagara Region Public Health	1,169	247.4	1,180	249.7
Region of Waterloo Public Health and Emergency Services	620	106.1	670	114.7
Wellington-Dufferin-Guelph Public Health	484	155.2	444	142.3
TOTAL CENTRAL WEST	5,074	178.1	4,873	171.0
TOTAL ONTARIO	30,884	207.8	27,736	186.6

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

Table 3A. Confirmed COVID-19 variants of concern by public health unit and region: Ontario

Public Health Unit Name	Cumulative case count up to April 24 for Lineage B.1.1.7*	Cumulative case count up to April 24 for Lineage B.1.351	Cumulative case count up to April 24 for Lineage P.1	Cumulative count up to April 24 for Mutations**
Northwestern Health Unit	21	0	0	23
Thunder Bay District Health Unit	0	0	0	25
TOTAL NORTH WEST	21	0	0	48
Algoma Public Health	36	0	0	10
North Bay Parry Sound District Health Unit	54	27	0	12
Porcupine Health Unit	13	2	0	4
Public Health Sudbury & Districts	266	0	0	498
Timiskaming Health Unit	39	1	0	0
TOTAL NORTH EAST	408	30	0	524
Ottawa Public Health	2,854	7	0	1,057
Eastern Ontario Health Unit	525	3	0	300
Hastings Prince Edward Public Health	8	0	1	273
Kingston, Frontenac and Lennox & Addington Public Health	188	0	4	133
Leeds, Grenville & Lanark District Health Unit	211	1	0	46
Renfrew County and District Health Unit	90	0	0	19
TOTAL EASTERN	3,876	11	5	1,828
Durham Region Health Department	4,452	3	20	1,800
Haliburton, Kawartha, Pine Ridge District Health Unit	147	0	0	202

Public Health Unit Name	Cumulative case count up to April 24 for Lineage B.1.1.7*	Cumulative case count up to April 24 for Lineage B.1.351	Cumulative case count up to April 24 for Lineage P.1	Cumulative count up to April 24 for Mutations**
Peel Public Health	14,663	31	69	4,707
Peterborough Public Health	255	0	0	153
Simcoe Muskoka District Health Unit	2,126	6	31	782
York Region Public Health	9,068	16	47	2,470
TOTAL CENTRAL EAST	30,711	56	167	10,114
Toronto Public Health	10,845	110	221	14,296
TOTAL TORONTO	10,845	110	221	14,296
Chatham-Kent Public Health	35	4	0	109
Grey Bruce Health Unit	172	0	0	41
Huron Perth Public Health	39	0	0	47
Lambton Public Health	260	0	0	80
Middlesex-London Health Unit	1,566	0	2	247
Southwestern Public Health	321	0	0	41
Windsor-Essex County Health Unit	739	2	0	81
TOTAL SOUTH WEST	3,132	6	2	646
Brant County Health Unit	280	0	4	328
City of Hamilton Public Health Services	2,813	2	2	1,005
Haldimand-Norfolk Health Unit	98	0	0	185
Halton Region Public Health	2,885	4	2	465
Niagara Region Public Health	1,566	0	0	734
Region of Waterloo Public Health and Emergency Services	1,448	1	1	320

Public Health Unit Name	Cumulative case count up to April 24 for Lineage B.1.1.7*	Cumulative case count up to April 24 for Lineage B.1.351	Cumulative case count up to April 24 for Lineage P.1	Cumulative count up to April 24 for Mutations**
Wellington-Dufferin-Guelph Public Health	1,188	0	1	162
TOTAL CENTRAL WEST	10,278	7	10	3,199
TOTAL ONTARIO	59,271	220	405	30,655

Note: Interpret the VOC and mutation trends with caution due to the varying time required to complete VOC testing and/or genomic analysis following the initial positive test for SARS-CoV-2. Data for calculating the cumulative case count uses data from the Investigation Subtype field only. Data for cases with a B.1.1.7, B.1.351, and P.1 lineage detected are determined using the Investigation Subtype field only.

*Includes all confirmed COVID-19 cases where lineage B.1.1.7 was identified by genomic analysis and those presumed to be B.1.1.7 based on a positive N501Y and negative E484K mutation.

** Mutations includes all confirmed COVID-19 cases with the following mutations detected, reported from the Investigation Subtype field: N501Y and E484K, N501Y (E484K unknown), E484K (N501Y negative), E484K (N501Y unknown)

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