Public Health Ontario | Santé publique Ontario

Weekly Epidemiologic Summary

COVID-19 in Ontario: Focus on March 28, 2021 to April 3, 2021

This report includes the most current information available from CCM as of **April 6, 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.

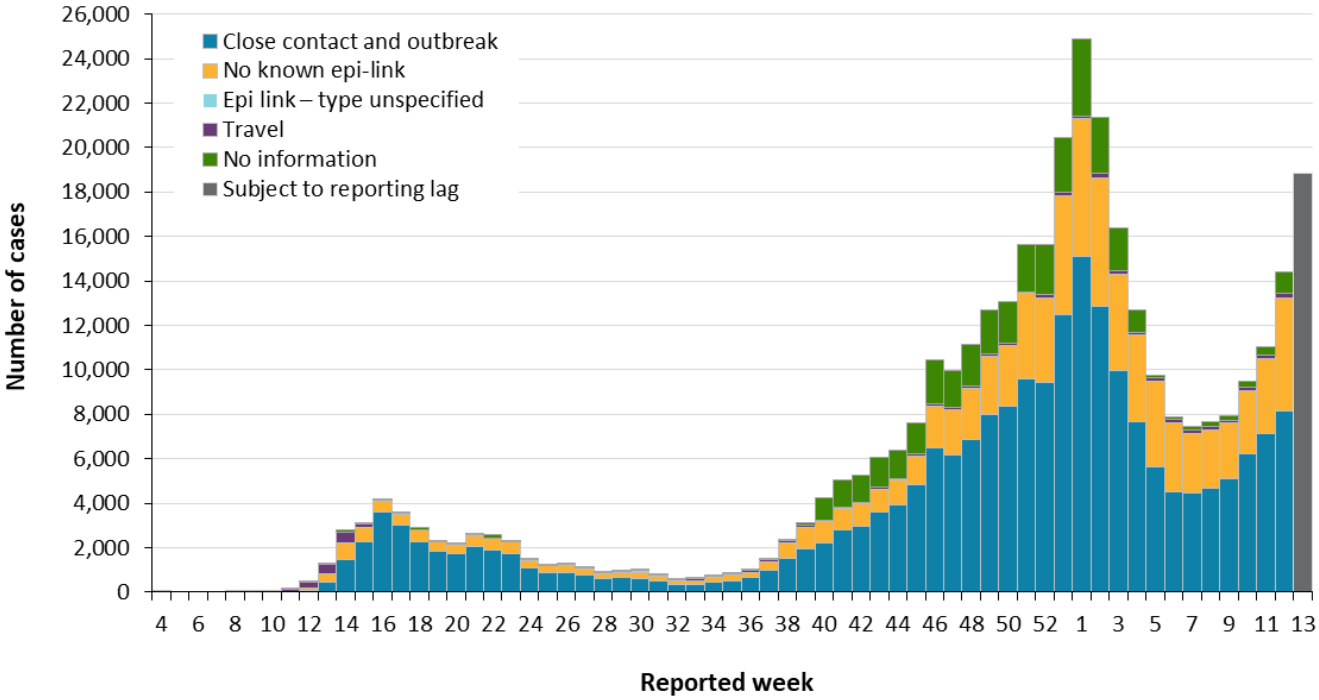
Highlights

- There are a total of 363,376 confirmed cases of COVID-19 in Ontario with a public health unit reported date up to April 3, 2021.
- For the period with a public health unit reported date between March 28 to April 3, 2021 (week 13):
    - A total of 18,853 cases were reported to public health compared to 14,383 cases the previous week (March 21 to 27, 2021).
    - There is a 31.1% increase in reported cases in Ontario this week (n=18,853) compared to the previous week (n=14,383). This single week increase is the largest reported since January 10 to 16, 2021 when Ontario was in the peak of the second wave of COVID-19 in the province.
    - Approximately two-thirds (65.5%) of cases this week were reported by public health units within the GTA (Toronto, Peel, York and Durham).

> 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

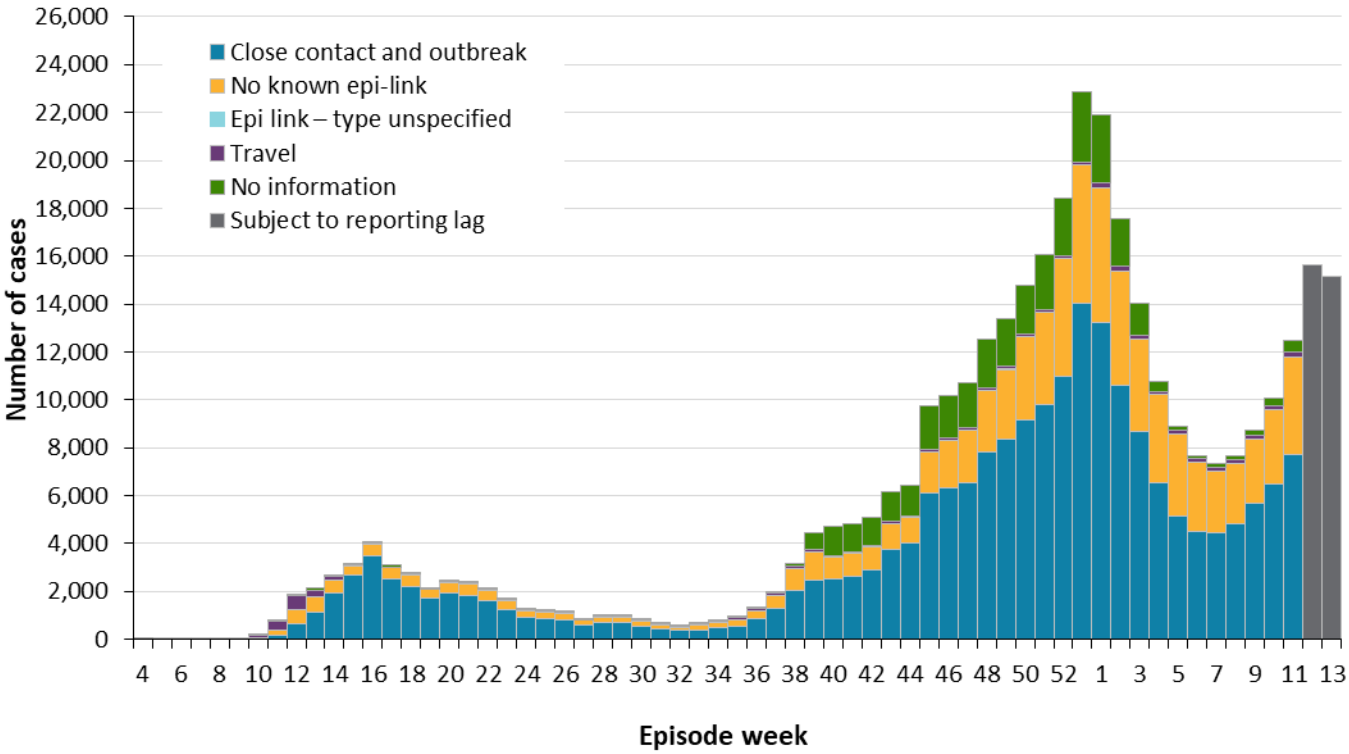
Figure 1. Confirmed cases of COVID-19 by likely source of acquisition and public health unit reported week: Ontario



Note: Include cases with reported dates ranging from week 4 (January 19 and 25, 2020) to week 13 (March 28 and April 3, 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 13 (March 28 and April 3, 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

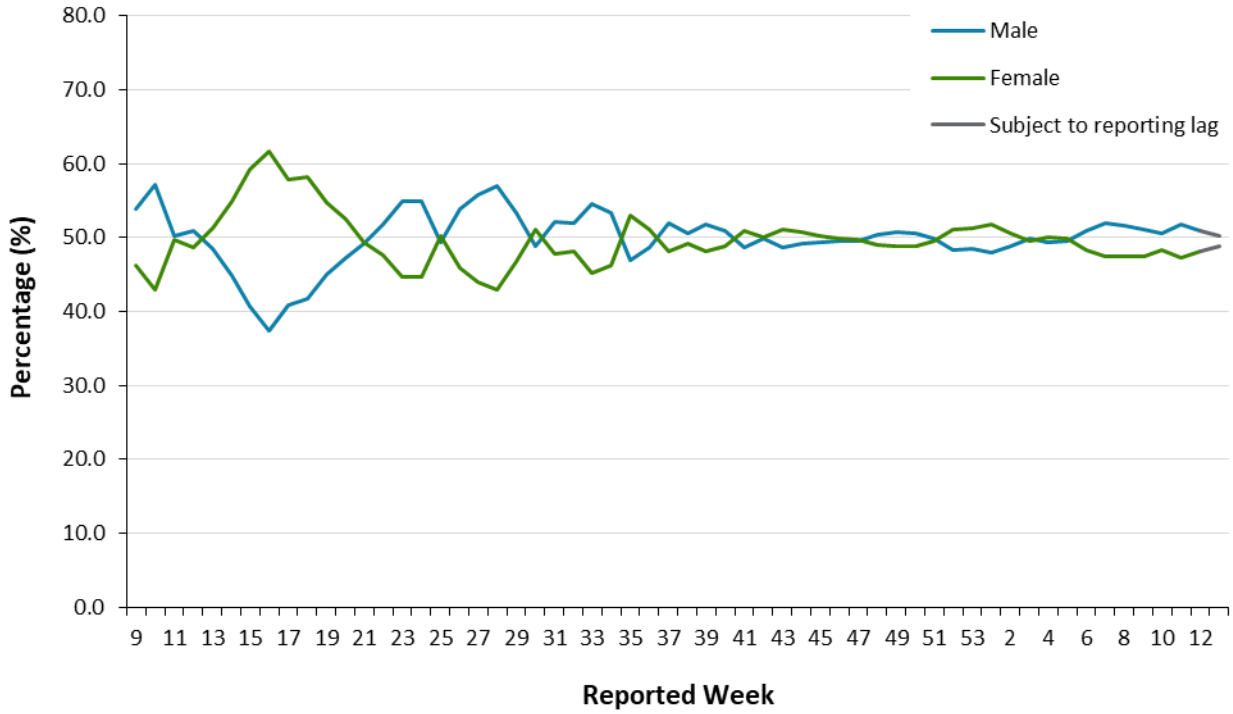
	Reported week 12 (March 21 to 27)	Reported week 13 (March 28 to April 3)	Cumulative case count up to April 3	Cumulative rate per 100,000 population
Total number of cases	14,383	18,853	363,376	2,444.6
Gender: Male	7,342	9,467	179,771	2,456.1
Gender: Female	6,939	9,202	181,496	2,405.5
Ages: 19 and under	2,970	3,877	52,888	1,686.2
Ages: 20-39	5,223	6,913	133,196	3,204.7
Ages: 40-59	4,030	5,283	104,335	2,649.8
Ages: 60-79	1,814	2,375	51,171	1,731.7
Ages: 80 and over	341	396	21,701	3,194.8
Number resolved	N/A	N/A	335,896	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

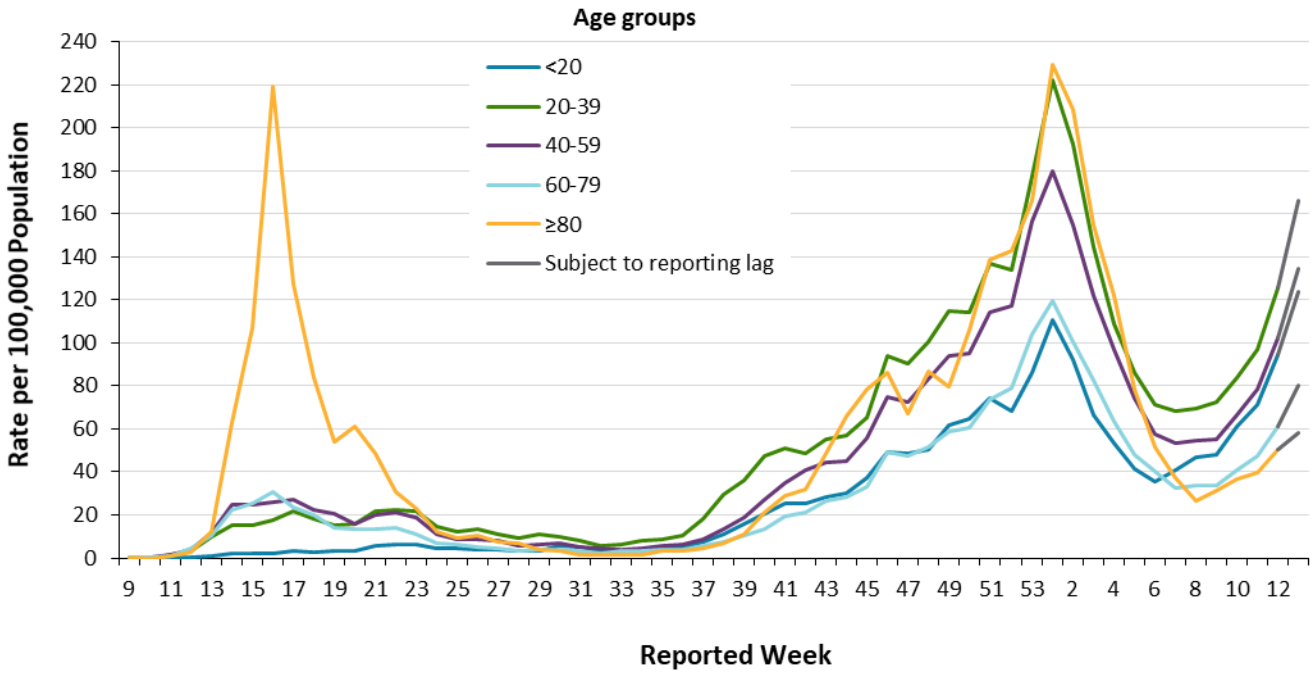
Figure 3. Percentage of confirmed cases of COVID-19 by gender and public health unit reported week: Ontario



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 13 (March 28 and April 3, 2021). See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.

Data Source: CCM

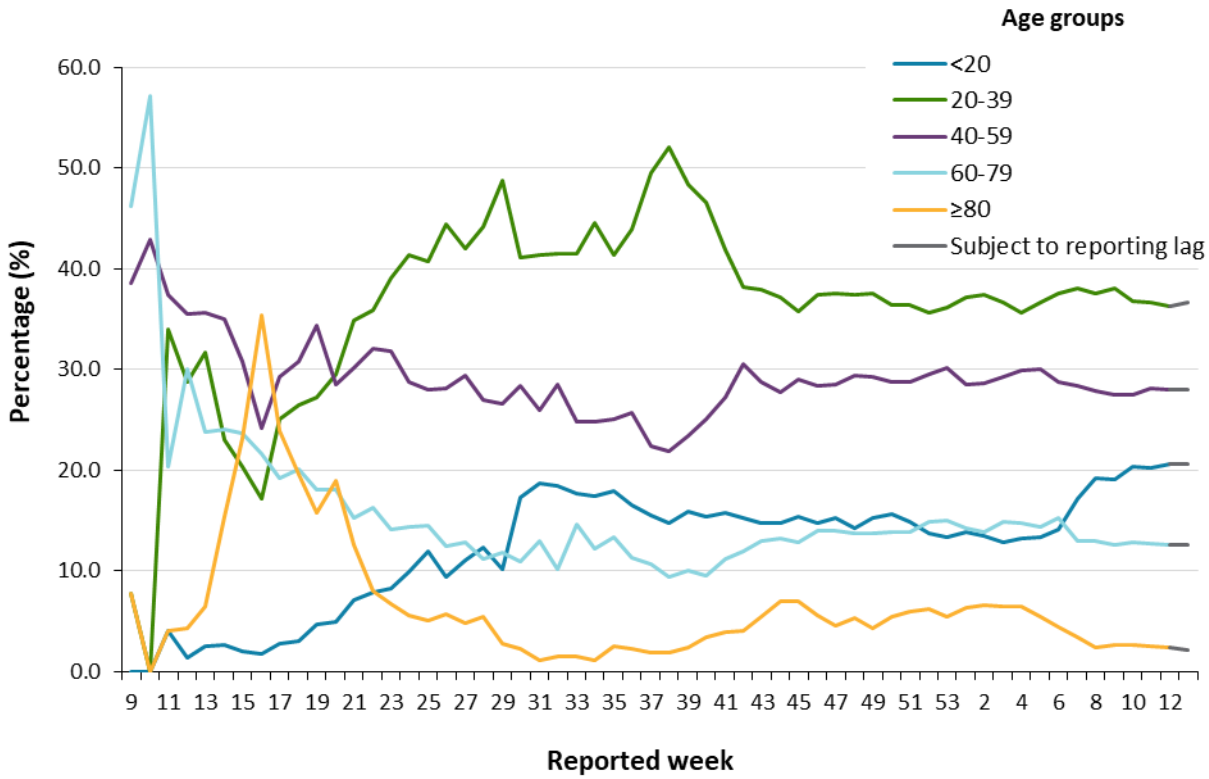
Figure 4a. Rate of confirmed cases of COVID-19 per 100,000 population by age group and public health unit reported week: Ontario



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 13 (March 28 and April 3, 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

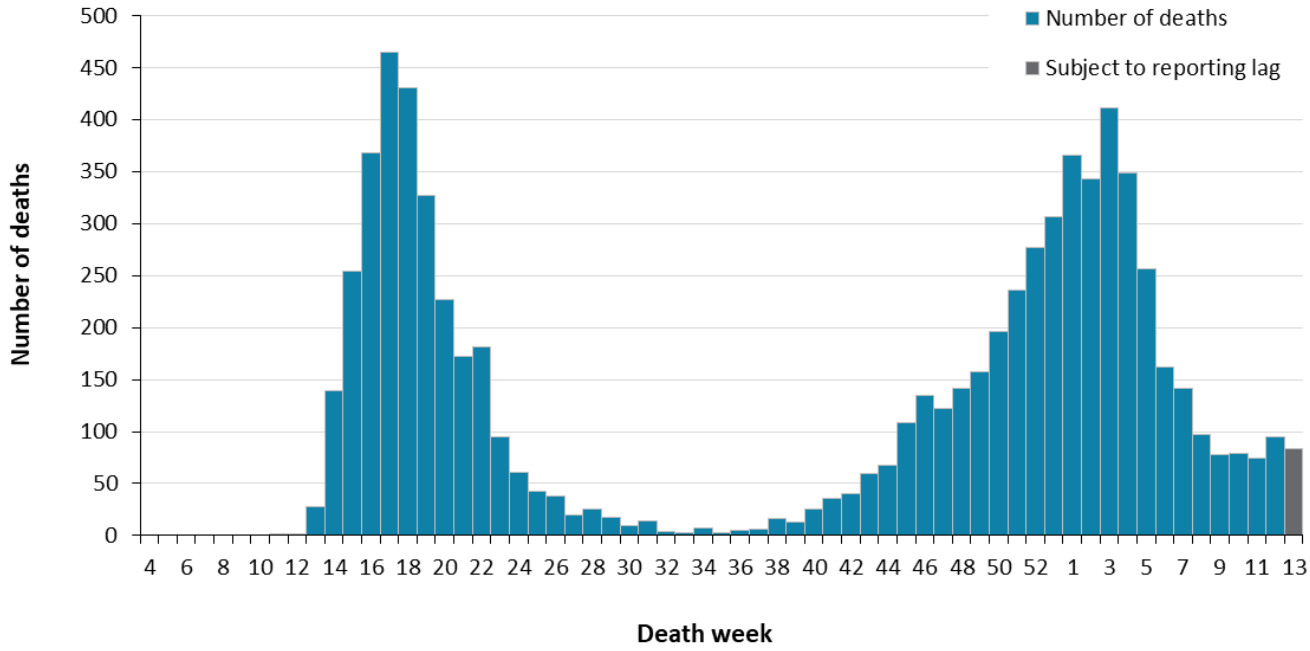


Note: Only weeks with more than 10 cases by public health unit reporting date are included (starting in week 9). Include cases with reported dates ranging from week 9 (February 23 and 29, 2020) to week 13 (March 28 and April 3, 2021). See Table 1A in Appendix A for a list of the weeks and corresponding 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 13 (March 28 and April 3, 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 12 (March 21 to 27)	Reported week 13 (March 28 to April 3)	Cumulative case count up to April 3	Cumulative rate per 100,000 population
Number of deaths	55	23	7,474	50.3
Gender: Male	25	14	3,629	49.6
Gender: Female	30	8	3,799	50.3
Ages: 19 and under	0	0	2	0.1
Ages: 20-39	0	1	34	0.8
Ages: 40-59	5	1	318	8.1
Ages: 60-79	25	9	2,126	71.9
Ages: 80 and over	25	12	4,993	735.1

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 12 (March 21 to 27)	Percentage	Reported week 13 (March 28 to April 3)	Percentage	Cumulative case count up to April 3	Cumulative percentage
Travel	220	1.5%	177	0.9%	6,347	1.7%
Outbreak-associated or close contact of a confirmed case	8,148	56.7%	9,232	49.0%	223,886	61.6%
Epidemiological link – type unspecified	0	0.0%	0	0.0%	165	<0.01%
No known epidemiological link	5,061	35.2%	4,685	24.9%	92,431	25.4%
Information missing or unknown	954	6.6%	4,759	25.2%	40,547	11.2%
Total	**14,383**		**18,853**		**363,376**	

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 12 (March 21 to 27)	Reported week 13 (March 28 to April 3)	Cumulative case count up to April 3
Number of cases	248	245	20,745
Ever hospitalized	6	3	392
Ever in ICU	0	0	83

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 12 (March 21 to 27)	Reported week 13 (March 28 to April 3)	Cumulative case count up to April 3
Residents	28	16	15,065
Deaths among residents	3	1	3,904
Health care workers	20	22	6,852
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

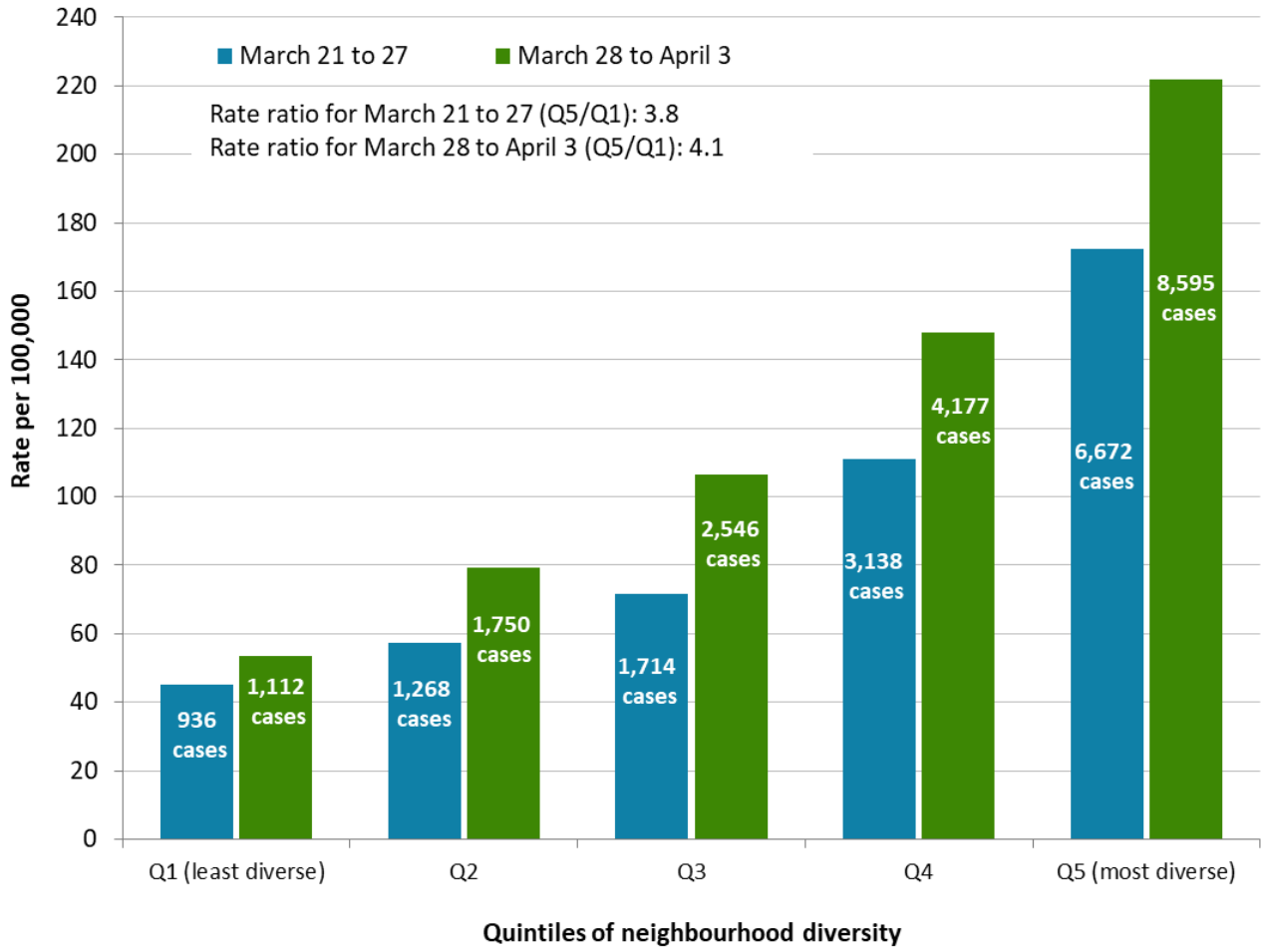
Table 6: Summary of cases of COVID-19 among school aged children by age group: Ontario

	Reported week 12 (March 21 to 27)	Reported week 13 (March 28 to April 3)	Cumulative case count from August 30 up to April 3
Ages: 4-8	641	769	9,421
Ages: 9-13	771	955	12,335
Ages: 14-17	598	840	12,235

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

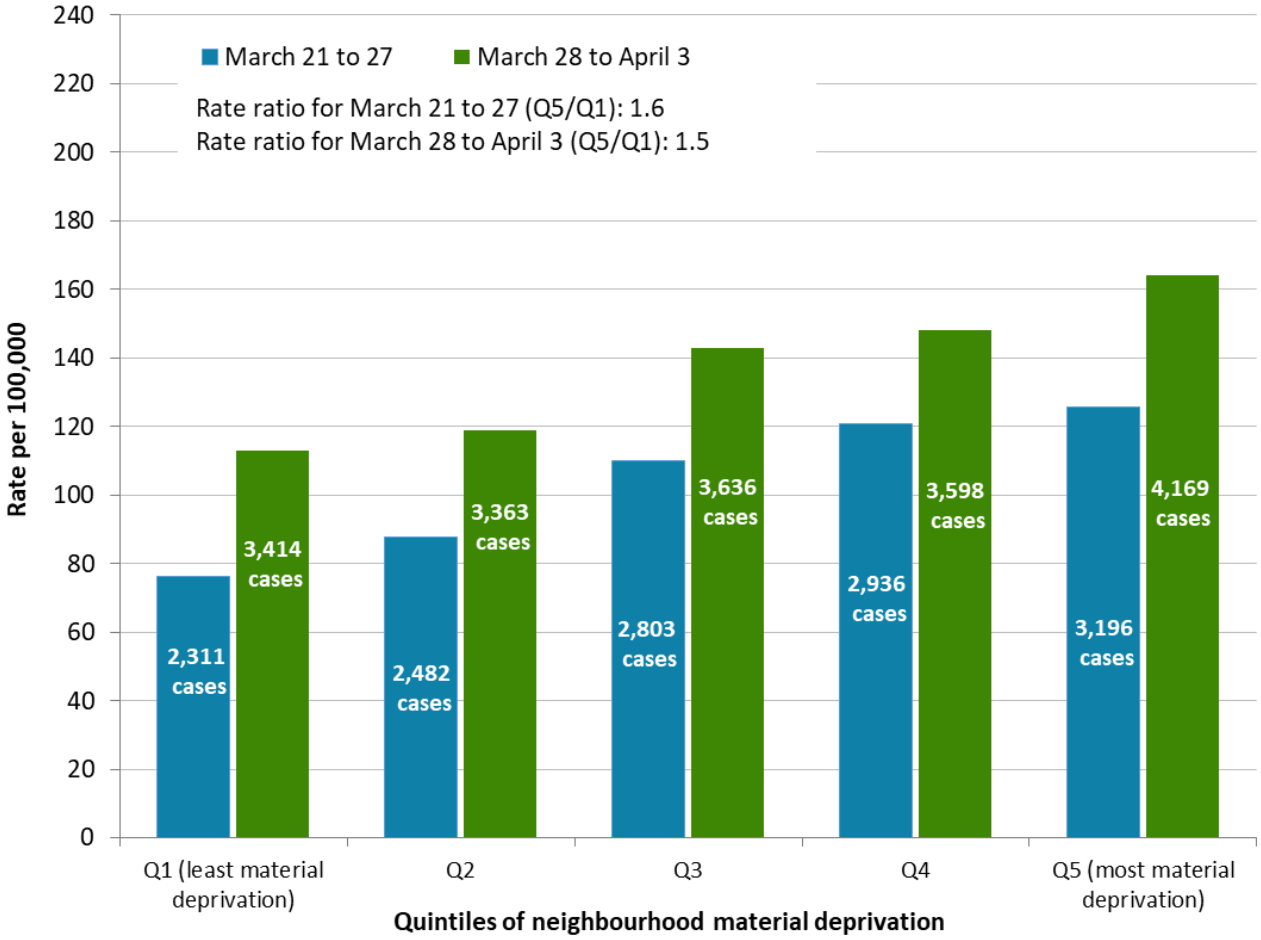
Figure 6. Rate and number of confirmed cases of COVID-19 for each quintile of neighbourhood diversity: Ontario, week 12 (March 21 to 27, 2021) and week 13 (March 28 to April 3, 2021).



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 12 (March 21 to 27, 2021) and week 13 (March 28 to April 3, 2021).

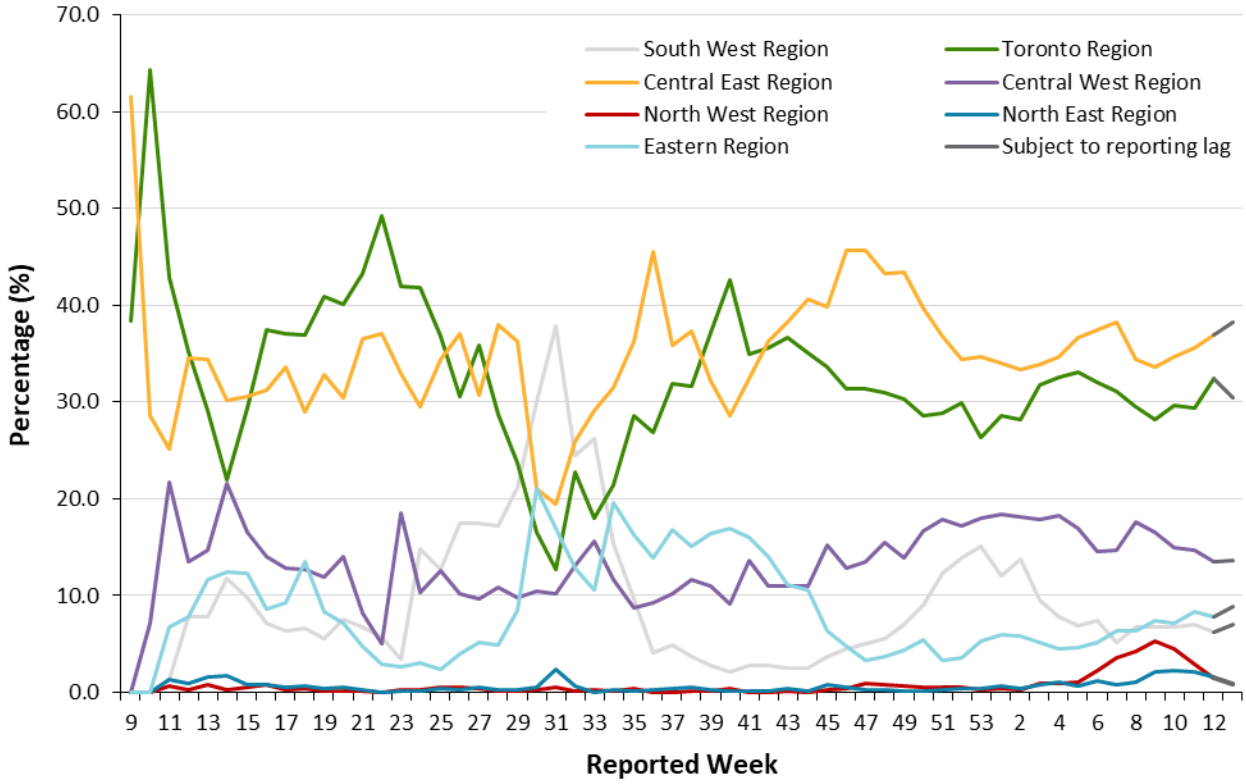


Note: Neighbourhood material deprivation is measured using the material deprivation dimension of the Ontario Marginalization Index. The material deprivation dimension uses Canadian census data on income, quality of housing, educational attainment and family structure characteristics to assess the ability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

Data Source: CCM, Ontario Marginalization Index

Geography

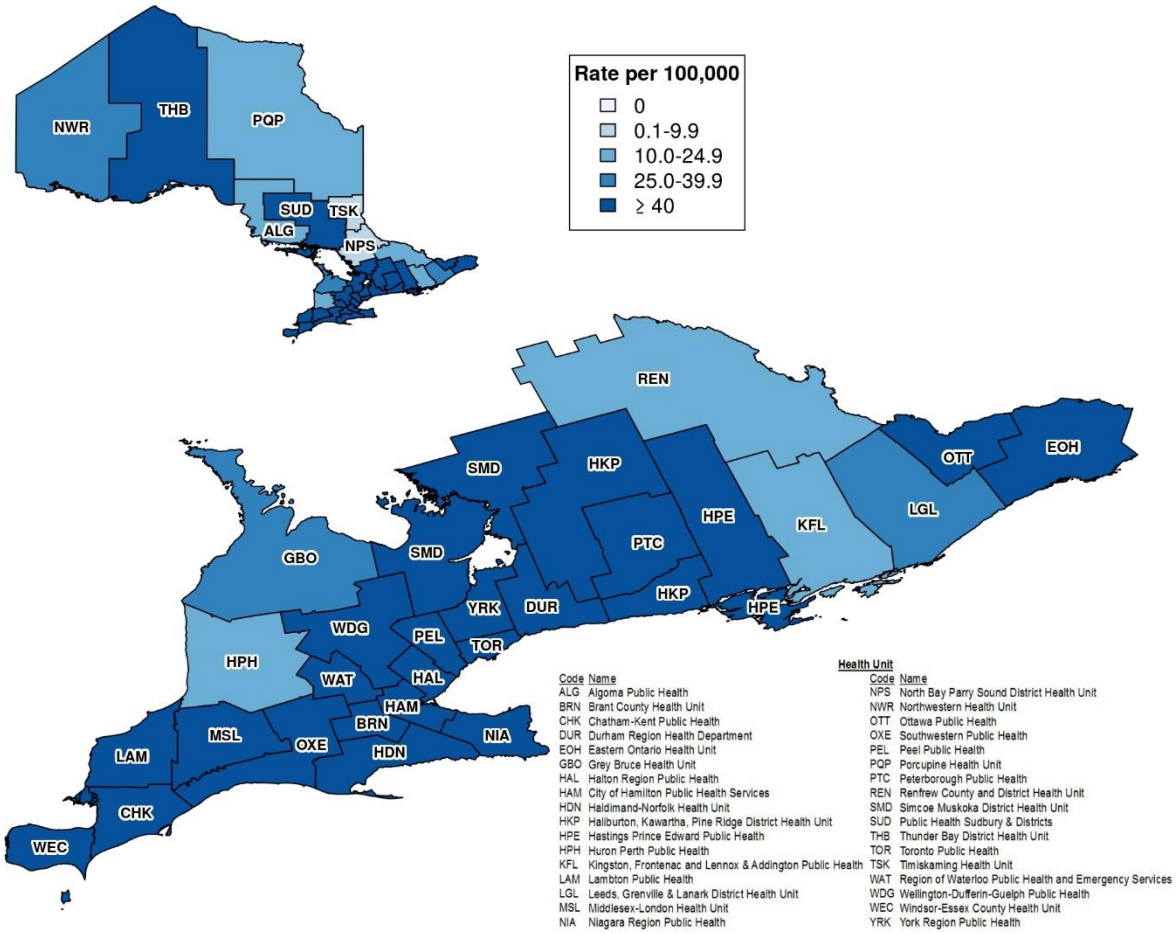
Figure 8. Percentage of COVID-19 cases by geographic region and public health unit reported week: Ontario



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 13 (March 28 and April 3, 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 13 (March 28 to April 3, 2021) by public health unit: Ontario



Note: The provincial rate of confirmed cases of COVID-19 reported in week 13 was 126.8 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 13 (March 28 to April 3)	Number of ongoing outbreaks	Cumulative number of outbreaks reported to April 3
Congregate Care	**59**	**162**	**2,706**
Long-term care homes	24	70	1,397
Retirement homes	21	51	837
Hospitals	14	41	472
Congregate Living	**37**	**103**	**970**
Correctional facility	5	10	43
Shelter	4	32	200
Group Home/supportive housing	19	45	573
Short-term accommodations	2	4	24
Congregate other	7	12	130
Education	**110**	**277**	**1,605**
Child care	26	82	531
School – Elementary*	69	162	804
School – Elementary/secondary*	4	7	42
School – Secondary*	10	19	196
School – Post-secondary*	1	7	32
Other settings	**111**	**252**	**2,691**
Bar/restaurant/nightclub	11	16	204
Medical/health services	3	7	118
Personal service settings	3	2	24

Setting Type	Reported week 13 (March 28 to April 3)	Number of ongoing outbreaks	Cumulative number of outbreaks reported to April 3
Recreational fitness	3	6	77
Retail	12	28	283
Other recreation/community	11	30	156
Workplace – Farm	6	18	137
Workplace - Food processing	2	12	185
Other types of workplaces	59	130	1,492
Other	1	2	3
Unknown	0	1	12
Total number of outbreaks	**317**	**794**	**7,972**

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 12 (March 21 to 27)	Reported week 13 (March 28 to April 3)	Cumulative number of cases
Congregate Care	**257**	**224**	**37,727**
Long-term care homes	78	79	25,270
Retirement homes	63	62	6,962
Hospitals	116	83	5,495
Congregate Living	**259**	**243**	**7,391**
Correctional facility	25	20	1,256
Shelter	129	74	2,142
Group Home/supportive housing	59	51	2,823
Short-term accommodations	2	17	119
Congregate other	44	81	1,051
Education	**575**	**478**	**6,594**
Child care	203	162	1,784
School – Elementary*	281	249	3,340
School – Elementary/secondary*	8	17	247
School – Secondary*	31	22	873
School – Post-secondary*	52	28	350
Other settings	**751**	**662**	**20,533**
Bar/restaurant/nightclub	38	34	845
Medical/health services	14	13	514
Personal service settings	10	8	87
Recreational fitness	17	14	610

Cases associated with the outbreak setting type	Reported week 12 (March 21 to 27)	Reported week 13 (March 28 to April 3)	Cumulative number of cases
Retail	79	84	1,383
Other recreation/community	64	110	1,924
Workplace - Farm	22	16	2,575
Workplace - Food processing	36	38	2,301
Other types of workplaces	464	342	10,177
Other	7	1	15
Unknown	0	2	102
Total number of cases	**1,842**	**1,607**	**72,245**

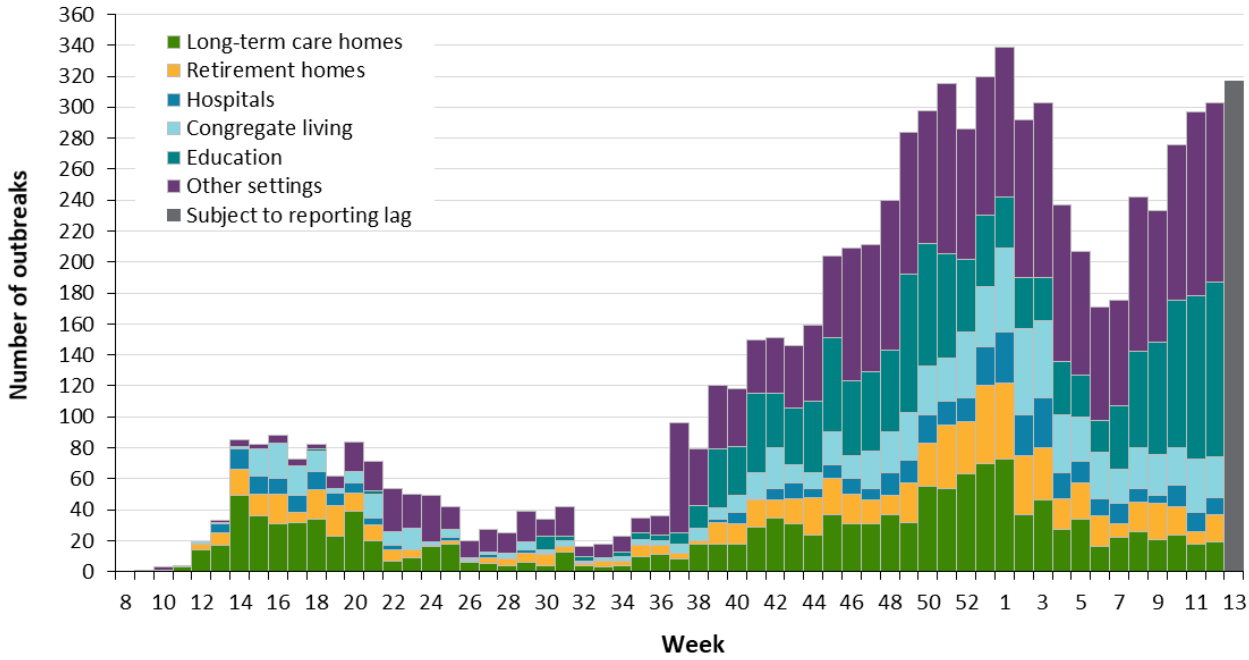
Note: Interpret case counts for the most recent week with caution due to reporting lags. Outbreak categories are mutually exclusive. Retail includes settings such as grocery stores, pharmacies, malls, etc. Other types of workplaces include settings such as offices as well as warehousing, shipping and 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 13 refers to March 28 and April 3, 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 3, 2021
Gender: Male	4,141	37	64	11,610	15,852
Gender: Female	4,075	35	56	10,701	14,867
Ages: 19 and under	1,476	6	20	4,348	5,850
Ages: 20-39	3,003	26	41	8,410	11,480
Ages: 40-59	2,450	22	47	6,539	9,058
Ages: 60-79	1,131	13	10	2,727	3,881
Ages: 80 and over	211	5	2	470	688

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 3, 2021	Cumulative percentage
Travel	160	1.9%	11	15.3%	2	1.7%	307	1.4%	480	1.6%
Outbreak-associated or close contact of a confirmed case	4,933	59.6%	52	72.2%	88	73.3%	14,065	62.5%	19,138	61.8%
Epidemiological link – type unspecified	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
No known epidemiological link	2,319	28.0%	8	11.1%	28	23.3%	6,875	30.6%	9,230	29.8%
Information missing or unknown	859	10.4%	1	1.4%	2	1.7%	1,249	5.6%	2,111	6.8%
Total	**8,271**		**72**		**120**		**22,496**		**30,959**	

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

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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 6, 2021 at 1 p.m.**
- 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 May 2020.
- 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-Co-V-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	147	178
12	March 15, 2020	March 21, 2020	437	615
13	March 22, 2020	March 28, 2020	1,308	1,923
14	March 29, 2020	April 4, 2020	2,779	4,702
15	April 5, 2020	April 11, 2020	3,135	7,837
16	April 12, 2020	April 18, 2020	4,206	12,043
17	April 19, 2020	April 25, 2020	3,630	15,673
18	April 26, 2020	May 2, 2020	2,889	18,562
19	May 3, 2020	May 9, 2020	2,343	20,905
20	May 10, 2020	May 16, 2020	2,193	23,098
21	May 17, 2020	May 23, 2020	2,615	25,713
22	May 24, 2020	May 30, 2020	2,601	28,314

Reported Week	Start date	End date	Number of cases	Cumulative count
23	May 31, 2020	June 6, 2020	2,303	30,617
24	June 7, 2020	June 13, 2020	1,472	32,089
25	June 14, 2020	June 20, 2020	1,230	33,319
26	June 21, 2020	June 27, 2020	1,251	34,570
27	June 28, 2020	July 4, 2020	1,083	35,653
28	July 5, 2020	July 11, 2020	869	36,522
29	July 12, 2020	July 18, 2020	930	37,452
30	July 19, 2020	July 25, 2020	990	38,442
31	July 26, 2020	August 1, 2020	804	39,246
32	August 2, 2020	August 8, 2020	593	39,839
33	August 9, 2020	August 15, 2020	610	40,449
34	August 16, 2020	August 22, 2020	730	41,179
35	August 23, 2020	August 29, 2020	853	42,032
36	August 30, 2020	September 5, 2020	979	43,011
37	September 6, 2020	September 12, 2020	1,502	44,513
38	September 13, 2020	September 19, 2020	2,373	46,886
39	September 20, 2020	September 26, 2020	3,123	50,009
40	September 27, 2020	October 3, 2020	4,224	54,233
41	October 4, 2020	October 10, 2020	5,040	59,273
42	October 11, 2020	October 17, 2020	5,279	64,552
43	October 18, 2020	October 24, 2020	6,041	70,593
44	October 25, 2020	October 31, 2020	6,386	76,979
45	November 1, 2020	November 7, 2020	7,607	84,586

Reported Week	Start date	End date	Number of cases	Cumulative count
46	November 8, 2020	November 14, 2020	10,437	95,023
47	November 15, 2020	November 21, 2020	9,983	105,006
48	November 22, 2020	November 28, 2020	11,126	116,132
49	November 29, 2020	December 5, 2020	12,685	128,817
50	December 6, 2020	December 12, 2020	13,047	141,864
51	December 13, 2020	December 19, 2020	15,652	157,516
52	December 20, 2020	December 26, 2020	15,628	173,144
53	December 27, 2020	January 2, 2021	20,448	193,592
1	January 3, 2021	January 9, 2021	24,870	218,462
2	January 10, 2021	January 16, 2021	21,359	239,821
3	January 17, 2021	January 23, 2021	16,391	256,212
4	January 24, 2021	January 30, 2021	12,722	268,934
5	January 31, 2021	February 6, 2021	9,770	278,704
6	February 7, 2021	February 13, 2021	7,887	286,591
7	February 14, 2021	February 20, 2021	7,455	294,046
8	February 21, 2021	February 27, 2021	7,670	301,716
9	February 28, 2021	March 6, 2021	7,923	309,639
10	March 7, 2021	March 13, 2021	9,479	319,118
11	March 14, 2021	March 20, 2021	11,022	330,140
12	March 21, 2021	March 27, 2021	14,383	344,523
13	March 28, 2021	April 3, 2021	18,853	363,376

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

Public Health Unit Name	Cases reported week 12	Rate per 100,000 population Reported week 12	Cases reported week 13	Rate per 100,000 population Reported week 13
Northwestern Health Unit	34	38.8	33	37.6
Thunder Bay District Health Unit	169	112.7	117	78.0
TOTAL NORTH WEST	**203**	**85.4**	**150**	**63.1**
Algoma Public Health	5	4.4	13	11.4
North Bay Parry Sound District Health Unit	1	0.8	9	6.9
Porcupine Health Unit	4	4.8	20	24.0
Public Health Sudbury & Districts	203	102.0	130	65.3
Timiskaming Health Unit	13	39.8	3	9.2
TOTAL NORTH EAST	**226**	**40.4**	**175**	**31.3**
Ottawa Public Health	721	68.4	1,233	116.9
Eastern Ontario Health Unit	193	92.5	217	104.0
Hastings Prince Edward Public Health	31	18.4	98	58.2
Kingston, Frontenac and Lennox & Addington Public Health	53	24.9	48	22.6
Leeds, Grenville & Lanark District Health Unit	104	60.1	55	31.8
Renfrew County and District Health Unit	28	25.8	21	19.3
TOTAL EASTERN	**1,130**	**58.7**	**1,672**	**86.8**

Public Health Unit Name	Cases reported week 12	Rate per 100,000 population Reported week 12	Cases reported week 13	Rate per 100,000 population Reported week 13
Durham Region Health Department	872	122.4	1,043	146.4
Haliburton, Kawartha, Pine Ridge District Health Unit	24	12.7	76	40.2
Peel Public Health	2,555	159.1	3,496	217.7
Peterborough Public Health	35	23.7	67	45.3
Simcoe Muskoka District Health Unit	309	51.5	450	75.1
York Region Public Health	1,521	124.1	2,075	169.3
TOTAL CENTRAL EAST	**5,316**	**118.6**	**7,207**	**160.8**
Toronto Public Health	4,670	149.7	5,737	183.9
TOTAL TORONTO	**4,670**	**149.7**	**5,737**	**183.9**
Chatham-Kent Public Health	61	57.4	61	57.4
Grey Bruce Health Unit	42	24.7	61	35.9
Huron Perth Public Health	15	10.7	19	13.6
Lambton Public Health	186	142.0	132	100.8
Middlesex-London Health Unit	299	58.9	664	130.8
Southwestern Public Health	92	43.5	93	44.0
Windsor-Essex County Health Unit	193	45.4	300	70.6
TOTAL SOUTH WEST	**888**	**52.5**	**1,330**	**78.7**
Brant County Health Unit	69	44.5	111	71.5
City of Hamilton Public Health Services	713	120.4	730	123.3

Public Health Unit Name	Cases reported week 12	Rate per 100,000 population Reported week 12	Cases reported week 13	Rate per 100,000 population Reported week 13
Haldimand-Norfolk Health Unit	76	66.6	72	63.1
Halton Region Public Health	355	57.3	552	89.2
Niagara Region Public Health	323	68.4	549	116.2
Region of Waterloo Public Health and Emergency Services	291	49.8	315	53.9
Wellington-Dufferin-Guelph Public Health	123	39.4	253	81.1
TOTAL CENTRAL WEST	**1,950**	**68.4**	**2,582**	**90.6**
TOTAL ONTARIO	**14,383**	**96.8**	**18,853**	**126.8**

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 3 for Lineage B.1.1.7*	Cumulative case count up to April 3 for Lineage B.1.351	Cumulative case count up to April 3 for Lineage P.1	Cumulative count up to April 3 for Mutations**
Northwestern Health Unit	7	0	0	15
Thunder Bay District Health Unit	0	0	0	4
TOTAL NORTH WEST	**7**	**0**	**0**	**19**
Algoma Public Health	3	0	0	1
North Bay Parry Sound District Health Unit	8	27	0	21
Porcupine Health Unit	0	2	0	2
Public Health Sudbury & Districts	5	0	0	429
Timiskaming Health Unit	19	1	0	1
TOTAL NORTH EAST	**35**	**30**	**0**	**454**
Ottawa Public Health	32	6	0	573
Eastern Ontario Health Unit	131	1	0	240
Hastings Prince Edward Public Health	2	0	0	73
Kingston, Frontenac and Lennox & Addington Public Health	31	0	0	82
Leeds, Grenville & Lanark District Health Unit	0	0	0	65
Renfrew County and District Health Unit	19	0	0	5
TOTAL EASTERN	**215**	**7**	**0**	**1,038**
Durham Region Health Department	769	0	6	1,489

Public Health Unit Name	Cumulative case count up to April 3 for Lineage B.1.1.7*	Cumulative case count up to April 3 for Lineage B.1.351	Cumulative case count up to April 3 for Lineage P.1	Cumulative count up to April 3 for Mutations**
Haliburton, Kawartha, Pine Ridge District Health Unit	5	0	0	92
Peel Public Health	982	12	19	3,375
Peterborough Public Health	22	0	0	189
Simcoe Muskoka District Health Unit	689	1	16	630
York Region Public Health	1,693	2	15	2,214
TOTAL CENTRAL EAST	**4,160**	**15**	**56**	**7,989**
Toronto Public Health	2,061	20	63	10,211
TOTAL TORONTO	**2,061**	**20**	**63**	**10,211**
Chatham-Kent Public Health	8	0	0	67
Grey Bruce Health Unit	24	0	0	28
Huron Perth Public Health	3	0	0	17
Lambton Public Health	0	0	0	140
Middlesex-London Health Unit	272	0	0	158
Southwestern Public Health	51	0	0	42
Windsor-Essex County Health Unit	82	0	0	64
TOTAL SOUTH WEST	**440**	**0**	**0**	**516**
Brant County Health Unit	29	0	0	91
City of Hamilton Public Health Services	371	0	0	814
Haldimand-Norfolk Health Unit	5	0	0	65
Halton Region Public Health	555	0	1	412

Public Health Unit Name	Cumulative case count up to April 3 for Lineage B.1.1.7*	Cumulative case count up to April 3 for Lineage B.1.351	Cumulative case count up to April 3 for Lineage P.1	Cumulative count up to April 3 for Mutations**
Niagara Region Public Health	18	0	0	328
Region of Waterloo Public Health and Emergency Services	153	0	0	419
Wellington-Dufferin-Guelph Public Health	222	0	0	140
TOTAL CENTRAL WEST	**1,353**	**0**	**1**	**2,269**
TOTAL ONTARIO	**8,271**	**72**	**120**	**22,496**

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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For Further Information

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