Public Health Ontario | Santé publique Ontario

WEEKLY EPIDEMIOLOGICAL SUMMARY

COVID-19 in Ontario: Focus on June 6, 2021 to June 12, 2021

This report includes the most current information available from CCM as of **June 15, 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

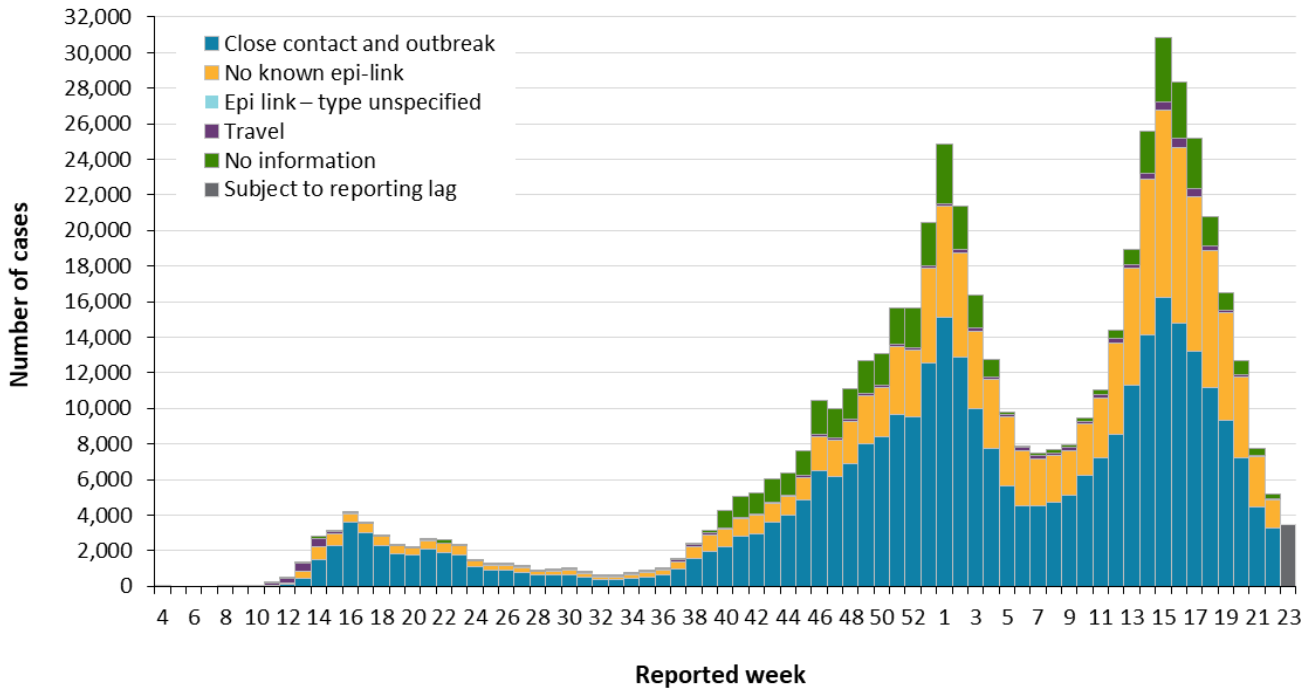
- There are a total of 539,905 confirmed cases of COVID-19 in Ontario with a public health unit reported date up to June 12, 2021.
- For the period with a public health unit (PHU) reported date between June 6 to 12, 2021 (week 23):
    - A total of 3,497 cases were reported to public health compared to 5,209 cases the previous week (May 30 to June 5, 2021).
    - In the third wave of the pandemic, age groups 20-39 and 40-49 accounted for the highest rate of disease in Ontario. However, since the week of May 16 to 22, 2021, there has been a change in this trend with age groups 19 and under, and 20-39 accounting for the highest rates (27.9 and 32.1 cases per 100,000 population in week 23, respectively). This trend is likely a reflection of increasing vaccination rates among older adults and, more recently, among younger adults.
    - Reinfections account for a small proportion (0.04%; 193/539,905) of all COVID-19 cases in the province. The majority of reinfections (42.0%) have occurred among cases aged 20-39.

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.

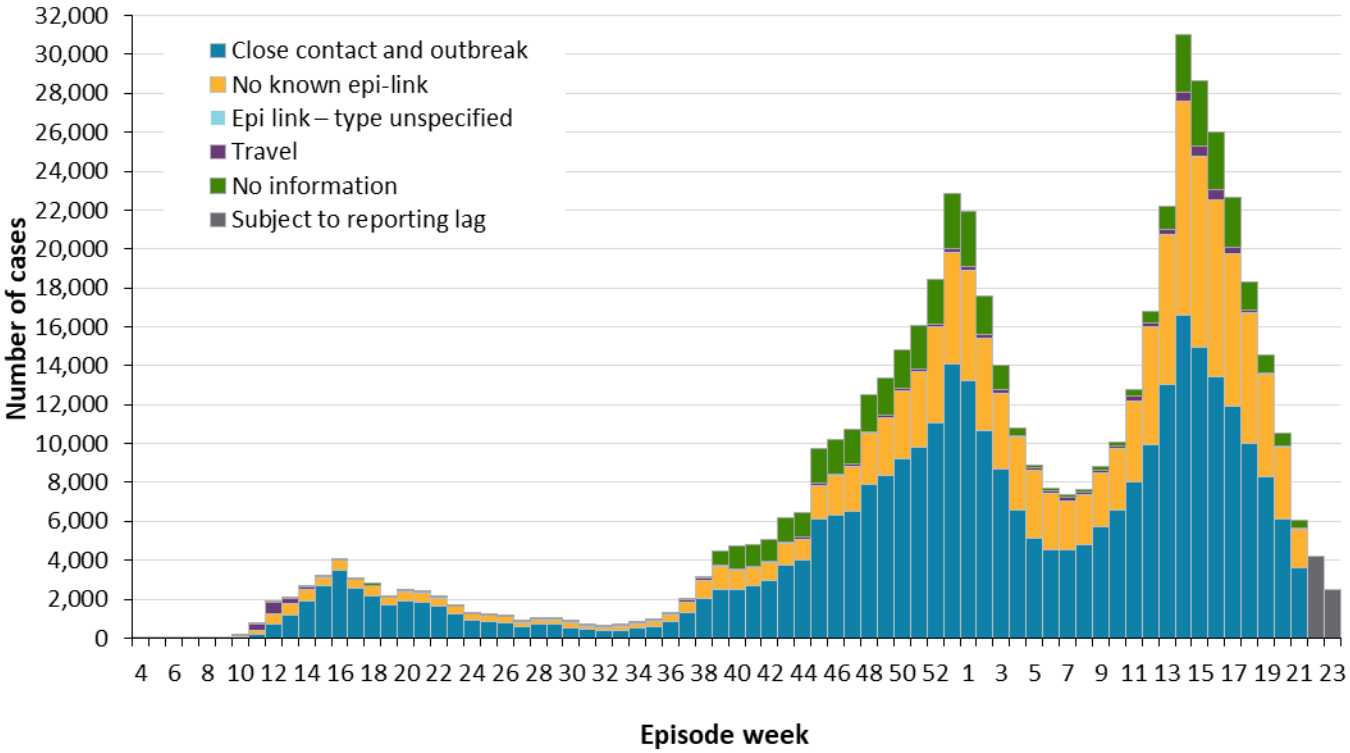
Cases Over Time

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 23 (June 6 and 12, 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 23 (June 6 and 12, 2021). See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.
Data Source: CCM

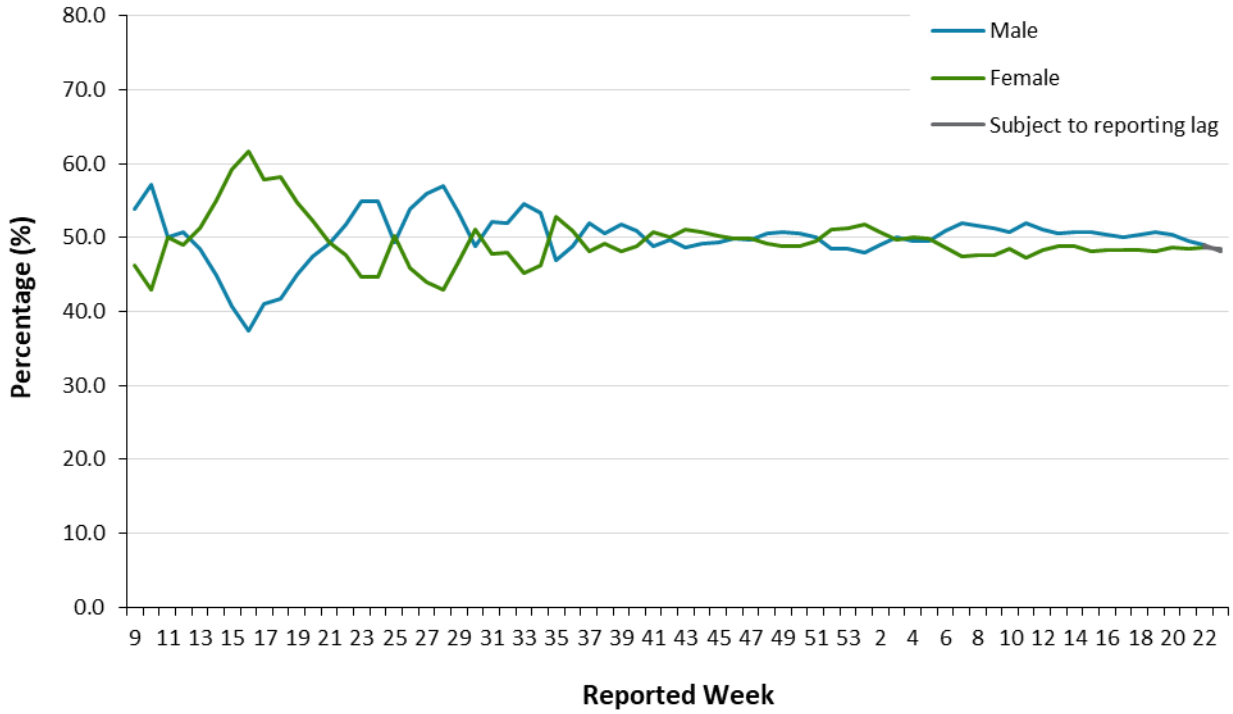
Case Characteristics

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

	Reported week 22 (May 30 to June 5)	Reported week 23 (June 6 to 12)	Cumulative case count up to June 12	Cumulative rate per 100,000 population
Total number of cases	5,209	3,497	539,905	3,632.2
Gender: Male	2,555	1,684	268,958	3,674.7
Gender: Female	2,539	1,697	267,141	3,540.5
Ages: 19 and under	1,237	876	86,520	2,758.5
Ages: 20-39	2,005	1,335	202,267	4,866.6
Ages: 40-59	1,313	842	154,305	3,918.8
Ages: 60-79	548	369	71,789	2,429.5
Ages: 80 and over	105	74	24,921	3,668.8
Number resolved	N/A	N/A	527,122	N/A

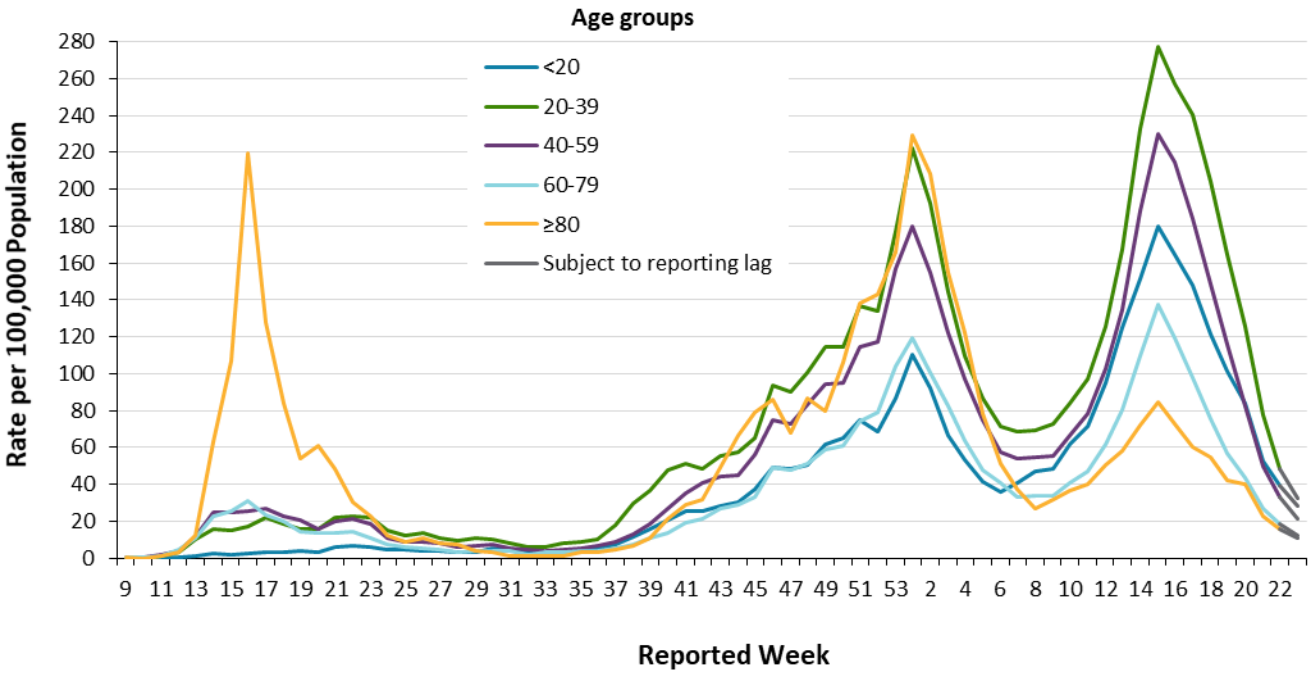
Note: Not all cases have an age or gender reported.
Interpret information for the most recent week with caution due to reporting lags.
Data Source: CCM

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



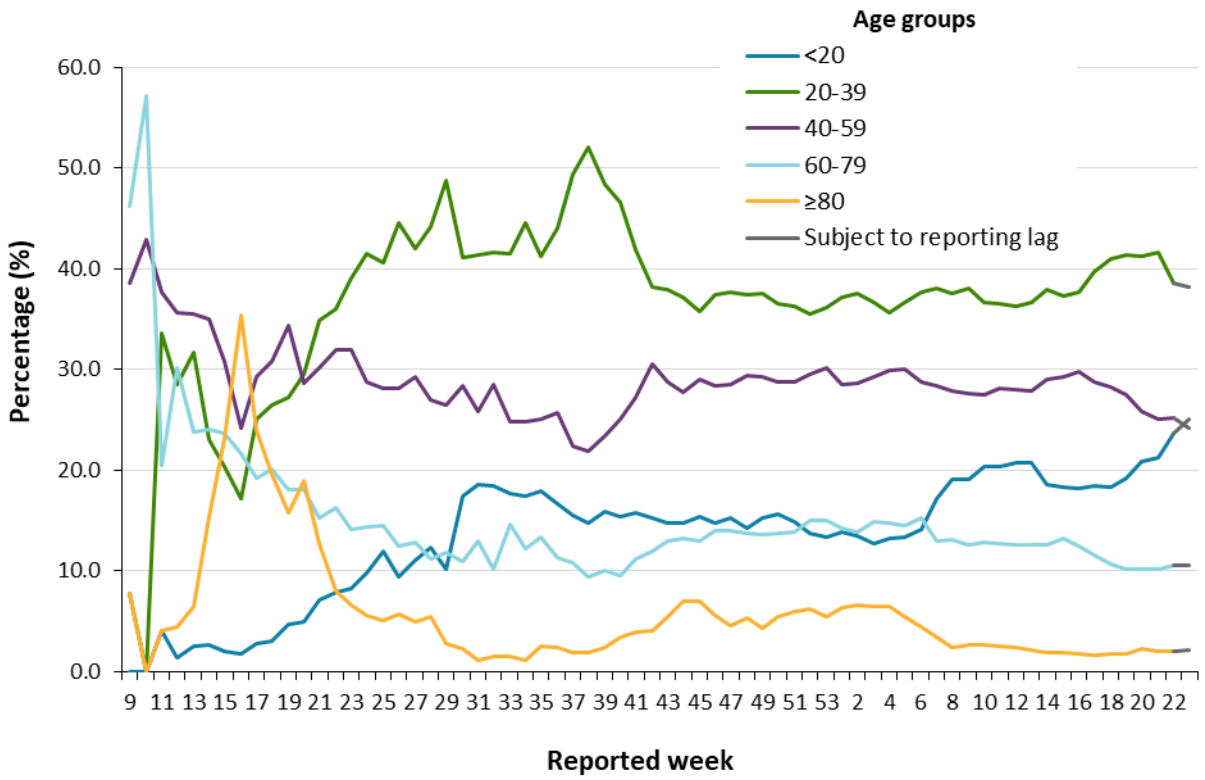
Note: Not all cases have a gender reported. The denominator for calculating weekly percentages includes all cases. Only weeks with more than 10 cases by public health unit reporting date are included (starting in week-9). Include cases with reported dates ranging from week-9 (February 23 and 29, 2020) to week 23 (June 6 and 12, 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 23 (June 6 and 12, 2021). See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.
Data Source: CCM

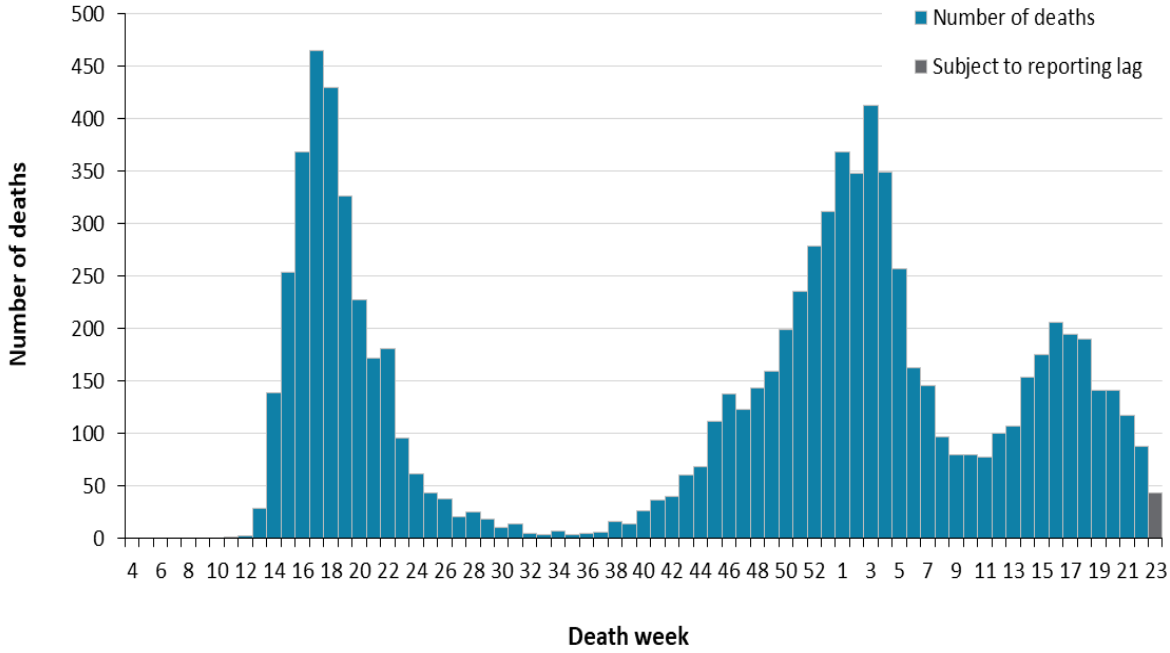
Figure 4b. Percentage of confirmed cases of COVID-19 by age group and public health unit reported week: Ontario



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 23 (June 6 and 12, 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 23 (June 6 and 12, 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 22 (May 30 to June 5)	Reported week 23 (June 6 to 12)	Cumulative case count up to June 12	Cumulative rate per 100,000 population
Number of deaths	16	7	8,985	60.4
Gender: Male	13	5	4,523	61.8
Gender: Female	3	1	4,402	58.3
Ages: 19 and under	0	0	4	0.1
Ages: 20-39	1	2	77	1.9
Ages: 40-59	4	1	544	13.8
Ages: 60-79	9	1	2,821	95.5
Ages: 80 and over	2	3	5,538	815.3

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 22 (May 30 to June 5)	Percentage	Reported week 23 (June 6 to 12)	Percentage	Cumulative case count up to June 12	Cumulative percentage
Travel	63	1.2%	49	1.4%	8,788	1.6%
Outbreak-associated or close contact of a confirmed case	3,253	62.4%	2,063	59.0%	322,852	59.8%
Epidemiological link – type unspecified	0	0.0%	0	0.0%	119	<0.1%
No known epidemiological link	1,616	31.0%	1,013	29.0%	156,627	29.0%
Information missing or unknown	277	5.3%	372	10.6%	51,519	9.5%
Total	**5,209**		**3,497**		**539,905**	

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 22 (May 30 to June 5)	Reported week 23 (June 6 to 12)	Cumulative case count up to June 12
Number of cases	80	63	23,450
Ever hospitalized	1	1	454
Ever in ICU	0	0	97

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 22 (May 30 to June 5)	Reported week 23 (June 6 to 12)	Cumulative case count up to June 12
Residents	12	11	15,330
Deaths among residents	0	1	3,965
Health care workers	5	5	7,131
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 long-term care home (LTCH) residents and health care workers by vaccine category: Ontario

Vaccine category	Number of resident cases	Percent of resident cases	Number of health care worker cases	Percent of health care worker cases	Total LTCH cases	Percent of LTCH cases
Breakthrough	90	14.2%	27	7.7%	117	11.9%
Partially vaccinated	142	22.4%	80	22.9%	222	22.6%
Not yet protected	401	63.3%	242	69.3%	643	65.5%
Total post-vaccination cases	**633**		**349**		**982**	

Note: Include cases reported from December 14, 2020 to June 14, 2021. The number of LTCH residents and health-care workers that have received at least one dose of vaccine can be found in the latest version of the COVID-19 Vaccine Uptake in Ontario report.
Data Source: CCM/COVaxON

Table 7: Summary of cases of COVID-19 among school aged children by age group: Ontario

	Reported week 22 (May 30 to June 5)	Reported week 23 (June 6 to 12)	Cumulative case count from August 30 up to June 12
Ages: 4-8	256	177	15,911
Ages: 9-13	292	183	20,032
Ages: 14-17	299	216	20,424

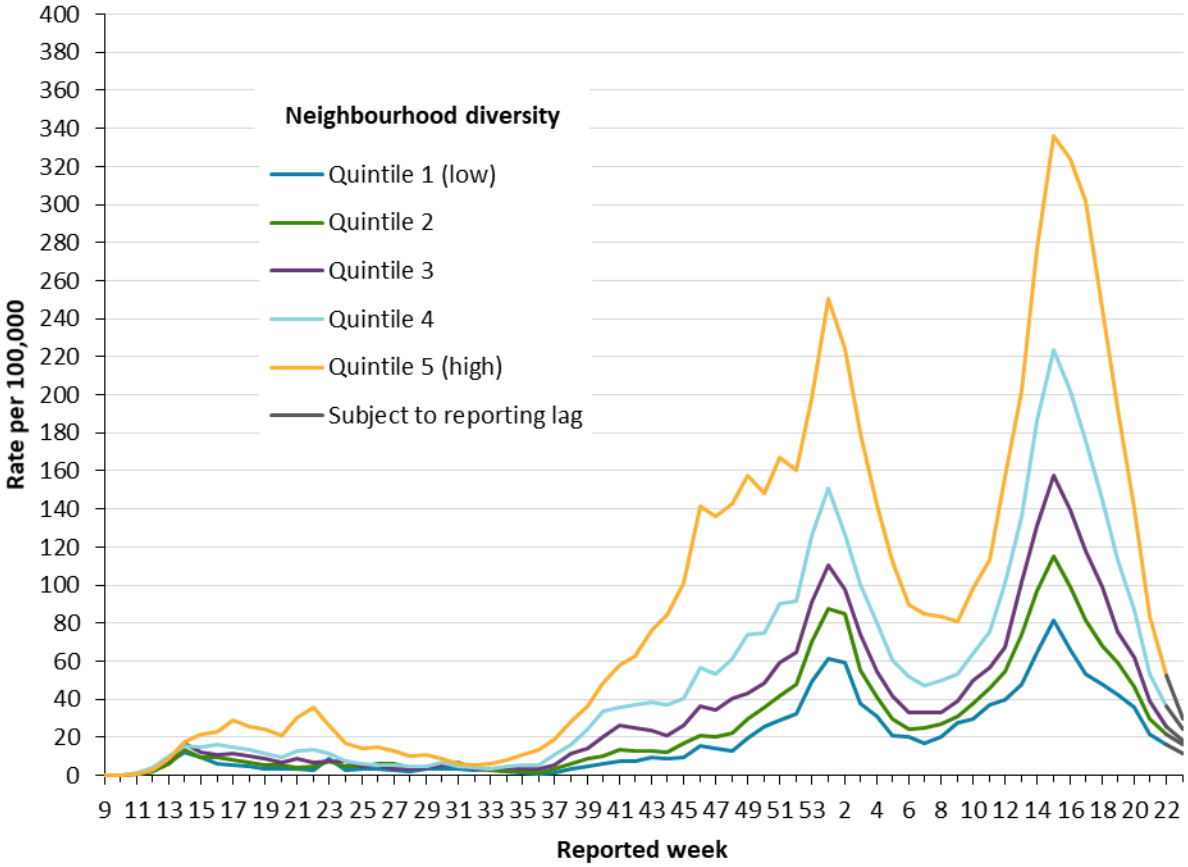
Note: Interpret information for the most recent week with caution due to reporting lags. Includes all confirmed cases of COVID-19 for specified ages, regardless of school attendance. Cumulative counts include cases of COVID-19 reported starting week-36 (August 30 to September 5, 2020).
Data Source: CCM

Table 8: Summary of reinfection cases of COVID-19 by age group and public health unit reported week: Ontario

Age Group	Reported Week 22 (May 30 to June 5)	Reported Week 23 (June 6 to 12)	Cumulative count from November 1 up to June 12	Percent of reinfection cases
Ages: 19 and under	0	0	26	13.5%
Ages: 20-39	2	0	81	42.0%
Ages: 40-59	2	3	65	33.7%
Ages: 60-79	1	0	15	7.8%
Ages: 80 and over	0	0	6	3.1%
Total reinfection cases	**5**	**3**	**193**	

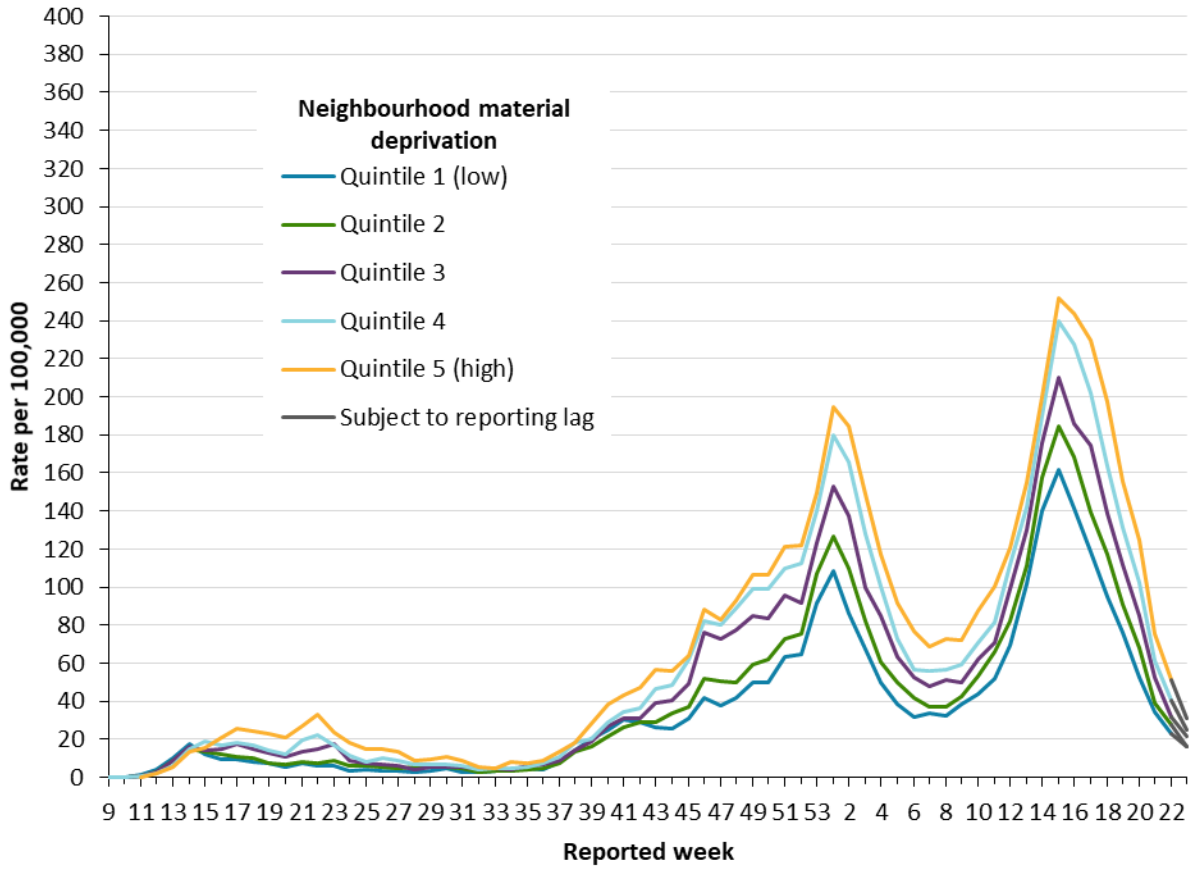
Note: Cases identified as reinfections meeting the provincial definition as indicated by public health units selecting the reinfection checkbox. Cumulative counts include cases of COVID-19 reinfection reported starting week-45 (November 1 to 7, 2020). Not all cases have a reported age or gender. Data 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 Source: CCM

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



Note: Neighbourhood diversity is measured using the ethnic concentration dimension of the Ontario Marginalization Index. The ethnic concentration dimension is based on the proportion of non-white and non-Indigenous residents and/or the proportion of immigrants that arrived in Canada within the past five years. Only weeks with more than 10 cases by public health unit reporting date are included (starting in week 9). Include cases with reported dates ranging from weeks 9 (February 23 to 29, 2020) to week 23 (June 6 to 12, 2021). As of June 8, all rate denominators were changed to the 2021 OHIP RPDB population, and as a result, rates shown here may differ from previous reports. See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.
Data Source: CCM, Ontario Marginalization Index

Figure 7. Rate of confirmed cases of COVID-19 per 100,000 population by quintile of neighbourhood material deprivation and public health unit reported week: Ontario



Note: Neighbourhood material deprivation is measured using the material deprivation dimension of the Ontario Marginalization Index. The material deprivation dimension uses Canadian census data on income, quality of housing, educational attainment and family structure characteristics to assess the ability of individuals and communities to access and attain basic material needs. Only weeks with more than 10 cases by public health unit reporting date are included (starting in week 9). Include cases with reported dates ranging from weeks 9 (February 23 to 29, 2020) to week 23 (June 6 to 12, 2021). As of June 8, all rate denominators were changed to the 2021 OHIP RPDB population, and as a result, rates shown here may differ from previous reports. See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.
Data Source: CCM, Ontario Marginalization Index

Table 9: Summary of cases of COVID-19 by quintile of neighbourhood diversity and public health unit reported week: Ontario

	Cases Reported Week 22 (May 30 to June 5)	Cases Reported Week 23 (June 6 to 12)	Cumulative case count up to June 12	Cumulative rate per 100,000 population up to June 12
Quintile 1 (least diverse)	355	249	27,799	1,251.5
Quintile 2	515	381	42,030	1,774.8
Quintile 3	671	478	62,726	2,419.9
Quintile 4	1,140	764	108,319	3,463.3
Quintile 5 (most diverse)	2,283	1,290	258,161	5,972.8

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

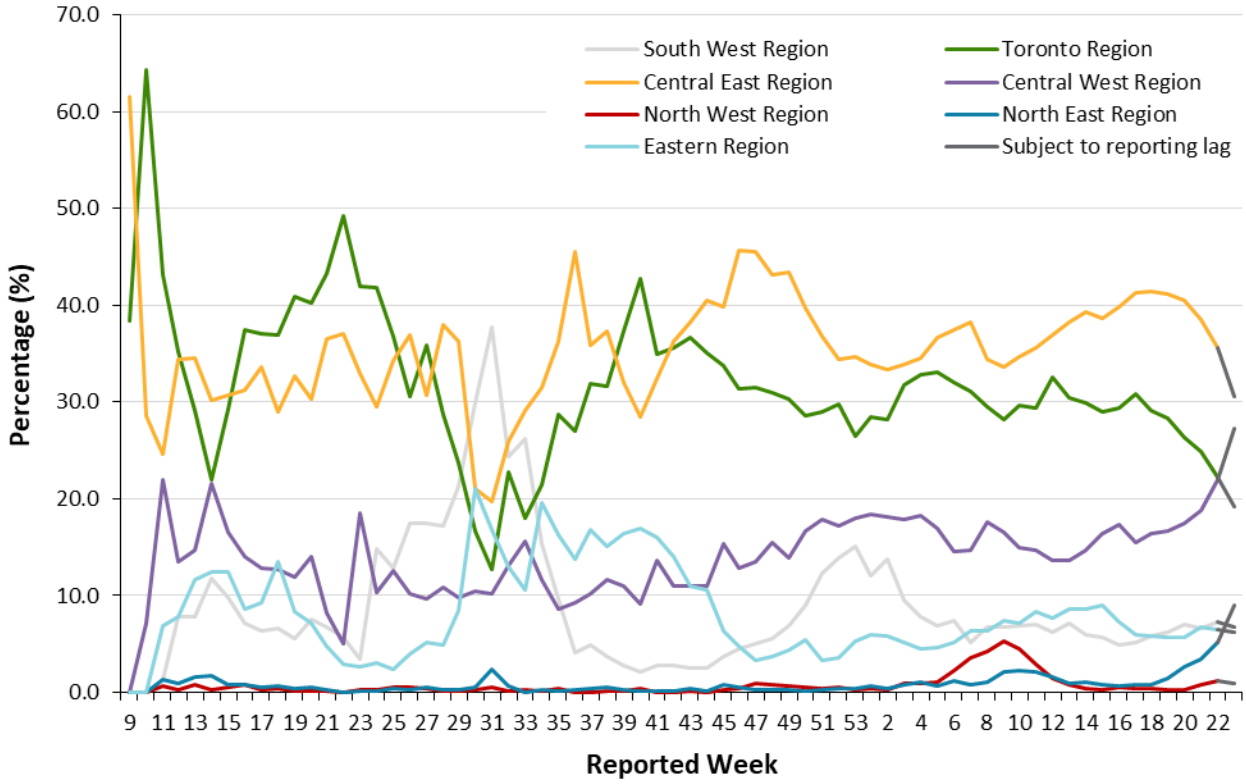
Table 10: Summary of cases of COVID-19 by quintile of neighbourhood material deprivation and public health unit reported week: Ontario

	Cases Reported Week 22 (May 30 to June 5)	Cases Reported Week 23 (June 6 to 12)	Cumulative case count up to June 12	Cumulative rate per 100,000 population up to June 12
Quintile 1 (least material deprivation)	781	567	83,246	2,415.6
Quintile 2	856	501	87,812	2,828.4
Quintile 3	888	606	96,719	3,488.0
Quintile 4	1,065	659	106,483	4,052.5
Quintile 5 (most material deprivation)	1,374	829	124,775	4,655.8

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

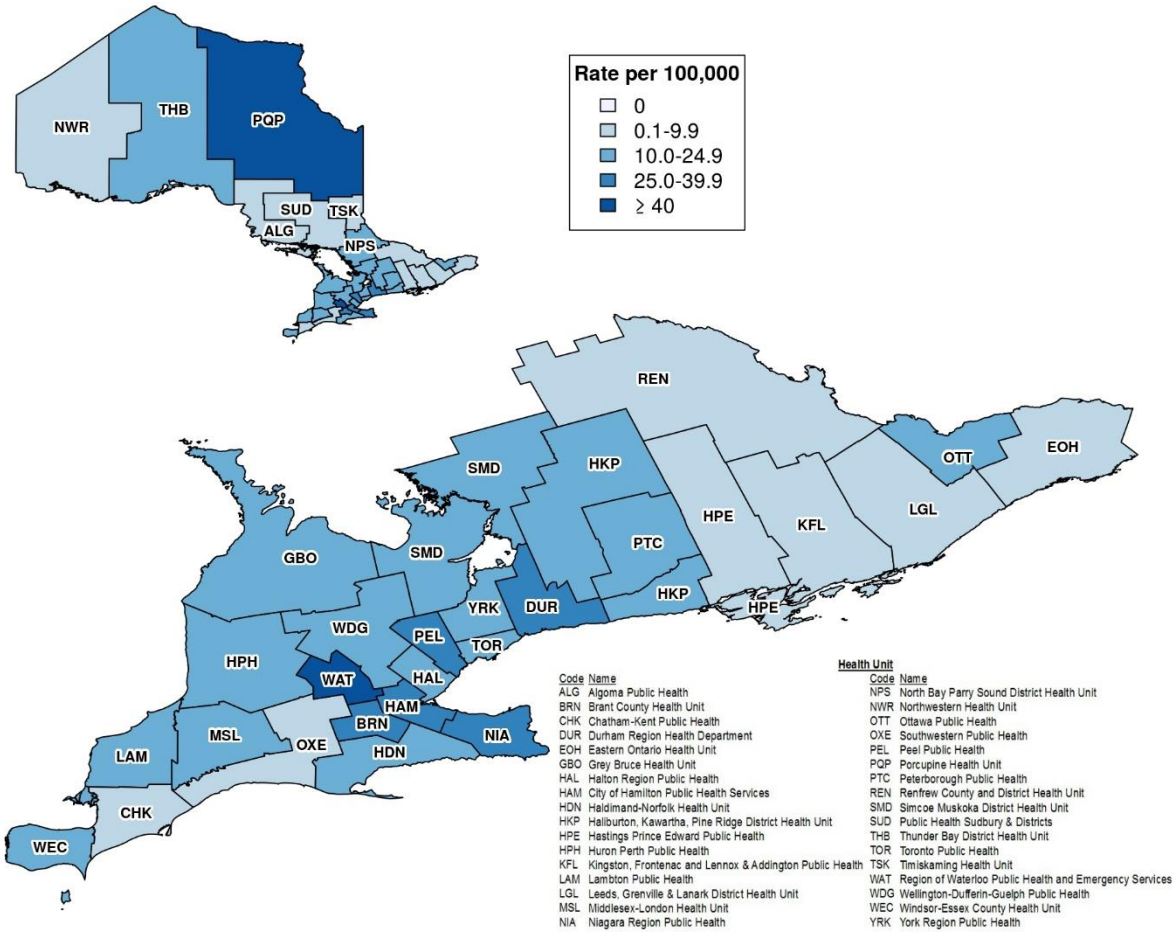
Geography

Figure 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 23 (June 6 and 12, 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 23 (June 6 to 12, 2021) by public health unit: Ontario



Note: The provincial rate of confirmed cases of COVID-19 reported in week 23 was 23.5 cases per 100,000 population.
Data Source: CCM

Outbreaks

Table 11. Number of public health unit declared COVID-19 outbreaks by setting type: Ontario

Setting Type	Reported week 23 (June 6 to 12)	Number of ongoing outbreaks	Cumulative number of outbreaks reported to June 12
Congregate Care	**6**	**19**	**2,922**
Long-term care homes	2	11	1,482
Retirement homes	2	4	873
Hospitals	2	4	567
Congregate Living	**7**	**27**	**1,271**
Correctional facility	1	6	54
Shelter	2	7	261
Group Home/supportive housing	3	9	758
Short-term accommodations	0	0	33
Congregate other	1	5	165
Education	**10**	**21**	**2,412**
Child care	9	16	977
School – Elementary*	0	1	1,071
School – Elementary/secondary*	0	0	64
School – Secondary*	1	1	255
School – Post-secondary*	0	3	45
Other settings	**34**	**104**	**4,079**
Bar/restaurant/nightclub	4	12	328
Medical/health services	0	2	146
Personal service settings	0	0	28
Recreational fitness	0	0	90

Setting Type	Reported week 23 (June 6 to 12)	Number of ongoing outbreaks	Cumulative number of outbreaks reported to June 12
Retail	4	11	451
Other recreation/community	2	8	213
Workplace – Farm	1	3	209
Workplace - Food processing	1	4	260
Other types of workplaces	19	60	2,321
Other	1	1	10
Unknown	2	3	23
Total number of outbreaks	**57**	**171**	**10,684**

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, manufacturing facilities, mines and construction sites, etc. Other recreation/community includes settings such as entertainment and event venues, gatherings (e.g., weddings), religious facilities, etc. Medical/health services refer to settings such as doctor's office or clinic, wellness clinics, etc., and excludes categories listed in the congregate care setting group.
*Cumulative counts include COVID-19 school outbreaks reported starting week-36 (August 30 to September 5, 2020).
Ongoing re-classification of settings for reported outbreaks can result in outbreak counts that may differ from previously reported counts. Outbreaks in settings outside of Ontario are excluded from all outbreak counts.
Data Source: CCM

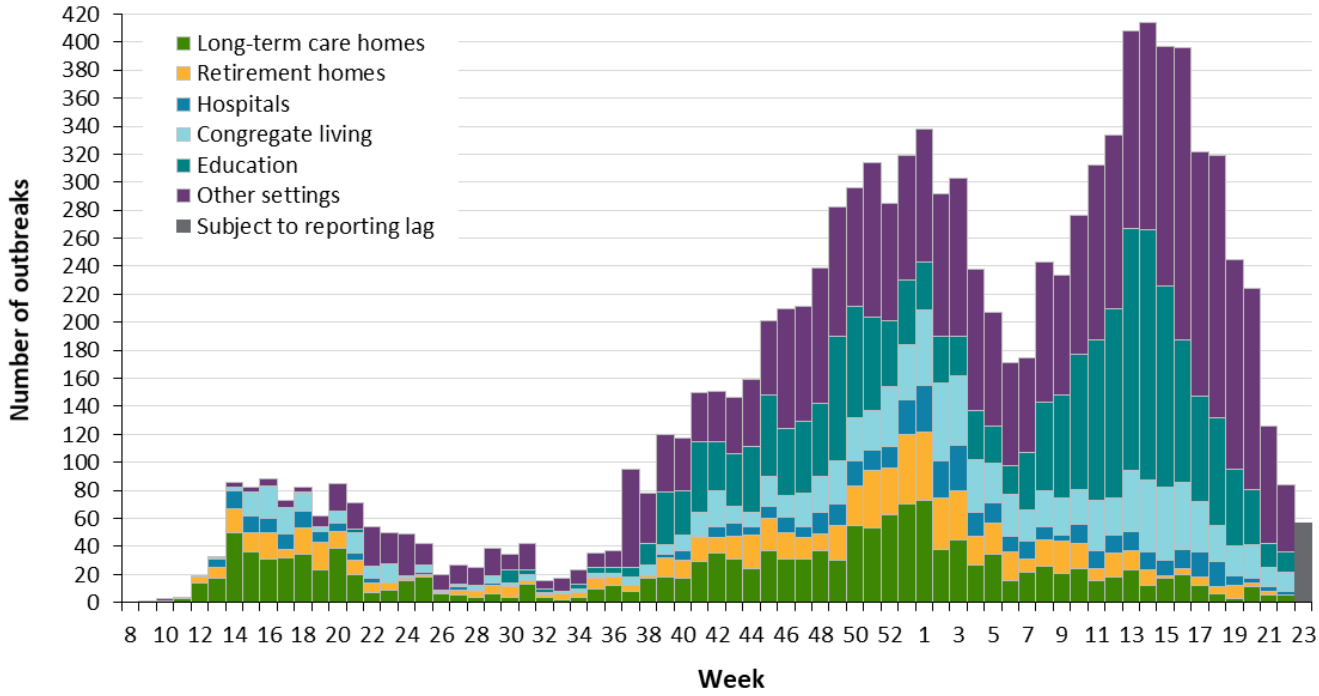
Table 12. Confirmed cases of COVID-19 associated with COVID-19 outbreaks by setting type and public health unit reported week: Ontario

Cases associated with the outbreak setting type	Reported week 22 (May 30 to June 5)	Reported week 23 (June 6 to 12)	Cumulative number of cases
Congregate Care	**37**	**40**	**39,656**
Long-term care homes	23	20	26,071
Retirement homes	3	6	7,302
Hospitals	11	14	6,283
Congregate Living	**93**	**99**	**9,544**
Correctional facility	23	12	1,661
Shelter	21	55	2,704
Group Home/supportive housing	25	20	3,531
Short-term accommodations	0	0	196
Congregate other	24	12	1,452
Education	**87**	**37**	**10,273**
Child care	81	36	3,991
School – Elementary*	3	0	4,447
School – Elementary/secondary*	0	0	334
School – Secondary*	3	0	1,089
School – Post-secondary*	0	1	412
Other settings	**273**	**165**	**32,167**
Bar/restaurant/nightclub	26	11	1,432
Medical/health services	2	3	651
Personal service settings	0	0	106
Recreational fitness	0	0	708
Retail	26	16	2,369

Cases associated with the outbreak setting type	Reported week 22 (May 30 to June 5)	Reported week 23 (June 6 to 12)	Cumulative number of cases
Other recreation/community	45	28	2,762
Workplace - Farm	11	3	3,046
Workplace - Food processing	8	5	3,428
Other types of workplaces	151	92	17,488
Other	2	2	52
Unknown	2	5	125
Total number of cases	**490**	**341**	**91,640**

Note: Interpret case counts for the most recent week with caution due to reporting lags. Outbreak categories are mutually exclusive. Retail includes settings such as grocery stores, pharmacies, malls, etc. Other types of workplaces include settings such as offices as well as warehousing, shipping and distribution, manufacturing facilities, mines, and construction sites, etc. Other recreation/community includes settings such as entertainment and event venues, gatherings (e.g., weddings), religious facilities, etc. Medical/health services refer to settings such as doctor's office or clinic, wellness clinics, etc., and excludes categories listed in the congregate care setting group.
*Cumulative counts include cases of COVID-19 associated with school outbreaks reported starting week-36 (August 30 to September 5, 2020).
Ongoing re-classification of settings for reported outbreaks can result in case counts that may differ from previously reported counts. Cases associated with outbreaks outside of Ontario are excluded from case counts in this table.
Data Source: CCM

Figure 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 23 refers to June 6 and 12, 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 13. 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	Lineage B.1.617.2**	Mutations ***	Mutation not detected†	Cumulative case count as of June 12, 2021
Gender: Male	71,067	574	2,140	268	13,353	4,048	91,450
Gender: Female	68,949	562	1,988	223	12,197	3,946	87,865
Ages: 19 and under	26,619	181	722	65	5,216	1,502	34,305
Ages: 20-39	53,385	361	1,520	250	9,936	3,082	68,534
Ages: 40-59	41,501	387	1,269	123	7,111	2,273	52,664
Ages: 60-79	16,809	179	532	47	3,074	1,014	21,655
Ages: 80 and over	2,682	33	113	12	504	194	3,538

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, P.1 and B.1.617.2 lineage detected or a mutation 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 in the Investigation Subtype field.

**Includes B.1.617.2 cases identified by genomic analysis. Mutations common to B.1.617.2 are not included in the current VOC mutation test.

*** 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).

†Includes cases identified as 'Mutation not detected' in the Investigation Subtype field only.

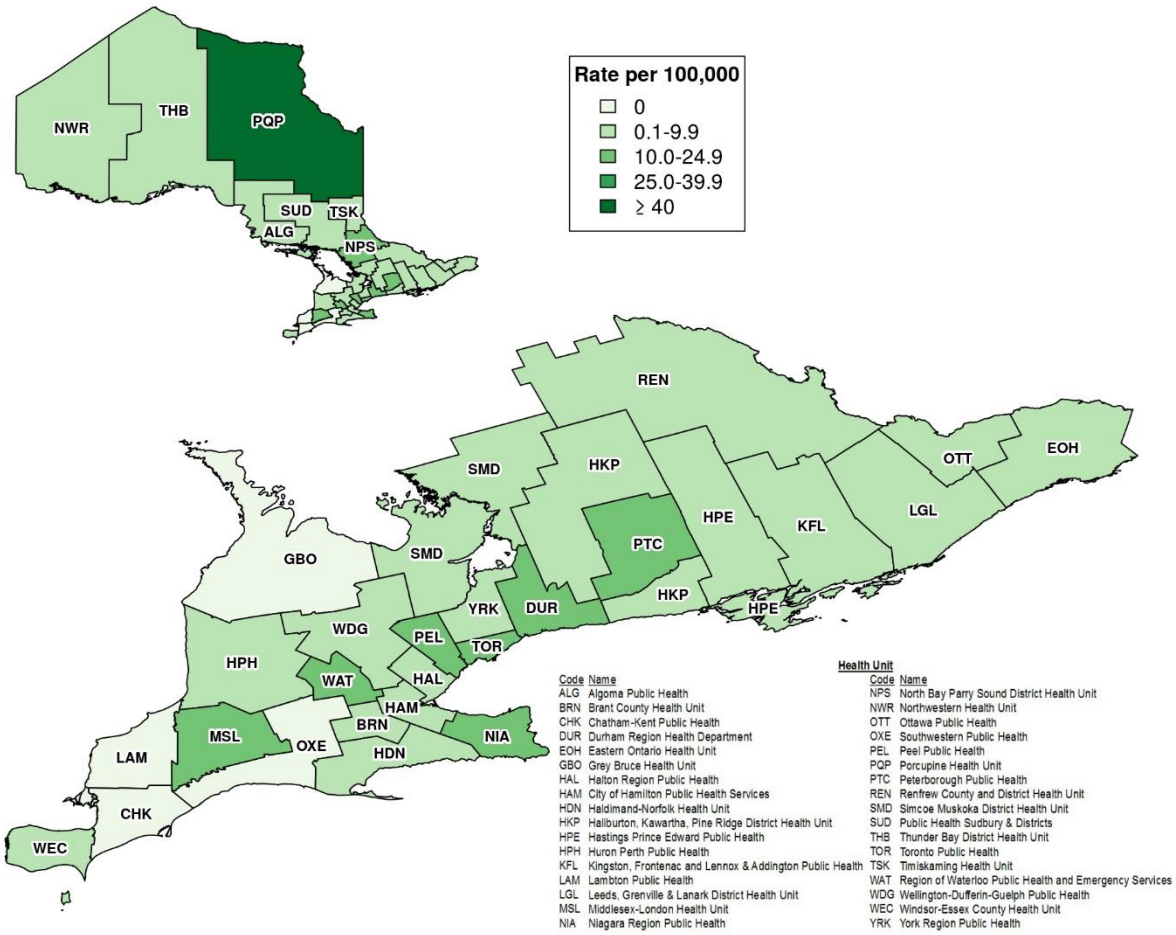
Data Source: CCM

Table 14. 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	%	Lineage B.1.617.2 **	%	Mutations* **	%	Cumulative case count up to June 12, 2021	Cumulative percentage
Travel	752	0.5%	30	2.6%	47	1.1%	44	8.9%	314	1.2%	1,187	0.7%
Outbreak-associated or close contact of a confirmed case	77,566	55.0%	723	63.4%	2,622	63.1%	276	55.5%	16,691	64.6%	97,878	56.7%
Epidemiological link – type unspecified	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
No known epidemiological link	50,772	36.0%	320	28.0%	1,296	31.2%	152	30.6%	7,549	29.2%	60,089	34.8%
Information missing or unknown	11,918	8.5%	68	6.0%	191	4.6%	25	5.0%	1,290	5.0%	13,492	7.8%
Total	**141,008**		**1,141**		**4,156**		**497**		**25,844**		**172,646**	

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 in the Investigation Subtype field.
**Includes B.1.617.2 cases identified by genomic analysis. Mutations common to B.1.617.2 are not included in the current VOC mutation test.
*** 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 23 (June 6 to 12, 2021) by public health unit: Ontario

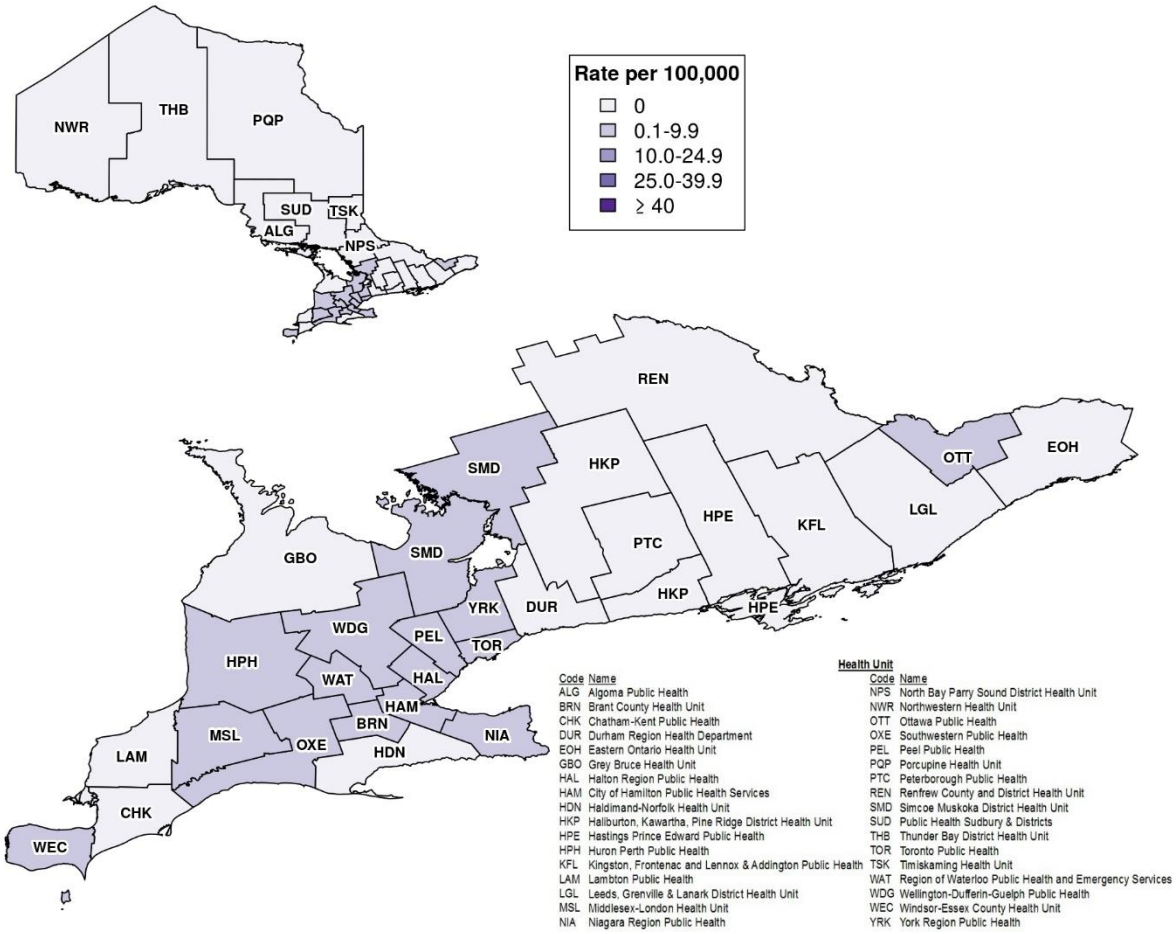


Note: The provincial rate of confirmed cases of COVID-19 with lineage B.1.1.7* reported in week 23 was 9.0 cases per 100,000 population. Changes to the VOC testing algorithm may impact counts and trends. Further details can be found in the data caveats section.

*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 23 (June 6 to 12, 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 23 was 0.6 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 **June 15, 2021 at 1 p.m.** for cases reported from February 1, 2021 onwards and as of **June 14, 2021 at 9 a.m.** for cases reported up January 31, 2021.
    - VOC data was successfully extracted from CCM for all PHUs by PHO as of **June 15, 2021 at 1 p.m.** for cases reported from April 1, 2021 onwards and as of **June 14, 2021 at 9 a.m**. for cases reported up to March 31, 2021.
    - COVID-19 vaccination data were based on information successfully extracted from the Ontario Ministry of Health's COVaxON application as of **June 14, 2021 at approximately 7 a.m.** COVaxON data was subsequently linked to COVID-19 case data based on information successfully extracted from the Public Health Case and Contact Management Solution (CCM) for all PHUs by PHO as of **June 14, 2021 at 1 p.m.**
- CCM and COVaxON are dynamic disease reporting systems, which allow ongoing updates to data previously entered. As a result, data extracted from CCM and COVaxON represent a snapshot at the time of extraction and may differ from previous or subsequent reports.
- 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 Plus (PCCF+), version 7B.
- The health equity (neighbourhood-level diversity and material deprivation) analyses use data from the 2016 Ontario Marginalization Index (ON-Marg), and population counts from the Ontario Health Insurance Plan (OHIP) Registered Person Database (RPDB) as of May 1, 2021 (provided by the Institute for Clinical Evaluative Sciences [ICES]):
    - Matheson FI; van Ingen T. 2016 Ontario marginalization index. Toronto, ON: Providence St. Joseph's and St. Michael's Healthcare; 2018. Joint publication with Public Health Ontario.
    - Chung H, Fung K, Ishiguro L, Paterson M, et al. Characteristics of COVID-19 diagnostic test recipients, Applied Health Research Questions (AHRQ) # 2021 0950 080 000. Toronto: Institute for Clinical Evaluative Sciences; 2020.

Data Caveats and Methods: Case Data

- The data represent case and vaccination information reported to public health units and recorded in CCM or COVaxON. As a result, all counts are subject to varying degrees of underreporting due to a variety of factors, such as disease awareness and medical care seeking behaviours, which may depend on severity of illness, clinical practice, changes in laboratory testing, and reporting behaviours.
- Observed trends over time should be interpreted with caution for the most recent period due to reporting and/or data entry lags.

- Only cases meeting the confirmed case classification as listed in the MOH Case Definition – Coronavirus Disease (COVID-19) document are included in the report counts from CCM. This includes persons with:
    - laboratory confirmation by a validated NAAT assay
    - a validated point-of-care (POC) assay deemed acceptable to provide a final result
    - a validated laboratory-based serological assay SARS-CoV-2
- Cases of confirmed reinfection, as defined in the provincial case definitions, are counted as unique investigations. Reinfection cases include cases for persons (CCM clients) with two or more confirmed case investigations where the case investigations after the first one have the reinfection checkbox marked as 'Yes'.
- Case classification information may be updated for individuals with a positive result issued from a point-of-care assays.
- COVID-19 cases from CCM for which the Classification and/or Disposition was reported as ENTERED IN ERROR, DOES NOT MEET DEFINITION, IGNORE, DUPLICATE, or any variation on these values have been excluded. The provincial case count for COVID-19 may include some duplicate records, if these records were not identified and resolved.
- Reported date is the date the case was reported to the public health unit. This is different than the daily change in cases released by the Province for the same time period, which reflects the difference in cumulative counts reported to the Province between one day and the next.
- Reported weeks were created to align with the Public Health Agency of Canada (PHAC) influenza surveillance weeks.
- Case episode date represents an estimate of disease onset. This date is calculated based on the earliest date of symptom onset, specimen collection/test date, or the date reported to the public health unit.
- Cases with unknown or missing ages were excluded from age-specific analyses.
- Health care worker includes cases that reported 'Yes' to any of the following occupations: health care worker, doctor, nurse, dentist, dental hygienist, midwife, other medical technicians, personal support worker, respiratory therapist, first responder.
- Resolved cases are determined only for COVID-19 cases that have not died. Cases that have died are considered fatal and not resolved. The following cases are considered resolved:
    - Cases that are reported as 'recovered' in CCM based on local public health unit assessment
    - Cases that are not hospitalized and are 14 days past their symptom onset date or specimen collection date (where symptom onset date is not known)
    - Cases that are currently hospitalized (no hospitalization end date entered) and have a case status of 'closed' indicating that public health follow up is complete and are 14 days past their symptom onset date or specimen collection date

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

- Deaths are determined by using the outcome field in CCM. Any case marked 'Fatal' is included in the deaths data. The CCM field Type of Death is not used to further categorize the data.

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

- Hospitalization includes all cases for which a hospital admission date was reported or hospitalization/ICU was reported as 'Yes' at the time of data extraction. It includes cases that have been discharged from hospital as well as cases that are currently hospitalized. Emergency room visits are not included in the number of reported hospitalizations.

- ICU admission includes all cases for which an ICU admission date was reported at the time of data extraction. It is a subset of the count of hospitalized cases. It includes cases that have been treated or that are currently being treated in an ICU.

- 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).

- 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

- Lineage nomenclature is dynamic. PANGO lineage naming and assignment may change as more samples are sequenced and analyzed.

- Variant status may be updated based on scientific evidence. Variants designated as a VOC in Canada is available on the Public Health Agency of Canada’s SARS-CoV-2 Variants webpage.

- 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. As of March 22, 2021, positive specimens with a Ct ≤ 35 are tested for both the N501Y and E484K mutation, with all E484K positive specimens with a Ct ≤ 30 forwarded for further genomic analysis. If found to be positive for the N501Y mutation only, no further genomic analysis are performed as these are presumed to be B.1.1.7. As of May 26, 2021, cases where an E484K mutation is detected will no longer be reflexed for sequencing as VOC testing labs switched to a representative sampling method where only a proportion of all positives with a Ct ≤ 30 are forwarded for further 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: COVaxON

- Linking COVaxON and CCM data is dependent on availability of personal identifiers reported in both databases. For example, if a client was reported in both COVaxON and CCM, but personal identifiers (e.g. such as health card number, date of birth) were not available, then sufficient information would not have been available to identify the client and the client would not have been included in the linkage.

- The following COVID-19 cases were excluded from the primary analysis as the timing of infection (i.e. date of symptom onset) relative to vaccination (i.e. date of dose administration) could not be determined.

    - Cases reported as asymptomatic and where no symptom information was reported.

    - Cases were no symptoms onset date was reported.

    - Cases reported as re-positive or remote positive.

        - Re-positive cases are defined as cases that test positive again after a negative test result based on an approved method or after being cleared/resolved (based on either time from symptom onset or having two negative tests). This may include cases that were asymptomatic at the time of the initial positive result and later developed symptoms which lead to subsequent testing. As a result, the timing of infection may be unclear.

        - Remote positive cases are defined as asymptomatic positive cases with a low pre-test probability (e.g., no epidemiologic link to a confirmed case or an outbreak) and a repeat test that is negative. For these cases, the timing of infection may be unclear.

- The definitions for partially vaccinated and breakthrough cases used in this report were modelled after proposed national definitions, and do not necessarily align with those used in other jurisdictions. Further, the definitions may be revised over time.

    - **Cases not yet protected by vaccination:** Individuals with a symptom onset date that was 0 to <14 days following the first dose of a COVID-19 vaccine. This time period from vaccination is not sufficient to develop immunity, therefore these individuals are not considered protected from vaccination.

    - **Partially vaccinated case:** Individuals with a symptom onset date that was 14 or more days following the first dose of a COVID-19 vaccine or 0 to <7 days after receiving the second dose. This time period from vaccination may be sufficient to develop some degree of immunity, but these individuals are not considered fully protected as they have not yet received the second dose or have only recently received the second dose.

- **Breakthrough (i.e., fully vaccinated) case**: Individuals with a symptom onset date that was 7 or more days following receipt of the second dose of a COVID-19 vaccine. These individuals are considered fully protected from vaccination, however, as VE is not 100%, it is expected that a small number of individuals become infected following complete vaccination.

- For breakthrough cases, the time interval between doses was not assessed to determine if the second dose was administered as per the product-specific recommended minimum interval.

Data Caveats and Methods: ON-Marg

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

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

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

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

- The following were not included in analyses that summarize the impact of COVID-19 among Ontarians who may experience marginalization:

    - People who have tested positive for COVID-19 that reside in institutional and congregate settings are not included in the census data from which the marginalization indicators (ethnic concentration and material deprivation) are derived. Although these cases represent a large number of cases overall and deaths, their exclusion ensures appropriate comparisons since institutional and congregate setting residents are excluded from ON-Marg.

    - People who have tested positive for COVID-19 that reside in census dissemination areas where data has been suppressed, and cases that have missing or invalid postal codes could not be assigned to a quintile of marginalization.

    - Due to data suppression for some census indicators on Indian Reserves in Ontario, residents of Indian Reserves could not be included in ON-Marg and therefore people who have tested positive for COVID-19 and are living on Indian Reserves could not be assigned to a quintile of marginalization. While Indigenous individuals living off reserves are included in this analysis, Indigeneity data is not currently collected or captured in dimensions of ON-Marg.

- Population counts used in rate denominators were provided by ICES. Individuals alive and eligible for the Ontario Health Insurance Plan (OHIP) as of January 1st, 2021 using the OHIP RPDB were included.

    - Individuals residing in long-term care (LTC) homes were excluded. Recent health care transaction records (e.g., OHIP physician billings, Ontario Drug Benefit [ODB] Plan claims) and Resident Assessment Instrument (RAI) assessments from the Continuing Care Reporting System (CCRS) were used to identify individuals residing in a LTC home near the period prior to the index date.

    - Postal codes were assigned to individuals according to the most recent residential address available in the OHIP RPDB.

- This work is supported by the Applied Health Research Questions (AHRQ) Portfolio at ICES, which is funded by the Ontario Ministry of Health, and Ontario Health Data Platform (OHDP), a Province of Ontario initiative to support Ontario's ongoing response to COVID-19 and its related impacts. Parts of this material are based on data and information compiled and provided by the Ontario Ministry of Health. The analyses, conclusions, opinions and statements expressed herein are solely those of the authors and do not reflect those of ICES, the OHDP or the funding or data sources; no endorsement is intended or should be inferred. For more information on AHRQ and how to submit a request, please visit www.ices.on.ca/DAS/AHRQ.

Appendix A

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

Reported Week	Start date	End date	Number of cases	Cumulative count
2	January 5, 2020	January 11, 2020	0	0
3	January 12, 2020	January 18, 2020	0	0
4	January 19, 2020	January 25, 2020	3	3
5	January 26, 2020	February 1, 2020	0	3
6	February 2, 2020	February 8, 2020	0	3
7	February 9, 2020	February 15, 2020	0	3
8	February 16, 2020	February 22, 2020	1	4
9	February 23, 2020	February 29, 2020	13	17
10	March 1, 2020	March 7, 2020	14	31
11	March 8, 2020	March 14, 2020	146	177
12	March 15, 2020	March 21, 2020	435	612
13	March 22, 2020	March 28, 2020	1,307	1,919
14	March 29, 2020	April 4, 2020	2,778	4,697
15	April 5, 2020	April 11, 2020	3,134	7,831
16	April 12, 2020	April 18, 2020	4,204	12,035
17	April 19, 2020	April 25, 2020	3,629	15,664
18	April 26, 2020	May 2, 2020	2,889	18,553
19	May 3, 2020	May 9, 2020	2,344	20,897
20	May 10, 2020	May 16, 2020	2,188	23,085
21	May 17, 2020	May 23, 2020	2,614	25,699
22	May 24, 2020	May 30, 2020	2,598	28,297
23	May 31, 2020	June 6, 2020	2,303	30,600

Reported Week	Start date	End date	Number of cases	Cumulative count
24	June 7, 2020	June 13, 2020	1,473	32,073
25	June 14, 2020	June 20, 2020	1,228	33,301
26	June 21, 2020	June 27, 2020	1,250	34,551
27	June 28, 2020	July 4, 2020	1,085	35,636
28	July 5, 2020	July 11, 2020	869	36,505
29	July 12, 2020	July 18, 2020	931	37,436
30	July 19, 2020	July 25, 2020	991	38,427
31	July 26, 2020	August 1, 2020	806	39,233
32	August 2, 2020	August 8, 2020	594	39,827
33	August 9, 2020	August 15, 2020	610	40,437
34	August 16, 2020	August 22, 2020	730	41,167
35	August 23, 2020	August 29, 2020	851	42,018
36	August 30, 2020	September 5, 2020	976	42,994
37	September 6, 2020	September 12, 2020	1,502	44,496
38	September 13, 2020	September 19, 2020	2,372	46,868
39	September 20, 2020	September 26, 2020	3,121	49,989
40	September 27, 2020	October 3, 2020	4,224	54,213
41	October 4, 2020	October 10, 2020	5,037	59,250
42	October 11, 2020	October 17, 2020	5,275	64,525
43	October 18, 2020	October 24, 2020	6,035	70,560
44	October 25, 2020	October 31, 2020	6,387	76,947
45	November 1, 2020	November 7, 2020	7,608	84,555
46	November 8, 2020	November 14, 2020	10,430	94,985
47	November 15, 2020	November 21, 2020	9,993	104,978
48	November 22, 2020	November 28, 2020	11,126	116,104

Reported Week	Start date	End date	Number of cases	Cumulative count
49	November 29, 2020	December 5, 2020	12,682	128,786
50	December 6, 2020	December 12, 2020	13,056	141,842
51	December 13, 2020	December 19, 2020	15,659	157,501
52	December 20, 2020	December 26, 2020	15,631	173,132
53	December 27, 2020	January 2, 2021	20,451	193,583
1	January 3, 2021	January 9, 2021	24,871	218,454
2	January 10, 2021	January 16, 2021	21,372	239,826
3	January 17, 2021	January 23, 2021	16,396	256,222
4	January 24, 2021	January 30, 2021	12,757	268,979
5	January 31, 2021	February 6, 2021	9,777	278,756
6	February 7, 2021	February 13, 2021	7,896	286,652
7	February 14, 2021	February 20, 2021	7,454	294,106
8	February 21, 2021	February 27, 2021	7,678	301,784
9	February 28, 2021	March 6, 2021	7,931	309,715
10	March 7, 2021	March 13, 2021	9,474	319,189
11	March 14, 2021	March 20, 2021	11,026	330,215
12	March 21, 2021	March 27, 2021	14,390	344,605
13	March 28, 2021	April 3, 2021	18,939	363,544
14	April 4, 2021	April 10, 2021	25,566	389,110
15	April 11, 2021	April 17, 2021	30,870	419,980
16	April 18, 2021	April 24, 2021	28,325	448,305
17	April 25, 2021	May 1, 2021	25,199	473,504
18	May 2, 2021	May 8, 2021	20,752	494,256
19	May 9, 2021	May 15, 2021	16,519	510,775
20	May 16, 2021	May 22, 2021	12,652	523,427

Reported Week	Start date	End date	Number of cases	Cumulative count
21	May 23, 2021	May 29, 2021	7,772	531,199
22	May 30, 2021	June 5, 2021	5,209	536,408
23	June 6, 2021	June 12, 2021	3,497	539,905

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

Public Health Unit Name	Cases reported week 22	Rate per 100,000 population Reported week 22	Cases reported week 23	Rate per 100,000 population Reported week 23
Northwestern Health Unit	1	1.1	6	6.8
Thunder Bay District Health Unit	58	38.7	26	17.3
TOTAL NORTH WEST	**59**	**24.8**	**32**	**13.5**
Algoma Public Health	2	1.7	4	3.5
North Bay Parry Sound District Health Unit	8	6.2	28	21.6
Porcupine Health Unit	245	293.6	268	321.2
Public Health Sudbury & Districts	15	7.5	12	6.0
Timiskaming Health Unit	1	3.1	1	3.1
TOTAL NORTH EAST	**271**	**48.5**	**313**	**56.0**
Ottawa Public Health	303	28.7	188	17.8
Eastern Ontario Health Unit	10	4.8	8	3.8
Hastings Prince Edward Public Health	2	1.2	5	3.0
Kingston, Frontenac and Lennox & Addington Public Health	10	4.7	2	0.9
Leeds, Grenville & Lanark District Health Unit	1	0.6	7	4.0
Renfrew County and District Health Unit	10	9.2	9	8.3
TOTAL EASTERN	**336**	**17.4**	**219**	**11.4**
Durham Region Health Department	297	41.7	181	25.4

Public Health Unit Name	Cases reported week 22	Rate per 100,000 population Reported week 22	Cases reported week 23	Rate per 100,000 population Reported week 23
Haliburton, Kawartha, Pine Ridge District Health Unit	43	22.8	19	10.1
Peel Public Health	970	60.4	572	35.6
Peterborough Public Health	27	18.2	23	15.5
Simcoe Muskoka District Health Unit	152	25.4	98	16.3
York Region Public Health	369	30.1	175	14.3
TOTAL CENTRAL EAST	**1,858**	**41.5**	**1,068**	**23.8**
Toronto Public Health	1,158	37.1	673	21.6
TOTAL TORONTO	**1,158**	**37.1**	**673**	**21.6**
Chatham-Kent Public Health	14	13.2	3	2.8
Grey Bruce Health Unit	23	13.5	22	13.0
Huron Perth Public Health	23	16.5	25	17.9
Lambton Public Health	37	28.3	19	14.5
Middlesex-London Health Unit	137	27.0	80	15.8
Southwestern Public Health	22	10.4	16	7.6
Windsor-Essex County Health Unit	127	29.9	73	17.2
TOTAL SOUTH WEST	**383**	**22.7**	**238**	**14.1**
Brant County Health Unit	72	46.4	43	27.7
City of Hamilton Public Health Services	357	60.3	160	27.0
Haldimand-Norfolk Health Unit	17	14.9	20	17.5
Halton Region Public Health	158	25.5	127	20.5

Public Health Unit Name	Cases reported week 22	Rate per 100,000 population Reported week 22	Cases reported week 23	Rate per 100,000 population Reported week 23
Niagara Region Public Health	173	36.6	141	29.8
Region of Waterloo Public Health and Emergency Services	277	47.4	420	71.9
Wellington-Dufferin-Guelph Public Health	90	28.9	43	13.8
TOTAL CENTRAL WEST	**1,144**	**40.2**	**954**	**33.5**
TOTAL ONTARIO	**5,209**	**35.0**	**3,497**	**23.5**

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 June 12 for Lineage B.1.1.7*	Cumulative case count up to June 12 for Lineage B.1.351	Cumulative case count up to June 12 for Lineage P.1	Cumulative case count up to June 12 for Lineage B.1.617.2**	Cumulative count up to June 12 for Mutations***
Northwestern Health Unit	51	0	1	0	16
Thunder Bay District Health Unit	100	0	1	2	72
TOTAL NORTH WEST	**151**	**0**	**2**	**2**	**88**
Algoma Public Health	68	0	12	2	28
North Bay Parry Sound District Health Unit	141	28	2	2	13
Porcupine Health Unit	963	2	0	16	8
Public Health Sudbury & Districts	577	9	5	1	343
Timiskaming Health Unit	82	1	0	0	0
TOTAL NORTH EAST	**1,831**	**40**	**19**	**21**	**392**
Ottawa Public Health	6,508	326	30	5	530
Eastern Ontario Health Unit	645	41	17	1	276
Hastings Prince Edward Public Health	73	0	5	0	413
Kingston, Frontenac and Lennox & Addington Public Health	435	2	35	0	125
Leeds, Grenville & Lanark District Health Unit	285	18	0	0	38
Renfrew County and District Health Unit	216	6	4	1	14

Public Health Unit Name	Cumulative case count up to June 12 for Lineage B.1.1.7*	Cumulative case count up to June 12 for Lineage B.1.351	Cumulative case count up to June 12 for Lineage P.1	Cumulative case count up to June 12 for Lineage B.1.617.2**	Cumulative count up to June 12 for Mutations***
TOTAL EASTERN	**8,162**	**393**	**91**	**7**	**1,396**
Durham Region Health Department	9,426	49	190	8	1,276
Haliburton, Kawartha, Pine Ridge District Health Unit	430	0	18	2	309
Peel Public Health	29,586	132	1,363	204	3,629
Peterborough Public Health	551	4	7	2	162
Simcoe Muskoka District Health Unit	3,803	26	154	13	847
York Region Public Health	15,786	77	440	15	2,701
TOTAL CENTRAL EAST	**59,582**	**288**	**2,172**	**244**	**8,924**
Toronto Public Health	44,383	310	1,274	146	8,858
TOTAL TORONTO	**44,383**	**310**	**1,274**	**146**	**8,858**
Chatham-Kent Public Health	107	5	14	0	114
Grey Bruce Health Unit	301	0	5	1	56
Huron Perth Public Health	155	0	5	3	145
Lambton Public Health	407	0	17	4	132
Middlesex-London Health Unit	3,221	2	82	2	250
Southwestern Public Health	633	2	11	1	173
Windsor-Essex County Health Unit	1,780	5	13	1	135

Public Health Unit Name	Cumulative case count up to June 12 for Lineage B.1.1.7*	Cumulative case count up to June 12 for Lineage B.1.351	Cumulative case count up to June 12 for Lineage P.1	Cumulative case count up to June 12 for Lineage B.1.617.2**	Cumulative count up to June 12 for Mutations***
TOTAL SOUTH WEST	**6,604**	**14**	**147**	**12**	**1,005**
Brant County Health Unit	656	2	83	1	489
City of Hamilton Public Health Services	4,908	53	81	6	2,094
Haldimand-Norfolk Health Unit	365	3	17	6	400
Halton Region Public Health	5,050	23	141	9	618
Niagara Region Public Health	4,201	3	12	3	1,084
Region of Waterloo Public Health and Emergency Services	3,052	11	60	32	301
Wellington-Dufferin-Guelph Public Health	2,063	1	57	8	195
TOTAL CENTRAL WEST	**20,295**	**96**	**451**	**65**	**5,181**
TOTAL ONTARIO	**141,008**	**1,141**	**4,156**	**497**	**25,844**

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, P.1 and B.1.617.2 lineage detected or a mutation 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 in the Investigation Subtype field.
**Includes B.1.617.2 cases identified by genomic analysis. Mutations common to B.1.617.2 are not included in the current VOC mutation test.
*** 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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Public Health Ontario

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