

## WEEKLY EPIDEMIOLOGICAL SUMMARY

# COVID-19 in Ontario: Focus on October 10, 2021 to October 16, 2021

This report includes the most current information available from CCM as of **October 19, 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.

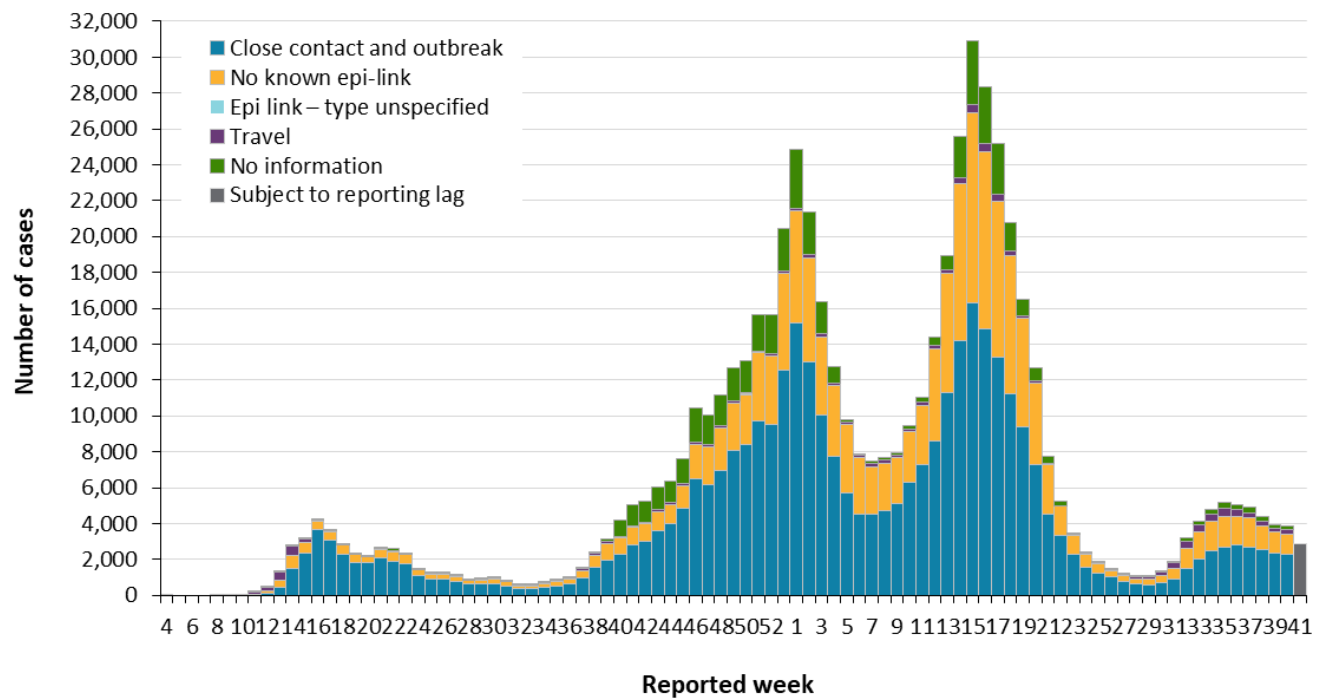
## Highlights

- There are a total of 595,039 confirmed cases of COVID-19 in Ontario with a public health unit reported date up to October 16, 2021.
- For the period with a public health unit (PHU) reported date between October 10 to 16, 2021 (week 41):
  - A total of 2,900 cases were reported to public health compared to 3,842 cases the previous week (October 3 to 9, 2021).
  - There was a 24.5% decrease in cases reported across the province this week which is the largest week-to-week decline in cases reported since week 24 (June 13 to 19, 2021). The number of outbreaks and deaths continue to trend downward also.
  - The rate of disease has decreased across all age groups this week, with the exception of cases age 80 and over which has plateaued at 11.4 cases per 100,000 population. The sharpest decline was reported in cases age 5 to 11 from 52.8 cases per 100,000 population to 38.3.

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

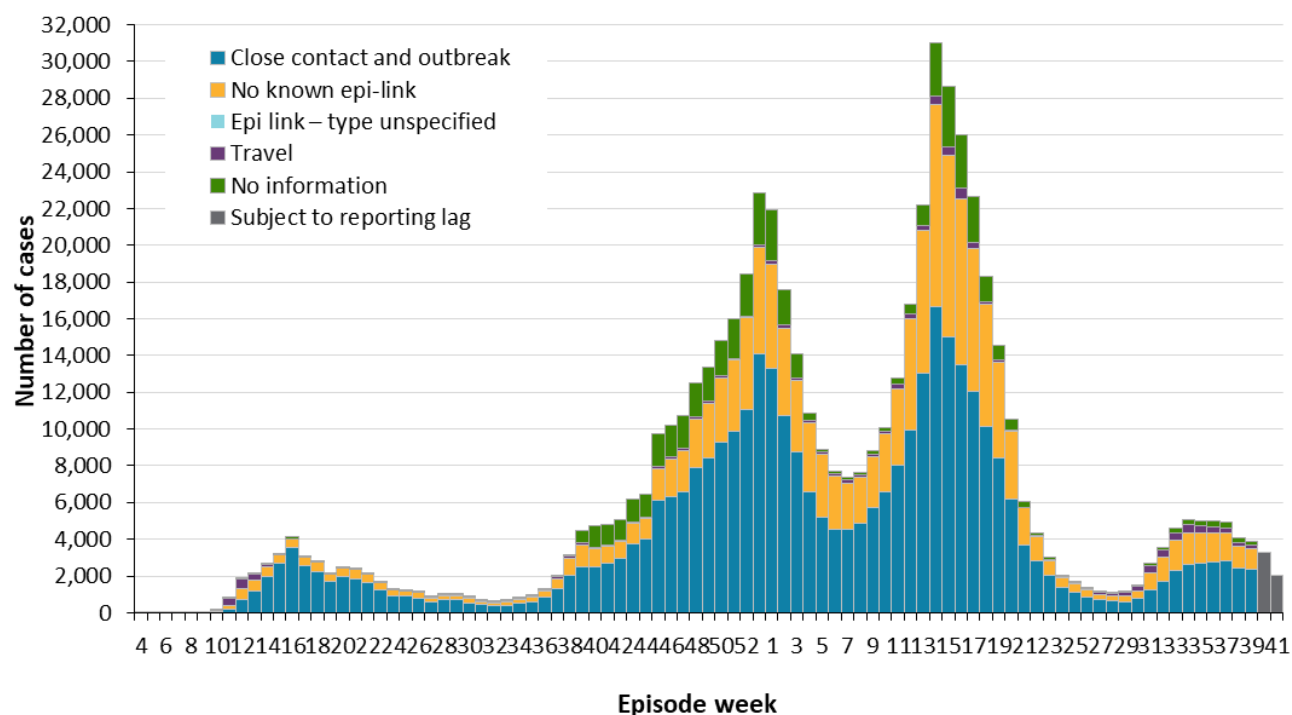
**Figure 1. Confirmed cases of COVID-19 by likely source of acquisition and public health unit reported week: Ontario**



**Note:** Include cases with reported dates ranging from week-4 (January 19 and 25, 2020) to week 41 (October 10 and 16, 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 41 (October 10 and 16, 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**

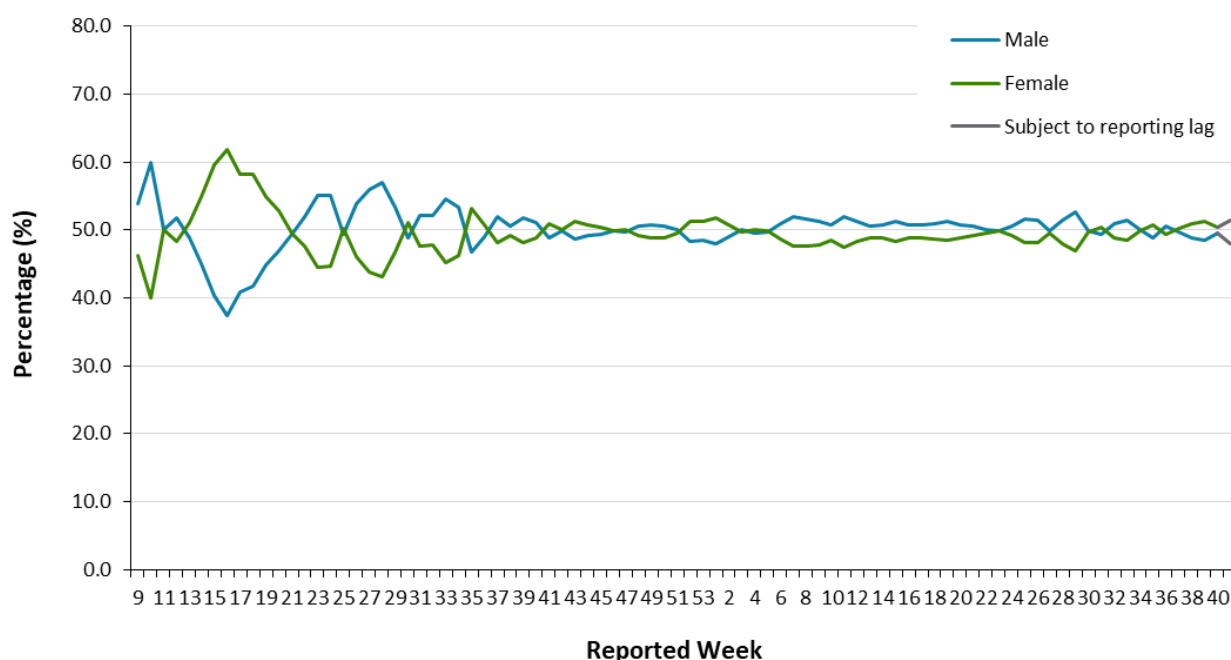
	Reported week 40 (October 3 to 9)	Reported week 41 (October 10 to 16)	Cumulative case count up to October 16	Cumulative rate per 100,000 population
Total number of cases	3,842	2,900	595,039	4,038.5
Sex: Male	1,901*	1,389	297,439*	4,086.0
Sex: Female	1,935*	1,493	295,471*	3,963.6
Ages: 0-4	188	138	16,899	2,337.3
Ages: 5-11	569	413	31,028	2,876.9
Ages: 12-19	372	258	53,150	3,997.8
Ages: 20-39	1,265	895	224,116	5,397.9
Ages: 40-59	894	737	166,720	4,279.8
Ages: 60-79	480	383	77,010	2,655.7
Ages: 80 and over	74	75	26,009	3,965.8
Number resolved	N/A	N/A	582,573	N/A

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

\*On October 14, 2021, changes were made in CCM to enable comprehensive reporting on the recently added Sex field, and move data previously entered in the Gender field that likely did not align with the concepts of gender identity to an archived field. Therefore, the data presented in this table for Male and Female are now sourced from the Sex field in CCM and are intended to represent sex assigned at birth; these data are supplemented by archived Male/Female information previously entered in the Gender field. Differences may be evident in reported Male and Female proportions compared to previous reports reflecting instances where data entered within the Sex and Gender field differ.

**Data Source:** CCM

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

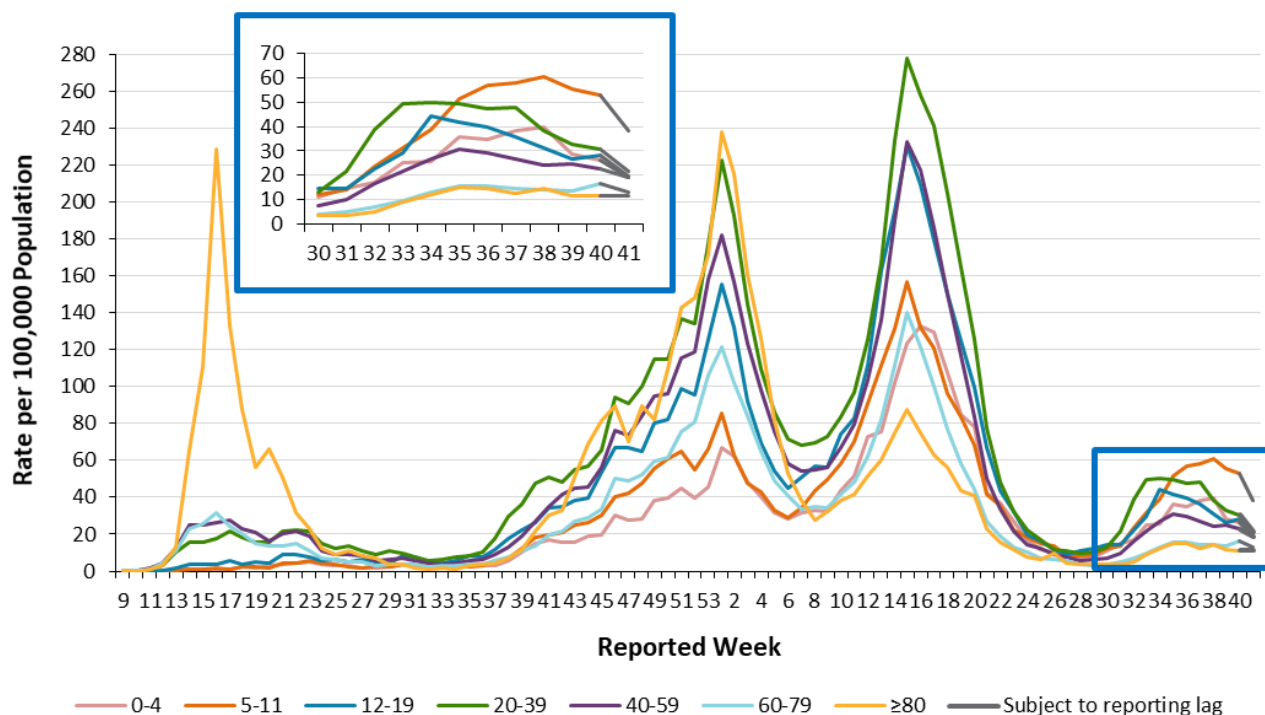


**Note:** Not all cases have a sex reported. The denominator for calculating weekly percentages includes all cases. Only weeks with more than 10 cases by public health unit reporting date are included (starting in week-9). Include cases with reported dates ranging from week-9 (February 23 and 29, 2020) to week 41 (October 10 and 16, 2021). See [Table 1A](#) in Appendix A for a list of the weeks and corresponding start and end dates.

\*On October 14, 2021, changes were made in CCM to enable comprehensive reporting on the recently added Sex field, and move data previously entered in the Gender field that likely did not align with the concepts of gender identity to an archived field. Therefore, the data presented in this table for Male and Female are now sourced from the Sex field in CCM and are intended to represent sex assigned at birth; these data are supplemented by archived Male/Female information previously entered in the Gender field. Differences may be evident in reported Male and Female proportions compared to previous reports reflecting instances where data entered within the Sex and Gender field differ.

**Data Source:** CCM

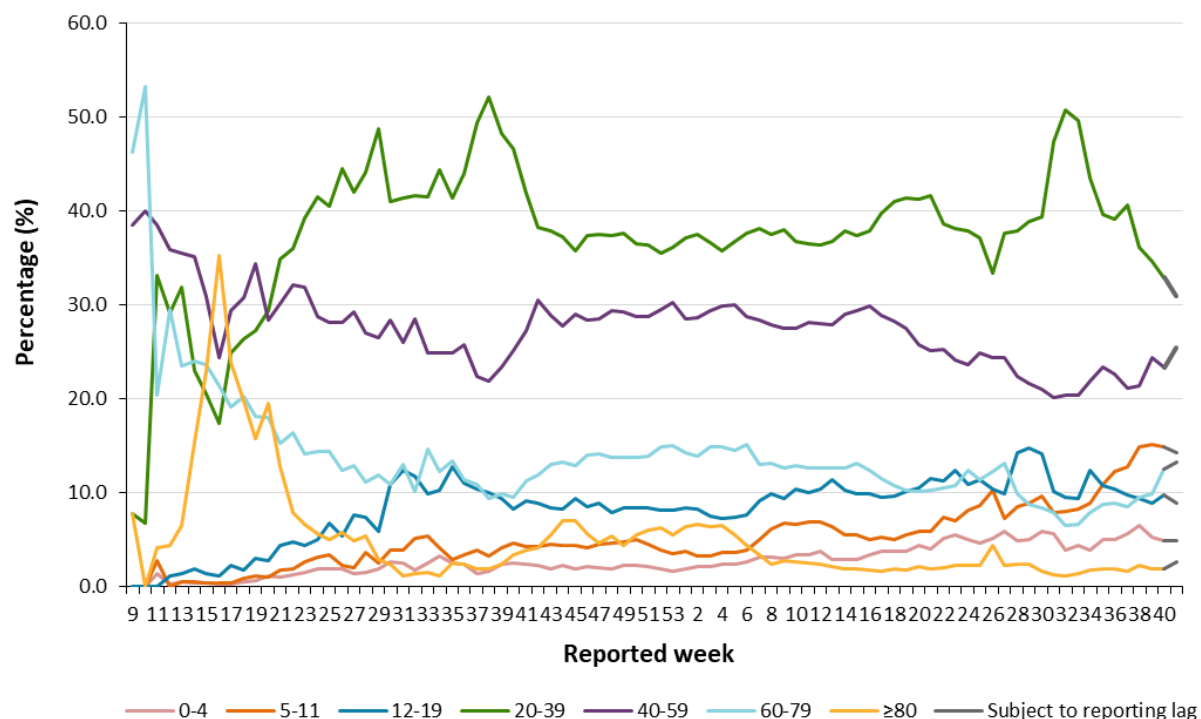
**Figure 4a. Rate of confirmed cases of COVID-19 per 100,000 population by age group and public health unit reported week: Ontario**



**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 41 (October 10 and 16, 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**

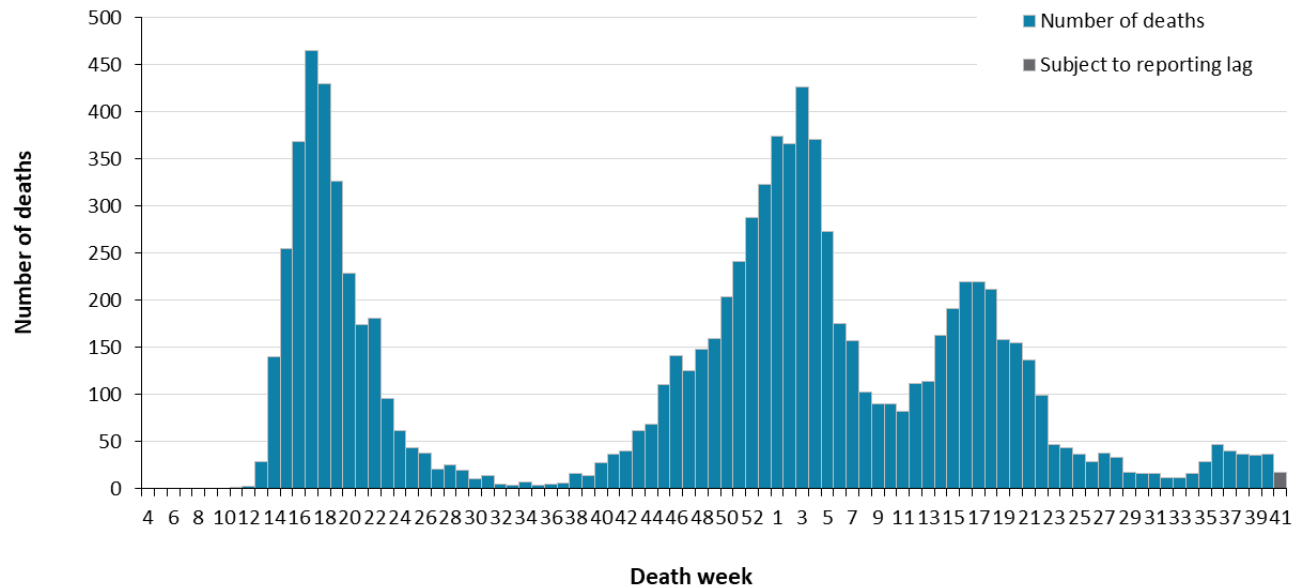


**Note:** Only weeks with more than 10 cases by public health unit reporting date are included (starting in week-9). Include cases with reported dates ranging from week-9 (February 23 and 29, 2020) to week 41 (October 10 and 16, 2021). See Table 1A in Appendix A for a list of the weeks and corresponding start and end dates.

**Data Source:** CCM

## Deaths

**Figure 5. Deaths among confirmed cases of COVID-19 by week of death: Ontario**





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

Deaths	Reported week 40 (October 3 to 9)	Reported week 41 (October 10 to 16)	Cumulative case count up to October 16	Cumulative rate per 100,000 population
Number of deaths	11	3	9,823	66.7
Sex: Male	6*	2	5,027*	69.1
Sex: Female	5*	1	4,741*	63.6
Ages: 19 and under	0	0	6	0.2
Ages: 20-39	0	0	99	2.4
Ages: 40-59	2	2	681	17.5
Ages: 60-79	4	1	3,209	110.7
Ages: 80 and over	5	0	5,827	888.5

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

\*On October 14, 2021, changes were made in CCM to enable comprehensive reporting on the recently added Sex field, and move data previously entered in the Gender field that likely did not align with the concepts of gender identity to an archived field. Therefore, the data presented in this table for Male and Female are now sourced from the Sex field in CCM and are intended to represent sex assigned at birth; these data are supplemented by archived Male/Female information previously entered in the Gender field. Differences may be evident in reported Male and Female proportions compared to previous reports reflecting instances where data entered within the Sex and Gender field differ.

**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 40 (October 3 to 9)	Percentage	Reported week 41 (October 10 to 16)	Percentage	Cumulative case count up to October 16	Cumulative percentage
Travel	247	6.4%	163	5.6%	13,125	2.2%
Outbreak-associated or close contact of a confirmed case	2,298	59.8%	1,729	59.6%	355,269	59.7%
Epidemiological link – type unspecified	0	0.0%	0	0.0%	46	<0.1%
No known epidemiological link	1,119	29.1%	772	26.6%	173,544	29.2%
Information missing or unknown	178	4.6%	236	8.1%	53,055	8.9%
<b>Total</b>	<b>3,842</b>		<b>2,900</b>		<b>595,039</b>	

**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 40 (October 3 to 9)	Reported week 41 (October 10 to 16)	Cumulative case count up to October 16
Number of cases	68	72	24,638
Ever hospitalized	0	1	480
Ever in ICU	0	0	99

**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 40 (October 3 to 9)	Reported week 41 (October 10 to 16)	Cumulative case count up to October 16
Residents	12	13	15,635
Deaths among residents	0	1	4,021
Health care workers	7	4	7,374
Deaths among health care workers	0	0	10

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

**Data Source:** CCM

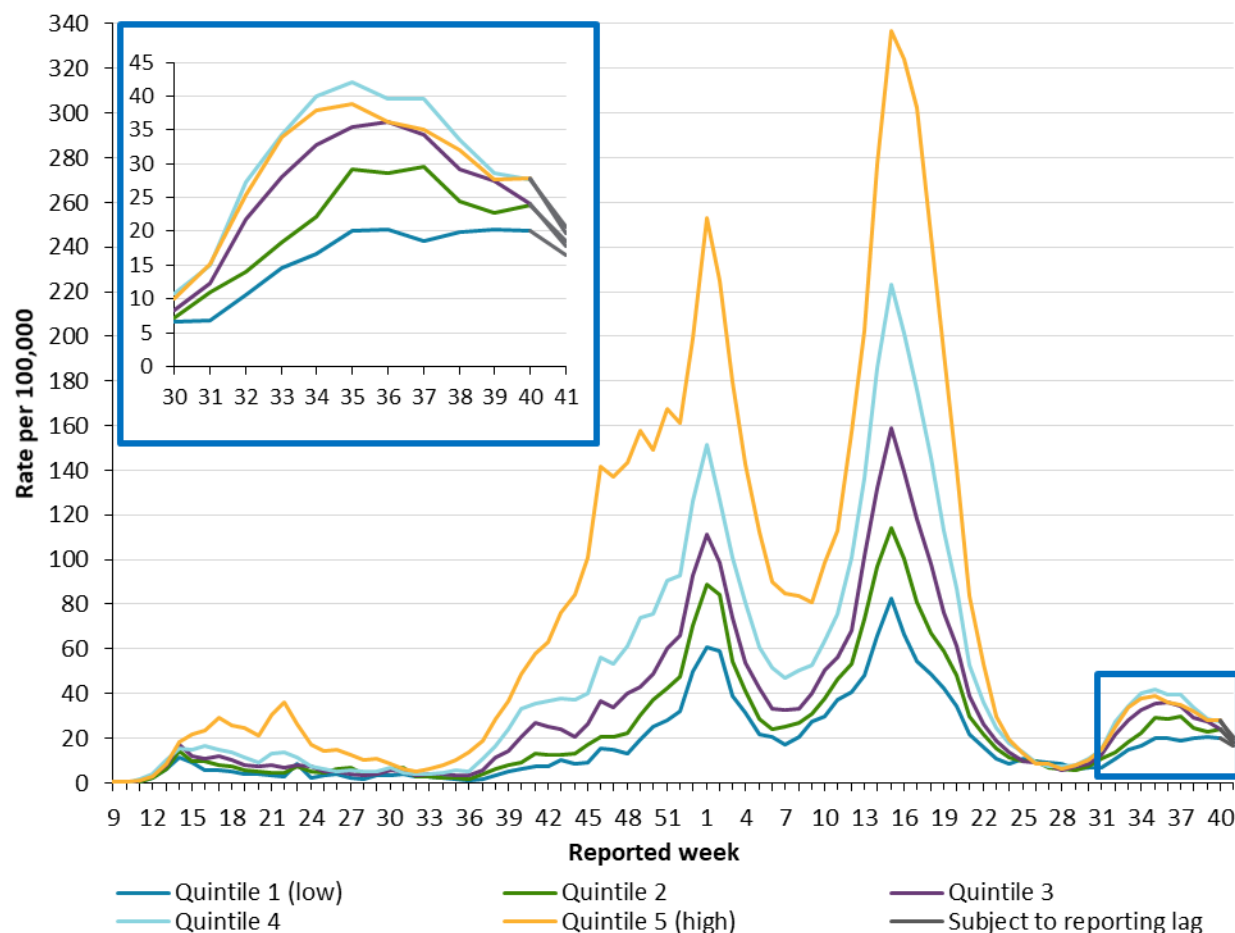
**Table 6: Summary of reinfection cases of COVID-19 by age group and public health unit reported week: Ontario**

Age Group	Reported Week 40 (October 3 to 9)	Reported Week 41 (October 10 to 16)	Cumulative count from November 1 up to October 16	Percent of reinfection cases
Ages: 0-4	2	0	17	4.8%
Ages: 5-11	0	0	4	1.1%
Ages: 12-19	0	0	36	10.2%
Ages: 20-39	2	2	166	47.2%
Ages: 40-59	4	1	92	26.1%
Ages: 60-79	0	0	27	7.7%
Ages: 80 and over	0	0	10	2.8%
<b>Total reinfection cases</b>	<b>8</b>	<b>3</b>	<b>352</b>	

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

**Data Source:** CCM

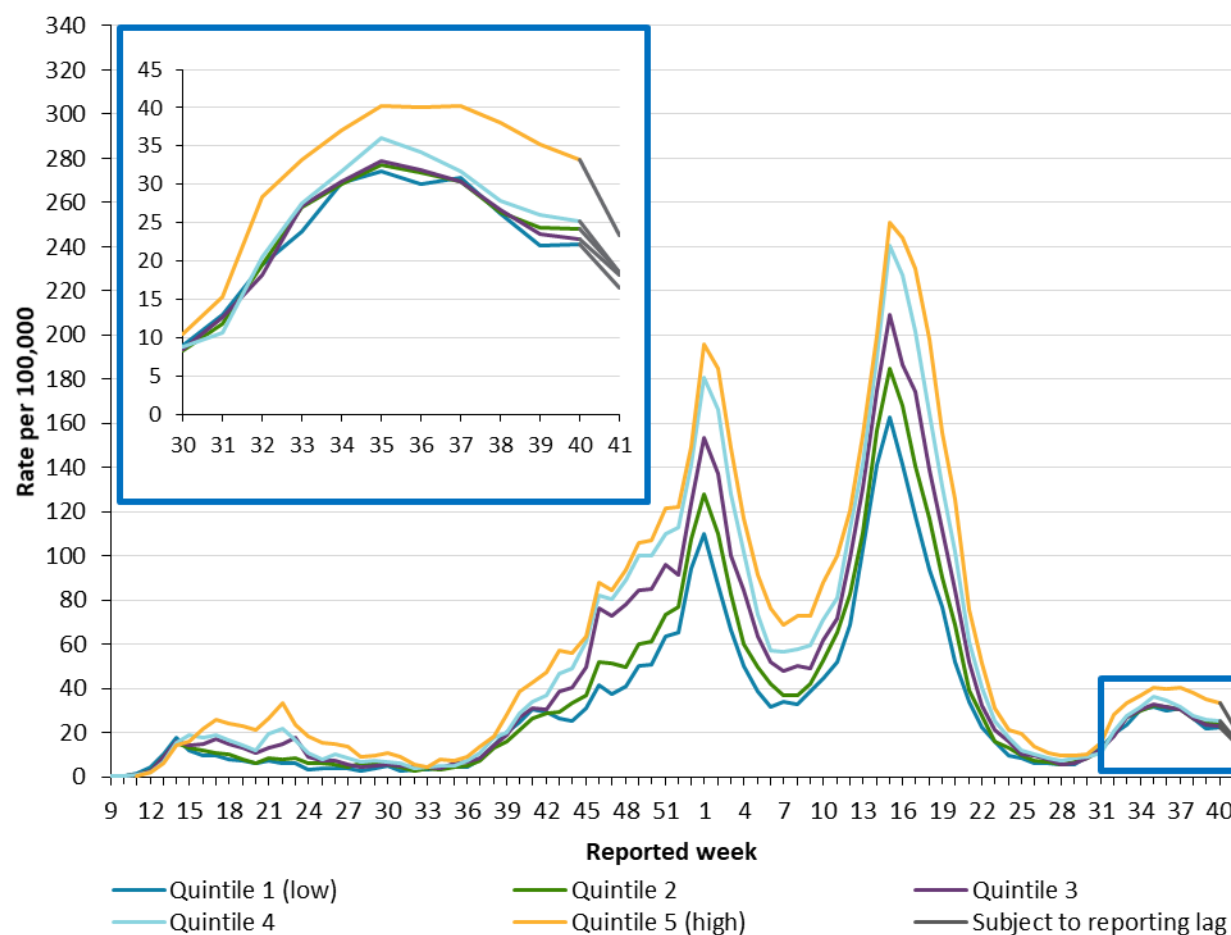
**Figure 6. Rate of confirmed cases of COVID-19 per 100,000 population by quintile of neighbourhood diversity and public health unit reported week: Ontario**



**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 41 (October 10 to 16, 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 41 (October 10 to 16, 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 7: Summary of cases of COVID-19 by quintile of neighbourhood diversity and public health unit reported week: Ontario**

	Cases Reported Week 40(October 3 to 9)	Cases Reported Week 41 (October 10 to 16)	Cumulative case count up to October 16	Cumulative rate per 100,000 population up to October 16
Quintile 1 (least diverse)	444	368	33,320	1,500.1
Quintile 2	566	439	49,148	2,075.4
Quintile 3	623	460	72,291	2,788.9
Quintile 4	864	647	121,645	3,889.4
Quintile 5 (most diverse)	1,202	848	276,246	6,391.2

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

**Data Source:** CCM, Ontario Marginalization Index

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

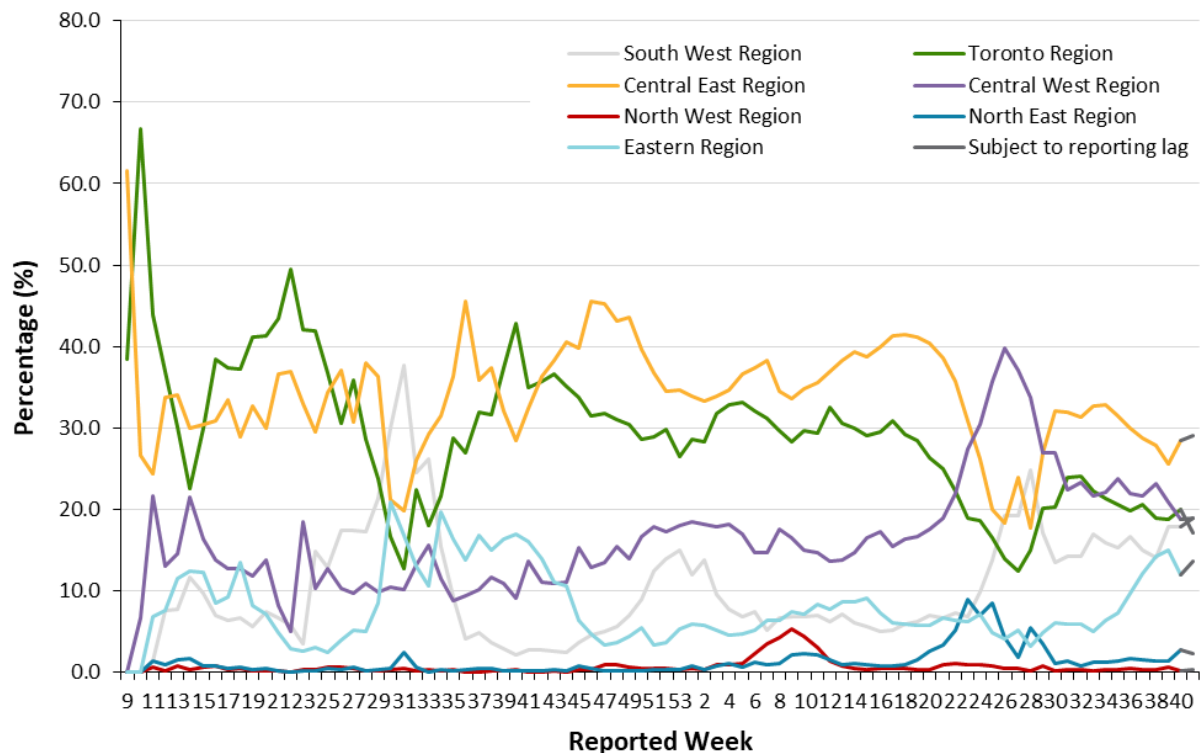
	Cases Reported Week 40(October 3 to 9)	Cases Reported Week 41 (October 10 to 16)	Cumulative case count up to October 16	Cumulative rate per 100,000 population up to October 16
Quintile 1 (least material deprivation)	764	568	94,485	2,741.7
Quintile 2	750	576	98,259	3,164.9
Quintile 3	633	504	106,154	3,828.2
Quintile 4	660	487	116,405	4,430.2
Quintile 5 (most material deprivation)	892	627	137,347	5,124.9

**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**

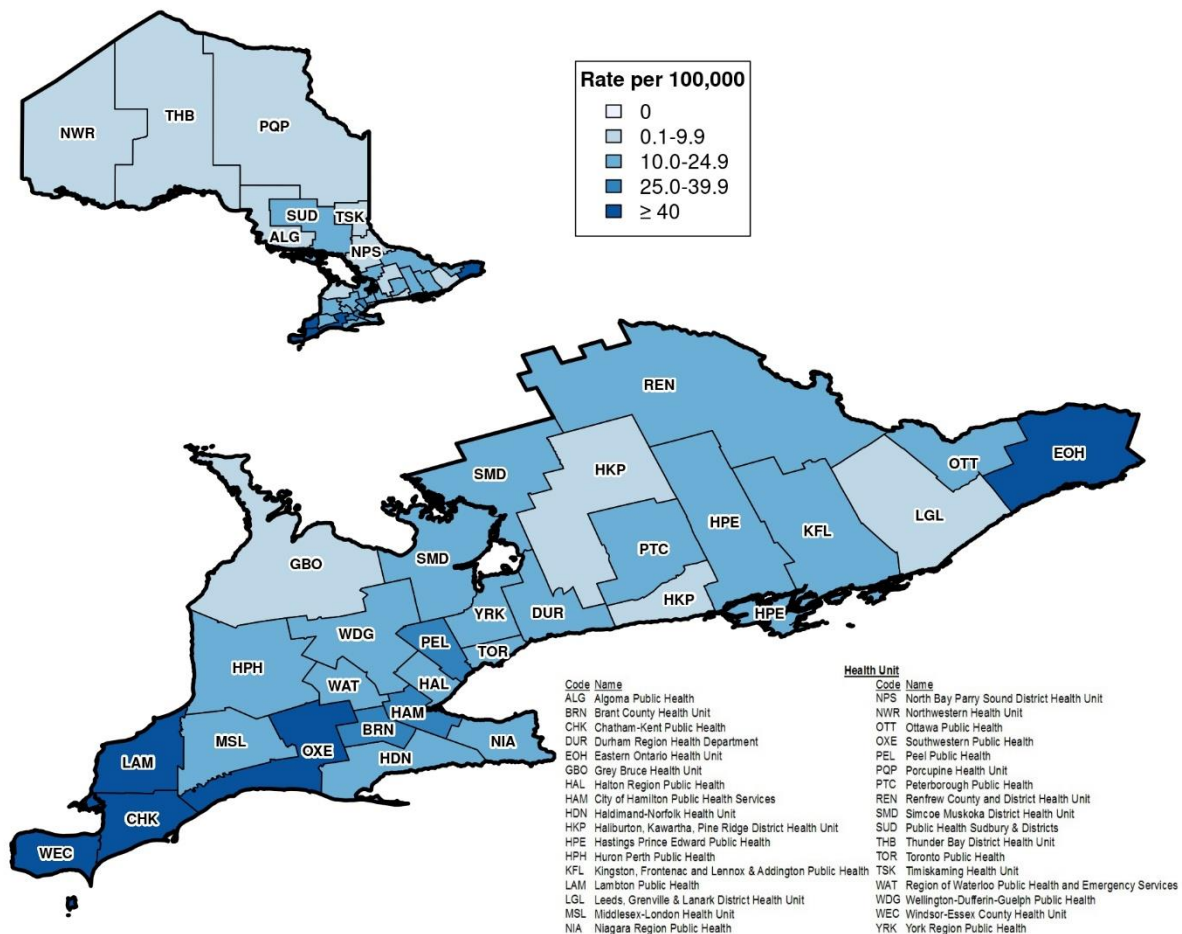


**Note:** Only weeks with more than 10 cases by public health unit reporting date are included (starting in week-9). Include cases with reported dates ranging from week-9 (February 23 and 29, 2020) to week 41 (October 10 and 16, 2021). [Table 2A](#) in Appendix A has a listing of public health units by region.

**Data Source:** CCM



**Figure 9. Rate of confirmed cases of COVID-19 in public health reported week 41 (October 10 to 16, 2021) by public health unit: Ontario**



**Note:** The provincial rate of confirmed cases of COVID-19 reported in week 41 was 19.7 cases per 100,000 population.

**Data Source:** CCM

## Outbreaks

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

Setting Type	Reported week 41 (October 10 to 16)	Number of ongoing outbreaks	Cumulative number of outbreaks reported to October 16
<b>Congregate Care</b>	<b>4</b>	<b>16</b>	<b>3,023</b>
Long-term care homes	1	8	1,530
Retirement homes	3	7	899
Hospitals	0	1	594
<b>Congregate Living</b>	<b>7</b>	<b>14</b>	<b>1,403</b>
Correctional facility	1	3	67
Shelter	2	3	290
Group Home/supportive housing	4	8	820
Short-term accommodations	0	0	47
Congregate other	0	0	179
<b>Education and Childcare</b>	<b>56</b>	<b>103</b>	<b>2,944</b>
Child care	6	12	1,146
Camp – Day*	0	0	21
Camp – Overnight*	0	0	1
Camp – Unspecified*	0	0	1
School – Elementary**	39	75	1,340
School – Elementary/secondary**	1	2	70
School – Secondary**	10	14	310
School – Post-secondary**	0	0	55
<b>Other settings</b>	<b>36</b>	<b>73</b>	<b>4,695</b>

Setting Type	Reported week 41 (October 10 to 16)	Number of ongoing outbreaks	Cumulative number of outbreaks reported to October 16
Bar/restaurant/nightclub	8	13	415
Medical/health services	0	0	164
Personal service settings	0	0	38
Recreational fitness	1	1	116
Retail	0	2	501
Other recreation/community	7	12	298
Workplace – Farm	2	3	250
Workplace - Food processing	0	0	284
Other types of workplaces	10	23	2,569
Other	1	1	16
Unknown	7	18	44
<b>Total number of outbreaks</b>	<b>103</b>	<b>206</b>	<b>12,065</b>

**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 camp outbreaks reported starting week-27 of 2021 (July 4 to 10, 2021).

\*\*Cumulative counts include COVID-19 school outbreaks reported starting week-36 (August 30 to September 5, 2020).

Ongoing re-classification of settings for reported outbreaks can result in outbreak counts that may differ from previously reported counts. Outbreaks in settings outside of Ontario are excluded from all outbreak counts.

**Data Source:** CCM

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

Cases associated with the outbreak setting type	Reported week 40 (October 3 to 9)	Reported week 41 (October 10 to 16)	Cumulative number of cases
<b>Congregate Care</b>	<b>49</b>	<b>84</b>	<b>40,697</b>
Long-term care homes	23	18	26,854
Retirement homes	19	63	7,390
Hospitals	7	3	6,453
<b>Congregate Living</b>	<b>20</b>	<b>19</b>	<b>10,291</b>
Correctional facility	5	12	1,840
Shelter	4	4	2,830
Group Home/supportive housing	10	3	3,720
Short-term accommodations	0	0	250
Congregate other	1	0	1,651
<b>Education and Childcare</b>	<b>266</b>	<b>187</b>	<b>12,389</b>
Child care	31	17	4,680
Camp – Day*	0	0	109
Camp – Overnight*	0	0	14
Camp – Unspecified*	0	0	2
School – Elementary**	197	141	5,510
School – Elementary/secondary**	13	18	386
School – Secondary**	25	11	1,237
School – Post-secondary**	0	0	451
<b>Other settings</b>	<b>232</b>	<b>127</b>	<b>37,009</b>
Bar/restaurant/nightclub	37	26	2,012
Medical/health services	0	0	741

Cases associated with the outbreak setting type	Reported week 40 (October 3 to 9)	Reported week 41 (October 10 to 16)	Cumulative number of cases
Personal service settings	2	0	134
Recreational fitness	4	1	819
Retail	6	2	2,670
Other recreation/community	29	17	3,616
Workplace - Farm	4	4	3,238
Workplace - Food processing	0	0	3,786
Other types of workplaces	64	43	19,668
Other	31	2	87
Unknown	55	32	238
<b>Total number of cases</b>	<b>567</b>	<b>417</b>	<b>100,386</b>

**Note:** Interpret case counts for the most recent week with caution due to reporting lags. Outbreak categories are mutually exclusive. Retail includes settings such as grocery stores, pharmacies, malls, etc. Other types of workplaces include settings such as offices as well as warehousing, shipping and distribution, manufacturing facilities, mines, and construction sites, etc. Other recreation/community includes settings such as entertainment and event venues, gatherings (e.g., weddings), religious facilities, etc. Medical/health services refer to settings such as doctor's office or clinic, wellness clinics, etc., and excludes categories listed in the congregate care setting group.

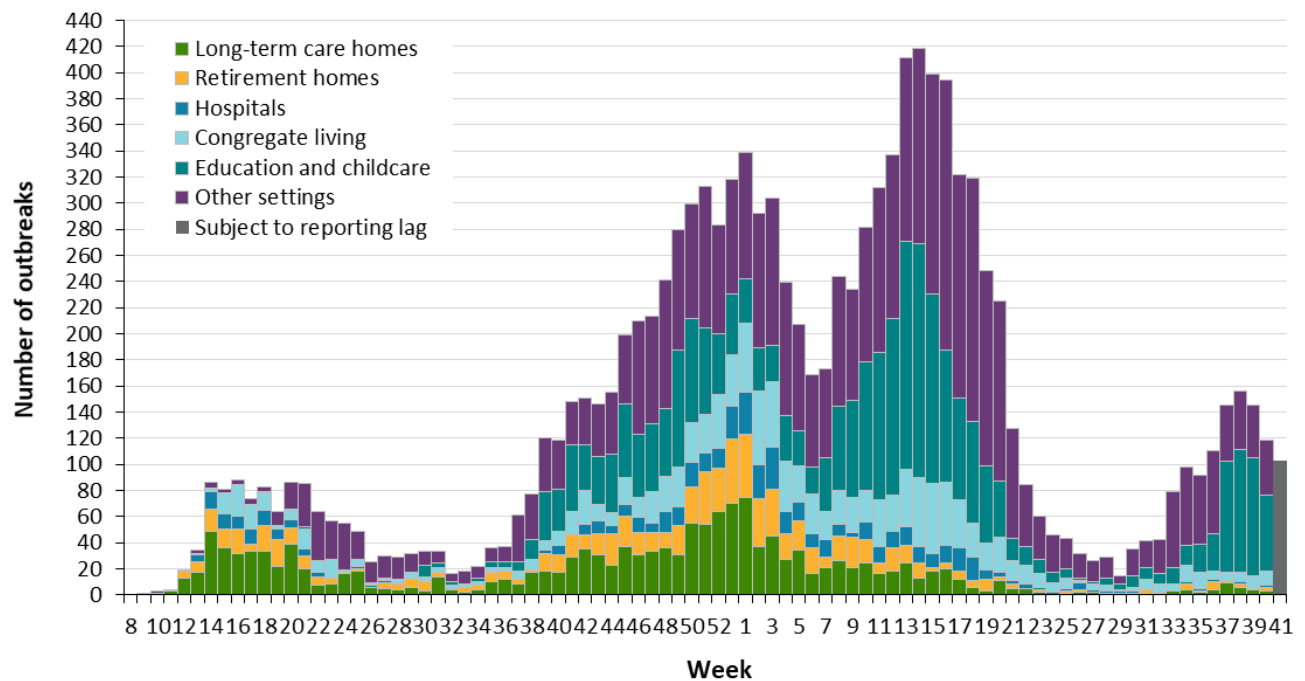
\*Cumulative counts include cases of COVID-19 camp outbreaks reported starting week-27 of 2021 (July 4 to 10, 2021).

\*\*Cumulative counts include cases of COVID-19 associated with school outbreaks reported starting week-36 (August 30 to September 5, 2020).

Ongoing re-classification of settings for reported outbreaks can result in case counts that may differ from previously reported counts. Cases associated with outbreaks outside of Ontario are excluded from case counts in this table.

**Data Source:** CCM

**Figure 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 41 refers to October 10 and 16, 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 11. Summary of confirmed COVID-19 cases with a mutation or VOC detected by age group and sex: Ontario**

	Lineage B.1.1.7 (Alpha)*	Lineage B.1.351 (Beta)**	Lineage P.1 (Gamma)***	Lineage B.1.617.2 (Delta)†	Mutations‡	Mutation not detected§	Cumulative case count as of October 16, 2021
Sex‡: Male	74,282	737	2,720	10,152	11,995	16,587	116,473
Sex‡: Female	71,828	762	2,490	9,834	10,998	16,599	112,511
Ages: 19 and under	27,812	250	905	4,600	4,675	7,699	45,941
Ages: 20-39	55,599	485	1,946	8,604	9,001	12,819	88,454
Ages: 40-59	42,842	491	1,572	4,580	6,303	8,370	64,158
Ages: 60-79	17,437	236	670	1,824	2,710	3,627	26,504
Ages: 80 and over	2,796	41	137	407	452	733	4,566

**Note:** Not all cases have an age or sex 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, sex) differing from past publicly reported case counts.

Data for cases with a B.1.1.7 (Alpha), B.1.351 (Beta), P.1 (Gamma) and B.1.617.2 (Delta) 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 (Alpha) 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.1.351 (Beta) cases identified by genomic analysis and those presumed to be B.1.351 based on 'Mutation K417N+ and N501Y+ and E484K+' in the Investigation Subtype field.

\*\*\*Includes P.1 (Gamma) cases identified by genomic analysis and those presumed to be P.1 based on 'Mutation K417T+ and N501Y+ and E484K+' in the Investigation Subtype field.

†Includes B.1.617.2 (Delta) and AY.3 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' or 'Mutation N501Y- and E484K-'in the Investigation Subtype field only.

¥On October 14, 2021, changes were made in CCM to enable comprehensive reporting on the recently added Sex field, and move data previously entered in the Gender field that likely did not align with the concepts of gender identity to an archived field. Therefore, the data presented in this table for Male and Female are now sourced from the Sex field in CCM and are intended to represent sex assigned at birth; these data are supplemented by archived Male/Female information previously entered in the Gender field. Differences may be evident in reported Male and Female proportions compared to previous reports reflecting instances where data entered within the Sex and Gender field differ.

**Data Source:** CCM



**Table 12. Summary of confirmed COVID-19 cases with a mutation or VOC detected by likely source of acquisition: Ontario**

	Lineage B.1.1.7 (Alpha)*	%	Lineage B.1.351 (Beta)**	%	Lineage P.1 (Gamma)***	%	Lineage B.1.617.2 (Delta)†	%	Mutations ‡	%	Cumulative case count up to October 16, 2021	Cumulative percentage
Travel	844	0.6%	38	2.5%	70	1.3%	1,603	8.0%	325	1.4%	2,880	1.5%
Outbreak-associated or close contact of a confirmed case	81,708	55.8%	960	63.9%	3,319	63.5%	11,145	55.7%	15,006	64.8%	112,138	57.1%
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	52,251	35.7%	405	26.9%	1,610	30.8%	6,383	31.9%	6,714	29.0%	67,363	34.3%
Information missing or unknown	11,692	8.0%	100	6.7%	231	4.4%	884	4.4%	1,097	4.7%	14,004	7.1%
<b>Total</b>	<b>146,495</b>		<b>1,503</b>		<b>5,230</b>		<b>20,015</b>		<b>23,142</b>		<b>196,385</b>	

**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 (Alpha), B.1.351 (Beta), and P.1 (Gamma) lineage detected are determined using the Investigation Subtype field only.

\*Includes all confirmed COVID-19 cases where lineage B.1.1.7 (Alpha) 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.1.351 (Beta) cases identified by genomic analysis and those presumed to be B.1.351 based on 'Mutation K417N+ and N501Y+ and E484K+' in the Investigation Subtype field.

\*\*\*Includes P.1 (Gamma) cases identified by genomic analysis and those presumed to be P.1 based on 'Mutation K417T+ and N501Y+ and E484K+' in the Investigation Subtype field.

†Includes B.1.617.2 (Delta) and AY.3 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

# 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 **October 19, 2021 at 1 p.m.** for cases reported from February 1, 2021 onwards and as of **October 18, 2021 at 9 a.m.** for cases reported up January 31, 2021.
- VOC testing data for this report were based on information successfully extracted from CCM within the laboratory object for select Logical Observation Identifiers Names and Codes (LOINC) for cases reported between February 07, 2021 and August 17, 2021, for all PHUs by PHO as of **September 29, 2021 at 1 p.m.** VOC testing data for cases reported between February 07, 2021 and August 17, 2021 are supplemented with information from the Investigation lineage and Investigation mutation field. For cases reported as of August 18, 2021, VOC test value is assigned based on information solely from the Investigation lineage and Investigation mutation fields for all PHUs.
- Ontario population estimate data were sourced from Statistics Canada. Population estimates 2001-2020: Table 1 annual population estimates by age and sex for July 1, 2001 to 2020, health regions, Ontario [unpublished data table]. Ottawa, ON: Government of Canada; 2021 [received April 22, 2021].
- Statistics Canada Postal Code Conversion File Plus (PCCF+), version 7B.
- The health equity (neighbourhood-level diversity and material deprivation) analyses use data from the 2016 Ontario Marginalization Index (ON-Marg), and population counts from the Ontario Health Insurance Plan (OHIP) Registered Person Database (RPDB) as of May 1, 2021 (provided by the Institute for Clinical Evaluative Sciences [ICES]):
  - Matheson FI; van Ingen T. 2016 Ontario marginalization index. Toronto, ON: Providence St. Joseph's and St. Michael's Healthcare; 2018. Joint publication with Public Health Ontario.
  - Chung H, Fung K, Ishiguro L, Paterson M, et al. Characteristics of COVID-19 diagnostic test recipients, Applied Health Research Questions (AHRQ) # 2021 0950 080 000. Toronto: Institute for Clinical Evaluative Sciences; 2020.

## Data Caveats and Methods: Case Data

- The data represent case information reported to public health units and recorded in CCM. As a result, all counts are subject to varying degrees of underreporting due to a variety of factors, such as disease awareness and medical care seeking behaviours, which may depend on severity of illness, clinical practice, changes in laboratory testing, and reporting behaviours.
- Observed trends over time should be interpreted with caution for the most recent period due to reporting and/or data entry lags.
- Only cases meeting the confirmed case classification as listed in the [MOH Case Definition – Coronavirus Disease \(COVID-19\) document](#) are included in the report counts from CCM. This includes persons with:

- laboratory confirmation by a validated NAAT assay
  - a validated point-of-care (POC) assay deemed acceptable to provide a final result
  - a validated laboratory-based serological assay SARS-CoV-2
- Cases of confirmed reinfection, as defined in the provincial case definitions, are counted as unique investigations. Reinfection cases include cases for persons (CCM clients) with two or more confirmed case investigations where the case investigations after the first one have the reinfection checkbox marked as 'Yes'.
  - Case classification information may be updated for individuals with a positive result issued from a point-of-care assays.
  - COVID-19 cases from CCM for which the Classification and/or Disposition was reported as ENTERED IN ERROR, DOES NOT MEET DEFINITION, IGNORE, DUPLICATE, or any variation on these values have been excluded. The provincial case count for COVID-19 may include some duplicate records, if these records were not identified and resolved.
  - Reported date is the date the case was reported to the public health unit. This is different than the daily change in cases released by the Province for the same time period, which reflects the difference in cumulative counts reported to the Province between one day and the next.
  - Reported weeks were created to align with the Public Health Agency of Canada (PHAC) influenza surveillance weeks.
  - 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.
- Male/Female information presented in this report are sourced from the Sex field in CCM and are intended to represent sex assigned at birth. On October 14, 2021, changes were made in CCM to enable reporting on the Sex field where this data field is supplemented by archived Male/Female information previously entered in the Gender field.
- Likely source of acquisition is determined by examining the epidemiologic link and epidemiologic link status fields in CCM and local systems. If no epidemiologic link is identified in those fields the risk factor fields are examined to determine whether a case travelled, was associated with a confirmed outbreak, was a contact of a case, had an Epidemiological link with type unspecified, had no known epidemiological link (sporadic community transmission) or was reported to have an unknown source/no information was reported. Some cases may have no information reported if the case is untraceable, was lost to follow-up or referred to FNIHB. Cases with multiple risk factors were assigned to a single likely acquisition source group which was determined hierarchically in the following order:
  - For cases with an episode date *on or after* April 1, 2020: Outbreak-associated > close contact of a confirmed case > travel > no known epidemiological link > information missing or unknown
  - For cases with an episode date *before* April 1, 2020: Travel > outbreak-associated > close contact of a confirmed case > no known epidemiological link > information missing or unknown
- 'Long-term care home residents' includes cases that reported 'Yes' to the risk factor 'Resident of a long-term care home'; or 'Yes' to the risk factor 'Resident of nursing home or other chronic care facility' and reported to be part of an outbreak assigned as a long-term care home (via the Outbreak number or case comments field); or were reported to be part of an outbreak assigned as a long-term care home (via the outbreak number or case comments field) with an age over 70 years and did not report 'No' to the risk factors 'Resident of long-term care home' or 'Resident of nursing home or other chronic care facility'. 'Long-term care home residents' excludes cases that reported 'Yes' to any of the health care worker occupational risk factors.
- 'Health care workers associated with long-term care outbreaks' includes 'health care workers' reported to be part of an outbreak assigned as a long-term care home (via the outbreak number or case comments field). Excludes cases that reported 'Yes' to risk factors 'Resident of long-term care home' or 'Resident of nursing home or other chronic care facility' and 'Yes' to the calculated 'health care workers' variable.

- 'Cases associated with school outbreaks' includes cases that are linked to an outbreak, by school classification type (Elementary, Elementary/Secondary, Secondary, Post-Secondary), that met the definition of a [school outbreak](#).
- School classification types are defined by the Ministry of Education.
  - Elementary/Secondary schools include public or private schools educating children in a combination of elementary and secondary grades (e.g., Kindergarten to Grade 8, Grades 9 to 12, and Kindergarten to Grade 12).
- Orientation of case counts by geography is based on the permanent health unit. This is equivalent to the diagnosing health unit (DHU) in iPHIS. DHU refers to the case's public health unit of residence at the time of illness onset and not necessarily the location of exposure. Cases for which the DHU was reported as MOH (to signify a case that is not a resident of Ontario) have been excluded from the analyses.
  - GTA health units include: Durham Region Health Department, Peel Public Health, Toronto Public Health and York Region Public Health
- Ongoing outbreaks are those that are reported in CCM as 'Open' and without a 'Declared Over Date' recorded. Closed outbreaks are 'Closed' or have a 'Declared Over Date' recorded in CCM or where the outbreak start date (determined by the onset date of first case, or if missing the reported date, or if missing the created date) is more than 5 months from the current date, even for outbreaks where the outbreak status value selected in CCM is 'OPEN'.
- Outbreaks are declared by the local medical officer of health or their designate in accordance to the Health Protection and Promotion Act and criteria outlined in [Ministry guidance documents](#).
- School outbreaks include outbreaks declared on or after week-36 (August 30 to September 5, 2020).
- 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-CoV-2 specimens with Ct values  $\leq 35$  are tested for a N501Y mutation. As of March 22, 2021, positive specimens with a Ct  $\leq 35$  are tested for both the N501Y and E484K mutation, with all E484K positive specimens with a Ct  $\leq 30$  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 (alpha). 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  $\leq 30$  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  $\leq 35$  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 (Alpha), B.1.351 (Beta), P.1 (Gamma) and B.1.617.2 (Delta)].

## 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](http://www.ices.on.ca/DAS/AHRQ).

## Appendix A

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

Reported Week	Start date	End date	Number of cases	Cumulative count
2	January 5, 2020	January 11, 2020	0	0
3	January 12, 2020	January 18, 2020	0	0
4	January 19, 2020	January 25, 2020	3	3
5	January 26, 2020	February 1, 2020	0	3
6	February 2, 2020	February 8, 2020	0	3
7	February 9, 2020	February 15, 2020	0	3
8	February 16, 2020	February 22, 2020	1	4
9	February 23, 2020	February 29, 2020	13	17
10	March 1, 2020	March 7, 2020	15	32
11	March 8, 2020	March 14, 2020	148	180
12	March 15, 2020	March 21, 2020	447	627
13	March 22, 2020	March 28, 2020	1,325	1,952
14	March 29, 2020	April 4, 2020	2,797	4,749
15	April 5, 2020	April 11, 2020	3,167	7,916
16	April 12, 2020	April 18, 2020	4,262	12,178
17	April 19, 2020	April 25, 2020	3,651	15,829
18	April 26, 2020	May 2, 2020	2,902	18,731
19	May 3, 2020	May 9, 2020	2,353	21,084
20	May 10, 2020	May 16, 2020	2,223	23,307
21	May 17, 2020	May 23, 2020	2,617	25,924
22	May 24, 2020	May 30, 2020	2,611	28,535
23	May 31, 2020	June 6, 2020	2,302	30,837



Reported Week	Start date	End date	Number of cases	Cumulative count
24	June 7, 2020	June 13, 2020	1,472	32,309
25	June 14, 2020	June 20, 2020	1,226	33,535
26	June 21, 2020	June 27, 2020	1,250	34,785
27	June 28, 2020	July 4, 2020	1,085	35,870
28	July 5, 2020	July 11, 2020	866	36,736
29	July 12, 2020	July 18, 2020	931	37,667
30	July 19, 2020	July 25, 2020	993	38,660
31	July 26, 2020	August 1, 2020	808	39,468
32	August 2, 2020	August 8, 2020	592	40,060
33	August 9, 2020	August 15, 2020	610	40,670
34	August 16, 2020	August 22, 2020	728	41,398
35	August 23, 2020	August 29, 2020	850	42,248
36	August 30, 2020	September 5, 2020	976	43,224
37	September 6, 2020	September 12, 2020	1,505	44,729
38	September 13, 2020	September 19, 2020	2,372	47,101
39	September 20, 2020	September 26, 2020	3,123	50,224
40	September 27, 2020	October 3, 2020	4,222	54,446
41	October 4, 2020	October 10, 2020	5,035	59,481
42	October 11, 2020	October 17, 2020	5,276	64,757
43	October 18, 2020	October 24, 2020	6,039	70,796
44	October 25, 2020	October 31, 2020	6,388	77,184
45	November 1, 2020	November 7, 2020	7,602	84,786
46	November 8, 2020	November 14, 2020	10,440	95,226
47	November 15, 2020	November 21, 2020	10,038	105,264
48	November 22, 2020	November 28, 2020	11,135	116,399

Reported Week	Start date	End date	Number of cases	Cumulative count
49	November 29, 2020	December 5, 2020	12,681	129,080
50	December 6, 2020	December 12, 2020	13,060	142,140
51	December 13, 2020	December 19, 2020	15,656	157,796
52	December 20, 2020	December 26, 2020	15,630	173,426
53	December 27, 2020	January 2, 2021	20,446	193,872
1	January 3, 2021	January 9, 2021	24,876	218,748
2	January 10, 2021	January 16, 2021	21,383	240,131
3	January 17, 2021	January 23, 2021	16,399	256,530
4	January 24, 2021	January 30, 2021	12,769	269,299
5	January 31, 2021	February 6, 2021	9,782	279,081
6	February 7, 2021	February 13, 2021	7,898	286,979
7	February 14, 2021	February 20, 2021	7,457	294,436
8	February 21, 2021	February 27, 2021	7,685	302,121
9	February 28, 2021	March 6, 2021	7,934	310,055
10	March 7, 2021	March 13, 2021	9,480	319,535
11	March 14, 2021	March 20, 2021	11,022	330,557
12	March 21, 2021	March 27, 2021	14,386	344,943
13	March 28, 2021	April 3, 2021	18,945	363,888
14	April 4, 2021	April 10, 2021	25,576	389,464
15	April 11, 2021	April 17, 2021	30,895	420,359
16	April 18, 2021	April 24, 2021	28,342	448,701
17	April 25, 2021	May 1, 2021	25,209	473,910
18	May 2, 2021	May 8, 2021	20,753	494,663
19	May 9, 2021	May 15, 2021	16,524	511,187
20	May 16, 2021	May 22, 2021	12,652	523,839

Reported Week	Start date	End date	Number of cases	Cumulative count
21	May 23, 2021	May 29, 2021	7,759	531,598
22	May 30, 2021	June 5, 2021	5,216	536,814
23	June 6, 2021	June 12, 2021	3,481	540,295
24	June 13, 2021	June 19, 2021	2,417	542,712
25	June 20, 2021	June 26, 2021	1,881	544,593
26	June 27, 2021	July 3, 2021	1,472	546,065
27	July 4, 2021	July 10, 2021	1,226	547,291
28	July 11, 2021	July 17, 2021	1,044	548,335
29	July 18, 2021	July 24, 2021	1,109	549,444
30	July 25, 2021	July 31, 2021	1,350	550,794
31	August 1, 2021	August 7, 2021	1,906	552,700
32	August 8, 2021	August 14, 2021	3,172	555,872
33	August 15, 2021	August 21, 2021	4,144	560,016
34	August 22, 2021	August 28, 2021	4,774	564,790
35	August 29, 2021	September 4, 2021	5,184	569,974
36	September 5, 2021	September 11, 2021	5,054	575,028
37	September 12, 2021	September 18, 2021	4,918	579,946
38	September 19, 2021	September 25, 2021	4,397	584,343
39	September 26, 2021	October 2, 2021	3,954	588,297
40	October 3, 2021	October 9, 2021	3,842	592,139
41	October 10, 2021	October 16, 2021	2,900	595,039

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

Public Health Unit Name	Cases reported week 40	Rate per 100,000 population Reported week 40	Cases reported week 41	Rate per 100,000 population Reported week 41
Northwestern Health Unit	4	4.9	4	4.9
Thunder Bay District Health Unit	0	0.0	3	1.9
<b>TOTAL NORTH WEST</b>	<b>4</b>	<b>1.7</b>	<b>7</b>	<b>2.9</b>
Algoma Public Health	5	4.2	5	4.2
North Bay Parry Sound District Health Unit	27	20.9	7	5.4
Porcupine Health Unit	0	0.0	5	5.9
Public Health Sudbury & Districts	61	29.7	45	21.9
Timiskaming Health Unit	12	35.4	3	8.9
<b>TOTAL NORTH EAST</b>	<b>105</b>	<b>18.4</b>	<b>65</b>	<b>11.4</b>
Ottawa Public Health	272	26.1	186	17.8
Eastern Ontario Health Unit	116	53.7	115	53.3
Hastings Prince Edward Public Health	28	16.2	24	13.9
Kingston, Frontenac and Lennox & Addington Public Health	19	9.1	47	22.5
Leeds, Grenville & Lanark District Health Unit	15	8.3	8	4.4
Renfrew County and District Health Unit	11	10.1	14	12.9
<b>TOTAL EASTERN</b>	<b>461</b>	<b>23.9</b>	<b>394</b>	<b>20.4</b>
Durham Region Health Department	137	19.3	83	11.7

Public Health Unit Name	Cases reported week 40	Rate per 100,000 population Reported week 40	Cases reported week 41	Rate per 100,000 population Reported week 41
Haliburton, Kawartha, Pine Ridge District Health Unit	20	10.5	11	5.8
Peel Public Health	451	28.8	392	25.1
Peterborough Public Health	27	18.2	18	12.2
Simcoe Muskoka District Health Unit	127	21.0	109	18.0
York Region Public Health	331	27.6	231	19.2
<b>TOTAL CENTRAL EAST</b>	<b>1,093</b>	<b>24.7</b>	<b>844</b>	<b>19.1</b>
Toronto Public Health	766	25.6	494	16.5
<b>TOTAL TORONTO</b>	<b>766</b>	<b>25.6</b>	<b>494</b>	<b>16.5</b>
Chatham-Kent Public Health	77	72.2	61	57.2
Grey Bruce Health Unit	30	17.0	17	9.7
Huron Perth Public Health	49	33.5	36	24.6
Lambton Public Health	83	62.4	74	55.7
Middlesex-London Health Unit	140	27.4	75	14.7
Southwestern Public Health	79	36.1	95	43.4
Windsor-Essex County Health Unit	231	53.6	189	43.9
<b>TOTAL SOUTH WEST</b>	<b>689</b>	<b>40.0</b>	<b>547</b>	<b>31.8</b>
Brant County Health Unit	44	28.7	39	25.4
City of Hamilton Public Health Services	215	37.0	162	27.8
Haldimand-Norfolk Health Unit	17	14.2	25	20.8
Halton Region Public Health	113	18.5	71	11.6
Niagara Region Public Health	160	33.2	98	20.3

Public Health Unit Name	Cases reported week 40	Rate per 100,000 population Reported week 40	Cases reported week 41	Rate per 100,000 population Reported week 41
Region of Waterloo Public Health and Emergency Services	119	19.7	87	14.4
Wellington-Dufferin-Guelph Public Health	56	17.9	67	21.5
<b>TOTAL CENTRAL WEST</b>	<b>724</b>	<b>25.3</b>	<b>549</b>	<b>19.2</b>
<b>TOTAL ONTARIO</b>	<b>3,842</b>	<b>26.1</b>	<b>2,900</b>	<b>19.7</b>

**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 October 16 for Lineage B.1.1.7 (Alpha)*	Cumulative case count up to October 16 for Lineage B.1.351 (Beta)**	Cumulative case count up to October 16 for Lineage P.1 (Gamma)***	Cumulative case count up to October 16 for Lineage B.1.617.2 (Delta)†	Cumulative count up to October 16 for Mutations‡
Northwestern Health Unit	67	0	1	22	17
Thunder Bay District Health Unit	104	1	2	26	74
<b>TOTAL NORTH WEST</b>	<b>171</b>	<b>1</b>	<b>3</b>	<b>48</b>	<b>91</b>
Algoma Public Health	68	0	15	25	26
North Bay Parry Sound District Health Unit	235	28	3	76	13
Porcupine Health Unit	1,108	2	0	69	8
Public Health Sudbury & Districts	689	13	10	61	268
Timiskaming Health Unit	84	1	0	5	0
<b>TOTAL NORTH EAST</b>	<b>2,184</b>	<b>44</b>	<b>28</b>	<b>236</b>	<b>315</b>
Ottawa Public Health	6,851	515	55	631	473
Eastern Ontario Health Unit	665	46	21	134	268
Hastings Prince Edward Public Health	111	0	18	119	393
Kingston, Frontenac and Lennox &	458	2	35	72	132

Public Health Unit Name	Cumulative case count up to October 16 for Lineage B.1.1.7 (Alpha)*	Cumulative case count up to October 16 for Lineage B.1.351 (Beta)**	Cumulative case count up to October 16 for Lineage P.1 (Gamma)***	Cumulative case count up to October 16 for Lineage B.1.617.2 (Delta)†	Cumulative count up to October 16 for Mutations‡
Addington Public Health					
Leeds, Grenville & Lanark District Health Unit	294	19	0	67	44
Renfrew County and District Health Unit	232	8	7	18	12
<b>TOTAL EASTERN</b>	<b>8,611</b>	<b>590</b>	<b>136</b>	<b>1,041</b>	<b>1,322</b>
Durham Region Health Department	9,523	66	270	750	1,213
Haliburton, Kawartha, Pine Ridge District Health Unit	443	0	23	161	309
Peel Public Health	31,192	163	1,774	2,789	2,856
Peterborough Public Health	630	4	8	124	161
Simcoe Muskoka District Health Unit	4,009	36	173	614	681
York Region Public Health	15,875	79	482	1,638	2,741
<b>TOTAL CENTRAL EAST</b>	<b>61,672</b>	<b>348</b>	<b>2,730</b>	<b>6,076</b>	<b>7,961</b>
Toronto Public Health	46,069	375	1,524	4,075	7,478
<b>TOTAL TORONTO</b>	<b>46,069</b>	<b>375</b>	<b>1,524</b>	<b>4,075</b>	<b>7,478</b>
Chatham-Kent Public Health	131	5	16	217	107



Public Health Unit Name	Cumulative case count up to October 16 for Lineage B.1.1.7 (Alpha)*	Cumulative case count up to October 16 for Lineage B.1.351 (Beta)**	Cumulative case count up to October 16 for Lineage P.1 (Gamma)***	Cumulative case count up to October 16 for Lineage B.1.617.2 (Delta)†	Cumulative count up to October 16 for Mutations‡
Grey Bruce Health Unit	310	0	6	604	55
Huron Perth Public Health	279	0	12	150	29
Lambton Public Health	438	0	18	129	130
Middlesex-London Health Unit	3,384	2	124	766	186
Southwestern Public Health	689	3	21	196	164
Windsor-Essex County Health Unit	1,857	8	19	1,153	140
<b>TOTAL SOUTH WEST</b>	<b>7,088</b>	<b>18</b>	<b>216</b>	<b>3,215</b>	<b>811</b>
Brant County Health Unit	670	2	97	296	508
City of Hamilton Public Health Services	5,066	66	105	1,687	2,093
Haldimand-Norfolk Health Unit	369	3	23	107	408
Halton Region Public Health	5,090	30	169	710	619
Niagara Region Public Health	4,286	4	20	214	1,104
Region of Waterloo Public Health and Emergency Services	3,134	21	98	1,863	255

Public Health Unit Name	Cumulative case count up to October 16 for Lineage B.1.1.7 (Alpha)*	Cumulative case count up to October 16 for Lineage B.1.351 (Beta)**	Cumulative case count up to October 16 for Lineage P.1 (Gamma)***	Cumulative case count up to October 16 for Lineage B.1.617.2 (Delta)†	Cumulative count up to October 16 for Mutations‡
Wellington-Dufferin-Guelph Public Health	2,085	1	81	447	177
<b>TOTAL CENTRAL WEST</b>	<b>20,700</b>	<b>127</b>	<b>593</b>	<b>5,324</b>	<b>5,164</b>
<b>TOTAL ONTARIO</b>	<b>146,495</b>	<b>1,503</b>	<b>5,230</b>	<b>20,015</b>	<b>23,142</b>

**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 (Alpha), B.1.351 (Beta), P.1 (Gamma) and B.1.617.2 (Delta) 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 (Alpha) 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.1.351 (Beta) cases identified by genomic analysis and those presumed to be B.1.351 based on 'Mutation K417N+ and N501Y+ and E484K+' in the Investigation Subtype field

\*\*\*Includes P.1 (Gamma) cases identified by genomic analysis and those presumed to be P.1 based on 'Mutation K417T+ and N501Y+ and E484K+' in the Investigation Subtype field

†Includes B.1.617.2 (Delta) and AY.3 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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