



CANADA COVID-19 WEEKLY EPIDEMIOLOGY REPORT (4 OCTOBER TO 10 OCTOBER)

Published: 16 October 2020

<p>15 481 (↑ 2 681^a) New cases reported in the last 7 days^b</p>	<p>146 (↑ 60^a) New deaths reported in the last 7 days^b</p>
<p>2 212 (↑ 383^a) Average number of cases reported daily in the last 7 days^b</p>	<p>21 (↑ 9^a) Average number of deaths reported daily in the last 7 days^b</p>
<p>68 020^c (↑ 1 156^a) Average people tested per day in the last 7 days^d</p>	<p>2.8%^c (↑ 0.3^e) Percent positive of people tested in the last 7 days^d</p>

^a The difference between the current reported value and that of the previous 7 day reporting period (27 September to 3 October), ^b Source: Provincial and Territorial MOH websites as of 10 October. ^c Alberta not included in indicator or in comparison due to incomplete data. ^d NML data for laboratory analyses as of 3 October (Note: Laboratory testing numbers may be an underestimate due to reporting delays). ^e Difference in percentage points

KEY MESSAGES

- In Canada, there was an average of 2 212 new daily cases during the week of 4 October to 10 October representing a 21% increase in comparison to the previous week (week of 27 September to 3 October) and a 79% increase over two weeks prior (week of 20 September to 26 September).
- New cases were reported in all provinces, with notable increases observed in Alberta, Manitoba and New Brunswick compared to the previous week.
- Since mid-July, incidence rates in those 20 to 39 years of age have remained consistently higher than all other age groups. Although incidence rates across all age groups declined in late July, a gradually increasing trend was observed throughout August and September, particularly in younger age groups. In recent weeks, an increase has also been observed in those 80 years of age and over.
 - For the week of 4 October to 10 October, 56% of cases were under the age of 40.
 - Notable increases in incidence rates were observed in the following age groups compared to the previous week: those 50-59 years of age (48% increase, from 21.7 to 32.2 per 100 000), those 80 years of age and over (43% increase, from 26.8 to 38.2 per 100 000), and those 40-49 years of age (36% increase, from 29.1 to 39.7 per 100 000).
- Schools, daycare centres, and long-term care and retirement residences accounted for the highest number of outbreaks in September and so far in October. Outbreaks in long-term care and retirement residences continue to account for the majority of outbreaks in Canada to date.
- For the week of 4 October to 10 October, there was a continued increase in the number of deaths reported, resulting in an increase in the average number of daily deaths observed this week (n=21) compared to the previous week (n=12).
 - Since the beginning of the pandemic, the number of weekly reported deaths has continued to be highest in those over 70 years of age.
- The daily number of reported hospitalizations has been steadily increasing since mid-September. The daily number of reported cases in hospital on 10 October 2020 increased by 35% compared to the number reported on 3 October 2020.
 - Throughout the pandemic, the number of reported cases in hospitals and ICUs has been highest in those 60 years of age and older.



- Since mid-September, testing has increased substantially across Canada. The average number of people tested daily continues to increase, with 68 020 people tested per day in the week of 4 October to 10 October (while noting that testing data from Alberta are not included in this week's total). The average percent positivity has increased to 2.8% of people tested, compared to 2.5% of people tested in the previous week. This means we are testing an average of under 40 people for every positive case. Québec reported the highest percent positivity at 6.7%.
- According to forecasting, between 209 900 to 219 600 cumulative cases and 9 822 to 9 933 cumulative deaths are expected by 25 October 2020.



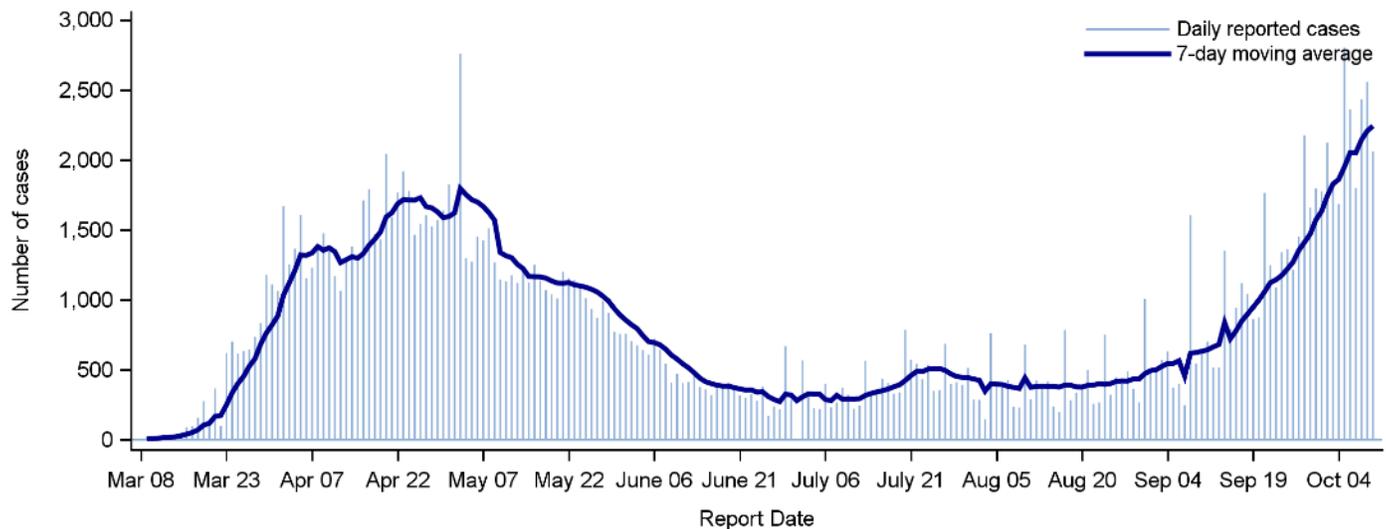
NATIONAL DEMOGRAPHICS AND TRENDS

NATIONAL TRENDS IN CASES

From 4 October to 10 October, a total of 15 481 cases of COVID-19 were reported in Canada, an average of 2 212 cases per day.

- The number of new cases represents a **21% increase** compared to the previous week, and has now well surpassed levels that were observed in early April during the initial stages of the first wave of the pandemic (Figure 1).
- An upward trend in case numbers has continued to be observed since mid-August.

Figure 1. Daily number of reported COVID-19 cases in Canada (and 7-day moving average), as of 10 October 2020 (N=180 179)



Source: Provincial and Territorial MOH websites as of 10 October 2020.

Note: The 7-day moving average is a trend indicator that captures the arithmetic mean of the daily reported deaths over the previous seven days. The moving average helps smooth out day-to-day variability in reporting, filtering out the “noise” of short-term fluctuations. Fluctuations can be attributed to retrospective data, non-reporting on the weekends or provinces or territories reporting cases at a reduced frequency. The spike on 4 May is because Québec reported 1 317 cases diagnosed between 2 to 30 of April.

As of 10 October 2020, an increase in the weekly number of new cases was observed nationally compared to the previous week (Table 1).

- All provinces reported new cases; the territories reported no new cases.
- Cases in Québec and Ontario continue to rise (by 23% and 13% respectively, compared to the previous week) and account for 82% of the cases reported in the week of 4 October to 10 October. Cumulatively, Québec has reported the highest number of cases (n=85 191) and the highest incidence rate at 1004.0 cases per 100 000 population.
- While most provinces in the Atlantic region continue to report low case counts (Newfoundland and Labrador, Nova Scotia, and Prince Edward Island reported a total of 11 cases), New Brunswick reported 57 new cases, mainly related to outbreaks.
- The Northwest Territories has not reported a new case since April 2020, and Nunavut has had no reported cases of COVID-19 since the beginning of the pandemic.



Table 1. Trends of new cases in Canada and by province or territory, as of 10 October 2020

Province/Territory	Total number of cases (as of 10 October) ^a	Average number of cases reported daily (4 October to 10 October)	Weekly number of cases reported		Percent change (%) ^b	Crude rate per 100 000 population (as of 10 October)
			27 September to 3 October	4 October to 10 October		
British Columbia	10 185	96	740	674	-9%	200.8
Alberta	19 995	220	1 014	1 541	+52%	457.4
Saskatchewan	2 068	16	91	114	+25%	176.1
Manitoba	2 524	59	279	416	+49%	184.3
Ontario	58 490	694	4 293	4 857	+13%	401.5
Québec	85 191	1 116	6 375	7 811	+23%	1 004.0
Newfoundland and Labrador	282	1	4	6	+50%	54.1
New Brunswick	258	8	1	57	+5600%	33.2
Nova Scotia	1 092	0	2	3	+50%	112.4
Prince Edward Island	61	0	1	2	+100%	38.9
Yukon	15	0	0	0	0%	36.7
Northwest Territories	5	0	0	0	0%	11.2
Nunavut	0	0	0	0	0%	0.0
Canada^d	180 179	2 212	12 800	15 481	+21%	479.3

Source: Provincial and Territorial MOH websites as of 10 October 2020

^aThe number of cases includes the total confirmed and probable cases. These counts are based on publicly available information from the provincial/territorial ministry of health websites.

^bThe percentage is calculated based on the difference in the total number of cases in the past 7 days compared to the prior 7 days divided by the number of cases in the prior 7 days. Note that for provinces/territories with low case counts, an increase or decrease of only a few cases leads to a large percentage change. If the denominator is zero, the percent change cannot be calculated.

^dIncludes 13 cases identified in repatriated travelers (Grand Princess Cruise ship travelers) who were under quarantine in Trenton in March 2020.

Table 2 presents the age-standardized incidence rate by province or territory for the week of 4 October to 10 October.

- Québec reported the highest age-standardized incidence rate (91.7 cases per 100 000 population) along with the largest increase in age-standardized incidence rate compared to the previous week (54.2 cases per 100 000 population).
- Alberta and Manitoba (35.5 and 29.5 cases per 100 000 population, respectively) showed a moderate increase in age-standardized incidence rates when compared to the previous week (18.9 and 19.1 cases per 100 000 population, respectively).

Age-standardized rates take into account the differences in population size and age structure between provinces and territories to allow for valid comparisons of COVID-19 spread in Canada.



Table 2. Age-standardized incidence rates by province or territory for week 4 October to 10 October

Province/Territory	Age-standardized incidence per 100 000 (4 October to 10 October)
British Columbia	15.7
Alberta	35.5
Saskatchewan	9.6
Manitoba	29.5
Ontario	29.2
Québec	91.7
Newfoundland and Labrador	0.3
New Brunswick	4.5
Nova Scotia	0.3
Prince Edward Island	1.9
Yukon	0.0
Northwest Territories	0.0
Nunavut	0.0

Source: Detailed case information received by PHAC from provinces and territories, Standardized to the July 1 2019 postcensal population estimate
Note: Data are analyzed based on date reported to PHAC.

Table 3 outlines the total number of new cases, recoveries and deaths for the week of 4 October to 10 October.

- Québec, Ontario, and Alberta, and British Columbia account for the majority of new cases (96%) reported. These four provinces also account for the majority of recoveries (98%) and deaths (93%) reported.
- Only British Columbia reported more new recoveries than new cases.

Table 3. Summary of COVID-19 cases, recoveries, and deaths reported by province or territory, for 4 October to 10 October

Province/Territory	New cases	New recoveries	New deaths
British Columbia	674	689	7
Alberta	1 541	961	10
Saskatchewan	114	101	0
Manitoba	416	66	10
Ontario	4 857	4 447	36
Québec	7 811	6 218	83
Newfoundland and Labrador	6	0	0
New Brunswick	57	6	0
Nova Scotia	3	1	0
Prince Edward Island	2	1	0
Yukon	0	0	0
Northwest Territories	0	0	0
Nunavut	0	0	0
Canada	15 481	12 490	146

Source: Provincial and Territorial MOH websites as of 10 October 2020



DEMOGRAPHIC DISTRIBUTION^a

^a Detailed case information received by PHAC from provinces and territories

Note: Data are analyzed based on date reported to PHAC.

- Cases for which PHAC received detailed individual case-level information for the week of 4 October to 10 October (n=12 260) ranged in age from less than one year to 113 years of age. The median age was 35 years, up from 33 years of age in the previous week.
- Although the median age of new cases weekly has been slowly increasing in recent weeks, the majority of new cases continue to be in the younger age groups.
- Of the cases reported to PHAC in the week of 4 October to 10 October, 56% were individuals under 40 years of age, including:
 - 18% under 20 years of age;
 - 22% between 20 to 29 years of age; and
 - 16% between 30-39 years of age.
- Since June, the highest proportion of cases has been observed in those 20-29 years of age, followed by those aged 0-19 years and those aged 30-39 years.
- Incidence rates amongst all age groups this week have increased, although the rate in adults 20-29 years of age remain the highest:
 - The incidence rate in adults 20-29 years of age has been increasing for the past three weeks. For the week of 4 October to 10 October, the incidence rate was 52.7 per 100 000 compared to 48.5 per 100 000 in the previous week.
 - Notable increases in incidence rates were also observed in those 50-59 years of age (32.2 per 100 000 compared to 21.7 per 100 000 in the previous week), those 80 years of age and over (38.2 per 100 000 from 26.8 per 100 000 in the previous week), and in those 40-49 years of age (39.7 per 100 000 from 29.1 per 100 000 in the previous week) (Table 4).
- For the week of 4 October to 10 October, the incidence rate of those under 20 years of age continues to increase (27.4 per 100 000 from 24.0 per 100 000 in the previous week). This trend could be the result of an increasing number of outbreaks reported in schools in recent weeks, and an increase in demand for testing in this age group. Further, as severe illness from COVID-19 is less common in younger individuals, infected individuals who do not experience severe outcomes, including those that only experience mild or asymptomatic infection, can spread the virus to other people, including those at higher risk.

Table 4. Age and sex distribution and incidence rate per 100 000 population of COVID-19 cases reported to PHAC, from 4 October to 10 October

Age groups	Female			Male			Total ^a		
	n	%	Rate ^b	n	%	Rate ^b	n	%	Rate ^b
≤ 19	1 254	18%	31.6	1 263	19%	30.4	2 524	19%	31.0
20-29	1 431	21%	58.3	1 483	22%	56.0	2 926	22%	57.3
30-39	1 109	16%	43.0	1 088	16%	41.7	2 204	16%	42.5
40-49	997	15%	41.0	910	14%	38.1	1 912	14%	39.7
50-59	832	12%	31.5	858	13%	32.8	1 691	13%	32.2
60-69	490	7%	20.8	560	8%	24.9	1 053	8%	22.8
70-79	275	4%	18.2	247	4%	18.2	522	4%	18.2
80+	394	6%	40.5	223	3%	34.2	620	5%	38.2
Total	6 782	100%	35.9	6 632	100%	35.5	13 452	100%	35.8

Source: Detailed case information received by PHAC from provinces and territories.



^a Includes two cases identified as other and twenty cases with unknown sex.

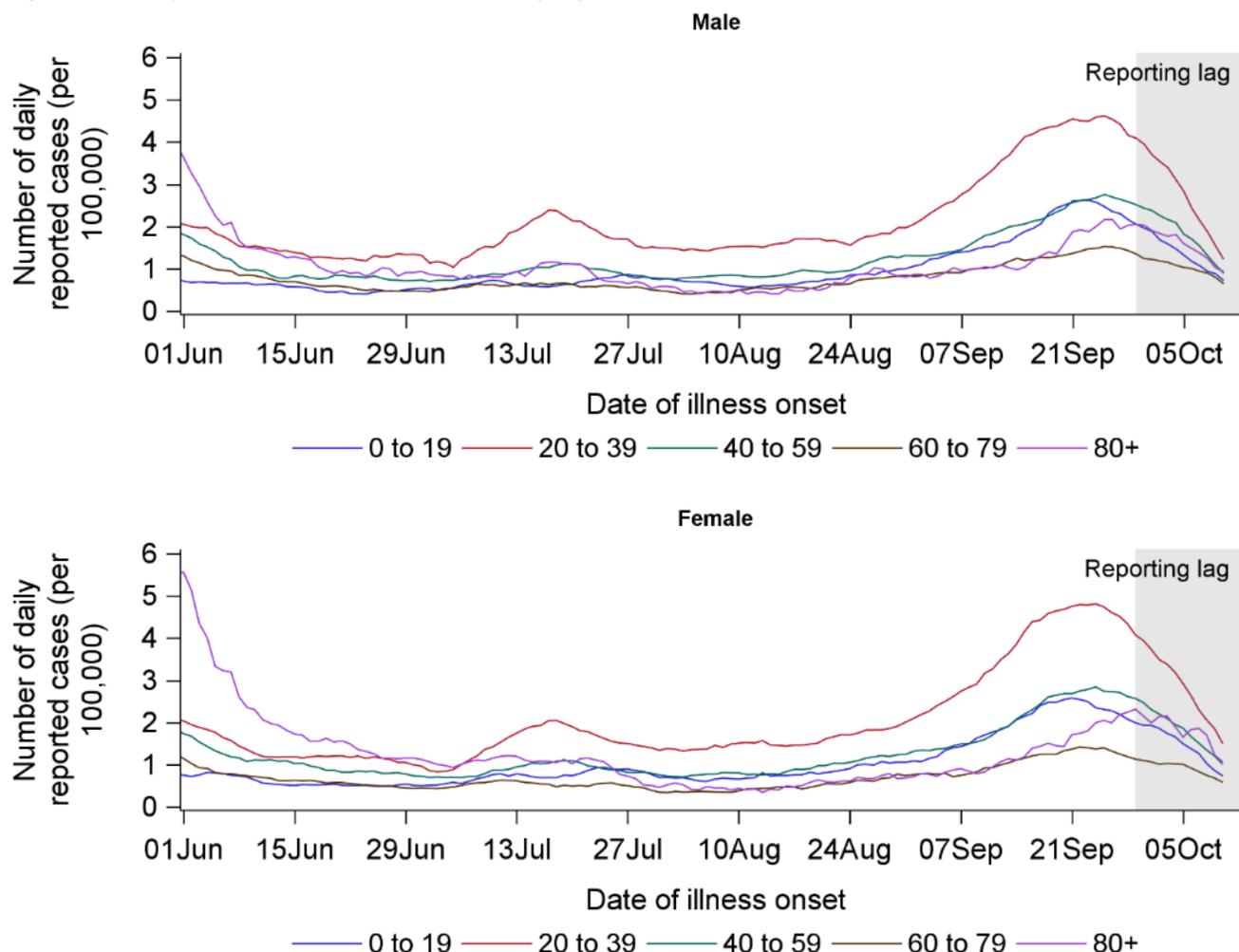
^b rates are presented per 100 000 individuals in the given age group based on the July 1 2019 postcensal population estimate

Note: Excludes cases who did not provide sex or age. Data are analyzed based on date reported to PHAC.

Figure 2 presents cases by date of illness onset, stratified by sex and adjusted for population at the national level.

- In July, upon the gradual, phased re-opening of social and economic spaces, an increase of reported cases was observed, with the highest increase observed in those 20 to 39 years of age.
- Since late July, case rates declined across all age groups, and remained relatively stable until late August when case rates began to increase. Case rates for those 20 to 39 years of age have been increasing at a much higher rate and have remained consistently higher than all the other age groups throughout this time.
- The apparent decline in case rates across age groups in late-September to early October is based on incomplete case-level data along with reporting lag. As more case report forms are submitted, the proportion of cases in the 20-39 year age group, relative to other age categories, is subject to change.

Figure 2. Daily rate of cases per 100,000, by age and sex, from 1 June to 10 October 2020



Source: Detailed case information received by PHAC from provinces and territories.

Note: The shaded area represents a period of time (lag time) where it is expected that cases have occurred but have not yet been reported nationally. If the date of illness onset was not available, the earliest of the following dates were used as an estimate: Specimen Collection Date and Laboratory Testing Date.



SYNDROMIC SURVEILLANCE

FLUWATCHERS

FluWatchers is an online health surveillance system that relies on volunteer reports to track spread of flu-like illness (ILI) and symptoms compatible with COVID-19 across Canada. Some of the more commonly reported symptoms of COVID-19 include a new or worsening cough, fever or feeling feverish; therefore, reports of a minimum of cough OR fever will be used to track COVID-19 within the FluWatchers system.

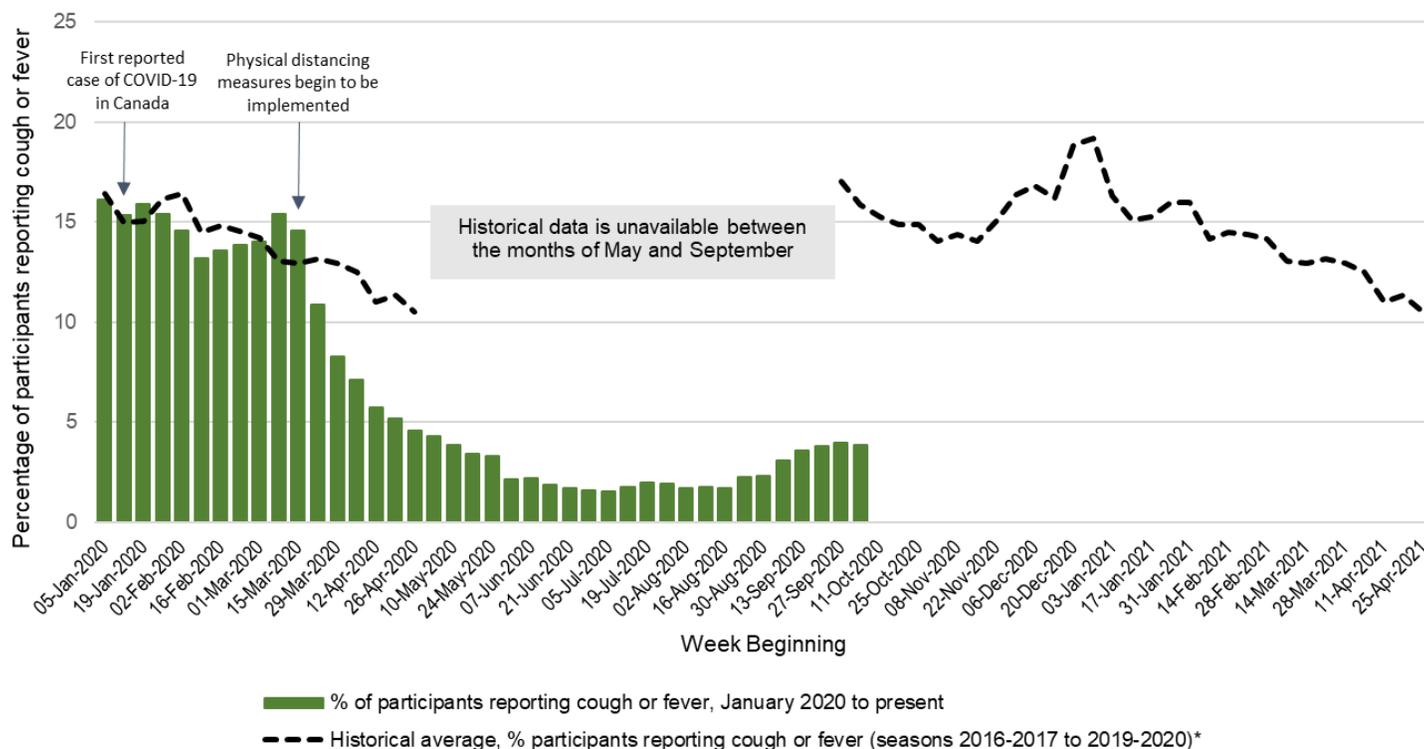
In the week of 4 October 4 to 10 October, 10,091 participants reported into the FluWatchers system. A total of 390 participants (3.9%) reported symptoms of cough or fever. The rates of cough or fever have been increasing since late August. The rates of cough or fever were highest among 0-19 and 20-39 year olds, but are lower than expected based on previous seasons.

Syndromic data captured by FluWatchers comes with a measure of uncertainty. Each person reporting cough or fever may not have COVID-19. In addition to the circulation of COVID-19, currently, there is laboratory confirmed circulation of low levels of Enterovirus/Rhinovirus in Canada.

Among the 390 participants reporting cough or fever:

- 109 (28%) sought medical attention;
- 91 (23%) were tested – no tests were positive for COVID-19 (23 tests had unknown results at the time of reporting).

Figure 3. Percentage of FluWatchers Participants Reporting Cough or Fever (N=10,091 the week of 4 October to 10 October 2020)



*Historical data is unavailable between the months of May and September. From January 2020 to May 2020, the historical epidemiological curve contains data from seasons 2016-2017 to 2018-2019. From October 2020 onwards, the historical epidemiological curve contains data from seasons 2016-2017 to 2019-2020; however, data from 8 March 2020 to 2 May 2020 are excluded from the historical epidemiological curve.



TRANSMISSION

TEMPORAL DISTRIBUTION BY EXPOSURE CATEGORY^a

^a Detailed case information received by PHAC from provinces and territories

Information on exposure is available for 397 cases with date of illness onset during the week of 4 October to 10 October. Of these:

- 234 cases (59%) reported exposure in Canada to a known COVID-19 case;
- 162 cases (41%) reported exposure in Canada to an unknown source; and
- 1 case (<1%) reported exposure to a traveller.

Jurisdictions update exposure status on an ongoing basis as case investigations are completed and may result in changes to the percent distributions by exposure type for previous weeks (Figure 4).

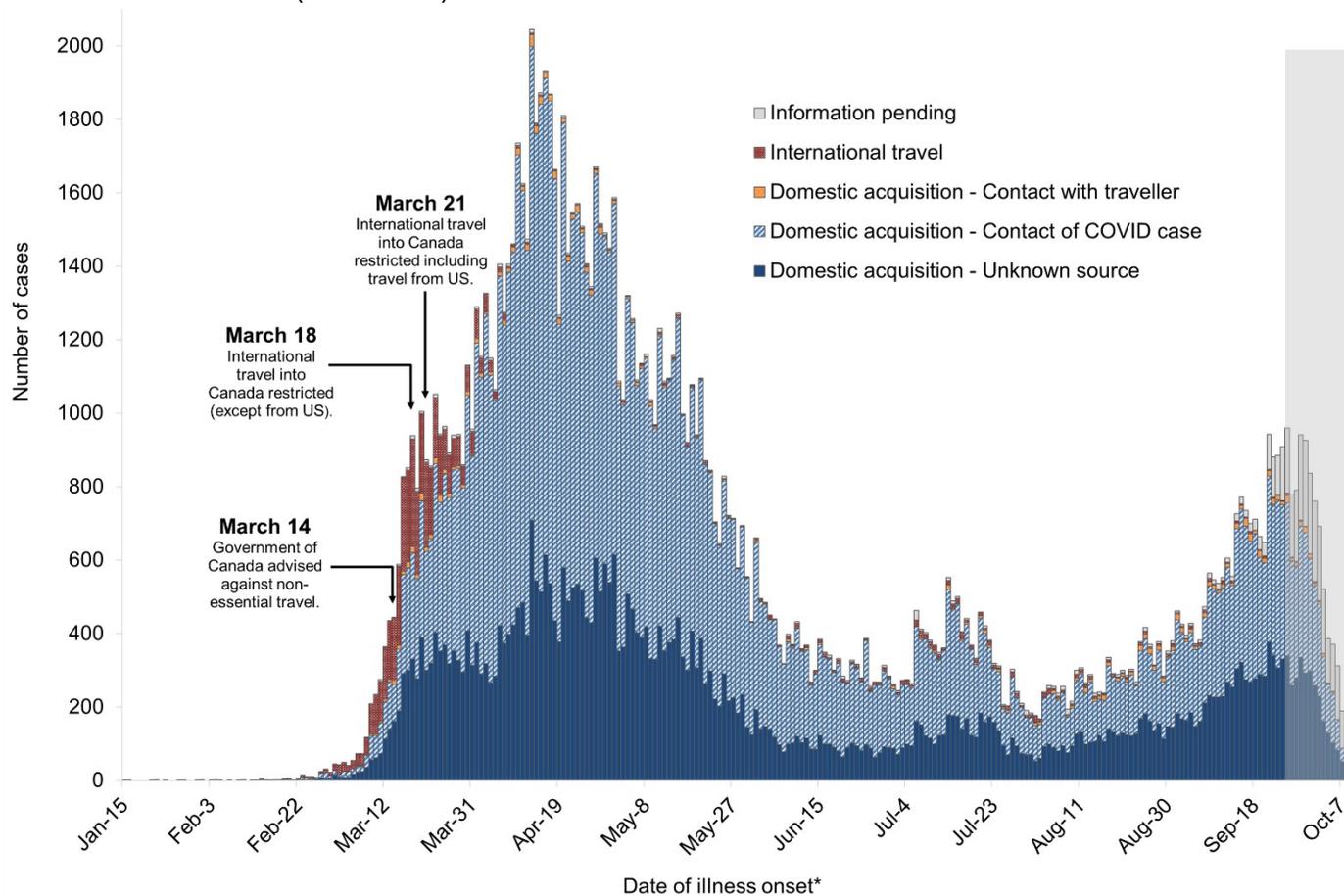
Of the 141 560 cases submitted with information on the source of exposure and date of illness onset provided to date:

- 5 279 cases (4%) reported having travelled outside of Canada during the exposure period;
- 85 872 cases (61%) reported exposure in Canada to a known COVID-19 case;
- 48 894 cases (35%) reported exposure in Canada to an unknown source;
- 1 515 cases (1%) reported exposure to someone who had travelled.

Note: percentages may not add up to 100 due to rounding



Figure 4. Number of reported COVID-19 cases in Canada, by date of illness onset and exposure category as of 10 October 2020 (n=147 172)



Source: Detailed case information received by PHAC from provinces and territories

*If the date of illness onset was not available the earliest of the following dates was used as an estimate: Specimen Collection Date and Laboratory Testing Date.

Note: The shaded area represents a period of time (lag time) where it is expected that cases have occurred but have not yet been reported nationally.



INTERNATIONAL TRAVEL EXPOSURES^a

^a Detailed case information received by PHAC from provinces and territories

In Canada, the first cases of COVID-19 were attributed to international travel exposures. As of 10 October 2020, 3.8% of cases (n=5 279) have been associated with international travel, of which 54% are male. On 14 March, the Government of Canada published a global Travel Health Notice advising Canadians against non-essential travel and advised Canadians abroad to return to Canada. By 21 March, the Government of Canada prohibited all non-essential travel into Canada by foreign nationals. Since that time, the proportion of COVID-19 cases associated with international travel decreased from 21.7% (n=3 916) of all cases in March to 0.4% in May (n=115), and increased slightly over the summer months but has remained low (Table 5 and Figure 5). Since 1 July, the most commonly reported countries of travel among cases include the United States, India, and Mexico.

Table 5. Number and percentage of COVID-19 cases associated with international travel by month of illness onset^a, as of 10 October 2020

Month	Number of COVID-19 cases associated with international travel	Percentage of COVID-19 cases associated with international travel ^b
January	6	66.7%
February	77	41.9%
March	3 916	21.7%
April	339	0.8%
May	115	0.4%
June	193	1.8%
July	302	2.9%
August	205	2.4%
September	121	0.7%
October	5	0.4%
Total	5 279	3.8%

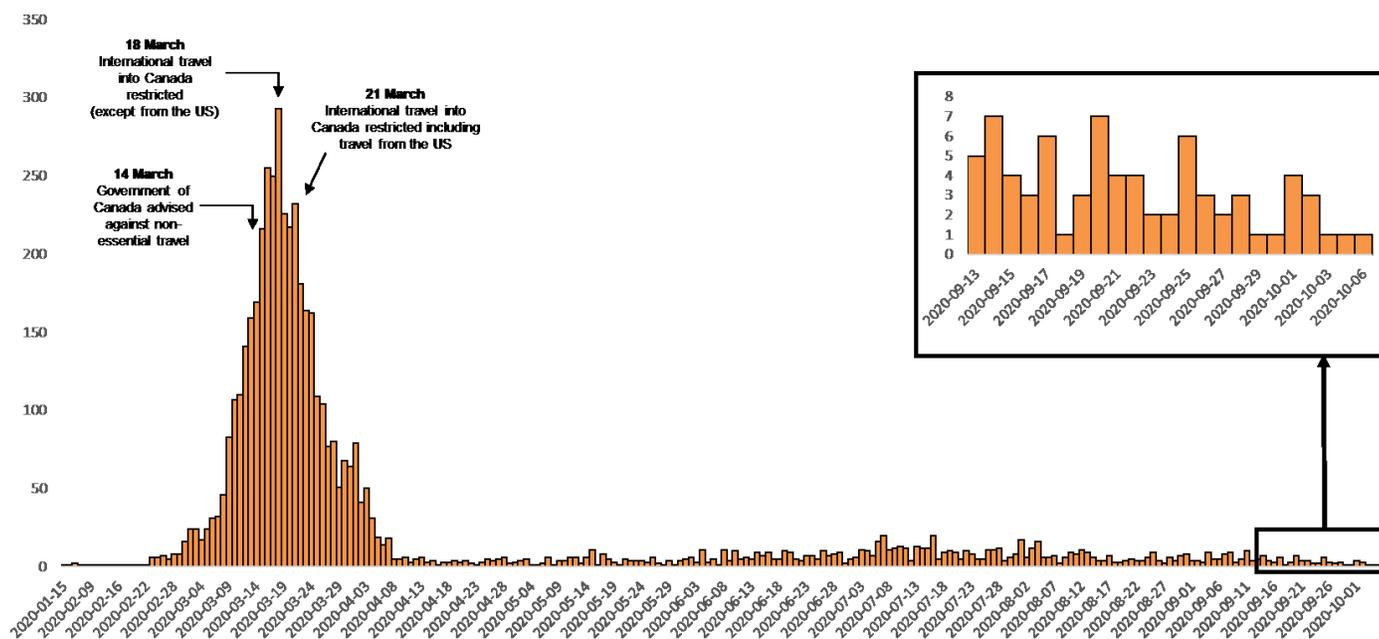
Source: Detailed case information received by PHAC from provinces and territories

^aIf the date of illness onset was not available the earliest of the following dates was used as an estimate: Specimen Collection Date and Laboratory Testing Date.

^bOnly includes cases that have an Onset Date, Specimen Collection Date, or Laboratory Test Date, as well as information on exposure.



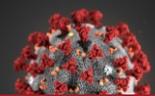
Figure 5. Number of international travel-related COVID-19 cases in Canada, by date of illness onset^a (n= 5 279)



Source: Detailed case information received by PHAC from provinces and territories

^a Includes only cases reported to PHAC as of 10 October with reported international travel exposure.

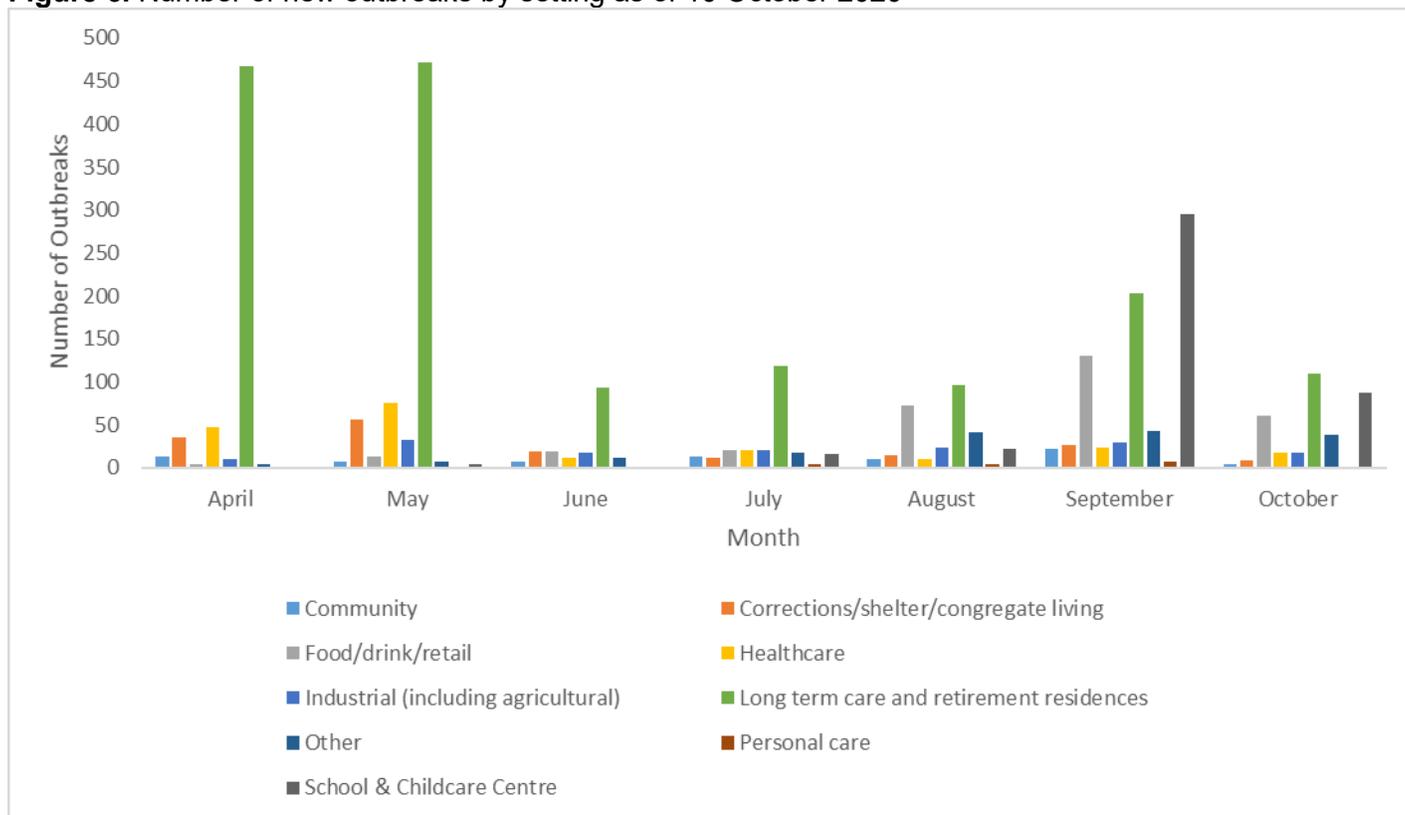
Note: If the date of illness onset was not available the earliest of the following dates was used as an estimate: Specimen Collection Date and Laboratory Testing Date.



OUTBREAKS

Outbreaks have been a significant source of the spread of COVID-19 in Canada and point to vulnerabilities in closed and crowded settings. Figure 6 and Table 6 identify common locations of outbreaks, as well as the number of cases and deaths associated with each outbreak category.

Figure 6. Number of new outbreaks by setting as of 10 October 2020



Source: Publicly reported outbreak data as of 10 October 2020

Note: schools with only one case have been excluded

Long-term care facilities and retirement residences have accounted for the majority of outbreaks in Canada, particularly in the earlier months of the pandemic.

- Outbreaks continue to be observed in high-risk settings involving closed spaces, crowded places and close contact situations.
- With the reopening of schools over the past months, reports of outbreaks in schools and childcare centres accounted for the highest number of outbreaks in September, surpassing outbreaks in long-term care and retirement residences. However, so far in October, the highest number of outbreaks reported were in long-term care and retirement residences.
- Of the 216 outbreaks reported to PHAC in the week of 4 October to 10 October (Table 6), the largest proportions were reported in:
 - Long term care and retirement residences (27%);
 - Schools and childcare centres (24%); and
 - Food/drink/retail settings (18%).
- In this report, schools and childcare centres reporting two or more cases are categorized as outbreaks.



- Of the 585 schools reporting only one case each, 346 (59%) were elementary schools.
- Outbreaks have been detected in congregate living, workplace, and agricultural work settings, namely in long-term care settings, meat processing plants, hospitals, small communities, and among farmworkers.

Table 6. Total number of COVID-19 outbreaks, cases, and deaths by outbreak setting in Canada as of 10 October 2020^a

Outbreak setting	Total number of outbreaks reported	Total number of cases reported	Total number of reported deaths	Outbreaks Reported in past 7 days
Community	83	2 054	27	5
Corrections/shelter/congregate living	179	2 352	56	6
Food/drink/retail	330	1 075	2	39
Healthcare	211	2 794	249	14
Industrial (including agricultural) ^b	156	6 335	13	11
Long-term care and retirement residences	1 595	24 125	6 949	58
Other ^c	173	2 039	2	29
Personal Care ^d	22	156	0	2
School & Childcare Centre ^e	434	1 430	0	52
Total	3183	42360	7298	216

Source: Publicly reported data as of 10 October 2020

^aThis is not an all-inclusive list and is subject to change based on current and active outbreak locations reported.

^bThe number of outbreaks in Windsor-Essex have been grouped into one cluster; industrial settings include: automotive manufacturing, distribution/processing facilities, worker camps, waste management/recycling, warehouse, etc.

^cOthers are defined as an event which brings together a large number of people; examples include municipal services, conferences, group homes, funerals, family gatherings, sporting events, social events, and parties

^dPersonal care refers to personal care services, such as hair salons, nail salons, etc.

^eChild and youth care include daycare centres and day camps; excludes any facilities that report only one case.

Note: These categories include both current and retrospective outbreak data.



LABORATORY-CONFIRMED COVID-19 DETECTION^a

^a Source: NML Data for laboratory analyses as of 10 October 2020.

Overall, 7 033 752 people have been tested for COVID-19 in Canada (excluding Alberta) as of 10 October 2020, and the cumulative percent positive to date is 2.8%.

From 4 October to 10 October, 476 137 Canadians in all provinces and territories (excluding Alberta) were tested for COVID-19, representing a 1.7% increase in testing compared to the previous week for these regions. The average weekly percent positivity increased to 2.8% compared to 2.5% of people tested the week prior (where both figures do not include Alberta's testing numbers). This means there is an average of just under 40 people tested for every positive case; The highest increases in percent positivity this week compared to the previous week were observed in New Brunswick and Québec, where percent positivity increased from 0.02% to 1.5% and 5.8% to 6.7%, respectively (Table 7).

Table 7. Summary of COVID-19 testing reported in Canada, by province or territory, for the week of 4 October to 10 October (N=7 033 752)

Province/Territory ^a	Total number of people tested ^b	7 day difference	Average # people tested daily (4 October to 10 October)	Average # people tested daily per 1 000 population (4 October to 10 October)	Weekly Percent positivity (4 October to 10 October)
British Columbia	501 496	41 699	5 957	1.17	1.9%
Saskatchewan	176 224	10 881	1 554	1.32	1.2%
Manitoba	197 550	15 287	2 184	1.59	2.7%
Ontario	4 208 067	291 026	41 575	2.85	1.7%
Québec	1 677 747	104 302	14 900	1.76	6.7%
Newfoundland and Labrador	46 359	2 645	378	0.72	0.1%
New Brunswick	72 634	3 760	537	0.69	1.5%
Nova Scotia	101 708	3 845	549	0.57	0.1%
Prince Edward Island	40 908	2 239	320	2.04	0.04%
Yukon	3 588	136	19	0.47	0%
Northwest Territories	4 786	137	20	0.45	0%
Nunavut	2 685	180	26	0.67	0%
Total	7 033 752	476 137	68 020	2.05	2.8%

Source: NML Data for laboratory analyses as of 10 October.

^a Alberta was excluded from this table this week due to incomplete data

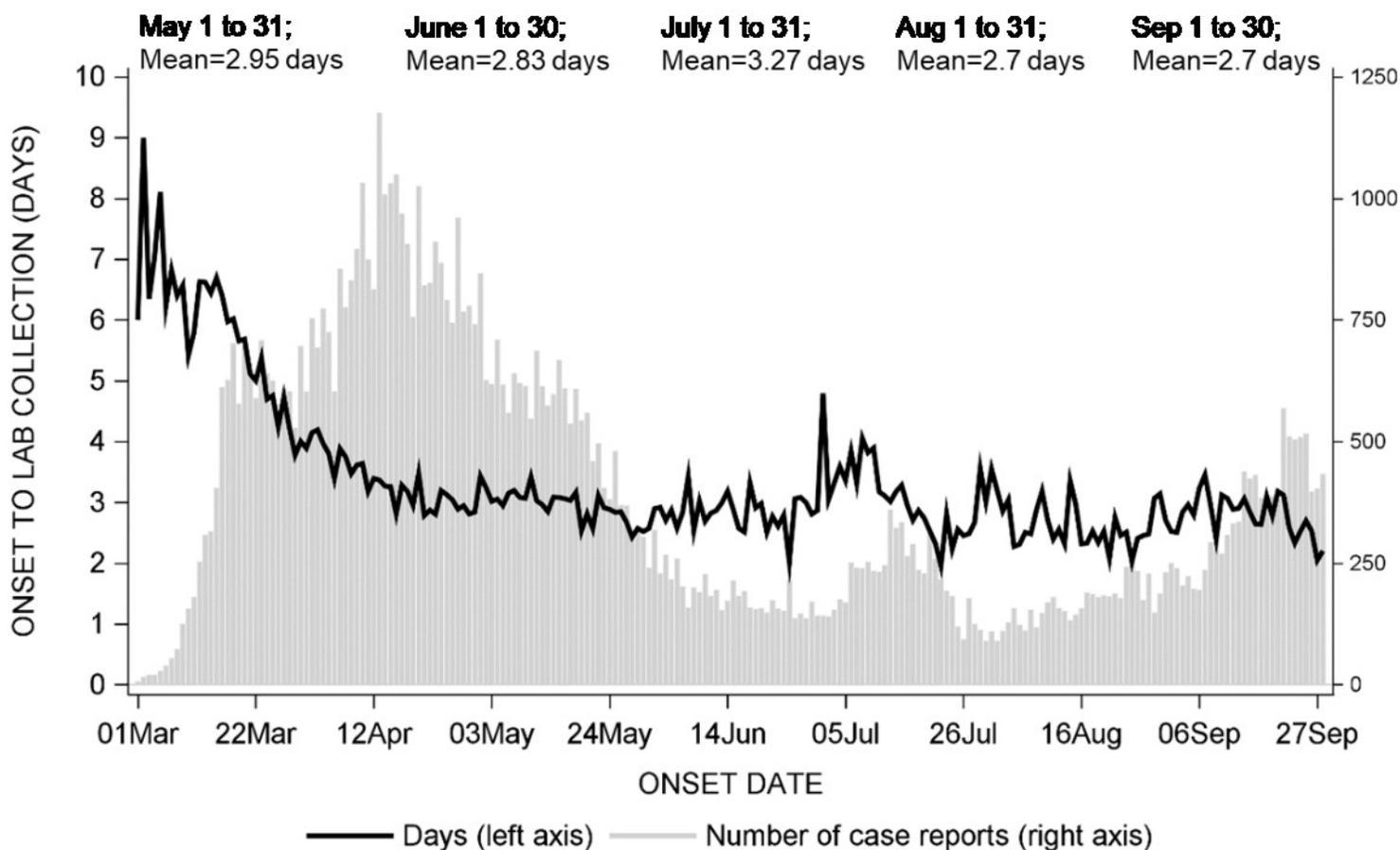
^b For provinces and territories which report the number of tests completed, a formula is used to estimate the number of unique people tested.

Note: Laboratory testing numbers may be an underestimate due to reporting delays and may not include additional sentinel surveillance or other testing conducted in the province or territory.

The mean time from symptom onset to lab specimen collection decreased over the course of the pandemic from a peak of nine days in early March, to approximately three days (range: 2.7 - 3.27) since May (Figure 7).



Figure 7. Onset date and lab collection date for cases reported to PHAC as of 10 October 2020



Note: Onset to specimen collection intervals of >15 days are deemed outliers, and not included in this figure.



SEVERITY INDICATORS

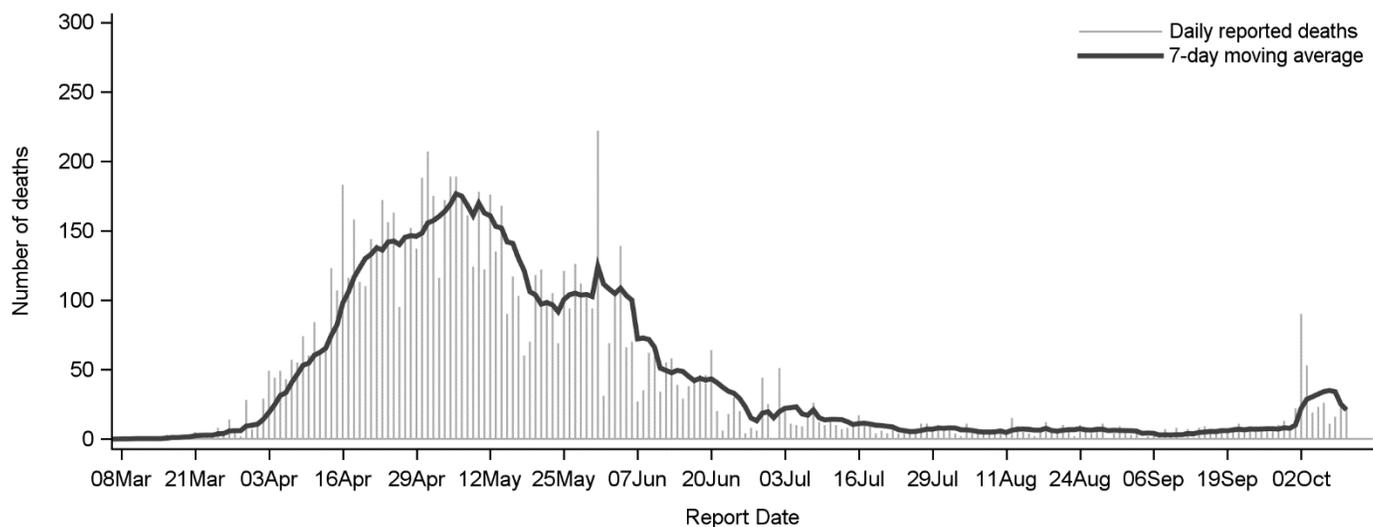
HOSPITALIZATIONS, INTENSIVE CARE, AND DEATHS

From 4 October to 10 October, 146 deaths were reported in Canada.

- This represents a **70%** increase compared to the previous week (27 September to 3 October).
- This amounts to an average of 21 deaths reported per day, compared with 12 deaths reported per day in the previous week.
- This is the second consecutive week with a notable increase in deaths since early May, which saw a steep decline in reported deaths and was followed by low numbers throughout the summer months.

Of the deaths reported, jurisdictions submitted individual-level information to PHAC for 14 deaths, 6 of which were males (43%). All of these deaths were in those over the age of 60. To date, deaths have continued to be highest in those 70 years of age and older (see Table A4 in the annex for cumulative death counts).

Figure 8. Daily number of COVID-19 related deaths reported in Canada (and 7-day moving average), as of 10 October 2020 (N=9 495^a)



Source: Provincial and Territorial MOH websites as of 10 October 2020

Note: The 7-day moving average is a trend indicator that captures the arithmetic mean of the daily reported deaths over the previous seven days. The moving average helps smooth out day-to-day variability in reporting, filtering out the “noise” of short-term fluctuations. Fluctuations can be attributed to retrospective data or provinces or territories reporting cases at a reduced frequency.

^aThere were a large number of deaths reported by Ontario on 1 October (n=74/76 deaths), 2 October (n=37/41) and 3 October (n=3/7) that occurred in the spring or summer and are now being recorded as part of Ontario’s data review and data cleaning initiative. This explains the spike in number of deaths over these dates for Canada.



From 4 October to 10 October, detailed case information on hospitalization status was available for 4 927 cases. Among these cases:

- **220 (4%)** were hospitalized (including ICU admission), of whom:
 - **37 (17%)** were admitted to ICU; and
 - **0 (0%)** required mechanical ventilation.

To date, case information on hospitalization status was available for 114 308 cases, where:

- **13 004 (11%)** were hospitalized (including ICU admission), of whom:
 - **3 064 (24%)** were admitted to ICU; and
 - **471 (4%)** required mechanical ventilation.

Among the total number of cases that were hospitalized from 4 October to 10 October, 38% (n=83/220) were 60 to 79 years of age (Table 8). This age group continues to account for the highest proportion of cases hospitalized (see table A5 and A6 in annex for cumulative counts).

Table 8. Number of COVID-19 cases hospitalized, and admitted to ICU, overall and by sex and age group, reported to PHAC for week of 4 October to 10 October^a

Age groups	Hospitalized – non-ICU			Hospitalized – ICU		
	Female	Male	Total	Female	Male	Total ^b
≤ 19	3	1	4	0	0	0
20-39	9	9	18	2	2	4
40-59	19	21	40	4	8	12
60-79	40	29	69	5	8	14
80+	25	27	52	2	5	7
Total	96	87	183	13	23	37

Source: Detailed case information received by PHAC from provinces and territories

^a The information presented is based on cases reported to PHAC from 4 October to 10 October. These values may change weekly due to updates in disease progression, and disposition.

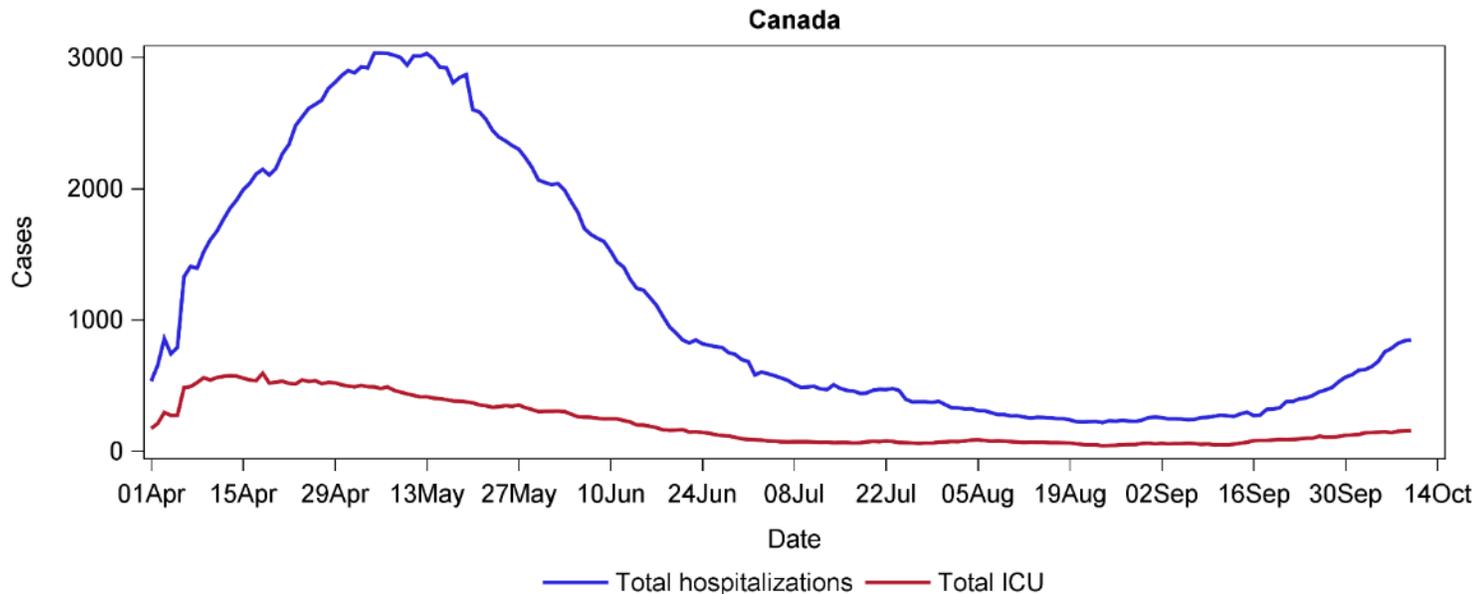
^b includes an individual with unknown sex

Note: Hospitalizations and ICU counts are mutually exclusive.

After a sharp decline in the daily number of cases hospitalized and in ICU in Canada since mid-May, the daily numbers remained low throughout the summer. Since mid-September, an increasing trend in the daily number of cases hospitalized has been observed. Based on publicly reported data, on 10 October there were 847 cases hospitalized and 155 cases in ICU, representing a 35% and 17% increase, respectively, in the daily hospitalized and ICU cases compared to 3 October (Figure 9). Based on detailed case information provided to PHAC, the overall cumulative hospitalization rate (including ICU admissions) is 35 cases per 100 000 population, with the highest rates observed in those 80 years of age and older (249 cases per 100 000 population).



Figure 9. Number of COVID-19 cases in hospital and intensive care units daily in Canada, as of 10 October 2020



Source: Provincial and Territorial MOH websites as of 10 October 2020



CANADIAN ACUTE CARE HOSPITALS

Laboratory-confirmed COVID-19-associated hospitalizations in Canada are monitored through two sentinel hospital-based systems:

1. Canadian Nosocomial Infection Surveillance Program (CNISP) *
2. Serious Outcomes Surveillance Network of the Canadian Immunization Research Network (CIRN-SOS) **

NOTE: * denotes data from CNISP and ** denotes data from CIRN-SOS

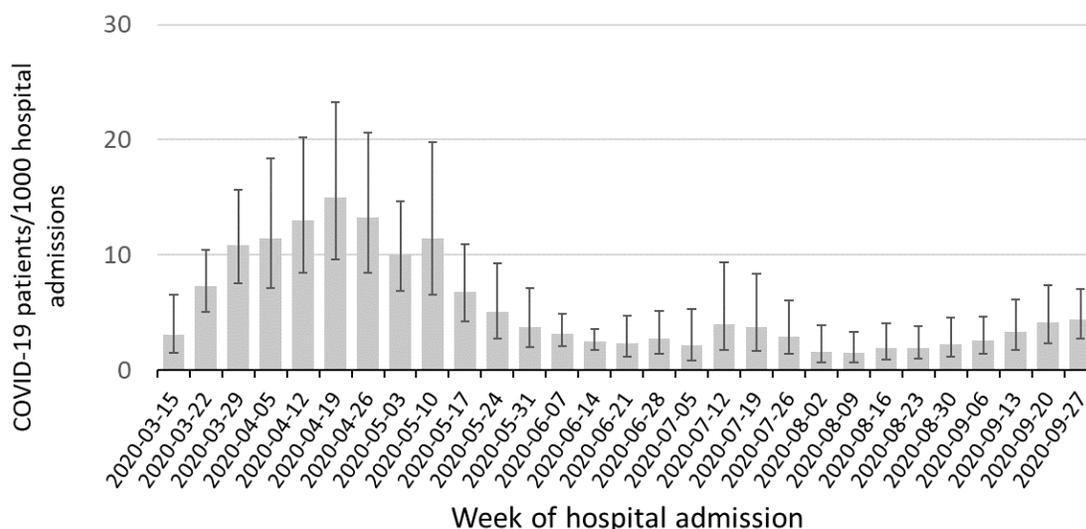
KEY FINDINGS

- Among patients hospitalized with COVID-19:
 - 22% have been admitted to the ICU (725/3 349)*;
 - 12% required mechanical ventilation (390/3 349)*;
 - 1% received extracorporeal membrane oxygenation (ECMO) (36/3 349)*;
 - 16% have died (all-cause mortality) (526/3 349)*.
- The median age of patients hospitalized with COVID-19 was 71 years (range 0-102) and 3% were pediatric (<18 years) (105/3 349)*.
- Males accounted for 52% of hospitalized patients (989/1 888)*.
- The majority of hospitalized patients were described as White/Caucasian (82%; 397/486), with patients described as Black representing the second greatest proportion (6%; 27/486)**.

HOSPITALIZATION RATES *

- Weekly rates of laboratory-confirmed COVID-19 patients per 1 000 hospital admissions peaked at 15.0, in the week of 19 April 2020, followed by a smaller peak in mid-July. Overall rates have remained low since the end of May, but have slowly increased since the week of 30 August (Figure 10).

Figure 10. National rates of laboratory-confirmed COVID-19 patients per 1 000 admissions with 95% confidence intervals (n=3 317)*



* Includes data from the 148 hospitals that have participated in all weeks of aggregate data collection and is estimated using 2019 annual or quarterly data.*

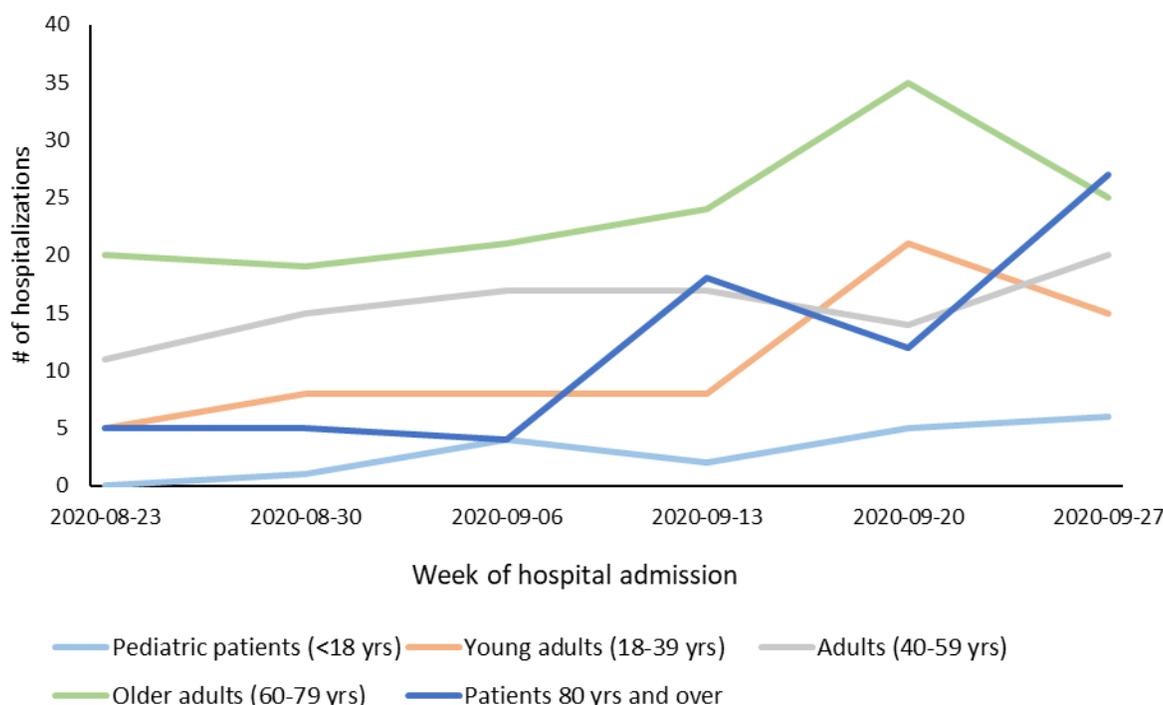


HOSPITALIZATION TRENDS

AGE *

- The number of hospitalized patients has increased across all age groups from the previous week, with patients over 80 years of age reporting the highest number of hospitalizations in this most recent week (Figure 11).
- Since late August, the weekly number of hospitalizations were highest among older adult patients (60-79 years) except in the week of 27 September when the number of hospitalizations was highest in patients 80 years and over. The number of hospitalizations in patients 80 years and over has been increasing at a higher rate compared to the other age groups since mid-September (Figure 11).
- The number of hospitalized pediatric patients (<18 years) has remained low, with only 6 hospitalizations reported in the most recent week (Figure 11).

Figure 11. Weekly number of laboratory-confirmed COVID-19 patients by age group (n=392)*



CLINICAL PROGRESSION **

Time from symptom onset to hospital admission:

- Through the first wave in COVID-19 hospitalizations (up to the end of July), median time from symptom onset to hospital admission was 5 days (n=613). Since the end of July, the median time from symptom onset to hospital admission has been 3 days (n=66).
- Median length of time from symptom onset to hospital admission was shortest among patients 16-39 years of age at 3 days (n=50) compared to 4 days among patients 80+ years of age (n=220) and 6 days among patients 40-59 (n=160) and 60-79 (n=249) years of age.

Length of hospital stay:

- Through the first wave in COVID-19 hospitalizations (up to the end of July), median length of hospital stay was 11 days (n=642). Since the end of July, the median length of hospital stay has been 6 days



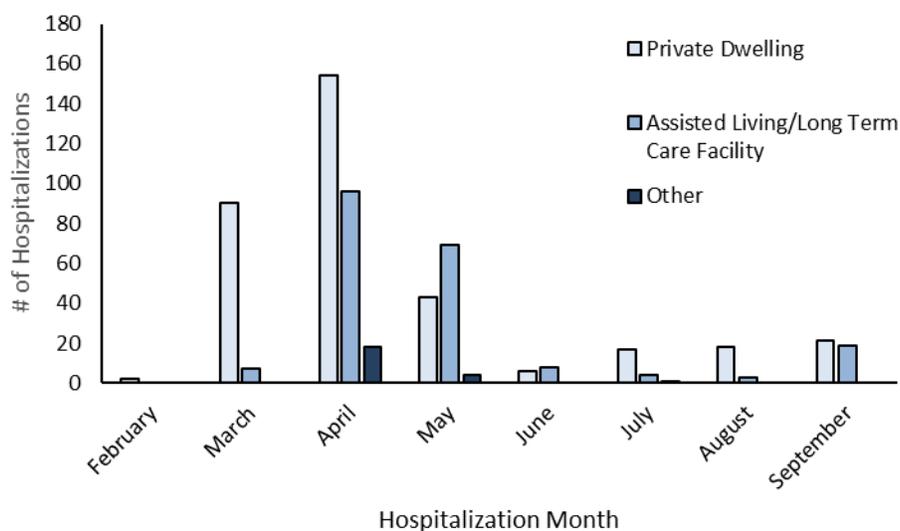
(n=59). This difference must be interpreted with caution as missing length of stay data is more common in the latter time period.

- Median length of hospital stay was longest among patients 80+ and 60-79 years of age at 13 days (n=241) and 12 days (n=251), respectively. Values were comparatively lower for patients 40-59 and 16-39 years of age at 7 days (n=155) and 4 days (n=54), respectively.

HOUSING TYPE **

- The number of patients hospitalized with COVID-19 residing in private dwellings peaked in March-April compared to those residing in assisted living/long term care facilities which peaked slightly later in April-May (Figure 12)
- In September, the number of monthly hospitalizations among patients residing in assisted living/long term care facilities exceeded that of June, July, and August (Figure 12)

Figure 12. Monthly number of laboratory-confirmed COVID-19 patients by type of dwelling prior to hospitalization (n=580)**

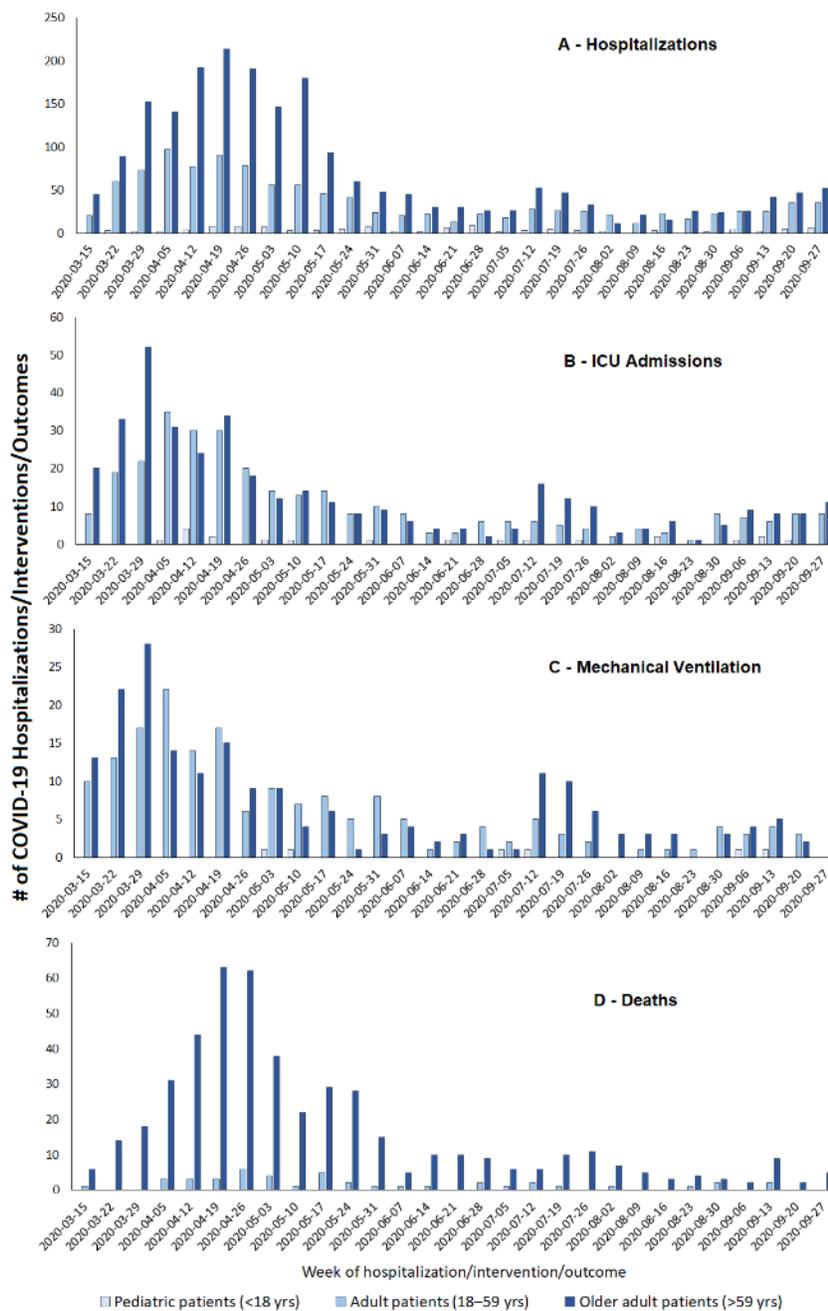


INTERVENTIONS/OUTCOMES *

- In the spring and summer, monthly hospitalizations of older adult patients (>59 years of age) with COVID-19 exceeded those of adult patients (18-59 years of age) until the month of August, when the number of hospitalizations were similar between these groups (Figure 13). In September, hospitalizations were again predominantly among older adult patients (>59 years of age).
- The weekly number of patients admitted to ICU and requiring mechanical ventilation peaked the week of 29 March 2020. This preceded the peaks in both weekly hospitalizations (week of 19 April) and weekly deaths (week of 26 April; Figure 13).
- In September, the number of patients admitted to ICU and requiring mechanical ventilation approached the number observed in the small July peak (Figure 13).



Figure 13. Weekly number of laboratory-confirmed COVID-19 patients that were admitted to hospital (A; n=3 317), ICU (B; n=710), required mechanical ventilation (C; n=386), and deceased (D; n=520), by age group*

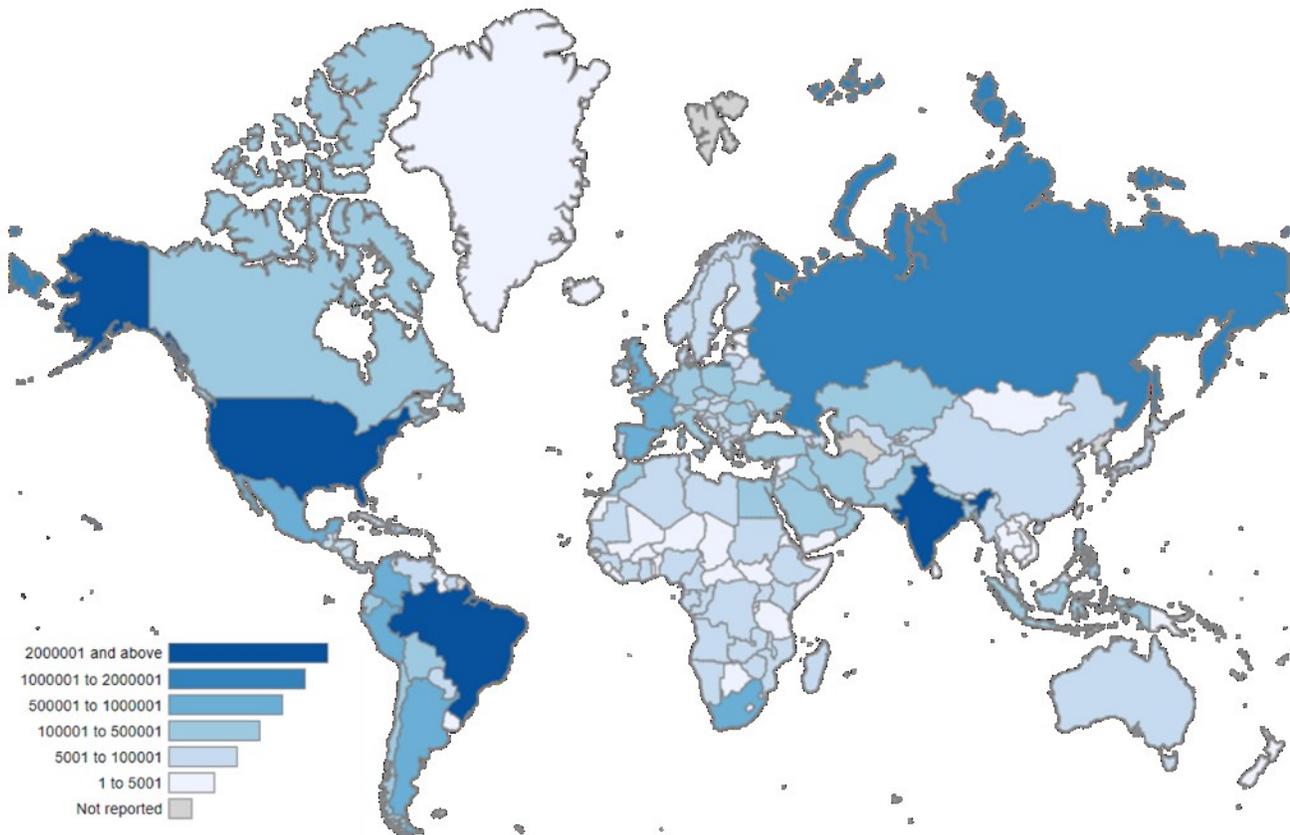




INTERNATIONAL

- As of 10 October 2020, globally, there are close to 37 million cases of COVID-19 with over 1 087 000 reported deaths.
- The region of the Americas account for the highest number of cases reported.
- The following five countries account for the largest proportion of cases reported globally in the past 28 days (Figure 14):
 - India (n=2 319 439)
 - United States (n=1 219 388)
 - Brazil (n=773 724)
 - Argentina (n=347 270)
 - France (n=328 627)
- Canada's cases account for approximately 0.5% of all cases reported globally since the beginning of the pandemic.

Figure 14. International map of COVID-19 cases as of 10 October 2020 (n=36 959 598)

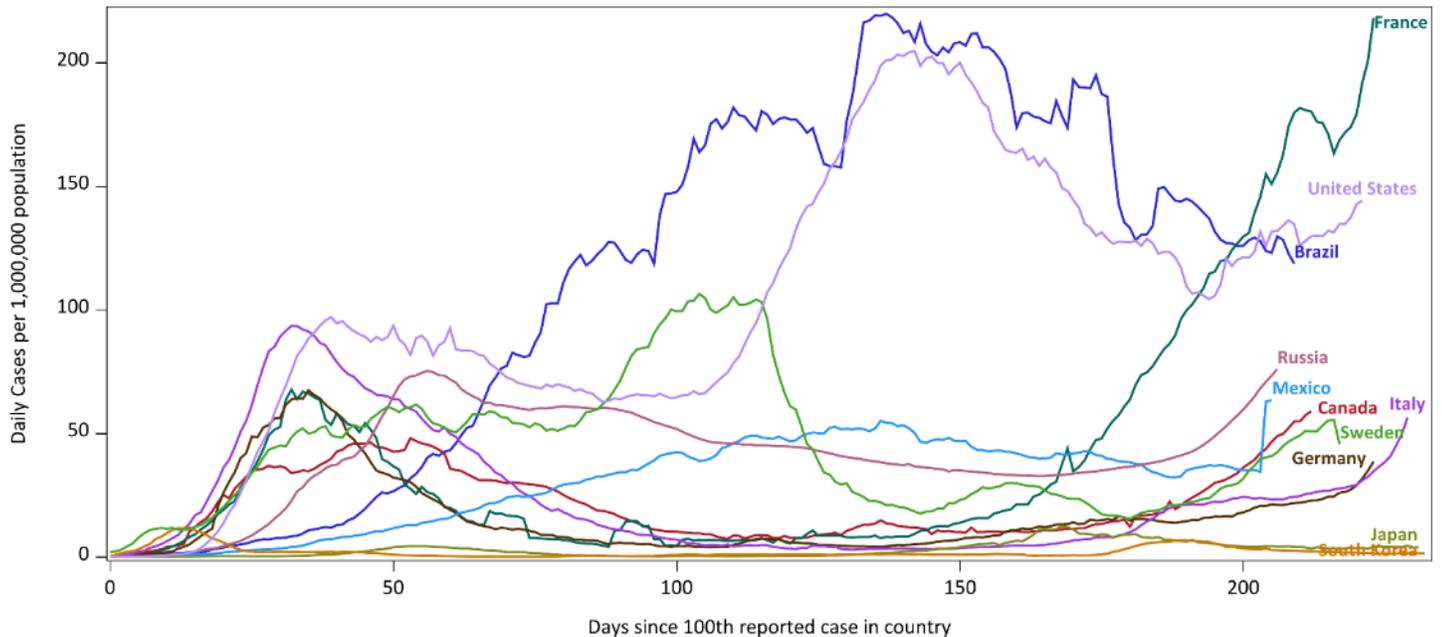


Source: Public Health infobase - Interactive data visualizations of COVID-19 <https://health-infobase.canada.ca/covid-19/international/>



The 7-day moving average of new daily COVID-19 cases in Canada compared to other countries is shown in Figure 15. France, Brazil and the United States are seeing the highest reported daily cases per 1 000 000 population, whereas South Korea and Japan are seeing the lowest. Canada's number of daily cases per 1 000 000 has shown an upward trend in recent weeks.

Figure 15. Daily new cases of COVID-19 in Canada compared to other countries as of 10 October 2020 (7-day moving average, population-adjusted)



Source: Public Health Agency of Canada International numbers as of 10 October 2020

Up-to-date country-specific risk levels are found on [travel health notices](#). For more information on COVID-19 internationally, please refer to the [World Health Organizations' COVID-19 Situation Report](#). Further information on geographical distribution of COVID-19 cases, can be found on the [global map](#).



MODELLING

Estimates of transmission rates in Canada: Effective reproductive rate (R_t)

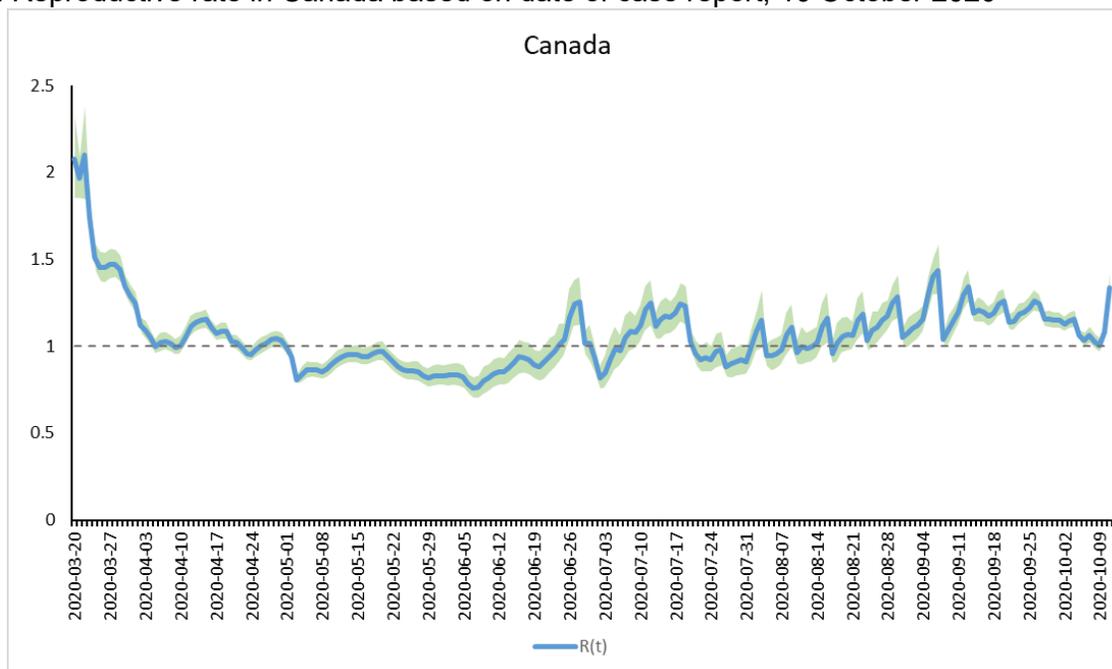
R_t is the time variable reproduction rate, representing the average number of newly infected people for each infected person. If R_t is less than 1 at a particular time (t), then the average number of people infected by one infected person is less than one, so the epidemic is being brought under control. If R_t is greater than 1, the average number of people infected by one infected person is greater than one, and the epidemic is growing. A value of R_t above 1 indicates that there is active community transmission, meaning that the disease will continue to spread in the population. The higher the R_t value, the faster the disease is spreading, which leads to an increase in the incidence of new cases.

However, there are some limitations to consider. As the epidemic continues, the R_t may not capture the current state of the epidemic with low case burden and the value must be interpreted based on the current landscape. The R_t can easily fluctuate when case numbers are low. It is also an average R_t for a population and does not point to local outbreaks driving case counts. Since the method used to calculate R_t is highly sensitive to the reported number of new cases, community outbreaks within specific provinces and territories will cause the estimated R_t value in that respective region to be higher, which may not always accurately depict overall transmission in the province/territory as a whole.

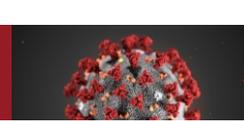
Figure 16 shows the R_t over time:

- The reproductive rate was hovering under one in May and early June, followed by fluctuations in July. Since early August, the R_t has been increasing, and has remained above 1 since mid-August.

Figure 16. Reproductive rate in Canada based on date of case report, 10 October 2020



Note: Fluctuations are attributed to provincial and territorial reporting delays and non-reporting on the weekends



FORECASTING

Canada's approach to modelling:

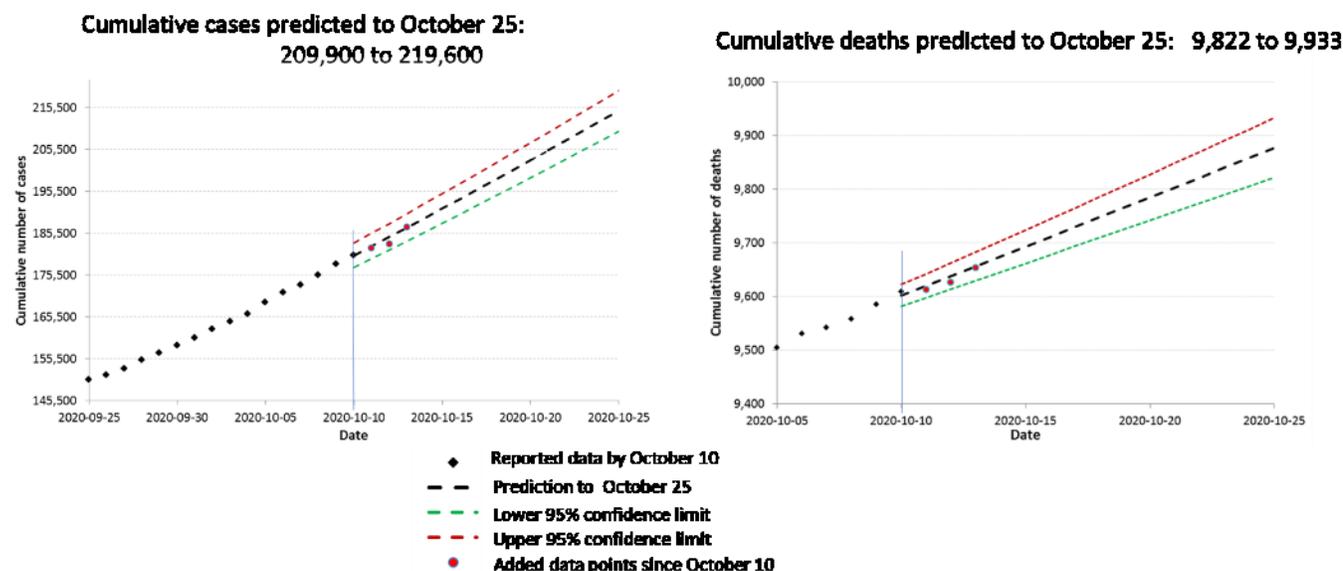
Models cannot predict the course of the COVID-19 pandemic, but can help us understand all possible scenarios, support decisions on public health measures and help the health care sector plan for these scenarios.

Forecasting models use data to estimate how many new cases can be expected in the coming weeks.

Figure 17 below shows the projected number of cases and deaths in Canada, with a 95% prediction interval calculated to 25 October, using available data by 10 October.

- According to forecasting, between **209 900 to 219 600** cumulative reported cases and **9 822 to 9 933** cumulative numbers of deaths are expected by 25 October.
- The black dots represent actual data (cumulative cases and cumulative deaths) prior to 10 October and the dashed lines show the predicted trajectories after that date.
- It is important to communicate uncertainties in the predictions. The red and green lines represent the upper and lower limits with 95% confidence, respectively.
- If the added data points since 10 October stay between the red and green lines, it means both (i) the prediction model is performing as expected; (ii) data generated by the epidemic and reporting mechanisms are as expected.
- If the added data points since 10 October fall outside these limits, especially above the red line, the model detects unexpected signals that require further epidemiologic investigation. This demonstrates that the short-term predictions are useful to detect unexpected signals.

Figure 17. Projected numbers to 10 October and 95% prediction intervals based on data as reported by 10 October 2020



For more information, please visit: <https://www.canada.ca/en/public-health/services/publications/diseases-conditions/covid-19-using-data-modelling-inform-public-health-action.html>



TECHNICAL NOTES

The data in the report are based on information from various sources described below. The information presented for case-based analyses, trend analyses and laboratory analyses are available as of **10 October 2020 at 8 p.m. EDT**.

DATA SOURCES AND DATA CAVEATS

Epidemiological data received by PHAC

Some of the epidemiological data for this report are based on detailed case information received by PHAC from provinces/territories (P/Ts). This information is housed in the PHAC COVID-19 database. Case counts and level of detail in case information submitted to PHAC varies by P/T due to:

- Possible reporting delay between time of case notification to the P/T public health authority and when detailed information is sent/received by PHAC.
- Preliminary data may be limited and data are not complete for all variables.
- Data on cases are updated on an ongoing basis after being received by PHAC and are subject to change.
- Variation in approaches to testing and testing criteria over time within and between P/Ts.
- The lag time from illness onset to PHAC report date is approximately two weeks and data within this period is subject to change.

Note: Missing data for sex, age, hospitalized, ICU admissions, and deceased were not included in calculations. P/Ts may define gender differently and some may be referring to biological sex. Case severity is likely underestimated due to underreporting of related variables, as well as events that may have occurred after the completion of public health reporting, and therefore is not captured in the case report forms.

Provincial and territorial case counts

P/T information on case counts, recoveries, and deaths associated with COVID-19 are collected from publicly available P/T websites, generally from the P/T ministry of health. Case definitions may vary by P/T.

- National COVID-19 case definitions are provided by PHAC for the purpose of standardized case classification and reporting. PHAC's national case definitions can be found here: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/national-case-definition.html>
- Only cases and deaths meeting P/T's definition for case classification are reported. For details on case definitions, please consult each P/T ministry of health website.

Laboratory information

Laboratory data on the number of people tested per P/T are received from the National Microbiology Laboratory.

- Laboratory testing numbers may be an underestimate due to reporting delays and may not include additional sentinel surveillance or other testing performed. They are subject to changes as updates are received.
- Some provinces may report the number of tests conducted, and not the number of people tested. In this case, a formula is used to estimate the number of unique people tested.



Outbreak data

Reporting delays and gaps in information that are available at the federal level present difficulties in reporting on local outbreaks. To ensure timely information is available, PHAC utilizes web-scraping techniques to gather outbreak data from media and P/T public health agency websites. There are several important limitations to these data:

- A nationally standardized outbreak definition does not yet exist. Cluster definitions vary according to P/T. The methods for defining an outbreak are currently in development and may change over time.
- The data do not represent all outbreaks that have occurred in Canada over the course of the pandemic, but they do provide a summary of clusters reported via non-traditional data sources. Data collection on outbreaks began 12 March 2020.
- Case-level data are generally not available for outbreaks detected via non-traditional data sources. Information presented is at the aggregate level only.

Population data

- Canadian population data from Statistics Canada Population estimates on 1 July 2019 are used for age-standardized and age-specific rate calculations.

International data

International data are retrieved from various reputable data sources, mainly the European Centre for Disease Prevention and Control (ECDC) Situation update, Our World in Data, Johns Hopkins Resource Center and various country's ministry of health websites.

- Given that the pandemic is rapidly evolving and the reporting cycles from government sources are different, the case numbers may not necessarily match what is being reported publicly. Rather, this reflects what is publicly available from the sources listed above.
- International comparisons should be interpreted with caution. Number of tests conducted, indications for testing, and diagnostic capacity by country have a large influence on total number of reported cases. Therefore, the data displayed may not represent the true incidence of disease within each country.

Canadian Acute-Care Hospitalization Data

Canadian Nosocomial Infection Surveillance Program (CNISP) collects information on hospitalized patients across all age groups (pediatric and adult).

- As of 3 October 2020, CNISP has collected weekly aggregate data on 3 349 patients hospitalized with COVID-19 from 149 hospitals across all 10 provinces.
- As of 8 September 2020, case-level data is available on 1 906 adult and pediatric patients in 49 hospitals across 9 provinces.
- Denominators may be lower depending on variable completeness.

Serious Outcomes Surveillance Network of the Canadian Immunization Research Network (CIRN-SOS) collects information on hospitalized adult patients aged 16 years or older.

- As of 8 October 2020, CIRN-SOS has collected case-level data on 773 adult patients (≥16 years) hospitalized with COVID-19 across 8 hospital sites in Ontario, Quebec, and Nova Scotia.
- Denominators may be lower depending on variable completeness.

* denotes data from CNISP and ** denotes data from CIRN-SOS



ANNEX

Table A1. Number of COVID-19 cases, recoveries, and deaths reported in Canada by province or territory, as of 10 October 2020

Province/Territory	Total cases	Total recovered	Total deaths
British Columbia	10185	8502	245
Alberta	19995	17488	282
Saskatchewan	2068	1883	24
Manitoba	2524	1475	32
Ontario	58490	49732	3004
Québec	85191	70696	5950
Newfoundland and Labrador	282	269	4
New Brunswick	258	199	2
Nova Scotia	1092	1022	65
Prince Edward Island	61	58	0
Yukon	15	15	0
Northwest Territories	5	5	0
Nunavut	0	0	0
Canada^a	180179	151357	9608

^a Includes 13 cases identified in repatriated travelers (Grand Princess Cruise ship travelers) who were under quarantine in Trenton in March 2020. Update on their status is not available.

Table A2. Age-standardized incidence rates of COVID-19 cases, by province or territory, as of 10 October 2020

Province/Territory	Cumulative (per 100 000 population)
British Columbia	194.9
Alberta	404.8
Saskatchewan	177.0
Manitoba	171.2
Ontario	393.2
Québec	941.5
Newfoundland and Labrador	49.4
New Brunswick	30.5
Nova Scotia	111.4
Prince Edward Island	40.1
Yukon	21.4
Northwest Territories	12.0
Nunavut	0.0



Table A3. Cumulative age and sex distribution of COVID-19 cases reported to PHAC, as of 10 October 2020

Age group	Female			Male			Total		
	n	%	Rate	n	%	Rate	n	%	Rate
≤ 19	9 896	11%	249.1	9 756	12%	234.7	19 710	11%	242.5
20-29	16 200	18%	659.9	15 418	19%	26.9	31 725	18%	621.8
30-39	13 445	15%	521.8	12 875	16%	20.3	26 393	15%	509.1
40-49	13 521	15%	556.7	11 609	15%	22.9	25 198	15%	523.1
50-59	12 671	14%	480.1	11 010	14%	18.2	23 716	14%	451.5
60-69	7 402	8%	314.2	7 732	10%	13.3	15 167	9%	329.1
70-79	5 221	6%	345.6	5 102	6%	22.9	10 353	6%	360.6
80+	14 001	15%	1439.7	6 560	8%	148.0	20 644	12%	1270.4
Total^a	92 357	100%	488.4	80 062	100%	2.6	172 906	100%	460.0

^a Includes 14 cases classified as Other and 4 cases classified as Transgender.

Table A4. Cumulative age and sex distribution of COVID-19 deaths reported to PHAC as of 10 October 2020

Age group	Female	Male	Total
≤ 19	1	1	2
20-39	8	18	26
40-59	111	168	279
60-79	979	1438	2417
80+	4023	2748	6771
Total	5122	4373	9495

Table A5. Cumulative age and sex distribution of hospitalized non-ICU COVID-19 cases reported to PHAC as of 10 October 2020

Age group	Female	Male	Total
≤ 19	77	64	141
20-39	439	370	809
40-59	833	1055	1890
60-79	1567	1861	3431
80+	2170	1492	3666
Total^a	5087	4843	9940

^a Includes 1 case classified as Other sex. Includes 2 cases with unknown age.



Table A6. Cumulative age and sex distribution of COVID-19 cases admitted to ICU, reported to PHAC as of 10 October 2020

Age group	Female	Male	Total
≤ 19	19	22	41
20-39	121	134	255
40-59	321	589	911
60-79	511	961	1473
80+	188	195	384
Total	1160	1901	3064