CANADA COVID-19 WEEKLY EPIDEMIOLOGY REPORT
(23 AUGUST TO 29 AUGUST 2020)

Published: 4 September 2020

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3 044 (⬆ 304[a]) New cases reported in the last 7 days[b]	**42 (⬇ 5[a])** New deaths reported in the last 7 days[b]
435 (⬆ 44[a]) Average number of cases reported daily in the last 7 days[b]	**6 (⬇ 1[a])** Average number of deaths reported daily in the last 7 days[b]
46 539 (⬇ 1 447[a]) Average people tested per day in the last 7 days[d]	**1.0% (⬆ 0.3[c])** Percent positive of people tested in the last 7 days[d]

[a] The difference between the current reported value and that of the previous 7 day reporting period (16 to 22 August data) [b] Source: Provincial and Territorial MOH websites as of 29 August. [c] Difference in percentage points. [d] NML data for laboratory analyzes as of 29 August (Note: Laboratory testing numbers may be an underestimate due to reporting delays).

KEY MESSAGES

- Nationally, the number of new cases increased by 11% during the week of 23 to 29 August 2020 in comparison to the previous week, with an average of 435 cases and 6 deaths reported daily.
- Increases in cases have been observed, notably in Manitoba, Québec and Ontario, but also in British Columbia and Alberta over the last week.
- Outbreaks in long-term care facilities and seniors' residences continue to account for the majority of outbreaks in Canada. During the month of August, an increase in food/drink/retail associated outbreaks has been noted. These settings likely draw in a younger age demographic.
- The majority of cases reported this week were acquired within Canada. Only five cases were associated with international exposure.
- Since late July, incidence rates have declined across all age groups; however, incidence rates in those 20 to 39 years of age remain consistently higher compared to all other age groups.
    - o Since early July, cases under the age of 40 have continued to account for the highest proportion of cases, contributing to 62% of cases this week.
- Since early May, a steep decline in reported deaths has been observed, and the number of new deaths reported daily has remained low.
    - o Since the beginning of the pandemic, the number of weekly reported deaths continues to be highest in those over 70 years of age in Canada.
    - o The weekly reported cases in hospitals and ICUs across the country continue to steadily decline, and have remained highest in those 60 years of age and older throughout the pandemic.
- The average number of people tested daily remained high over the last week, with over 46 539 people tested per day. The average percent positivity has increased from 0.7%, to 1.0% of people positive compared to the previous week. This means we are now testing an average of over 107 people for every positive case, down from an average of 140 people tested for every positive case during the previous week.
- According to forecasting, 132 250 to 136 950 cumulative cases and 9 150 to 9 240 cumulative deaths are expected by 13 September. We also expect to see an average of approximately 450 cases reported
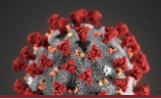
per day during the period from 29 August to 13 September. During the same period, the reported number of daily deaths is expected to remain stable at an average of five to six deaths per day.
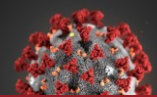
NATIONAL DEMOGRAPHICS AND TRENDS

NATIONAL TRENDS IN CASES

From 23 August to 29 August 2020, a total of 3 044 cases of COVID-19 were reported in Canada, or an average of 435 cases per day.

- The number of new cases represents an **11% increase** compared to the previous week, but continues to be lower than observed in the months of April and May (Figure 1).
- Weekly increases have been observed over the past 3 weeks.

Figure 1. Daily number of reported COVID-19 cases in Canada (and 7-day moving average), as of 29 August 2020 (N=127 673)
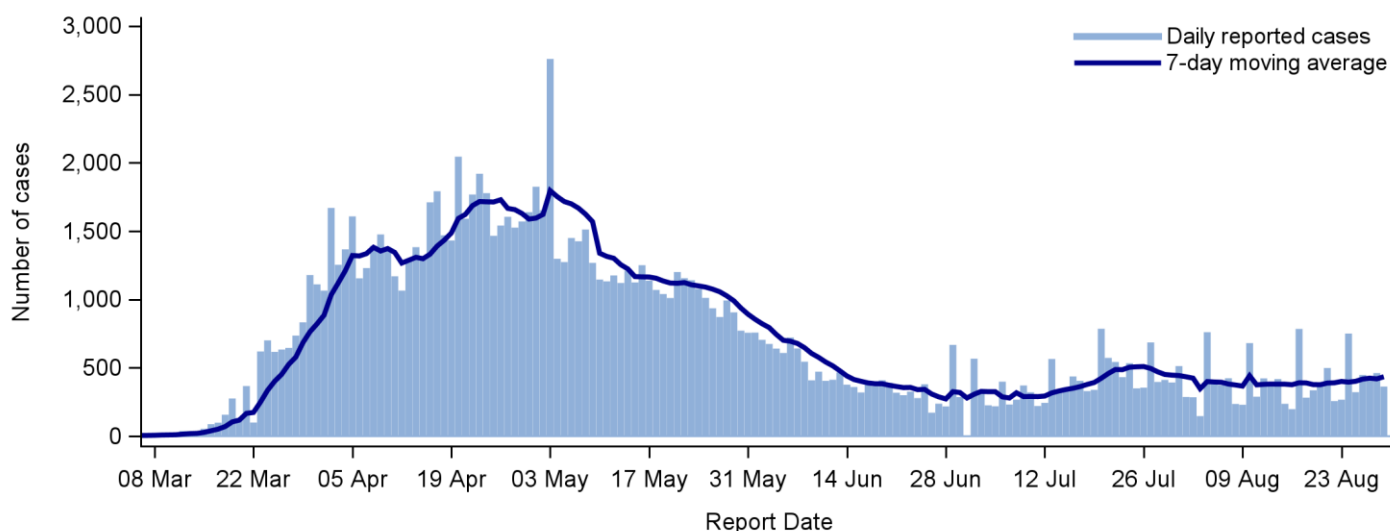
Source: Provincial and Territorial MOH websites as of 29 August 2020.
Note: The 7-day moving average is a trend indicator that captures the arithmetic mean of the daily reported deaths over the previous seven days. The moving average helps smooth out day-to-day variability in reporting, filtering out the "noise" of short-term fluctuations. Fluctuations can be attributed to retrospective data or provinces or territories reporting cases at a reduced frequency. The spike on 4 May is due to the fact that Quebec reported 1 317 cases diagnosed between 2 to 30 of April.

As of 29 August 2020, an increase in the weekly number of new cases was observed nationally compared to the previous week (Table 1).

- The majority of provinces and territories reporting cases (6 of 9) reported an increase compared to the previous week, except in Saskatchewan and New Brunswick. Prince Edward Island reported no cases 23-29 August, down from 3 cases the previous week.
- Although the number of cases in British Columbia continues to increase, the rise in weekly cases has slowed (from over 30% increase per week throughout the rest of August, to less than 5% increase the week of 23-29 August).
- Cases in Ontario and Québec have risen the week of 23 to 29 August, by 10% and 23%, respectively.
- For the week of 23 to 29 August, Manitoba reported the highest percent increase in age-standardized incidence, with a 33% increase compared to 16 to 22 August. The increase in cases has slowed in Manitoba in late August compared to early August but has remained over 30% for the past two weeks.
- 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 29 August 2020

Province/Territory	Total number of cases (as of 29 August)[a]	Average number of cases reported daily (23 to 29 August)	Weekly number of cases reported		Percent change (%)[b]	Population-adjusted rate per 100 000 (as of 29 August)
			16 to 22 August	23 to 29 August		
British Columbia[c]	5 496	83	557	581	+4%	108.4
Alberta[c]	13 476	104	695	728	+5%	308.3
Saskatchewan	1 615	3	31	18	-42%	137.5
Manitoba	1 151	40	209	279	+33%	84.0
Ontario	42 083	114	722	796	+10%	288.9
Quebec	62 232	90	515	633	+23%	733.4
Newfoundland and Labrador	269	0	0	1	-	51.6
New Brunswick	191	0	4	3	-25%	24.6
Nova Scotia	1 083	1	4	5	+25%	111.5
Prince Edward Island[c]	44	0	3	0	-100%	28.0
Yukon[c]	15	0	0	0	-	36.7
Northwest Territories[c]	5	0	0	0	-	11.2
Nunavut [c]	0	0	0	0	-	0.0
Canada[d]	**127 673**	**435**	**2 740**	**3 044**	**+11%**	**339.7**

Source: Provincial and Territorial MOH websites as of 29 August 2020

[a]The number of cases includes the total confirmed and probable cases. These counts are based on publically available information from the provincial/territorial ministry of health websites.

[b] The percentage is calculated based on the difference in the total number of cases in the past 7 days over the past 7 days prior. 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.

[c] Information as of 28 August 2020.

[d] Includes 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 rate by province or territory for the week of 23 to 29 August 2020.

- Manitoba continues to report the highest age-standardized incidence compared to the other provinces and territories at 19.5 cases per 100 000 population, which has been increasing over the month of August and may be attributed to outbreaks occurring within meat processing plants and local community settings.
- Cumulatively, Quebec has reported the highest age-standardized incidence rate at 687.5 cases per 100 000 population (see table A2 in the annex for cumulative counts).

Age-standardized rates take into account the differences in age structure within Canada to allow for a representative picture of COVID-19 in Canada.

Table 2. Age-standardized incidence rates by province or territory for week 23 August to 29 August 2020

Province/Territory	Age-standardized incidence per 100 000 (23 to 29 August 2020)
British Columbia	10.7
Alberta	14.4
Saskatchewan	1.0
Manitoba	19.5
Ontario	5.2
Quebec	NA
New Brunswick	0.4
Newfoundland and Labrador	0.0
Nova Scotia	0.6
Prince Edward Island	0.0
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
NA: data not available

Table 3 summarizes the total new cases, recoveries and deaths for 23 August to 29 August 2020.

- Ontario, Alberta, British Columbia and Quebec still account for the majority of cases (90%), new recoveries (91%), and deaths (88%) this week, although BC's number of deaths is low at two for the week, and Manitoba's case count continues to increase.
- Saskatchewan, Quebec, Newfoundland and Labrador, and Prince Edward Island reported more new recoveries than new cases.
- British Columbia, Alberta, Manitoba, Ontario, and New Brunswick reported more new cases than new recoveries.

Table 3. Summary of COVID-19 cases, recoveries, and deaths reported by province or territory, for week 23 August to 29 August 2020

Province/Territory	New cases	New recoveries	New deaths
British Columbia	581	421	2
Alberta	728	680	7
Saskatchewan	18	90	2
Manitoba	279	123	2
Ontario	796	639	12
Quebec	633	659	16
New Brunswick	1	0	0
Newfoundland and Labrador	3	5	0
Nova Scotia	5	5	1
Prince Edward Island	0	1	0
Yukon	0	0	0
Northwest Territories	0	0	0
Nunavut	0	0	0
Canada	**3 044**	**2 623**	**42**

Source: Provincial and Territorial MOH websites as of 29 August 2020.

DEMOGRAPHIC DISTRIBUTION[a]

[a] Detailed case information received by PHAC from provinces and territories

- Cases for which PHAC received detailed individual case-level information between 23 August to 29 August 2020 (n=2 270) ranged in age from less than one year to 100 years, with a median of 34 years of age.
- The age distribution of these cases continues to be younger as the Canadian epidemic continues.
- Of the cases reported to PHAC this week, 62% were individuals under 40 years of age, including:
  - 17% under 20 years of age, but who account for only 9% of all cases to date (Table A3 in the Annex).
  - 25% between 20 to 29 years of age, but who account for only 16% of all cases to date. This age group is over-represented in recently reported cases, as they comprise just 14% of the Canadian population (Table A3 in the Annex).
  - 19% between 30-39 years of age, who account for 15% of all cases to date (Table A3 in the Annex).
- Since June, the highest proportion of cases was observed in those 20-29 years of age, followed by those ages 30-39 years of age. While case rates have decreased overall, those 20-39 years of age continue to account for the highest proportion of cases and incidence rates this week:
  - The highest incidence rate by sex and age group is in both males and females 20-29 years of age (10.7 and 11.4 cases per 100 000 population respectively) followed by males and females 30-39 years of age (8.4 and 8.0 cases per 100 000 population respectively) (Table 4).
- Possible explanations for the increasing trend in younger age groups include:
  - Younger individuals are increasing in-person physical connections, potentially due to return to workplaces, associated summer activities/holidays, and reduced adherence to and/or fatigue with physical distancing and other public health measures.
  - Severe illness is less common in younger individuals, though this risk remains for this group or any other age group. 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 23 August to 29 August 2020.

Age groups	Female			Male			Total		
	n	%	Rate	n	%	Rate	n	%	Rate
≤ 19	193	17	4.9	189	17	4.5	382	17%	4.7
20-29	280	25	11.4	283	26	10.7	563	25%	11.0
30-39	207	19	8.0	219	20	8.4	426	19%	8.2
40-49	153	14	6.3	155	14	6.5	308	14%	6.4
50-59	129	12	4.9	112	10	4.3	241	11%	4.6
60-69	77	7	3.3	81	7	3.6	158	7%	3.4
70-79	43	4	2.8	47	4	3.5	90	4%	3.1
80+	31	3	3.2	21	2	3.2	52	2%	3.2
Total	**1 113**	100	**5.9**	**1 107**	100	**5.9**	2 220	100%	**5.9**

Source: Detailed case information received by PHAC from provinces and territories
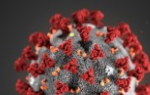Note: Excludes cases classified as Unknown or did not provide an age.

Figure 2 presents cases by illness onset, stratified by sex and adjusted for population at the national level.
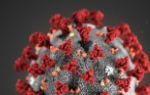
- In July, upon the gradual, phased re-opening of social and economic spaces, an increase of reported cases was observed, with the highest increase observed in those 20 to 39 years of age.
- Since late July, case rates declined across all age groups, and remained relatively stable in August; however, case rates for those 20 to 39 years of age have remained consistently higher when compared to all other age groups.
- As more case report forms are submitted, the proportion of cases relative to other age categories is subject to change.

Figure 2. Daily cases by age and sex, population-adjusted from 1 June to 29 August 2020
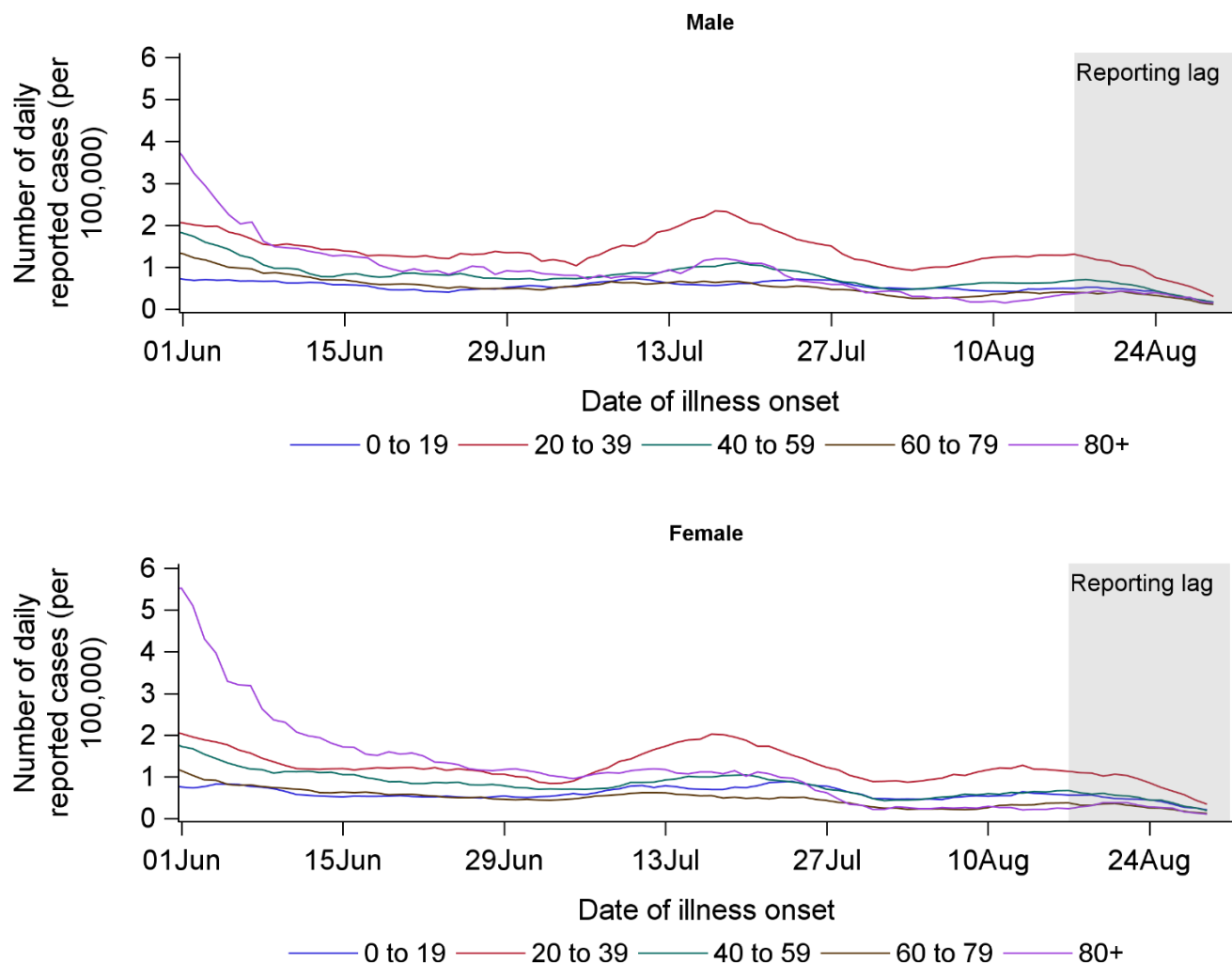
Source: Detailed case information received by PHAC from provinces and territories
Note: The shaded area represents a period of time (lag time) where it is expected that cases have occurred but have not yet been reported nationally. If the date of illness onset was not available, the earliest of the following 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) across Canada. Mild COVID-19 illness presents with symptoms similar to ILI; therefore, FluWatchers is shifting focus to track COVID-19 symptoms over the spring and summer months.

In the week of August 23 to 29, 2020, 9 297 participants reported into the FluWatchers program. A total of 20 participants (0.2%) reported cough and fever (Figure 8). The participants reporting cough and fever were not restricted to a single jurisdiction. As FluWatchers does not normally collect data during the summer months, this cannot be compared to historical Canadian data. Similar participatory ILI surveillance programs in other countries are also reporting historically low levels. These low levels may be due to a combination of factors, including physical distancing.

Among the 20 participants reporting cough and fever:
- 11 (55%) sought medical attention;
- 10 (50%) were tested – one test was positive for COVID-19.

Figure 8: Percentage of FluWatchers Participants Reporting Cough and Fever (N=9 297 the week of August 23 to 29, 2020)
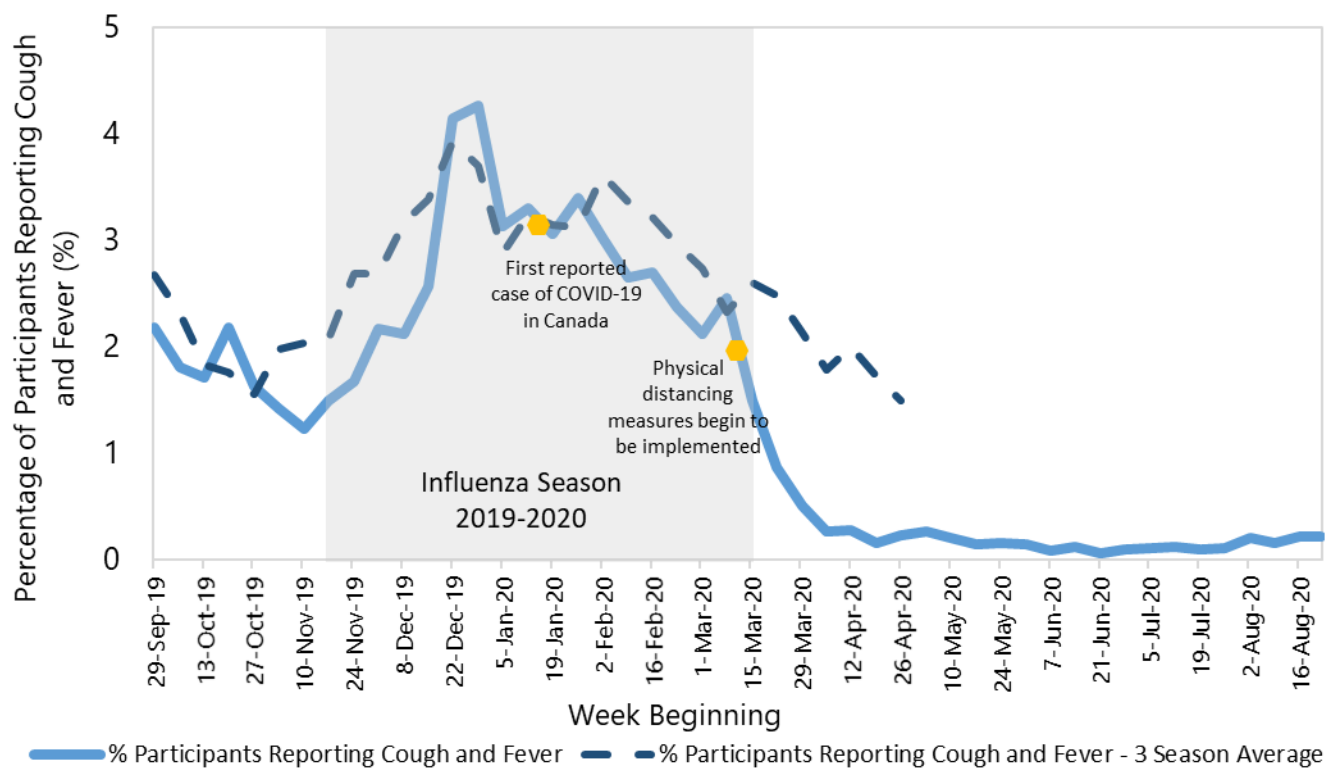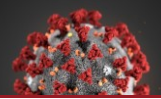
TRANSMISSION

TEMPORAL DISTRIBUTION BY EXPOSURE CATEGORY[a]

[a] Detailed case information received by PHAC from provinces and territories

Information on exposure is available for 432 cases with illness onset in the week of 23 August to 29 August 2020. Of these:
- 1 case (<1%) reported having travelled outside of Canada during the exposure period;
- 139 cases (32%) were due to exposure in Canada to a known COVID-19 case;
- 117 cases (27%) were due to exposure in Canada to an unknown source;
- 0 cases (0%) were due to exposure to a traveler; and
- 175 cases (41%) have information on exposure pending.

Jurisdictions update exposure status on an ongoing basis as case investigations are completed, which may result in information currently pending, changing the exposure category in the future. Conversely, some cases have information pending from an earlier case report, but may have subsequently been lost to follow-up; therefore, the exposure category may not be identified (Figure 4).

Of the 120 918 cases with information on exposure and illness onset provided to date:
- 5 075 cases (4%) reported having travelled outside of Canada during the exposure period;
- 66 419 cases (55%) reported exposure in Canada to a known COVID-19 case;
- 42 233 cases (35%) reported exposure in Canada to an unknown source;
- 1 124 cases (<1%) reported exposure to someone who had travelled; and
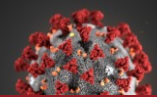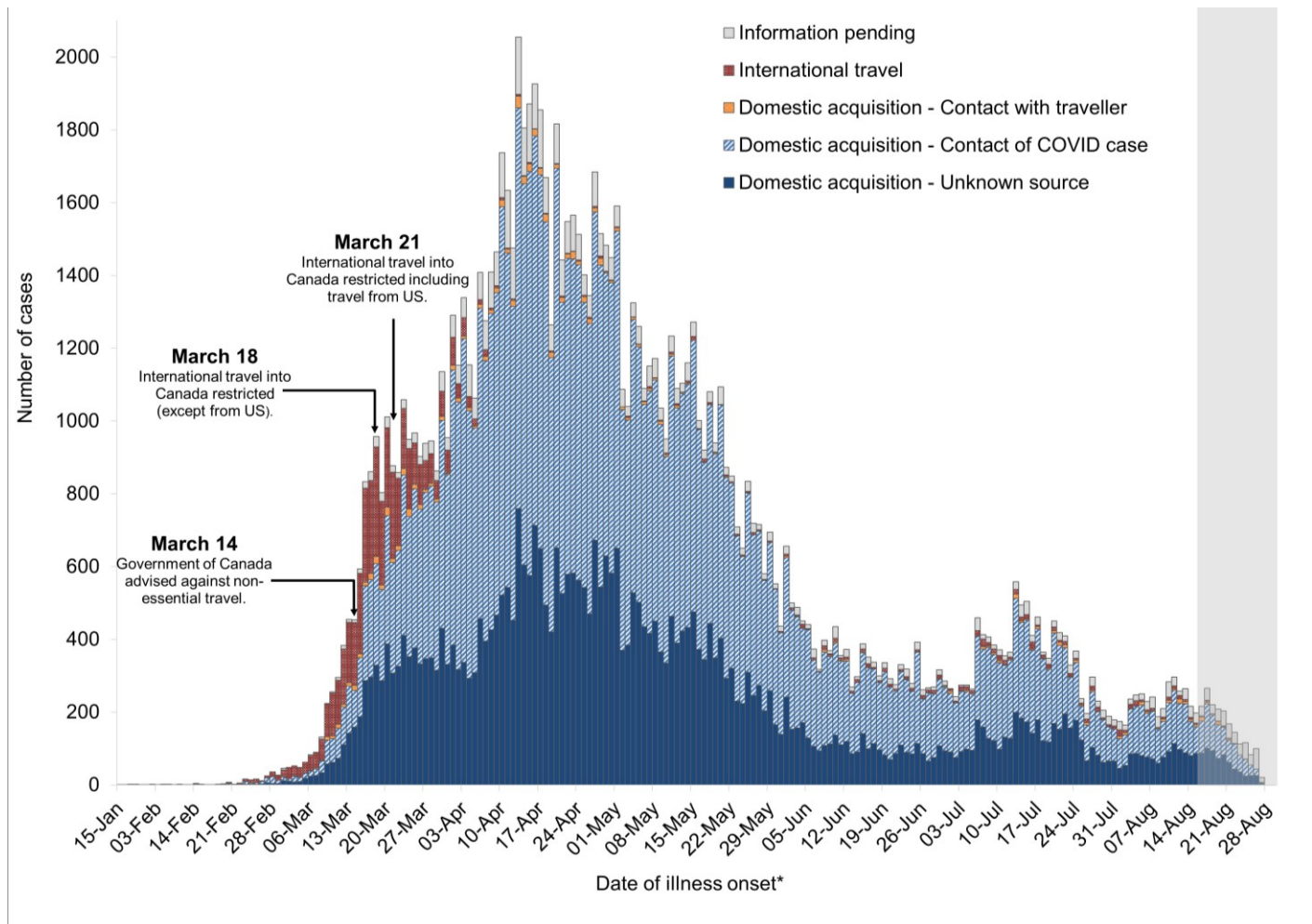- 6 067 cases (5%) have information on exposure pending.

Figure 4. Number of reported COVID-19 cases in Canada, by date of illness onset and exposure category as of 29 August 2020 (n=120 918)

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.

Cumulatively, information on exposure with illness onset indicates that 55% of cases have reported exposure to a known COVID-19 case.

- From 23 August to 29 August 2020, fewer cases reported exposure to COVID-19 from an unknown source (46%) than a known source (54%); however, it is important to note that there are inherent delays in these indicators, and that data may become available at a later time.
- The indicator of exposure to COVID-19 from an unknown source can also be used as an indicator for community transmission.

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 29 August 2020, 4.2% of cases are international travel exposures, of which 54% are related to travel in males. Of the cases reported to PHAC, 5 075 have been associated with international travel. 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 21.5% (n=3 905) of all cases in March to 0.4% in May (n=115), but increased slightly over the summer months (Table 5).

- Since 1 June, the most commonly reported countries of travel included the United States, Mexico, and India.

Table 5. Number and percentage of COVID-19 cases associated with international travel by month of illness onset*, as of 29 August 2020

Month	Number of COVID-19 cases associated with international travel	Percentage of COVID-19 cases associated with international travel**
January	7	87.5%
February	78	42.2%
March	3 905	21.5%
April	339	0.7%
May	115	0.4%
June	194	1.8%
July	303	2.8%
August	134	2.5%
Total	**5 075**	**4.2%**

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

From 23 August to 29 August 2020, 18 cases of COVID-19 in Canada associated with international travel were reported to PHAC.

- Of the 18 cases, travel was reported to and from India (n=8, including one India and UK), Mexico (n=4), the United States (n=3), Iran (n=1), Jamaica (n=1), and Switzerland (n=1). Note these are cases reported between 23 and 29 August and did not necessarily have symptom onset during these same dates.
- The majority of international travel-related cases occurred prior to the implementation of travel restrictions, with the highest amount reported in March (Figure 5).
    - The number of cases linked to international travel is rising and, as of mid-August, is at it highest since March.
- To date, the largest proportion of Canadian cases with international travel exposure are those who visited the United States and Mexico.
- Restrictions of non-essential travel into Canada continue to aid in the control of imported cases.
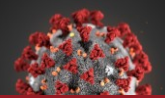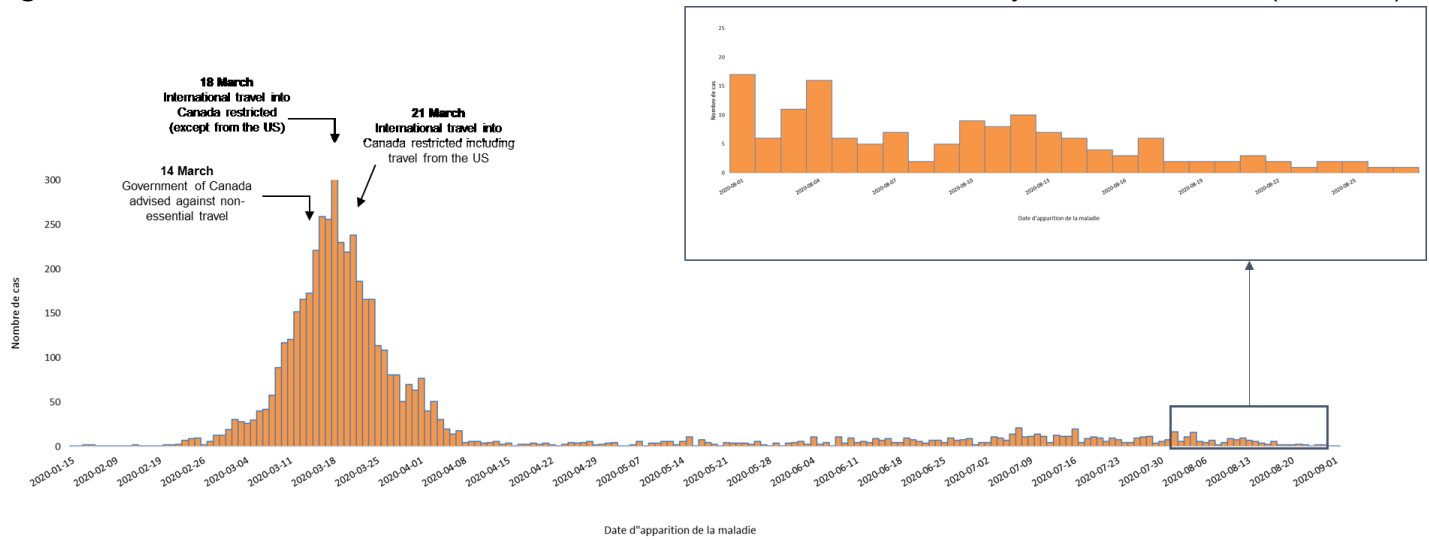
Figure 5. Number of international travel-related COVID-19 cases in Canada, by illness onset date (n= 5 075)

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

[a] Includes only cases reported to PHAC with reported international travel exposure.

Note: If 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.
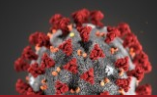
OUTBREAKS

- Outbreaks have been significant contributors to the spread of COVID-19 in Canada, and point to vulnerabilities in closed and crowded settings. Figure 6 and Table 7 identify common locations of outbreaks identified, as well as the number of cases and deaths associated with each.

Figure 6. Number of new outbreaks by setting since April 2020
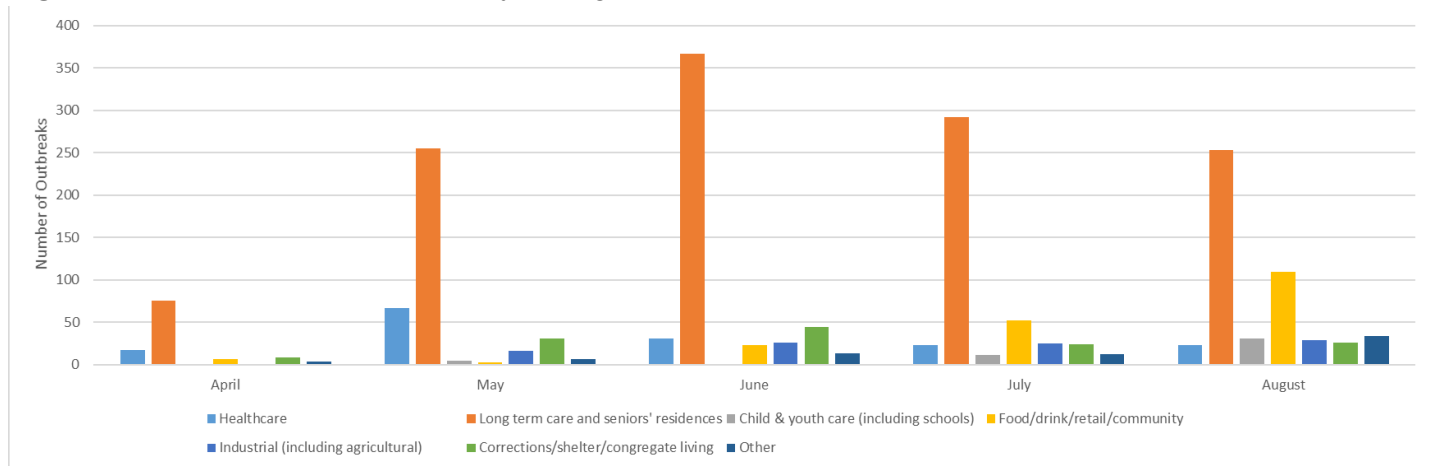
Source: Publically reported outbreak data as of 29 August

- Within the month of August, outbreaks have been increasing in food/drink/retail settings, which likely have a younger demographic and may be contributing to a younger distribution of cases.
- Outbreaks continue to be observed in high-risk settings involving closed spaces, crowded places and close contact situations.
- 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.
  - Long-term care facilities and retirement residences have accounted for the majority of outbreaks to date, and continue to be reported.
- Following the reopening of social and economic spaces, a smaller number of outbreaks continue to be reported in a wider range of social settings, including food and drink establishments, and private gatherings and parties.

Table 7. Total number of COVID-19 outbreaks, cases, and deaths by outbreak setting in Canada as of 29 August 2020[a]

Outbreak setting	Total number of outbreaks reported	Total number of cases reported	Total number of reported deaths
Long-term care and seniors homes	1 258	21 987	6 744
Hospital	153	2 118	207
Agricultural work setting (including those with congregate living for workers)[b]	23	1 752	4
Shelter	47	649	4
Correctional facility	30	840	4
Other congregate living settings	51	506	37
Meat production/packing facility	22	3 214	7
Other industrial settings[c]	51	760	2
Mass gathering[d]	26	784	2
Retail businesses	76	297	1
Food/drink establishments[e]	52	258	0
Rehabilitation facility	8	104	8
Community/Small city/Reserve/Indigenous communities/Rural and remote	38	699	12
Child and youth care[f]	32	160	0

Source: Publically reported data as of 29 August

[a] This is not an all-inclusive list and is subject to change based on current and active outbreak locations reported.

[b] The number of outbreaks in Windsor-Essex have been grouped into one cluster

[c] Other industrial settings include: automotive manufacturing, distribution/processing facilities, worker camps, waste management/recycling, warehouse, etc.

[d] Mass gatherings are defined as an event which brings together a large number of people; examples of mass gatherings include conferences, funerals, family gatherings, sporting events, social events, and parties

[e] Three food and drink establishments were grouped into one cluster

[f] Child and youth care include daycare centres and day camps.

Note: The following categories have been included for this week's report and include both current and retrospective data.

LABORATORY-CONFIRMED COVID-19 DETECTION[a]

[a] Source: NML Data for laboratory analyzes as of 29 August.

Overall, 5 414 212 people have been tested for COVID-19 in Canada as of 29 August 2020, and the cumulative percent positive to date is 2.4%.

From 23 to 29 August 2020, 325 775 Canadians were tested for COVID-19, a decrease in testing (-3.0%) compared to the previous seven days. The average percent positivity has increased from 0.7% to 1.0% of people positive. This means we are now testing an average of over 107 people for every positive case, down from an average of 140 people tested for every positive case during the previous week. (Table 7).

Table 7. Summary of COVID-19 testing reported in Canada, by province or territory, between 23 to 29 August 2020 (N=5 414 212)

Province/Territory	Total number of people tested[a]	7 day difference	Average # people tested daily (23-29 August)	Average # people tested daily per 1 000 pop'n (23-29 August)	Weekly Percent positivity (23-29 August)
British Columbia	305 195	23 015	3 288	0.65	2.5%
Alberta	750 810	46 173	6 596	1.51	1.7%
Saskatchewan	118 301	6 703	958	0.82	0.2%
Manitoba	129 714	10 154	1 451	1.06	2.7%
Ontario	2 820 922	170 922	24 417	1.68	0.5%
Quebec	1 093 669	58 842	8 406	0.99	1.1%
Newfoundland and Labrador	31 567	1 668	238	0.46	0.1%
New Brunswick	53 323	2 036	291	0.37	0.1%
Nova Scotia	75 648	3 888	555	0.57	0.2%
Prince Edward Island	27 344	1 933	276	1.76	0%
Yukon	2 518	183	26	0.64	0%
Northwest Territories	3 427	126	18	0.4	0%
Nunavut	1 774	132	19	0.49	0%
Total[b]	**5 414 212**	**325 775**	**46 539**	**1.24**	**1%**

Source: NML Data for laboratory analyzes as of 29 August.
[a] For provinces and territories which report the number of tests completed, a formula is used to estimate the number of unique people tested.
[b] Includes 76 repatriated travelers 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 over the course of the pandemic was showing a downward trend in March and April, plateauing in May and June, but has increased since July (Figure 7).

A shorter duration of COVID-19 patients being in an 'unknown disease status', while awaiting test results, is important to minimize transmission opportunities. This estimate is based on 66 909 case report forms across 11 provinces and territories (excludes Nunavut & BC – insufficient data).
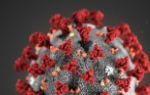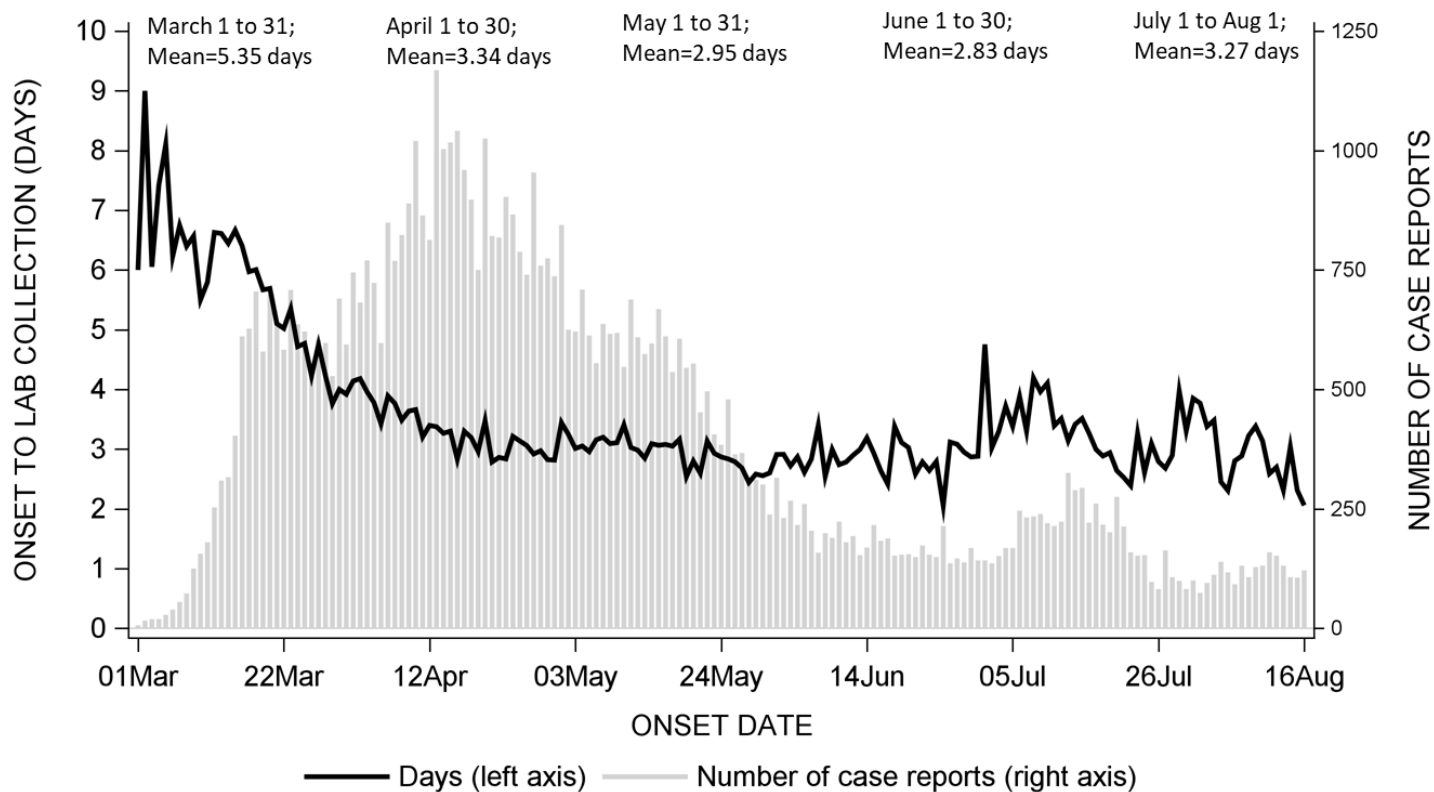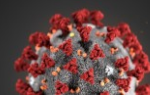
Figure 7. Onset date and lab collection date for cases reported to PHAC as of 29 August 2020

March 1 to 31;
Mean=5.35 days

April 1 to 30;
Mean=3.34 days

May 1 to 31;
Mean=2.95 days

June 1 to 30;
Mean=2.83 days

July 1 to Aug 1;
Mean=3.27 days

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 23 August to 29 August 2020, 42 deaths were reported in Canada.

- This represents an 11**% decrease** compared to the previous week (16 August to 22 August).
- Following a steep decline of reported deaths in early May, the number of new deaths reported daily has remained low with an average of six deaths reported per day this week.
  - o Factors may include reporting lag time, laboratory tests capturing milder and younger cases less at risk of adverse outcomes, improved treatment options, and/or greater knowledge and training for front-line workers.

Of the deaths reported from 23 August to 29 August, jurisdictions submitted individual-level information to PHAC for four deaths. The majority of reported deaths were female (75%) and all were over the age of 80. 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 29 August 2020 (N=9 113)
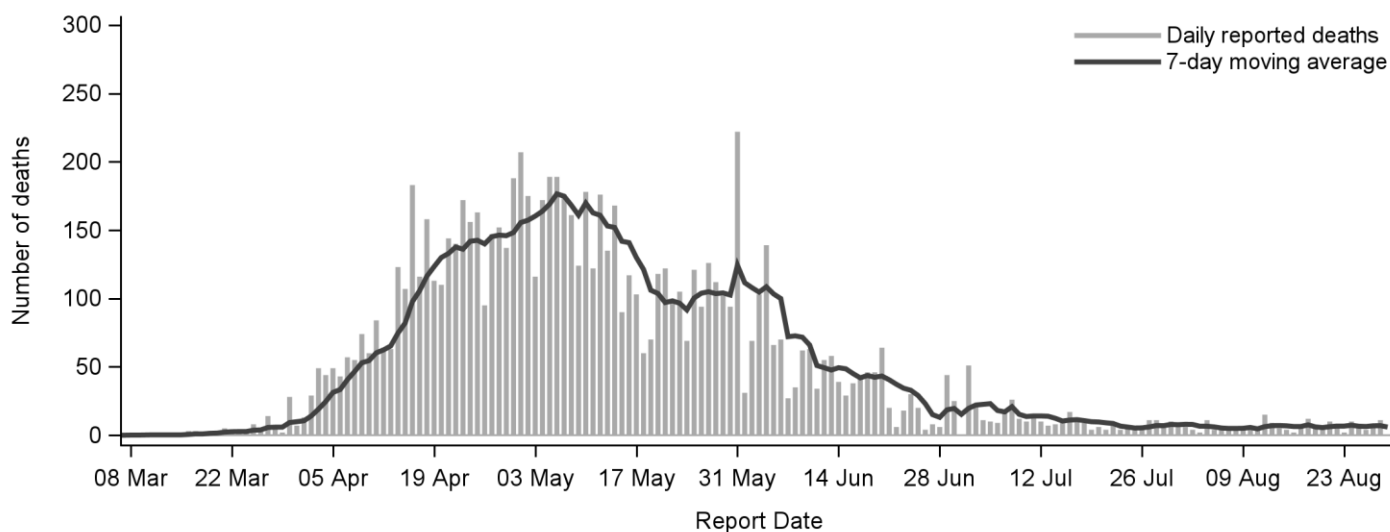
Source: Provincial and Territorial MOH websites as of 29 August 2020
Note: The 7-day moving average is a trend indicator that captures the arithmetic mean of the daily reported deaths over the previous seven days. The moving average helps smooth out day-to-day variability in reporting, filtering out the "noise" of short-term fluctuations. Fluctuations can be attributed to retrospective data or provinces or territories reporting cases at a reduced frequency.

From 23 August to 29 August 2020, detailed case information on hospitalization status was available for 1 426 cases. Among these cases:

- **50 (4%)** were hospitalized (including ICU admission), of whom:
  - **8 (16%)** were admitted to ICU, and
  - **0 (0%)** required mechanical ventilation.

To date, case information on hospitalization status was available for 85 139 of cases, where:

- **11 461 (13%)** were hospitalized (including ICU admission), of whom:
  - **2 332 (20%)** were admitted to ICU, and
  - **466 (4%)** required mechanical ventilation.

Among the total number of cases that were hospitalized this week (including ICU admission), 32% (n=16/50) 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 23 August to 29 August 2020[a]

Age groups	Hospitalized-non ICU			Hospitalized – ICU		
	Female	Male	Total	Female	Male	Total
≤ 19	1	1	2	0	1	1
20-39	4	4	8	0	0	0
40-59	5	3	8	1	2	3
60-79	5	7	12	2	2	4
80+	5	7	12	0	0	0
Total	**20**	**22**	**42**	**3**	**5**	**8**

Source: Detailed case information received by PHAC from provinces and territories
[a] The information presented is based on cases reported to PHAC from 23 August to 29 August 2020. These values may change weekly due to updates in disease progression, and disposition.
Note: Hospitalizations and ICU counts are mutually exclusive.

There continues to be a downward trend in the number of cases hospitalized and in ICU in Canada (Figure 9). Based on detailed case information provided to PHAC, the overall cumulative hospitalization rate (including ICU admissions) is 30 cases per 100 000 population, with the highest rates observed in those 80 years of age and older (229 cases per 100 000 population).
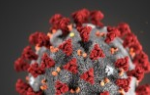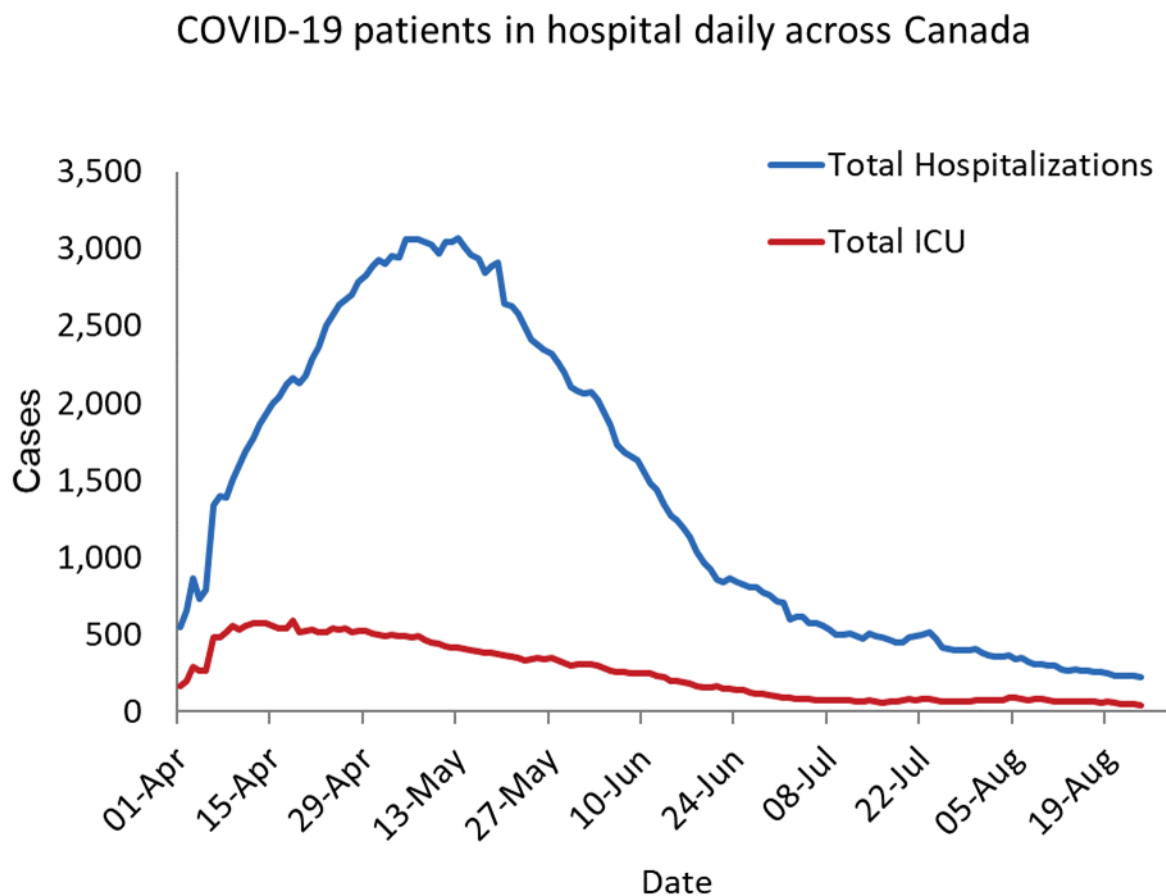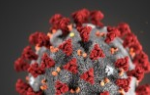
Figure 9. Number of COVID-19 cases in hospital and intensive case units daily in Canada, as of 29 August 2020

COVID-19 patients in hospital daily across Canada

Source: Provincial and Territorial MOH websites as of 29 August 2020

## SENTINEL ACUTE-CARE COVID-19 HOSPITALIZATION SURVEILLANCE

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) **

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 (Figure 10).

Figure 10. National rates of laboratory confirmed COVID-19 patients per 1 000 admissions with 95% confidence intervals*
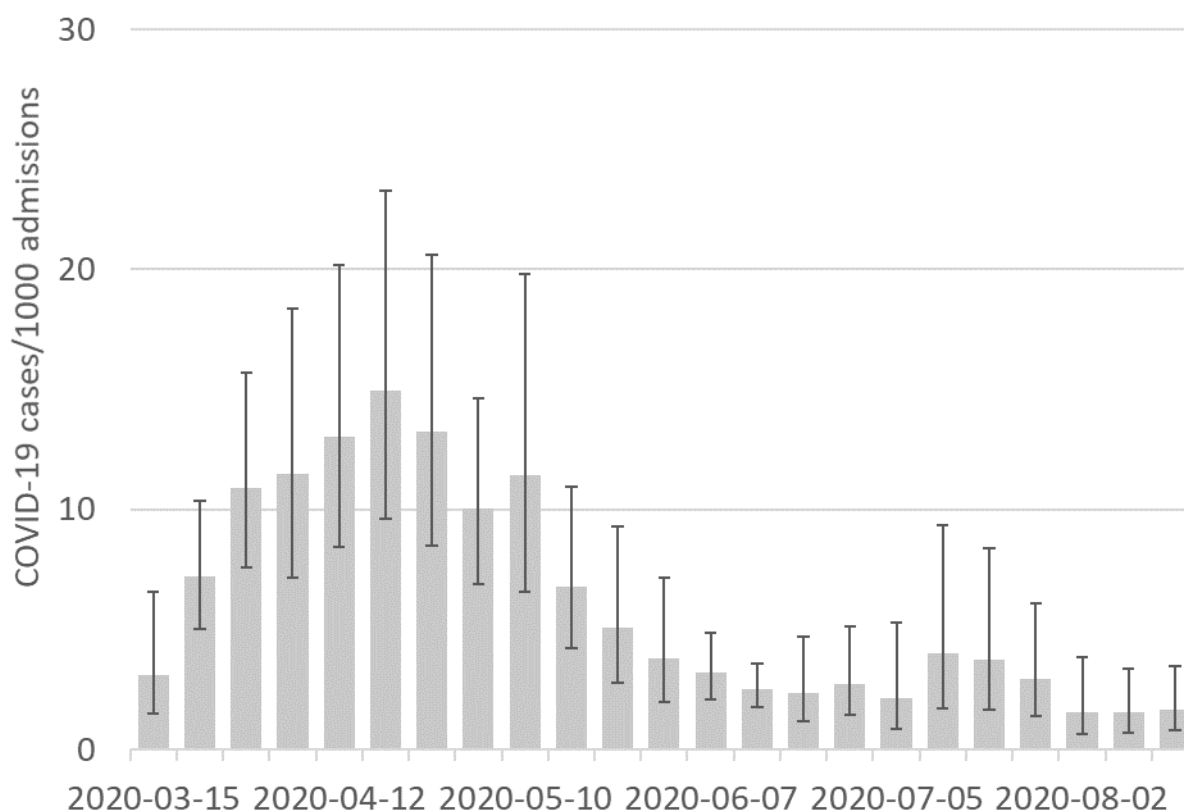
[a] Includes data from the 147 hospitals that have **participated in all weeks** of aggregate data collection (n=2 917) and is estimated using 2019 annual or quarterly data.
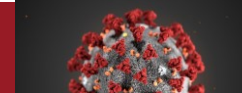
Patient Demographics

AGE*

- The median age of patients hospitalized with COVID-19 was 71 years (range 0-102) and 52% were male (884/1 687).
- Only 3% of patients hospitalized with COVID-19 are pediatric (<18 years) (86/2 936).
- The weekly number of adult patients (18-59 years) hospitalized with COVID-19 exceeded that of older adult patients (>59 years) in early August (week of 2 August 2020). In the most recent week of data collection (week of 16 August 2020), the weekly number of hospitalizations was again greatest among patients 18-59 years of age (Figure 11).
- The weekly number of pediatric patients (<18 years) hospitalized with COVID-19 has fluctuated slightly, but has remained low throughout the epidemic (Figure 11).

Figure 11. Weekly number of patients in hospital with laboratory-confirmed COVID-19 by age group (n=2 917)*
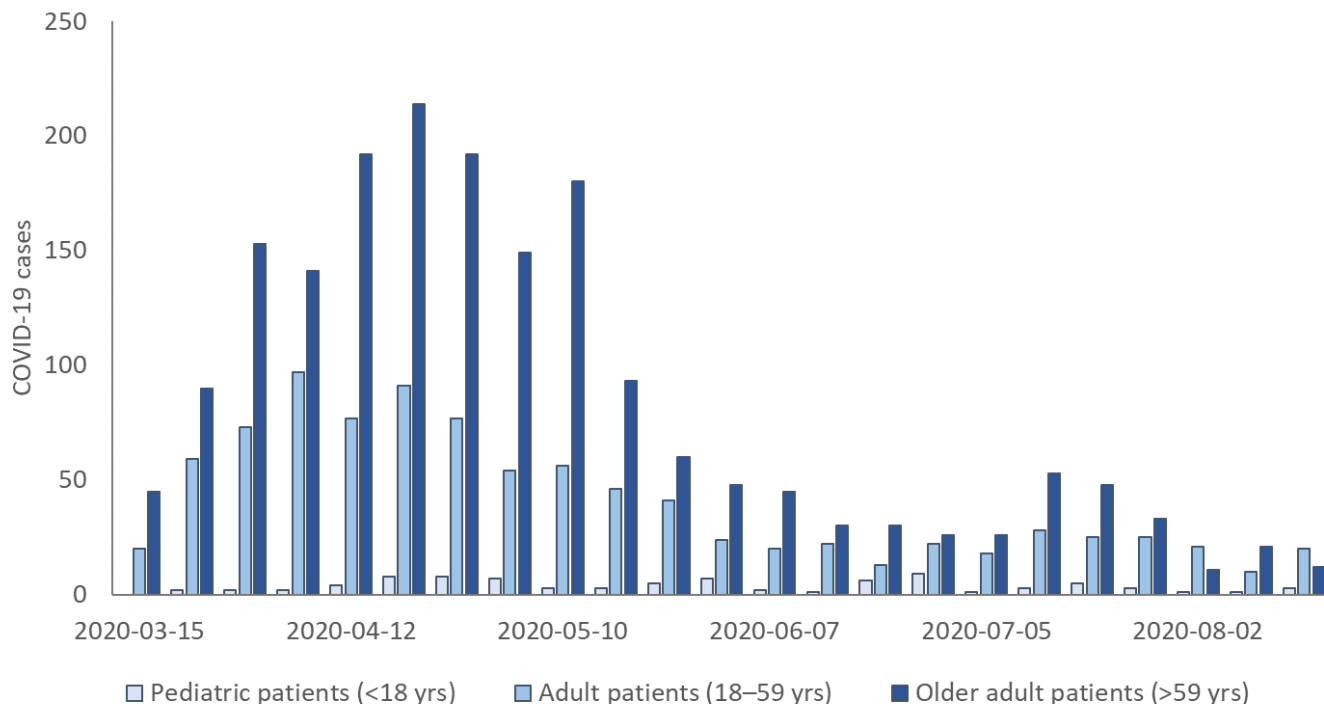
HOUSING TYPE**

- Patients hospitalized with COVID-19 residing in private dwellings peaked in March/April compared to patients hospitalized with COVID-19 residing in assisted living/long term care facilities, which peaked slightly later in April/May (Figure 12).
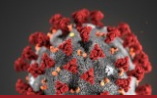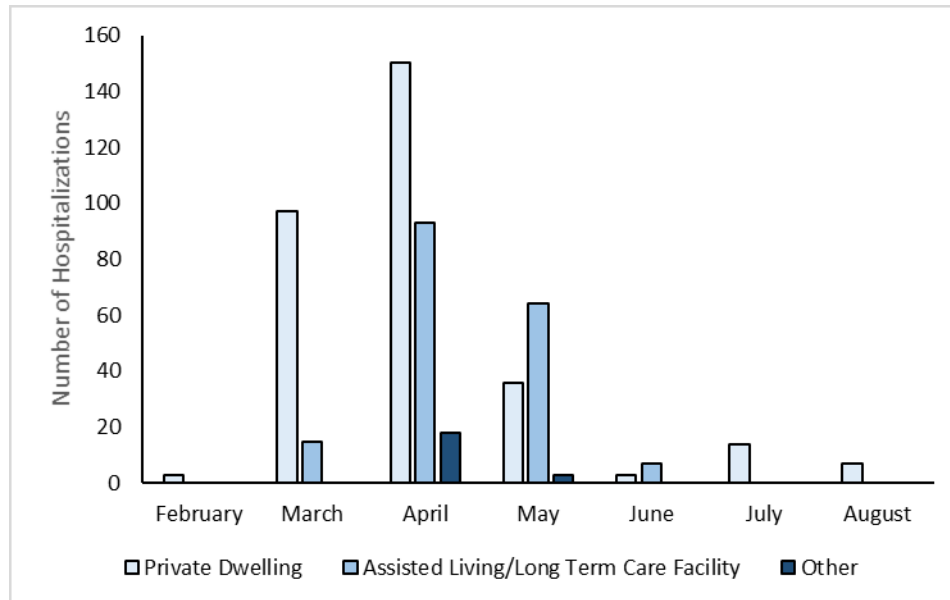
Figure 12. Monthly number of laboratory-confirmed COVID-19 patients by type of dwelling prior to hospitalization (n=510)**

Clinical Progression **
- The median time from symptom onset to hospital admission was 5 days (n=588).
- Among hospitalized patients, the median length of hospital stay was 11 days (n=525).
- The median length of hospital stay was longest among patients 60 years of age and older, at 15 days (n=372), compared to 7 days for patients 40-59 years of age (n=118) and 4 days for patients 16-39 years of age (n=35).

Interventions / Outcomes *

- Among patients hospitalized with COVID-19:
  - 22% have been admitted to the ICU (633/2 936);
  - 12% required mechanical ventilation (347/2 936);
  - 1% received extracorporeal membrane oxygenation (ECMO) (33/2 936); and
  - 16% have died (487/2 936).
- The weekly number of patients admitted to ICU and requiring mechanical ventilation peaked the week of 29 March, expectedly sooner than the peak of weekly deaths (week of 26 April; Figure 13)*.
- In July, a second, smaller peak was observed in the weekly number of patients admitted to ICU and requiring mechanical ventilation (Figure 13)*.
- Weekly counts for all interventions/outcomes remained low across all age groups throughout August (Figure 13)*.
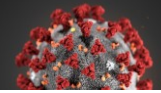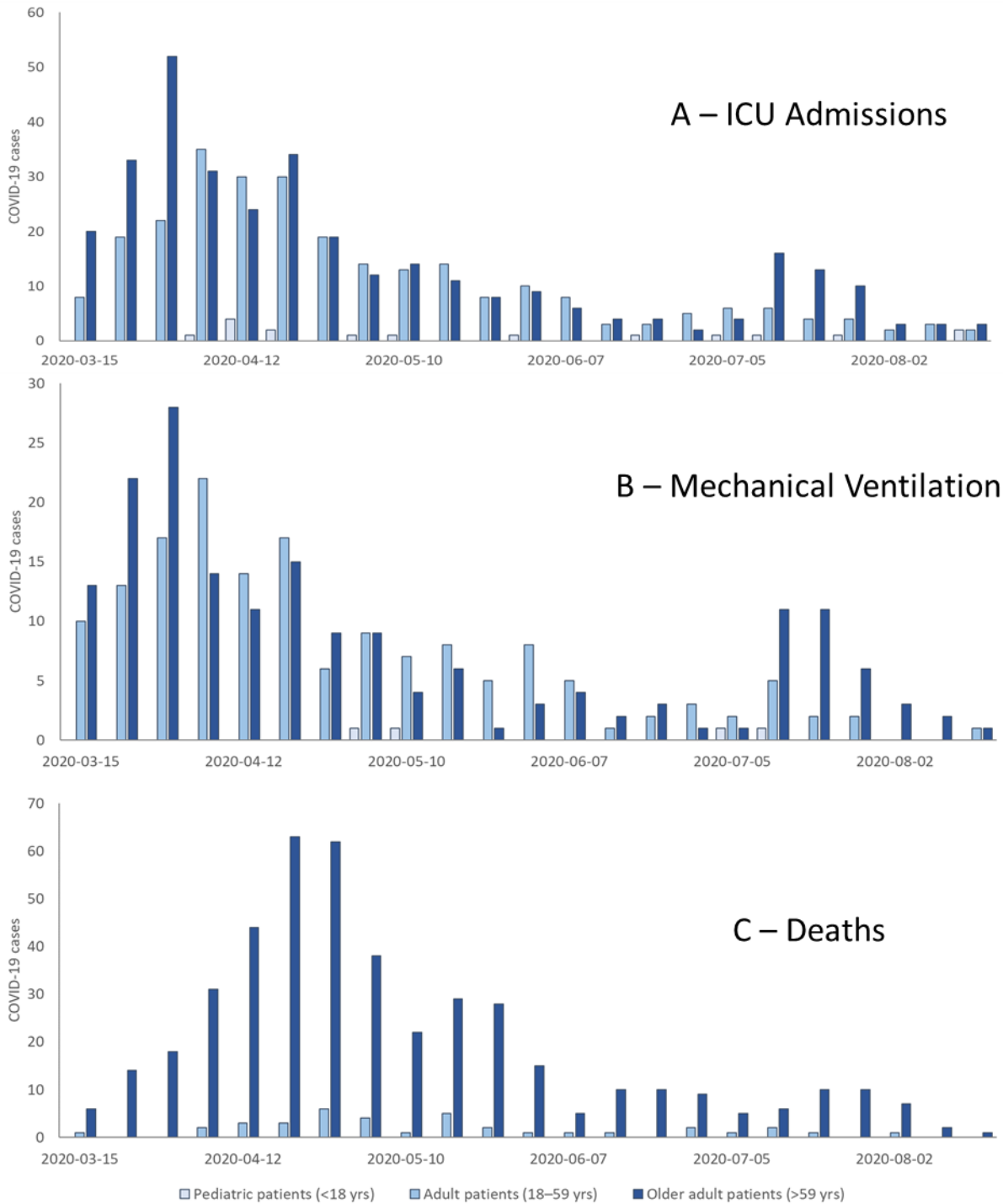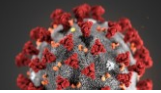
Figure 13. Weekly number of laboratory-confirmed COVID-19 patients that were admitted to ICU (A; n=619), required mechanical ventilation (B; n=343), and deceased (C; n=482), by age group*


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

INTERNATIONAL

- As of 29 August 2020, globally, there are over 24 million cases of COVID-19 with over 800 000 reported deaths.
- The global single-day record occurred on 30 July with over 298 000 cases reported.
- The region of the Americas continue to account for the majority of cases reported (53%).
- The following five countries account for the largest proportion of cases globally (Figure 14):
    - United States (24%)
    - Brazil (15%)
    - India (14%)
    - Russia (4%)
    - Peru (3%)
- Canada's daily cases account for approximately 0.5% of all cases reported globally.

**Figure 14**. International map of COVID-19 cases as of 29 August 2020
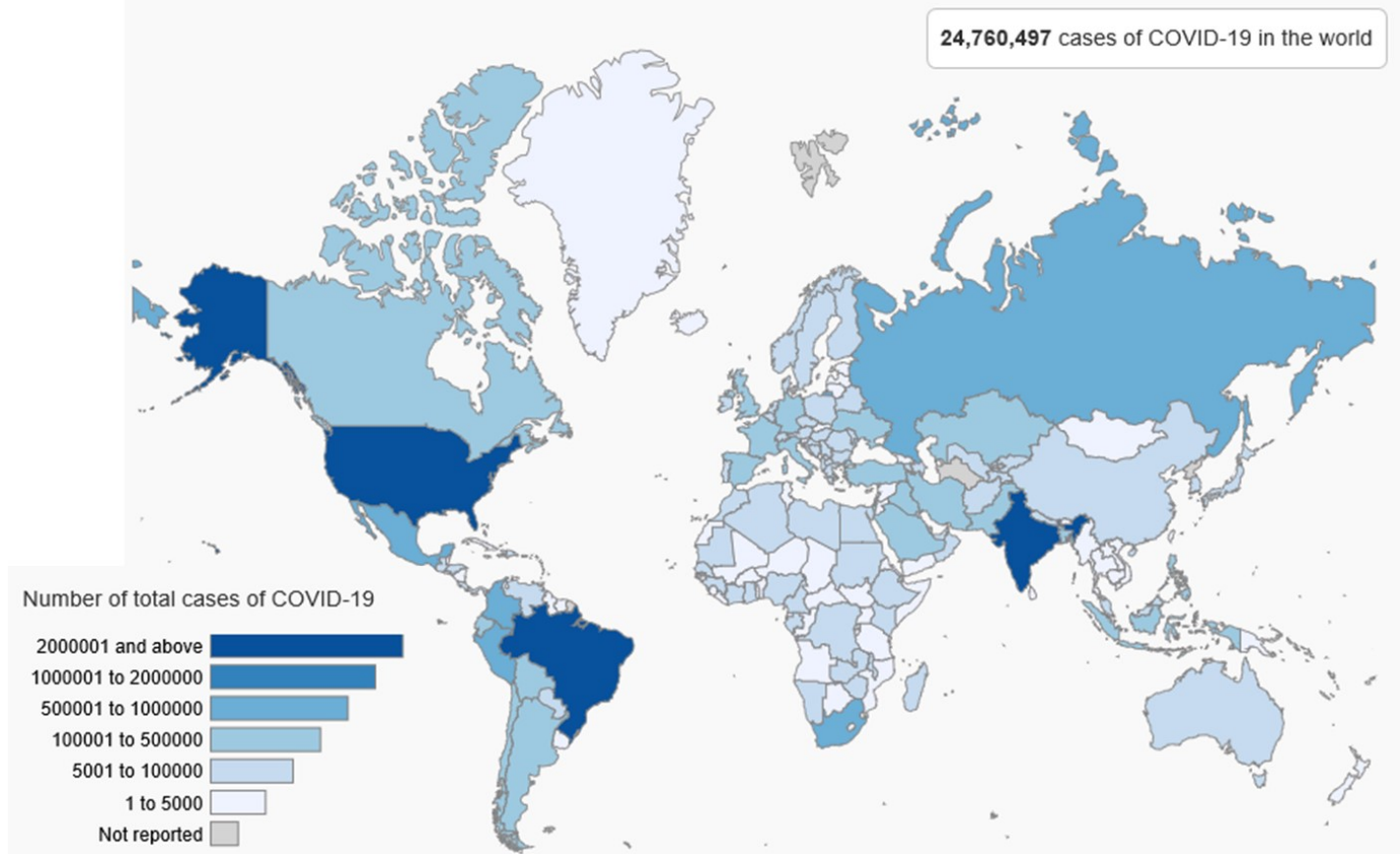
Source: Public Health infobase- Interactive data visualizations of COVID-19 https://health-infobase.canada.ca/covid-19/international/
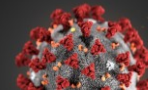
The 7-day moving average of new daily COVID-19 cases in Canada compared to other countries is seen in Figure 15. France and Italy are seeing increases in case counts. Italy has surpassed Japan, Germany, Sweden, and Canada in population-adjusted daily reported cases. Canada's daily cases per 1 000 000 have remained steady in recent weeks.

Figure 15. Daily new cases of COVID-19 in Canada compared to other countries as of 29 August 2020 (7-day moving average, population-adjusted)
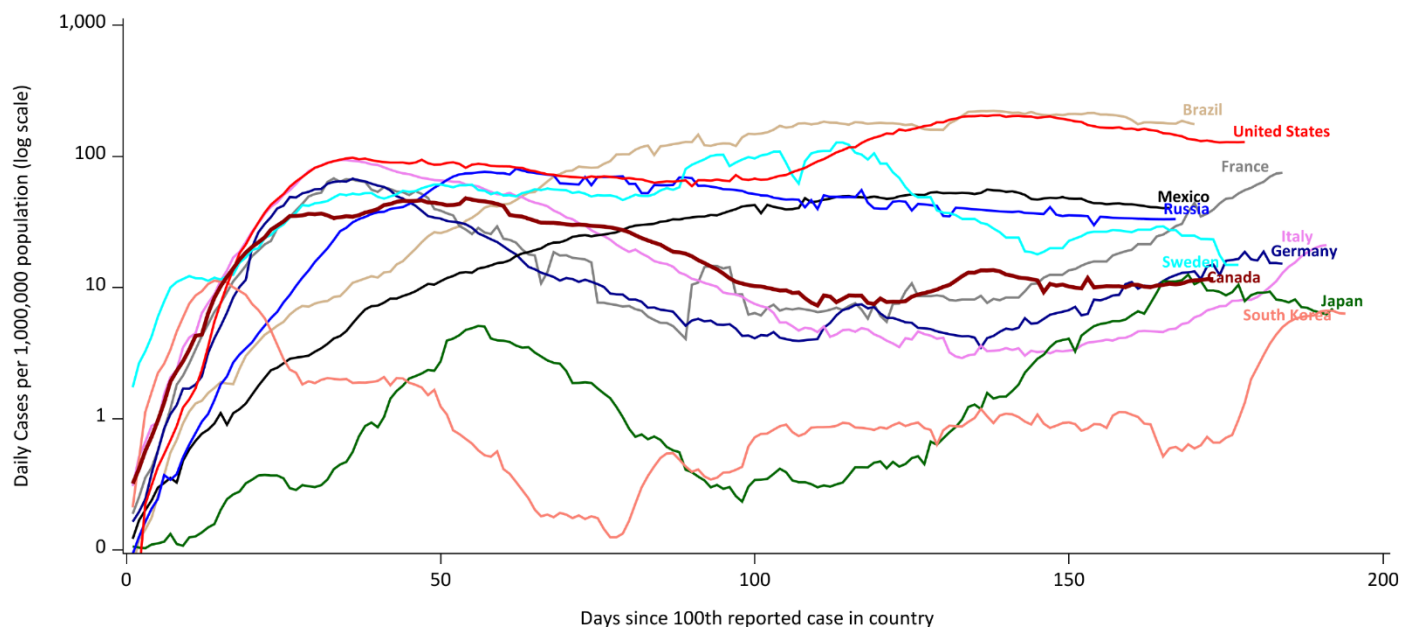
Source: Public Health Agency of Canada International numbers as of 29 August 2020

Up-to-date country-specific risk levels may be 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.
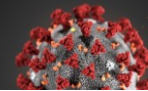
MODELLING

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

Rt is the time variable reproduction rate, representing the average number of newly infected people for each infected person. If Rt 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 Rt 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 Rt above 1 indicates that there is active community transmission, meaning that the disease will continue to spread in the population. The higher the Rt 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 Rt 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 Rt can easily fluctuate when case numbers are low. It is also an average Rt for a population and does not point to local outbreaks driving case counts. Since the method used to calculate Rt is highly sensitive to the reported number of new cases, community outbreaks within specific provinces and territories will cause the estimated Rt value in that respective region to be higher, which may not always accurately depict overall transmission in the province/territory as a whole.
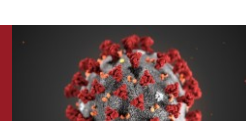
Figure 16 shows the Rt over time:
- The reproductive rate has been fluctuating around one over the past week.

Figure 16. Reproductive rate in Canada based on date of case report, 29 August 2020
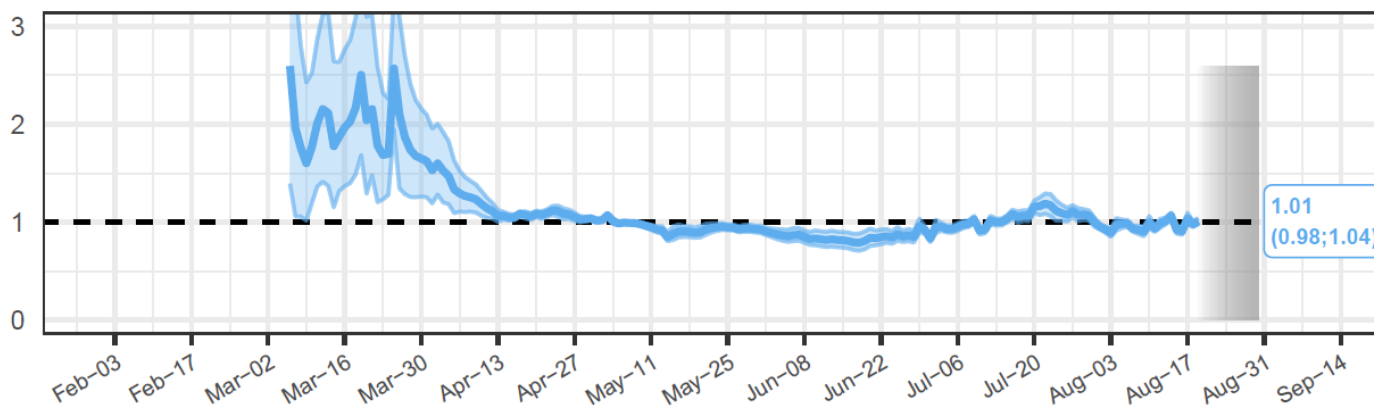
Note: Fluctuations are attributed to provincial and territorial reporting delays and non-reporting on the weekends
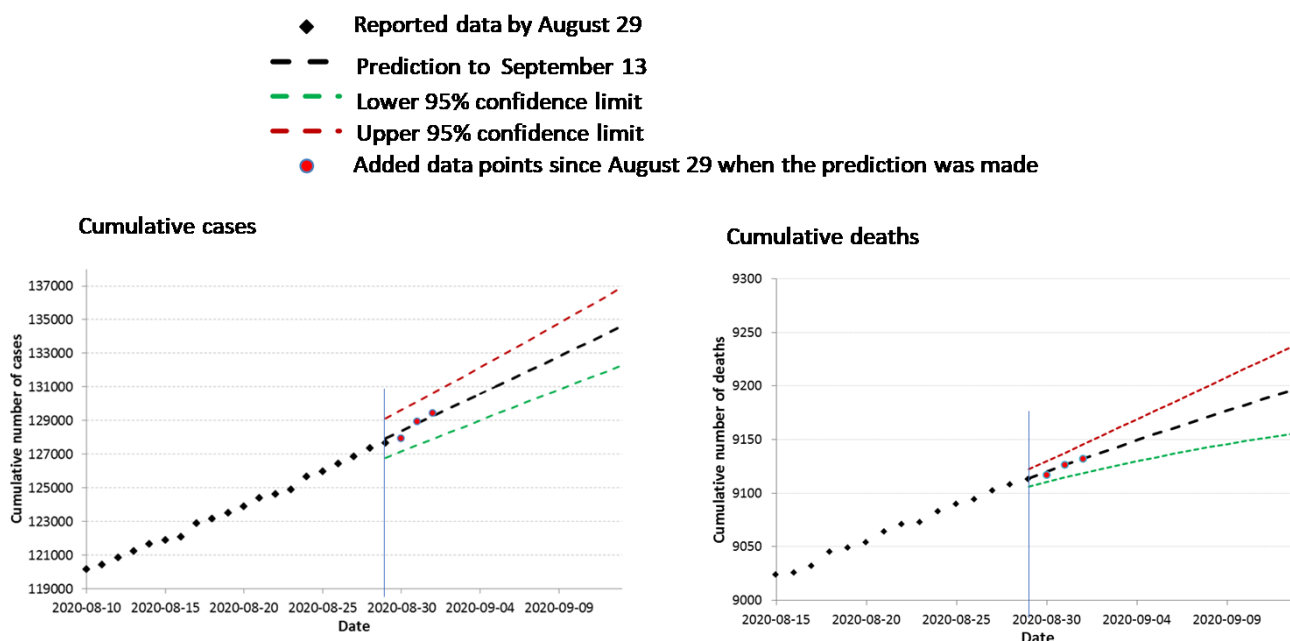
FORECASTING

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 13 September, using available data by 29 August.

- According to forecasting, 132 250 to 136 950 cumulative reported cases and 9 150 to 9 240 cumulative numbers of deaths are expected by 13 September. We also expect to see average daily number of approximately 450 reported cases during the period of 29 August to 13 September. Predicted cumulative deaths suggest that we expect to see a stable, small number of daily deaths, an average of 5-6 per day, during the same period. These numbers are fluctuating, and are typically lower on weekends and higher on Mondays.

- The black dots represent data (cumulative cases and for cumulative deaths) prior to 29 August, and the dashed lines show the predicted trajectories beyond 29 August. It is important to communicate the underlying uncertainties around modelling. The red and green lines represent the upper and lower limits with 95% confidence. If the forecasts perform well, observed cases should fall between the red and green lines.

Figure 17. Projected numbers to 6 September and 95% prediction intervals based on data as reported by 29 August 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 analyzes, trend analyzes and laboratory analyzes is available as of **29 August at 8 p.m. EDT.**

DATA SOURCES AND DATA CAVEATS

Provincial and territorial case counts

Provincial and territorial (P/T) information on case counts, recoveries, and deaths associated with COVID-19 are collected from publicly available P/T websites.

- National 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.

Epidemiological data received by PHAC

Some of the epidemiological data for this report are based on detailed case information received by PHAC from 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 basic after 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.
- Missing data for sex, age, hospitalized, ICU admissions, and deceased were not included in calculations. Provinces and territories 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, therefore not captured in the case report forms.

Outbreak data

Reporting delays and gaps in information that is 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 provincial/territorial public health agency websites. There are several important limitations to these data:

- A nationally standardized outbreak definition does not exist. Clusters are defined and vary according to P/T.
- 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.
- The methods for defining an outbreak are currently in development and may change over time

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, 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 Hospital Data

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

- As of 22 August 2020, CNISP has collected weekly aggregate data on 2 936 patients hospitalized with COVID-19 from 148 hospitals across all 10 provinces.
- As of 5 August 2020, case-level data is available on 1 709 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 27 August 2020, CIRN-SOS has collected case-level data on 700 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.
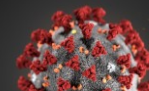
ANNEX

Table A1. Number of COVID-19 cases, recoveries, and deaths reported in Canada by province or territory, as of 29 August 2020

Province/Territory	Total cases	Total recovered	Total deaths
British Columbia	5 496	4 310	204
Alberta	13 476	12 054	237
Saskatchewan	1 615	1 549	24
Manitoba	1 186	710	14
Ontario	42 195	38 204	2 810
Quebec	62 352	55 300	5 758
Newfoundland and Labrador	269	265	3
New Brunswick	191	185	2
Nova Scotia	1 083	1 013	65
Prince Edward Island	44	41	0
Yukon	15	15	0
Northwest Territories	5	5	0
Nunavut	0	0	0
Canada[a]	**127 940**	**113 664**	**9 117**

[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 29 August 2020

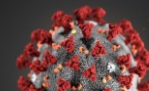| Province/Territory	Cumulative (per 100 000)
British Columbia	106.6
Alberta	300.1
Saskatchewan	140.3
Manitoba	81.1
Ontario	290.3
Quebec	687.5
Newfoundland and Labrador	47.5
New Brunswick	24.7
Nova Scotia	111.3
Prince Edward Island	29.1
Yukon	21.4
Northwest Territories	11.9
Nunavut	0.0

Table A3. Cumulative age and sex distribution of COVID-19 cases reported to PHAC, as of 29 August 2020

Age groups	Female			Male			Total		
	n	%	Rate	n	%	Rate	n	%	Rate
≤ 19	5 377	8	135.3	5 176	9	124.5	10 555	9%	129.8
20-29	10 167	15	414.1	9 211	17	348.0	19 380	16%	379.8
30-39	9 404	14	365.0	8 622	16	330.7	18 030	15%	347.8
40-49	10 041	15	413.4	8 325	15	348.5	18 369	15%	381.3
50-59	9 860	15	373.6	8 217	15	314.5	18 079	15%	344.2
60-69	5 755	9	244.3	5 933	11	263.4	11 689	9%	253.6
70-79	4 260	6	282.0	4 196	8	308.4	8 457	7%	294.6
80+	12 795	19	1 315.7	5 818	10	891.7	18 613	15%	1 145.4
Total	**67 659**	**100**	**357.8**	**55 498**	**100**	**297.1**	**123 172** [a]	**100%**	**327.7**

[a] Includes 15 cases classified as Other.

Table A4. Cumulative age and sex distribution of deceased COVID-19 cases reported to PHAC as of 29 August 2020

Age group	Female	Male	Total
≤ 19	1	0	1
20-39	7	17	24
40-59	101	160	261
60-79	924	1 360	2 284
80+	3 842	2 578	6 420
Total	**4 875**	**4 116** [a]	**8 991** [a]

[a] Includes 1 case of unknown age

Table A5. Cumulative age and sex distribution of hospitalized- non ICU COVID-19 cases reported to PHAC as of 29 August 2020

Age group	Female	Male	Total
≤ 19	66	54	120
20-39	368	319	687
40-59	760	964	1 725 [a]
60-79	1 435	1 717	3 152
80+	2 051	1 394	3 445
Total	**4 680**	**4 448**	**9 129** [a]

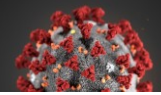[a] Includes 1 case classified as Other

Table A6. Cumulative age and sex distribution of COVID-19 cases admitted to ICU, reported to PHAC as of 29 August 2020

Age group	Female	Male	Total
≤ 19	13	16	29
20-39	92	110	202
40-59	257	452	709
60-79	382	739	1 121
80+	142	129	271
Total	**886**	**1 446**	**2 332**