

Provisional death counts and excess mortality, January to November 2020

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COVID-19 continues to affect communities and families across the country and many have lost family members and friends. Beyond deaths attributed to the disease itself, the pandemic could also have indirect consequences that increase or decrease the number of deaths due to various factors, including delayed medical procedures or increased substance use. To understand both the direct and indirect consequences of the pandemic, it is important to measure excess mortality, which occurs when there are more deaths during a period of time than what would be expected for that period. It should be noted that, even without a pandemic, there is always some variation in the number of people who die in a given week from year to year. This means that the number of deaths that would be expected falls within a certain range of values and excess mortality occurs when the number of deaths exceeds that range.

From January to November 2020, there were an estimated 259,836 deaths in Canada, representing an excess of 12,067 deaths above and beyond what would have been expected if there was no pandemic. This implies that there have been about 5% more deaths than expected in that period, after accounting for changes in the population such as aging. In comparison, for the same period, there were 244,375 deaths in 2018 and 243,551 in 2019. The impact of the pandemic on mortality in Canada has evolved since the spring, affecting a broader array of populations, including younger age groups and those living in the western provinces.

Today, as part of Statistics Canada's commitment to provide timely and relevant information on COVID-19 and its impact on Canadians, an updated provisional dataset from the Canadian Vital Statistics Death Database covering the period from January to the end of November is now available.

Updates were also made to the provisional death estimates, which have been adjusted where possible, to account for the incomplete nature of the counts. The provisional estimates will continue to be revised in future releases as more information is reported by provincial and territorial vital statistics agencies.

Canada's western provinces experiencing increasing levels of excess mortality

From mid-September to November, the observed number of deaths in Canada again exceeded the expected range—the first time since June that excess mortality was observed at the national level. From March to June 2020, during the first months of the pandemic, there were 8,577 more deaths than expected. Over the seven-week period from mid-September to November, there were 40,757 deaths in Canada, 2,710 more deaths than expected had there been no pandemic.

The number of deaths reported in the fall reflects a change in the distribution of excess mortality among the provinces. From September to November, over half of the number of excess deaths reported occurred in Ontario (37%) and Quebec (21%). However, an additional 16% and 15% of the excess deaths occurred in British Columbia and Alberta, respectively. This represents a western shift compared with earlier in the pandemic, when almost 90% of the higher-than-expected deaths occurring in the provinces were reported in Quebec (52%) and Ontario (38%).

Unlike during the first few months of the pandemic, excess mortality in the fall is affecting younger populations, signalling some possible indirect consequences of the pandemic

As was the case from March to June, when excess mortality was also observed, individuals aged 65 years and older continue to be most affected. Over 63% of the excess deaths reported from mid-September to November involved Canadians over the age of 64. In comparison, approximately 85% of the excess deaths observed earlier in the pandemic affected this older population. This change in the age distribution of the excess deaths this fall reflects a considerable increase in the proportion of higher-than-expected deaths of Canadians in younger age groups.

Among the excess deaths observed this fall, 16% involved Canadians under the age of 45, compared with 4% from March to June 2020.



Since the beginning of the pandemic, there have been approximately 50 deaths attributed to COVID-19 among Canadians under the age of 45. Given that over 440 more deaths than expected among this age group were reported from September to November alone, these excess deaths cannot be attributed directly to COVID-19.

Excess mortality among this younger age group has been observed since May and has affected mostly males. From May to November, an estimated 8,764 deaths were reported among Canadians aged 0 to 44 years, an excess of 1,691 deaths. Males accounted for 77% of these excess deaths and, overall, experienced a 25% higher-than-expected number of deaths over that period.

Alberta and British Columbia continue to be the only provinces with significant excess mortality among this age group. To date, males under the age of 45 accounted for 350 excess deaths in Alberta, while they accounted for 317 in British Columbia.

Some of these excess deaths may be due to the indirect consequences of the pandemic, which could include increases in mortality due to overdoses. In British Columbia, the Chief Coroner's Office has reported increases in deaths due to overdoses since the start of the pandemic. Alberta Health Services has reported decreases in both the provision of and the use of substance use treatment programs as well as increases in opioid-related emergency responses and deaths since the onset of the pandemic.

COVID-19 was related to more deaths in 2020 than any leading cause of death in 2019 except cancer and heart diseases

Despite differences in how the data are collected, results from the first wave of the pandemic indicate that surveillance figures on COVID-19-related deaths from public health authorities are comparable to provisional counts of deaths caused by COVID-19 taken from the Canadian Vital Statistics Death Database—the official source of data on deaths in Canada. The figures can be used to get a preliminary glance at how COVID-19 could compare against annual leading causes of death.

According to public health surveillance data on COVID-19 from provinces and territories, there were 15,650 COVID-19-related deaths in Canada from January 1 to December 31, 2020.

In 2019, the last year for which annual cause of death data are available, only cancer (malignant neoplasms) and diseases of the heart caused more deaths. This trend was also observed in the United States, where only the top two leading causes of death in 2019, heart disease and cancer, caused more deaths than COVID-19.

The impact of COVID-19-related deaths can be observed across a number of provinces and territories.

In many provinces, only a select number of the 10 leading causes of death were responsible for more deaths than the number of deaths related to COVID observed in 2020, when there were 4,576 COVID-19-related deaths in Ontario, 901 in British Columbia, 1,046 in Alberta and 155 in Saskatchewan, according to the public health surveillance figures. In Ontario, more deaths were attributed to cancer, diseases of the heart, accidents (unintentional injuries) and stroke in 2019, while in Alberta, cancer, diseases of the heart, accidents (unintentional injuries), chronic lower respiratory disease and stroke caused more deaths. In 2019 in British Columbia and Saskatchewan, each of the top seven and top eight leading causes of death, respectively, were responsible for more deaths.

The trends in Quebec (8,226) and Manitoba (667) were comparable to that of Canada, where only cancer and diseases of the heart caused more deaths in 2019 than the number of COVID-19-related deaths observed in 2020.

In the other provinces and in the territories, the number of deaths in 2019 attributed to each of the top 10 leading causes of death exceeds the number of COVID-19-related deaths.

Statistics Canada also released today provisional data on the causes of death for January to November, 2020.

Note to readers

The data released today are provisional as they are not based on all deaths that occurred during the reference period due to reporting delays, and do not include Yukon. Provisional death counts are based on what is reported to Statistics Canada by the provincial and territorial vital statistics registries. Provisional death estimates have been adjusted to account for incomplete data, where possible. The numbers of excess deaths discussed in this analysis refer to provisional estimates. Information on the methods used can be found in the Definitions, data sources and methods for [Survey 3233 — Vital Statistics - Death Database](#).

The provisional death counts and estimates released today for the first 49 weeks of 2020 may not match figures from other sources, such as media reports, or counts and estimates from provincial or territorial health authorities and other agencies.

References to the period from the end of March to June refer to the period from the week ending March 28 to the week ending June 6. References to the period from mid-September to November refer to the period from the week ending September 26 to the week ending November 7.

More information on excess mortality during the COVID-19 pandemic in Canada is available in the article [Excess mortality in Canada during the COVID-19 pandemic](#).

Information regarding drug-related deaths in Alberta and in British Columbia is taken from the following publications:

- Alberta Health. (2020). Alberta COVID-19 Opioid Surveillance Report, Q2 2020. Edmonton, AB: Government of Alberta.
- British Columbia Coroners Service. (2020). Illicit Drug Toxicity Deaths in BC, January 1, 2010 - November 30, 2020. Victoria, BC: Government of British Columbia.

About 13% of provisional causes of death information for the January to November 2020 reference period are unknown or pending investigation. Due to the high number of unknowns in these data, the provisional cause of death data should not be used to report on the leading causes of death until the data are more complete. Because the leading causes of death have been relatively stable for many years, data on COVID-19-related deaths in 2020 compiled from provincial and territorial surveillance case data by the Public Health Agency of Canada are compared with 2019 leading causes of death data from the Canadian Vital Death Statistics Database. From January to August 2020, the official death counts from COVID-19 across Canada were about 5% higher than the surveillance figures for the same period. More information on the two sources is provided in the article announcing the October 28th release of [provisional data on deaths in Canada](#). Information on the certification and classification of COVID-19 deaths can be found in the study [COVID-19 death comorbidities in Canada](#).

Surveillance case data on the number of COVID-19-related deaths are taken from [Coronavirus disease 2019 \(COVID-19\): Epidemiology update](#), updated January 24, 2021, 7 p.m. EST.

Available tables: [13-10-0768-01](#), [13-10-0783-01](#), [13-10-0784-01](#), [13-10-0792-01](#) and [13-10-0810-01](#).

Definitions, data sources and methods: survey number [3233](#).

To facilitate the identification of trends in excess deaths by province and territory, the interactive visual tool [Provisional weekly estimates of the number of deaths, expected number of deaths and excess mortality: Interactive Tool](#) has been updated.

To facilitate the identification of trends in the number of weekly deaths by age group and sex, and by province and territory, the interactive visual tool [Provisional weekly death counts: Interactive tool](#) has also been updated.

For more information, or to enquire about the concepts, methods or data quality of this release, contact us (toll-free 1-800-263-1136; 514-283-8300; STATCAN.infostats-infostats.STATCAN@canada.ca) or Media Relations (613-951-4636; STATCAN.mediahotline-ligneinfomedias.STATCAN@canada.ca).