

Provisional death counts and excess mortality, January 2020 to March 2022

Released at 8:30 a.m. Eastern time in *The Daily*, Thursday, June 9, 2022

The emergence of COVID-19 variants of concern and the community response to shifting public health measures continue to influence the course of the COVID-19 pandemic in Canada and worldwide. Today, as part of its commitment to keeping Canadians informed of the effects of the pandemic, Statistics Canada is releasing a new and updated provisional dataset from the Canadian Vital Statistics Death Database, covering the period from January 1, 2020, to April 2, 2022.

To understand the direct and indirect consequences of the pandemic, it is important to measure excess mortality, which occurs when there are more deaths than expected in a given period. It should be noted that, even without a pandemic, there is always some year-to-year variation in the number of people who die in a given week. This means that the number of expected deaths should fall within a certain range of values. There is evidence of excess mortality when weekly deaths are consistently higher than the expected number, but especially when they exceed the range of what is expected over several consecutive weeks.

As of mid-February 2022, Canada has experienced over 7% more deaths since the start of the COVID-19 pandemic than what would have been expected

The provisional data released today reveal that an estimated 40,349 excess deaths occurred in Canada from March 2020 to the middle of February 2022. This amounts to 7.4% more deaths than would have been expected if there were no pandemic, after accounting for changes in population, such as aging. Within the same period, 32,490 reported deaths were directly attributed to COVID-19. In addition to deaths directly caused by COVID-19, the pandemic could also have indirect consequences that increase or decrease the number of deaths. Trends in mortality statistics during the pandemic could be affected by various factors, including delayed medical procedures; increased substance use; or declines in deaths related to other causes, such as influenza.

Excess deaths increase in Canada in January 2022, when Omicron is the dominant COVID-19 variant

Canada experienced a new period of significant excess mortality starting in January 2022. From the start to the end of January, there were 4,085 excess deaths observed nationally, or 13.2% more deaths than expected if there were no pandemic. Overall, the total number of deaths increased 13.8%, from 30,866 in December 2021 to 35,125 in January 2022. The expected increase from one month to the other, if there were no pandemic, would have been of 5.5%.

Excess mortality was observed in January across various regions of the country. For example, in Canada's eastern provinces, Newfoundland and Labrador experienced 93 excess deaths in January 2022, or 16.0% more deaths than expected, while Quebec saw 1,692 excess deaths, or 22.4% more deaths than expected. In the western provinces, Saskatchewan experienced 184 excess deaths in January, or 18.3% more deaths than expected if there were no pandemic; Alberta posted 577 excess deaths, or 19.9% more deaths than expected; and British Columbia experienced 904 excess deaths, or 22.2% more deaths than expected.

Younger Canadians experience a higher percentage of excess mortality in early 2022

In early 2022, trends in excess mortality were observed across all age groups but were relatively higher among those younger than 45.

At the national level, for those younger than 45, there were 15.6% more deaths than expected in January, compared with if there were no pandemic. In contrast, there were 12.8% more deaths than expected for those aged 45 and older over the same month. This disparity between the age groups was particularly pronounced in the westernmost provinces.



For those younger than 45, deaths in January 2022 were 35.9% higher than expected if there were no pandemic in Saskatchewan, 51.6% higher than expected in Alberta and 48.7% higher than expected in British Columbia. By comparison, among those aged 45 years and older, deaths were 17.6% higher in Saskatchewan, 18.8% higher in Alberta and 21.0% higher in British Columbia.

While it is still too early to know causes of death for January 2022, as these data are not yet available, it is important to recall that excess mortality measures both the direct and the indirect impacts of the pandemic. Since the start of the pandemic, it has been observed that many excess deaths among younger Canadians may be attributable to other causes, such as overdoses. With the onset of new variants of concern, including Omicron, the number of deaths attributable directly to COVID-19 could increase for this age group as well.

Excess deaths are higher among males, particularly in the western provinces

While nationally there were 11.7% more deaths than expected for males in January, compared with 6.8% for females, different patterns emerged across the country. For example, in January 2022, in Newfoundland and Labrador, excess mortality was lower among males (14.4%) than females (17.8%). In contrast, excess mortality was 1.5 times higher among Alberta males (23.6%) compared with females (15.7%) and 1.6 times higher among males in British Columbia (26.5%) compared with females (16.6%).

Statistics Canada will continue to provide, on a monthly basis, more recent data on deaths, causes of death and comorbidities as these data become available, to keep Canadians informed as the pandemic continues.

Note to readers

The data released today are provisional, as they are not based on all the deaths that occurred during the reference period because of reporting delays, and because they do not include Yukon. Provisional death counts are based on what is reported to Statistics Canada by 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" section of the [Canadian Vital Statistics Death Database](#).

The provisional death counts and estimates released today may not match figures from other sources, such as media reports, or counts and estimates from provincial and territorial health authorities and other agencies.

There are a number of ways to measure excess mortality, and each has its strengths and weaknesses. There are also a number of challenges with measuring excess mortality, most importantly properly estimating the number of expected deaths that would occur in a non-COVID-19 context as a basis for comparison with current death counts. Significant variations may be observed from year to year in the annual death counts, particularly in the least-populated provinces and the territories. Moreover, yearly death counts may be affected by changes in the composition of the population, particularly in regard to age, and changes in mortality rates (e.g., reduced mortality). In the Canadian context, with an aging and growing population, the number of deaths has been increasing steadily in recent years, so a higher number of deaths in 2020 and 2021 would be expected, regardless of COVID-19.

A second challenge is the difficulty of collecting timely death counts. Taking these considerations into account, the method chosen by Statistics Canada to estimate expected deaths—which has also been adopted by organizations in several other countries, including the US Centers for Disease Control and Prevention—is adapted from an infectious disease detection algorithm that has been largely utilized in the context of mortality surveillance in recent years.

Starting with today's release, a population term has been added to the regressions to produce an expected mortality rate rather than an expected number of deaths. For a given week, the expected number of deaths is obtained by multiplying the expected mortality rate by the estimated population for the week in question. This change makes it possible to directly take into account the effect of population growth on the expected number of deaths. Previously, the effect of population growth was captured by a time factor that also estimated the impact of other factors such as changes in the composition of the population, particularly with regard to age, and the evolution of mortality rates.

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](#)."

The tabulation of causes of death is based on the underlying cause of death, which is defined by the World Health Organization as the disease or injury that initiated the train of events leading directly to death, or as the circumstances of the accident or violence that produced the fatal injury. The underlying cause of death is selected from the causes and conditions listed on the medical certificate of cause of death completed by a medical professional, medical examiner or coroner. More information on causes of death, including the certification and classification of COVID-19 deaths, can be found in the study "[COVID-19 death comorbidities in Canada](#)."

References to the period from March 2020 to the middle of February 2022 refer to the period from the week ending March 28, 2020, to the week ending February 12, 2022.

References to January 2022 refer to the period from the week ending January 8, 2022, to the week ending February 5, 2022.

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](#).

The [Life expectancy and deaths statistics](#) portal, presenting information related to death in Canada, was updated today. It features the [Provisional deaths and excess mortality in Canada dashboard](#), which brings recent insights into the trends in excess mortality together with interactive data visualization tools.

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; infostats@statcan.gc.ca) or Media Relations (statcan.mediahotline-ligneinfomedias.statcan@statcan.gc.ca).