

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

Released at 8:30 a.m. Eastern time in *The Daily*, Thursday, November 10, 2022

The emergence of COVID-19 variants of concern and community response to shifting public health measures continue to influence the course of the COVID-19 pandemic in Canada and worldwide.

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 deaths 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.

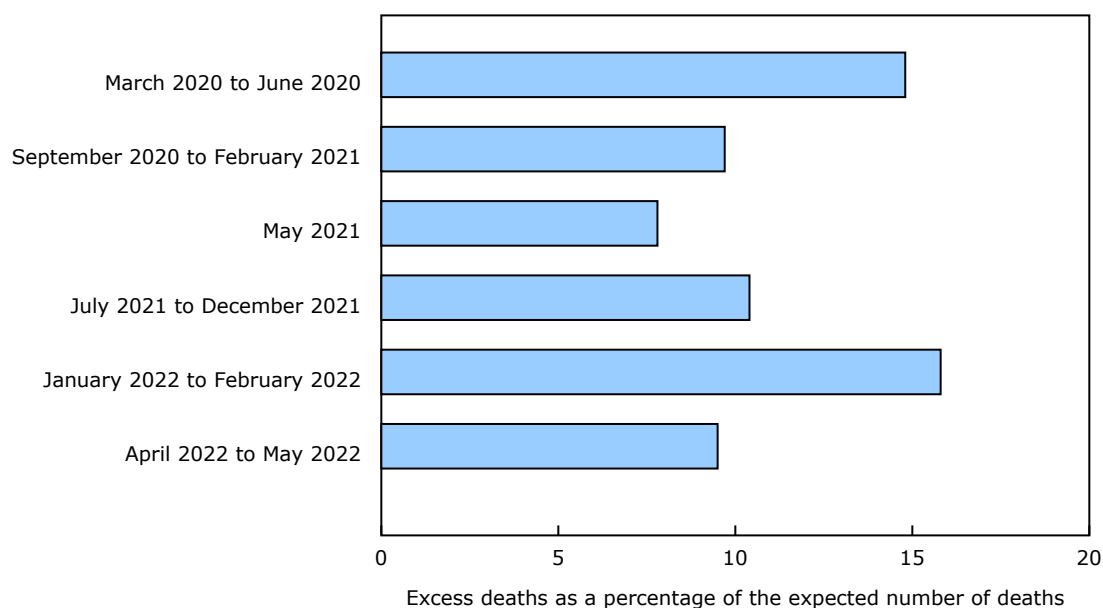
Provisional data show an estimated 49,490 excess deaths in Canada from the end of March 2020 to the middle of July 2022, 7.4% more deaths than expected without the pandemic. During this period, at least 40,840 deaths were directly attributed to COVID-19.

As of July, Canada has experienced six periods of significant excess mortality since the start of the pandemic

Prior to the emergence of the Omicron variant of COVID-19, four significant periods of excess mortality were observed nationally since the start of the pandemic. From March 2020 to June 2020, there were 8,144 excess deaths observed, or 14.8% more deaths than expected over this period. This was followed by a longer period of excess deaths from September 2020 to February 2021, which saw 11,161 excess deaths or 9.7% more deaths than expected. There was a shorter period experienced in May 2021 with 1,699 excess deaths, which was 7.8% more deaths than expected. And coinciding with the emergence of the Delta variant, from July 2021 to December 2021, there were 10,585 excess deaths observed or 10.4% more deaths than expected. In general, these four periods have coincided with higher numbers of deaths due directly to COVID-19.



Chart 1
Excess deaths by period of excess mortality, Canada, March 2020 to July 2022



Source(s): Table 13-10-0784-01.

Since the emergence of the Omicron variant in late November 2021, Canadians have experienced two periods of significant excess mortality so far. Nationally, there were 8,718 more deaths than expected from the beginning of January 2022 until the end of February 2022, or 15.8% more deaths than expected over that period. This period of excess mortality saw the deadliest week of the pandemic in the third week of January 2022, with 26.3% more deaths than expected. This coincided with a high number of COVID-19 deaths as well. In the spring, there were 2,117 excess deaths observed from the end of April 2022 until the middle of May 2022, or 9.5% more deaths than expected. While the first period in 2022 was largely driven by excess mortality in Quebec and Ontario, the most recent period was driven more by excess mortality in the three westernmost provinces. In fact, Alberta and British Columbia have seen higher than expected weekly deaths through much of 2022. And while all age groups in these two provinces have been affected at times, it is among those under the age of 45 where the excess is most persistent.

These periods of excess mortality can be viewed in more detail in the interactive [Provisional deaths and excess mortality in Canada dashboard](#).

Beyond deaths due to COVID-19 itself, indirect impacts of the pandemic, such as increased substance use and delayed medical procedures/diagnostics, may explain some of the excess mortality for those under the age of 45.

In its commitment to keep Canadians informed of the effects of the pandemic, today's release includes a new and updated provisional dataset from the Canadian Vital Statistics Death Database, covering the period from January 1, 2020, to September 3, 2022. These data are updated with the most recent information available every month.

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 estimates are based upon the registered deaths submitted to Statistics Canada by the provinces and territories. For New Brunswick, there has been a disruption in the reporting of deaths to Statistics Canada. Statistics Canada continues to work closely with the province on stabilizing the flow of information as soon as possible. Provisional estimates for New Brunswick, particularly for the period starting September 2021, should therefore be used with caution. Ultimately, the provisional estimates depend on the ability of the provinces and territories to submit the information on deaths to Statistics Canada in a timely manner.

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 that come 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 regarding 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 2021 and 2022 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.

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 the end of March 2020 to the middle of July 2022 refer to the period from the week ending March 28, 2020, to the week ending July 16, 2022.

References to the period from March 2020 to June 2020 refer to the period from the week ending April 4, 2020, to the week ending June 6, 2020.

References to the period from September 2020 to February 2021 refer to the period from the week ending September 26, 2020, to the week ending February 6, 2021.

References to May 2021 refer to the period from the week ending May 1, 2021, to the week ending May 22, 2021.

References to the period from July 2021 to December 2021 refer to the period from the week ending July 31, 2021, to the week ending December 4, 2021.

References to the period from the beginning of January 2022 until the end of February 2022 refer to the period from the week ending January 8, 2022, to the week ending March 5, 2022.

References to the period from the end of April 2022 until the middle of May 2022 refer to the period from the week ending April 30, 2022, to the week ending May 21, 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).