

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

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The emergence of COVID-19 variants of concern, the rollout of COVID-19 vaccines, 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 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.

Provisional data show an estimated 43,850 excess deaths in Canada from March 2020 to the end of February 2022, 7.7% more deaths than expected without the pandemic. Several periods of significant excess mortality have been observed over this period, and, more recently, excess deaths have been reported nationally every week since July 2021, with further increases coinciding with certain periods of increased reported COVID-19 cases.

The third week of January 2022 was the deadliest week in Canada since the pandemic began, with 25% more deaths than what would have been expected

Mutations over time in viruses can result in behavioural changes, such as how easily they spread or how severe the symptoms are in the affected individual. Alpha, Delta, and Omicron are all notable variants of concern that have emerged in different periods over the past two years. Omicron was first reported in late November 2021, and by January 2022, the number of cases exceeded both the Alpha and Delta variants. Meanwhile, excess mortality also increased from 3,453 excess deaths in November and December 2021, or 6.6% more death than expected, to 6,815 excess deaths in January and February 2022, 12.3% more deaths than expected. As a result, Canada experienced its deadliest week of the pandemic in late January with 1,535 excess deaths, surpassing the previous record of 1,353 seen in early May 2020. At the same time, the number of deaths directly attributed to COVID-19 also rose and peaked in late January 2022. It should be noted that not all of these excess deaths would necessarily be directly due to COVID-19, as other factors have been at play throughout the pandemic such as increases in substance-related fatalities.

Significant excess mortality was observed in all age groups during the first two months of 2022, although it was proportionally higher in the youngest and oldest populations. In those under 45 years of age, there were 18.2% more deaths than expected, while among those aged 45 to 64 years (+9.6%), 65 to 84 years (+11.6%), and 85 years and older (+12.8%), more deaths than expected were observed.

Excess mortality increased in many provinces in the first two months of 2022 at the peak of Omicron, unlike what was seen during Alpha or Delta periods

Unlike previous periods of high COVID-19 incidence, a broader geographical impact of excess death was observed during the Omicron period. Excess mortality was reported in most provinces between November 2021 and February 2022, with peaks in mid to late January.

For the western provinces, British Columbia reported an estimated 2,291 excess deaths (20.6% more than expected), Alberta had 1,362 excess deaths (17.2% more than expected), and Saskatchewan had 488 excess deaths (17.7% more than expected) from the end of November to the end of February.



In central and eastern Canada, an estimated 1,939 excess deaths occurred in Ontario from the end of November to the end of February. Overall, these data show an excess mortality of 7.7% during the Omicron period. Quebec reported 2,141 excess deaths during this period (an excess mortality of 10.5%), and Newfoundland and Labrador experienced 178 excess deaths (11.2% more than expected).

Overall, these provisional data show that COVID-19 deaths have risen in early 2022 and that COVID-19 continues to be a contributing factor to excess death in many individual provinces, as well as Canada as a whole. Beyond direct COVID-19-related deaths, many of the observed excess deaths may be attributable to other causes, especially in younger populations. As more cause of death data become available, it will be possible to confirm this assumption.

In its commitment to keep Canadians informed on 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 April 30, 2022. This data is 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 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.

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 end of February 2022 refer to the period from the week ending March 28, 2020, to the week ending March 5, 2022.

References to November and December 2021 refer to the nine-week period ending January 1, 2022.

References to January and February 2022 refer to the nine-week period ending March 5, 2022.

References to the period from the end of November 2021 to the end of February 2022 refer to the period from the week ending December 4, 2021, to the week ending March 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).