

# Provisional death counts and excess mortality, January 2020 to September 2022

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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. As such, 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 50,443 excess deaths in Canada from the end of March 2020 to the beginning of August 2022, 7.3% more deaths than expected had there not been a pandemic. During this period, at least 41,480 deaths were directly attributed to COVID-19. By August 2022, those younger than 65 years have accounted for just over 10% of the deaths attributed to COVID-19 but 30% of the excess deaths, suggesting that other factors are driving excess mortality among younger Canadians.

## Deaths related to alcohol and drug use increase to new highs during the pandemic

Deaths attributed to unintentional (accidental) poisonings and exposure to noxious substances, including overdoses from prescription, over-the-counter, and illicit substances, have risen since the beginning of the pandemic. Provisional data at the national level show there were 4,605 deaths attributed to accidental poisoning and exposure to noxious substances in 2020 and 6,235 deaths in 2021, and these numbers will increase with future revisions to the data. By contrast, at the previous height of the overdose crisis in 2017, 4,830 deaths were attributed to unintentional poisonings.

Younger age groups made up a disproportionate number of deaths from overdoses. Among individuals aged younger than 45 years, there were 2,640 deaths in 2020 and 3,560 in 2021, while among those aged 45 to 64 years, there were 1,735 deaths in 2020 and 2,320 in 2021. By comparison, among individuals aged 65 years and older, accidental poisoning attributed to 230 deaths in 2020 and 350 in 2021.

Alcohol-induced mortality also increased during the pandemic. There were 3,790 alcohol-induced deaths in Canada in 2020 and 3,860 in 2021, compared with 3,200 in the year preceding the pandemic. The effects of this increase were felt most among those aged younger than 65 years, who saw a 27% increase (1,955 to 2,490) in the number of such deaths from 2019 to 2020, compared with a 4% increase (1,245 to 1,300) among those aged 65 years and older. The number of alcohol-induced deaths in 2021 for both groups remained similar to that observed in 2020 (2,515 and 1,345 deaths, respectively).

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 October 1, 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 those of 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 on 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 in 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 several ways to measure excess mortality, and each has its strengths and weaknesses. There are also several 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, especially 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 used 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](#)."

The category of accidental poisoning includes poisoning from various illicit drugs, prescription and over-the-counter medications, alcohol, as well as solvents and pesticides.

Alcohol-induced mortality includes death attributed to the following causes of death:

- alcohol-induced pseudo-Cushing's Syndrome
- mental and behavioural disorders attributed to the use of alcohol
- degeneration of nervous system attributed to alcohol
- alcoholic polyneuropathy
- alcoholic myopathy
- alcoholic cardiomyopathy
- alcoholic gastritis
- alcoholic liver disease
- alcohol-induced acute pancreatitis
- alcohol-induced chronic pancreatitis
- finding of alcohol in blood
- accidental poisoning by and exposure to alcohol
- intentional self-poisoning by and exposure to alcohol
- poisoning by and exposure to alcohol, undetermined intent.

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*References to the period from the end of March 2020 to the beginning of August 2022 refer to the period from the week ending on March 28, 2020, to the week ending on August 6, 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](mailto:infostats@statcan.gc.ca)) or Media Relations ([statcan.mediahotline-ligneinfomedias.statcan@statcan.gc.ca](mailto:statcan.mediahotline-ligneinfomedias.statcan@statcan.gc.ca)).