

Circumstances surrounding fire-related suicides, 2011 to 2020

Released at 8:30 a.m. Eastern time in *The Daily*, Tuesday, October 11, 2022

Fatal fires are tragic events that are devastating to individuals, families, and communities. From 2011 to 2020, there were on average 220 fire-related deaths in Canada each year. While the majority of fire-related deaths were classified as unintentional, 1 in 6 were classified as intentional (i.e., suicide or homicide). Unlike unintentional fire-related deaths, intentional fire-related deaths result from an individual creating fire with intent to harm oneself and/or others.

Coroners and medical examiners investigate deaths that are sudden and unexpected, including intentional fire-related deaths. Although the circumstances or details surrounding these tragic events are not always determined, insights can be obtained from the investigation findings. The results in this report are based on new insights released today from the Canadian Coroner and Medical Examiner Database (CCMED) from 2011 to 2020. This report follows a previous analysis on the [circumstances surrounding unintentional fire-related deaths](#) released on June 16, 2022.

Fire-related suicides account for more than 3 in 4 intentional fire-related deaths

From 2011 to 2020, coroners and medical examiners investigated on average 26 fire-related suicides (i.e., suicide by smoke, fire, and flame) each year. While fire-related suicides accounted for more than three-quarters of intentional fire-related deaths during this same reference period, they accounted for less than 1% of overall suicides in Canada.

Suicide is a complex issue involving multiple factors and is a major cause of premature and preventable death. Previous studies have found that suicide often results from the interaction of various factors including mental illness, substance use, stressful life events, terminal illness, trauma and family history of suicide. If you or someone you know is struggling with thoughts of suicide or suicide-related behaviour, [help is available from Talk Suicide Canada](#) (1-833-456-4566). If you or someone you know is in immediate danger, please call 9-1-1.

The factors that influence a person's choice of suicide method (e.g., hanging, poisoning, firearm, fire-related) are not well understood. Some of the factors may include accessibility (i.e., access to a means of suicide), anticipated nature of a death or dying experience, sociocultural acceptance or media portrayal of suicide. The following sections will provide an overview of the coroner or medical examiner reported circumstances surrounding fire-related suicides.

The majority of fire-related suicides are a result of smoke inhalation

Most fire-related suicides were a result of smoke inhalation (52%), while another 12% were caused by a combination of smoke inhalation and burns, and 29% were due to burns alone (e.g., by self-immolation). Smoke inhalation leads to asphyxia, a condition where the body's supply of oxygen is deprived. Unlike deaths due to smoke inhalation, which are often immediate, deaths reported to be caused by burns often involved the individual surviving the fire but succumbing later to complications of the burns (e.g., infection, sepsis, organ failure). Other or multiple causes of death (e.g., blunt force trauma or drug toxicity occurring as part of a fire incident) were reported in 4% of fire-related suicides (the cause of death was not specified in 3% of fire-related suicide deaths).

Accelerants are involved in over 2 in 5 fire-related suicides

Accelerants are substances used to spread a fire. From 2011 to 2020, coroners and medical examiners reported the use of accelerants (e.g., gasoline or kerosene) in 42% of fire-related suicides. In another 8% of fire-related suicides, accelerant containers were found at the scene, but the investigation was not able to conclude whether a substance was used. Reports of accelerant use varied by cause of death. Coroners and medical examiners reported that an accelerant was used in more than half of burn-related suicides (53%), while its use was less frequently reported in suicides related to smoke inhalation (36%).

In 2% of fire-related suicides, accelerants were not used to spread the fire. Meanwhile, information on accelerants was either unknown, not specified, or not applicable for 48% of fire-related suicides.

Most fire-related suicides occur on residential properties

Fire-related suicides occurred both indoors and outdoors on residential (61%) and non-residential (33%) properties. General location information was not provided in 6% of fire-related suicides.

Nearly 1 in 6 residential fire-related suicides occurred outside (13%) (e.g., backyard or driveway) or in a vehicle parked on the property (3%), while the majority of residential fire-related suicides occurred indoors, including inside a house (38%), multi-unit dwelling (13%) (e.g., apartment building, hotel, or a long-term care facility), barn or shed (4%), moveable dwelling (1%), or in an unspecified indoor residential location (20%). The residential location (whether indoor or outdoor) was not specified in 8% of cases.

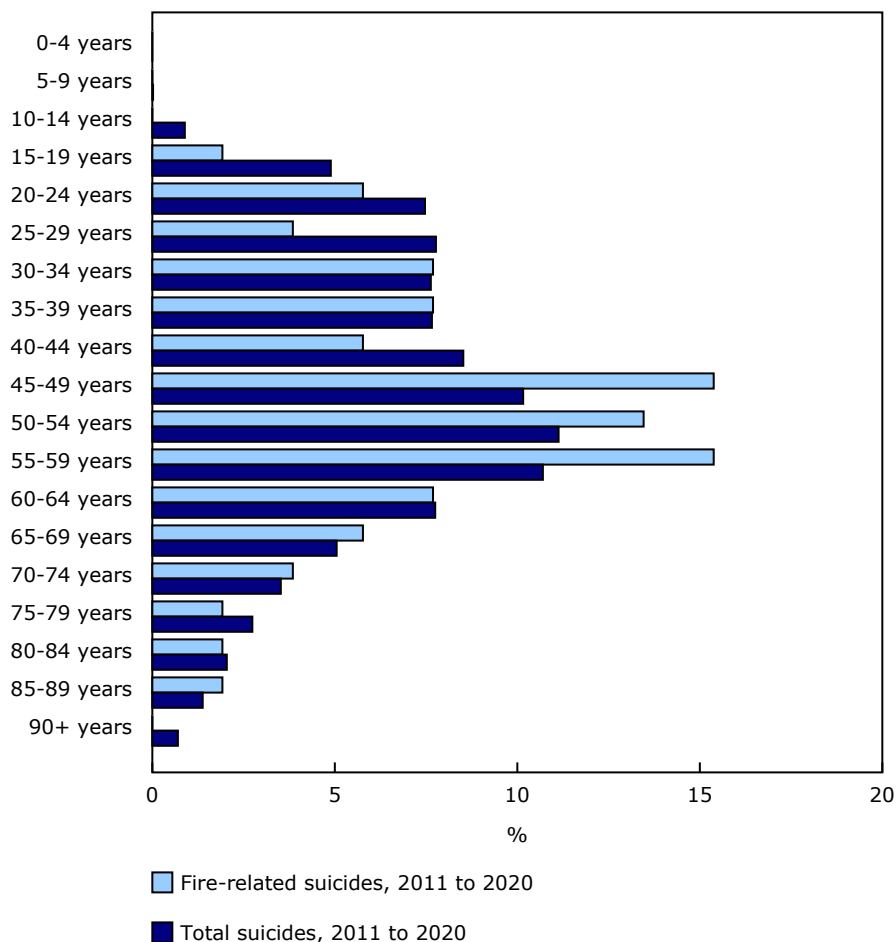
Unlike residential fire-related suicides, the majority of non-residential fire-related suicides occurred in a parked vehicle (65%) (e.g., located in a parking lot or on the side of a road) or outdoors in public areas (29%), while 6% occurred indoors (e.g., workplace).

The rate of fire-related suicide is higher among men

From 2011 to 2020, men (10.9 deaths per 1,000,000 population) were over three times more likely than women (3.6 deaths per 1,000,000 population) to die in a fire-related suicide. Methods of suicide tend to vary by sex. Generally, men are more likely to use violent methods such as hanging or firearms, while women are more likely to use less violent methods like poisoning. However, regardless of method, the suicide rate for men in Canada has been higher than the suicide rate for women since the 1950s.

Middle-aged adults were also overrepresented among fire-related suicides. From 2011 to 2020, 44% of fire-related suicides in Canada involved people aged 45 to 59, while this same age group represented 32% of overall suicides. While this pattern (of middle-aged adults being overrepresented) was also noted for poisoning suicides, the rates of suicide by hanging were higher among younger adults and the rates of suicide by firearm were higher among older adults.

Chart 1
Percentage distribution of fire-related suicides compared with the distribution of total suicides, by age group



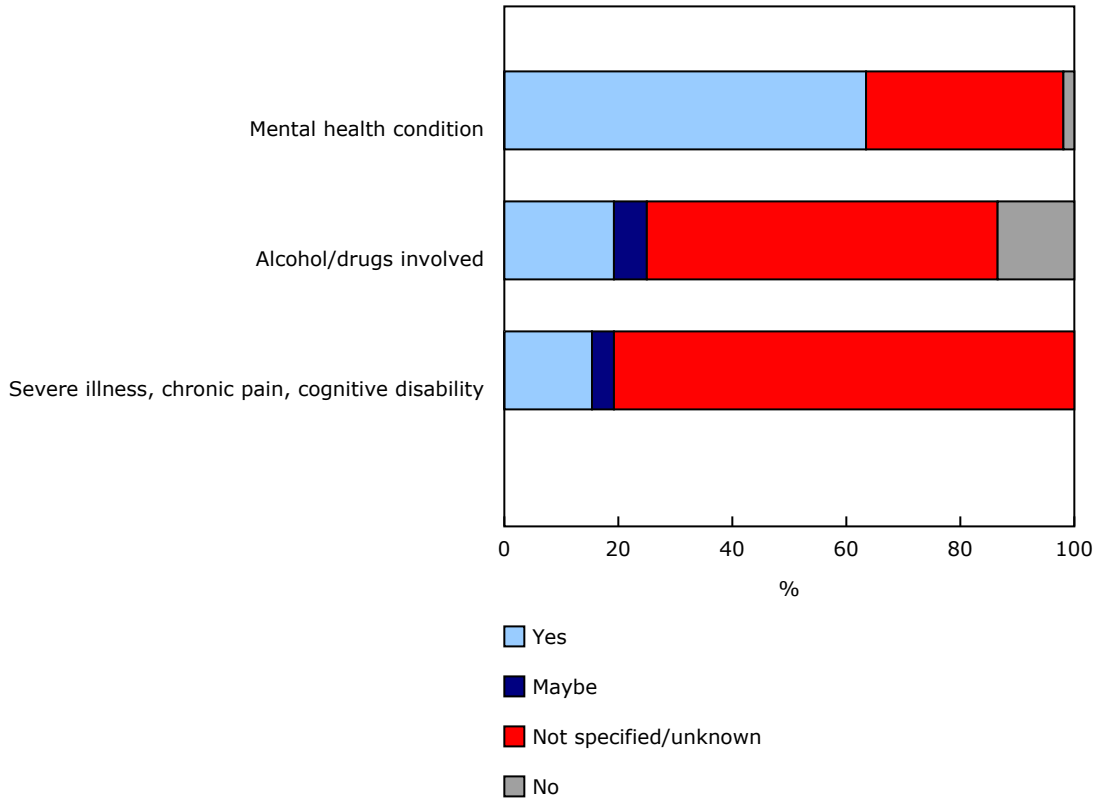
Note(s): Data were not available for all jurisdictions for all years (see Note to readers)
Source(s): Canadian Coroner and Medical Examiner Database (5125) and table 13-10-0394-01.

Additional circumstances surrounding fire-related suicides

Coroners and medical examiners may include information on additional circumstances in the reports submitted to the CCME, but the level of detail provided in the report varies by death investigator and by jurisdiction. In addition to providing information on demographics and causes of death, the circumstances more commonly reported by coroners and medical examiners investigating fire-related suicides include mental health conditions, the potential role of alcohol or drugs, and severe illness, chronic pain or cognitive disabilities. These circumstances may be relevant for suicides more generally, and not necessarily specific to those that are fire-related.

The presence of a risk factor is considered "not specified" when the information for a given risk factor is missing from the coroner or medical examiner report, while the absence of a risk factor can only be considered when the coroner or medical examiner has indicated that a given factor was not present.

Chart 2
Presence of select factors more commonly reported by a coroner or medical examiner investigating fire-related suicides



Note(s): "Mental health condition" was indicated when the coroner or medical examiner (C/ME) reported that the decedent had a confirmed mental health condition. "Alcohol/Drugs involved" was indicated when the C/ME reported that the decedent had consumed alcohol or drugs prior to the event. "Severe illness, chronic pain, cognitive disability" was indicated when the C/ME reported that the decedent had a confirmed severe illness, chronic pain, or a cognitive disability. Data were not available for all jurisdictions for all years (see Note to readers)

Source(s): Canadian Coroner and Medical Examiner Database (5125).

A coroner or medical examiner reported that the deceased individual suffered from a mental illness in nearly two in three fire-related suicides. In another 2% of fire-related suicides, it was reported that the individual did not have a mental illness. Information on mental health conditions was unknown or not specified in 35% of fire-related suicides.

Alcohol or drug consumption was reported in nearly one in five fire-related suicides. In another 6% of fire-related suicides, it was reported that the deceased individual may have consumed alcohol or drugs (e.g., open containers found on the scene). Alcohol or drug consumption may impair judgment, decrease inhibition, and increase impulsivity. In 13% of cases, it was reported that the deceased individual had not consumed any alcohol or drugs. The consumption of alcohol or drugs was not specified in 62% of fire-related suicides.

Finally, coroners and medical examiners reported a severe illness, chronic pain or cognitive disability in nearly one in six fire-related suicides. These conditions were not specified in 81% of fire-related suicides.

Note to readers

The Canadian Coroner and Medical Examiner Database (CCMED) was developed at Statistics Canada in collaboration with the 13 provincial and territorial Chief Coroners and Chief Medical Examiners and the Public Health Agency of Canada. Currently, it combines data from all provincial and territorial databases, with the exception of Manitoba.

For the provinces and territories included in the report, data are not available for all years. Data for Nova Scotia, New Brunswick, Quebec, Ontario, Saskatchewan, Alberta, British Columbia, Yukon, and the Northwest Territories are available from 2011 to 2020. Data for Prince Edward Island are available from 2011 to 2019, data for Nunavut are available for 2011 to 2018 and data for Newfoundland and Labrador are available for 2020. All data are considered preliminary and include only closed cases. Closed cases refer to those whose investigation or inquest is complete, and the cause and manner of death are final. Data for this report were extracted in October 2021.

At the time this report was written, 2,190 fire-related deaths were documented in the CCMED from 2011 to 2020. Of these, 260 were classified as suicides. This value was used for reporting on the circumstances surrounding fire-related suicides. CCMED data coverage varies from one variable to another.

The number of records for more recent years will be lower than what may be expected as only closed cases are published. Moreover, as the source of non-response and the completeness of the available information varies both between and within jurisdictions, users are advised to exercise caution when comparing data between years and across provinces and territories.

The risk factors for suicide come from the Health Canada article "Suicide in Canada: update of the report of the Task Force on Suicide in Canada" and the page [Suicide: risks and prevention](#) on the Government of Canada website.

Acute alcohol use as a risk factor for suicide comes from the following article: "Acute alcohol consumption, alcohol outlets, and gun suicide," in *Substance Use and Misuse*, 2011.

Information on reasons for choosing a method of suicide come from the following articles: "Influences of the media on suicide," in the *British Medical Journal*, 2002; "Factors influencing the decision to use hanging as a method of suicide: qualitative study," in *The British Journal of Psychiatry*, 2010; "Factors associated with choice of high lethality methods in suicide attempters: a cross-sectional study," in the *International Journal of Mental Health Systems*, 2014; "Changes in rates of suicide by car exhaust asphyxiation in England and Wales," in *Psychological Medicine*, 2001.

Effects of alcohol come from the page [About alcohol](#) on the Government of Canada's website.

Counts referenced in this report were rounded to a neighbouring multiple of five.

Definitions, data sources and methods: survey number 5125.

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).