



RESEARCH

Fatal Firefighter Injuries in the US in 2022

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June 2023

Overview of fatal firefighter injuries in 2022

Firefighters work in hazardous environments and engage in a variety of activities that place them at risk for injury. In 2022, NFPA reported that a total of 96 fatal firefighter injuries occurred while the victims were on duty. This fatal injury count is higher than recent years and the highest since 2013, when 98 on-duty deaths were reported. This increase is largely due to the inclusion of deaths occurring within 24 hours of duty. These deaths were previously not counted unless there was a specific physical complaint while on duty.

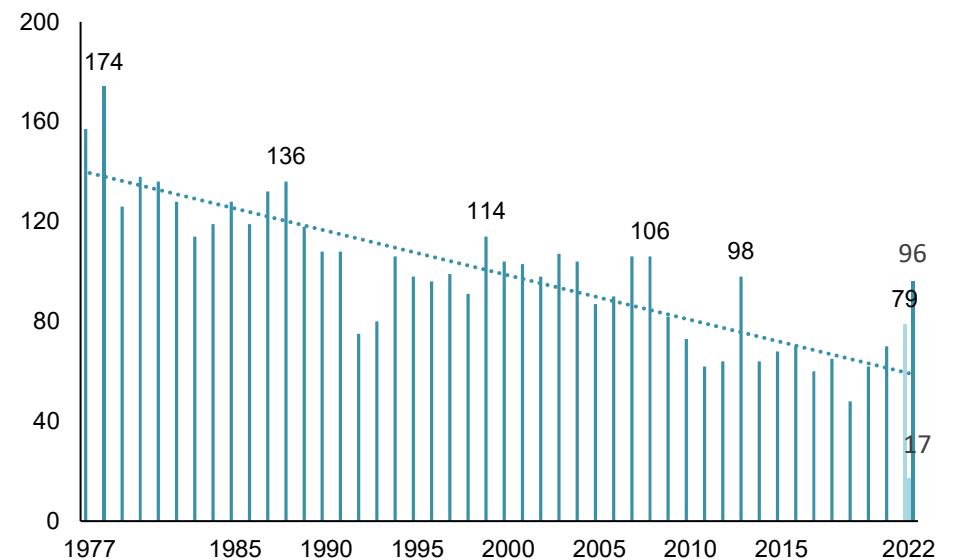
Of the 96 firefighters who died of on-duty injuries in 2022, 51 were volunteer firefighters, 38 were career firefighters, six were contractors to state and federal land management agencies, and one was a full-time federal land management employee.

There were six multiple fatality incidents in 2022, tied for the highest number of multiple fatality incidents since 2009. Five of these incidents resulted in two firefighter deaths and one resulted in three firefighter deaths.

Figure 1 shows the annual firefighter fatal injury totals since 1977, excluding the 340 firefighter deaths that occurred on 9/11 and the deaths resulting from 9/11 exposures in subsequent years. The data show a consistent downward trend in fatalities over time, with the high count over each decade being lower than the previous. The highest fatal injury total was 174 firefighter deaths in 1978 and the lowest was 48 deaths in 2019. Fatal injuries for 2022 were recorded as an overall total of 96 deaths and subdivided to designate 79 deaths as being within the traditional inclusion criteria of this study and 17 deaths occurring within 24 hours of duty.

This annual study includes only on-duty fatal firefighter injuries that occurred in the 50 states and the District of Columbia.

Figure 1. On-Duty Firefighter Deaths: 1977–2022*



*Does not include the 340 firefighter deaths at the World Trade Center in 2001.

Introduction

Each year, NFPA collects information about on-duty US firefighter fatalities and maintains the information in a database. Information about these deaths, including their causes and circumstances, can be useful in monitoring trends and identifying opportunities for prevention efforts. In this report, we provide a summary of the fatal firefighter injuries that took place in 2022.

The fatalities covered in this research draw from several types of firefighting populations. These include:

- Members of local career and volunteer firefighting departments
- Prison inmates serving on firefighting crews
- Seasonal, full-time, and contract employees who have fire suppression responsibilities in their job description
- Military personnel performing assigned fire suppression activities
- Civilian firefighters working at military installations
- Members of facility or industrial fire brigades

At times, there may be a considerable delay between an injury or the onset of illness and the resulting death. Fatalities are assigned to the year of the initial incident in cases where death occurred in a subsequent year. Accordingly, the number of deaths in a particular year may change as additions are made to annual totals following the receipt of new information.

Fatalities included in the research

The fatalities included in this research are those resulting from traumatic injury, heart attack, or stroke while victims were on duty or within 24 hours of duty. The on-duty designation refers to a variety of injury scenarios that are eligible for inclusion in this research.

Primary among these are injuries sustained while:

- At the scene of an alarm (fire or emergency medical or other responses)
- While responding to or returning from an alarm
- While participating in other department duties (such as training, maintenance, public education, investigations, etc.)
- While on call or standby for assignment at a location other than at the firefighter's home or place of business

Illnesses or medical conditions other than heart attacks or strokes are not included in the study.

Historically, this research has excluded fatal heart attacks or strokes except in cases where symptoms or complaints of symptoms were reported while victims were on duty. We have expanded the inclusion criteria in this report to include cardiac deaths that occurred within 24 hours of non-routine strenuous or stressful physical activity while victims were on duty, irrespective of manifested or reported symptoms. These inclusion criteria are consistent with those establishing eligibility for federal death benefits under the Hometown Heroes Act (deaths within 24 hours of non-routine strenuous or stressful physical activity while on duty). They are also consistent with historical

reporting criteria in presuming that these deaths were precipitated by activities taking place while the victim was on-duty.

In order to enable a comparison of fatal injury totals with prior years, we report the number of these newly-included fatal injuries in the fatality total.

There are other firefighter fatality data collection efforts with different inclusion criteria. Readers are cautioned to be attentive to these criteria when seeking information on firefighter fatalities.

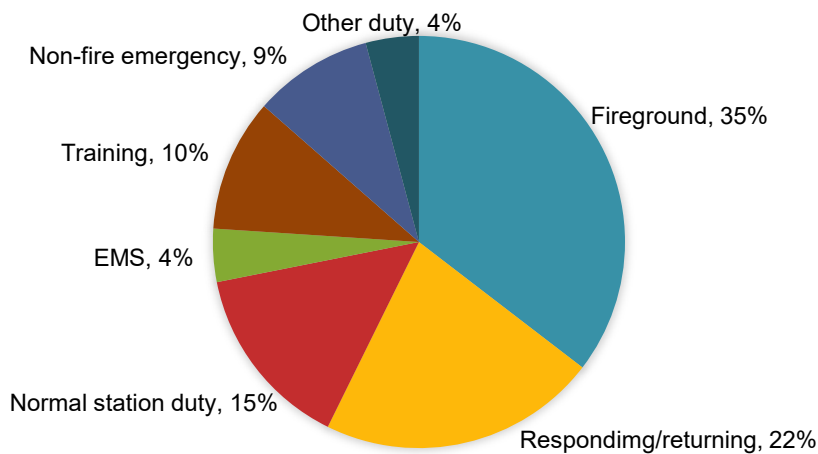
Type of duty

In this report, we look at four major categories of type of duty that firefighters were engaged in when they were fatally injured or suffered fatal medical events—on the fireground, at non-fire emergencies, responding to or returning from fires and emergency calls, and during training. The remaining deaths occurred while firefighters were engaged in other on-duty activities.

Figure 2 shows the distribution of the 96 deaths by type of duty. The largest share of deaths occurred on the **fireground** while firefighters were operating at fires or explosions (34 deaths). Although this continues the clear downward trend in deaths since the late 1970s—when the number of fireground deaths annually averaged more than 80 per year—the 2022 total is higher than the average for the previous 10 years, and is the highest total since 2013, when 57 firefighters were killed in fireground incidents.

Of the 34 fireground deaths, 18 occurred at structure fires, nine at wildland fires or prescribed burns, two involved vehicles, and one involved a commercial dumpster fire. Fourteen of the 34 fireground victims were volunteer firefighters, 13 were career firefighters, and seven were contractors to or employees of state or federal land management agencies. Eleven of the deaths were cardiac-related and two others were due to medical issues.

Figure 2. Firefighter Deaths by Type of Duty: 2022



Just over one-fifth of the firefighter deaths (21) occurred while **responding to or returning** from alarms. Fatal injuries due to overexertion/strain/stress and collisions with other vehicles each accounted for seven deaths. Three deaths were the result of being struck by a non-fire department vehicle and one resulted from being struck by a falling object. Two deaths were caused by vehicles overturning and one death was caused by a collision with a stationary object. All of the victims were municipal firefighters, with volunteer firefighters accounting for 16 of the 21 deaths.

Ten firefighter deaths resulted from **training** activities. Four of these deaths involved cardiac events and four were due to medical conditions. Two deaths resulted from trauma injuries—one when the firefighter was struck by a non-fire department vehicle and one when the firefighter fell from height. Four of the training death victims were career firefighters and six were volunteer firefighters.

Nine firefighters died while responding to **non-fire emergencies**. Four of these deaths were the result of being struck by non-fire department vehicles. Two firefighters drowned while trying to save victims trapped in water—one while trying to save passengers from a

vehicle that had driven into the water and the second when the firefighter fell through the ice in a rescue attempt. The remaining deaths included two victims of cardiac incidents and one homicide. Three of the victims were career firefighters and six were volunteer firefighters.

Fourteen firefighters died in the course of **duties at the fire station**. Most of these deaths involved cardiac incidents (7 deaths) or medical conditions (4 deaths). Two deaths resulted from drug overdoses and one was caused by crushing. Eleven of the victims were career firefighters and three were volunteer firefighters.

Four firefighters died while performing **EMS duties**. All of these deaths were cardiac incidents. Three victims were volunteer firefighters and one was a career firefighter.

The remaining four fatalities included three cardiac incidents and a fall from height while performing clean-up duties at the station. One of the cardiac incidents followed the performance of maintenance duties at the fire station and two came after responding to alarms.

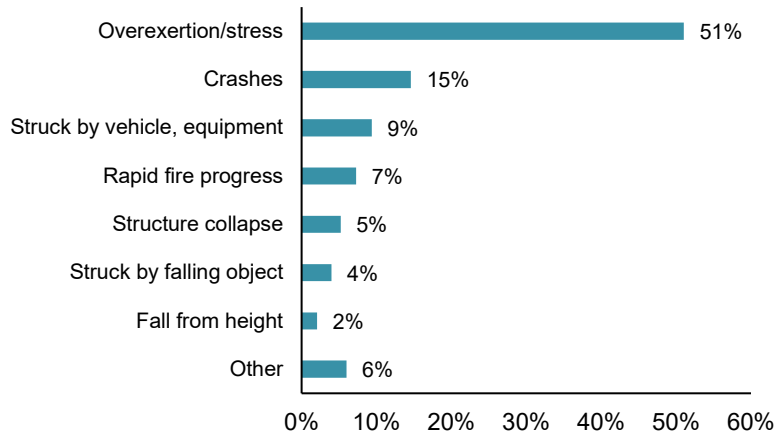
Cause of injury

Figure 3 shows the distribution of deaths by the cause of the fatal injury or illness. The term *cause* refers to the action, lack of action, or circumstances that directly resulted from the fatal injury.

Overexertion and stress accounted for just over one-half of the deaths in 2022. Of the 49 deaths in this category, 34 were sudden cardiac incidents and one was due to cardiac symptoms. Eleven deaths had an unspecified medical cause, and one was due to a stroke or aneurysm. Two deaths were the result of drug overdoses.

Fourteen firefighters died in vehicle crashes. Seven of these deaths were caused by collisions with other vehicles, four by collisions with stationary objects, and three in which vehicles overturned. In addition, eight deaths resulted from firefighters being struck by non-department vehicles.

Figure 3. Firefighter Deaths by Cause of Injury: 2022



Seven firefighters died as a result of rapid fire progress or explosions. Four of these deaths occurred at residential structures, two at agricultural structures, and one at the scene of a wildfire.

Five firefighters died as a result of structural collapses, with three of these deaths occurring at a single incident in a vacant building. One firefighter died when the roof and top story of a multi-story building collapsed and the remaining death occurred in the collapse of a commercial building.

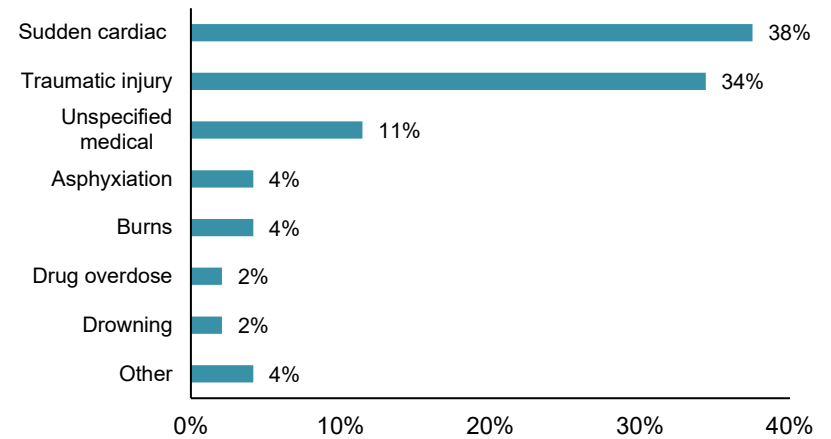
Four firefighters suffered fatal injuries after being struck by falling objects, all of whom were wildland firefighters struck by falling trees. Two firefighters died as a result of falls from height at their fire stations.

The six remaining deaths included two deaths as a result of assault, two drownings, and two deaths with undetermined or unreported causes.

Nature of injury

The term *nature* refers to the medical process by which death occurred and is often referred to as the *cause of death* on death certificates and in autopsy reports. Figure 4 shows the distribution of deaths by the nature of the fatal injury or illness.

Figure 4. Firefighter Deaths by Nature of Injury: 2022



As in almost every year since 1977, sudden cardiac death accounted for the largest share of the deaths, with 36 deaths in 2022. Sudden cardiac deaths will be discussed in more detail in the next section. Eleven firefighters died as a result of unspecified medical issues.

Trauma injuries accounted for 33 firefighter deaths. These deaths included 20 internal trauma deaths, six deaths by crushing, five deaths due to unspecified traumatic injuries, and two deaths due to gunshot injuries or projectile wounds.

The deaths from trauma or crushing included 13 deaths from crashes while responding to or returning from alarms, three deaths from being struck by other vehicles at the scene of motor vehicle accidents, and one death from being struck by a vehicle while attending a firefighter event. Three of the responding/returning crashes each claimed two lives. Four firefighters died in helicopter crashes while working at wildfires.

Five firefighters died as a result of traumatic injuries suffered in roof or floor collapses while they were performing extinguishment or other interior duties.

Trauma deaths also included four firefighters who were struck by trees at wildfires. Two other firefighters died from traumatic injuries at agricultural properties—one who died at a barn explosion and another who was struck by a building blown over during a violent storm while he was responding to an alarm.

Three firefighters died from burn injuries while working at wildfires and another while extinguishing a grass fire.

Three firefighters suffered asphyxiation injuries while performing search and rescue duties and another died during overhaul. A fourth firefighter suffered asphyxiation injuries while performing extinguishment at a structure fire.

Two firefighters suffered fatal gunshot injuries—one while responding to a dumpster fire and the second while rendering assistance at a motor vehicle accident.

Eleven firefighters died as a result of unspecified medical causes. Four of these deaths occurred during training activities, four during activities at the station, one while performing suppression support, and one while driving a department apparatus. Information was not available on the final unspecified medical death.

Cardiac deaths

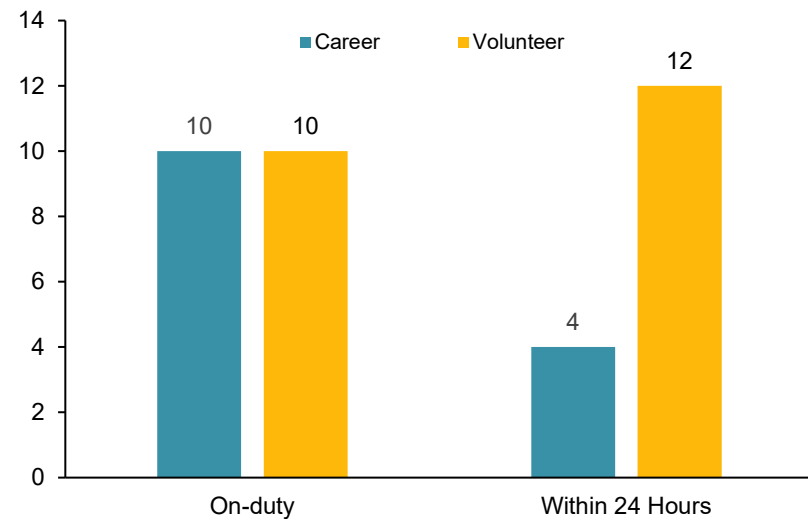
Sudden cardiac deaths or cardiac conditions regularly account for the largest share of on-duty firefighter deaths. As previously noted, inclusion criteria were expanded this year to include deaths that occurred within 24 hours of duty. These fatalities were not previously included except in cases where firefighters had made a physical complaint prior to going off duty. Sudden cardiac deaths accounted for 16 of the newly included deaths. The remaining 24-hour death was due to an aneurysm. We should also note that an unknown number of deaths due to unspecified medical causes in 2022 were likely to be cardiac-related, so the number of cardiac deaths reported here is likely to understate the true total.

Because the new inclusion criteria include deaths that would not have been counted in prior years, two numbers must be considered in the discussion of cardiac deaths—the number of cardiac deaths occurring under the traditional criteria and the smaller number representing the deaths occurring within 24 hours. The combination of these two numbers represents the cardiac death total for 2022, but separating the newly added cardiac deaths allows for a comparison with historical trends.

A total of 36 firefighters died as a result of sudden cardiac deaths in 2022. Of this total, 20 deaths occurred while firefighters were on duty (the traditional count) and 16 deaths occurred within 24 hours of duty. Career firefighters accounted for 14 of the sudden cardiac deaths and volunteer firefighters for 22 of the deaths.

Figure 5 shows the distribution of cardiac deaths between on-duty deaths and deaths within 24 hours for career and volunteer firefighters. While the 20 on-duty deaths are evenly divided between career and volunteer firefighters, volunteer firefighters account for the majority of the cardiac deaths that occurred within 24 hours of duty.

Figure 5. Firefighter Sudden Cardiac Deaths: 2022

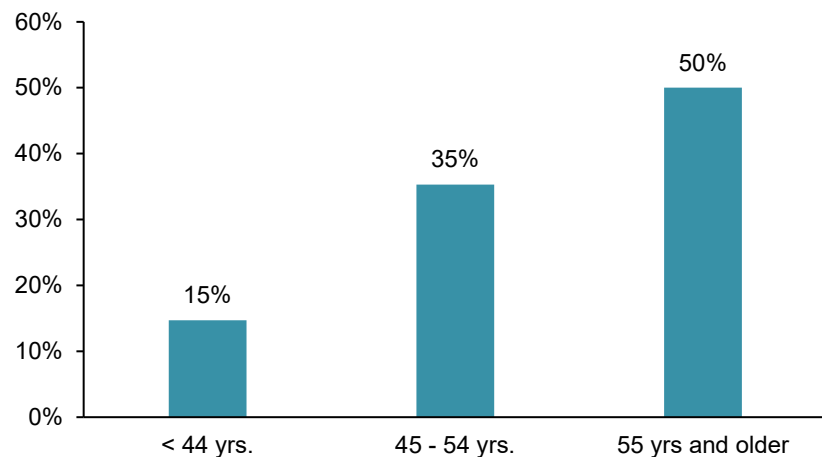


The total of 36 sudden cardiac deaths is higher than the 2021 total of 31 sudden cardiac deaths. However, this increase is inflated by the inclusion of cardiac deaths within 24 hours, which were not included in the 2021 study. If the newly included cardiac deaths are subtracted from the 2022 figure, the on-duty cardiac deaths show a 35 percent decrease over the number of cardiac deaths in 2021.

Sudden cardiac death nevertheless remains the number one cause of on-duty firefighter fatalities in the US and has accounted for the largest share of firefighter deaths in almost every year of this report. The large share of volunteer firefighters among the cardiac deaths within 24 hours is an indication of a need for special attention to fitness and medical monitoring of the volunteer firefighter population.

Age is a significant risk factor for sudden cardiac death. Figure 6 shows the age distribution of the sudden cardiac deaths in 2022. As the figure indicates, there is a clear age gradient in cardiac deaths, with firefighters aged 55 or older accounting for one-half of the cardiac deaths. Firefighters who were between the ages of 45 and 54 accounted for 35 percent of the cardiac deaths and those less than 45 years of age accounted for the remaining 15 percent of deaths.

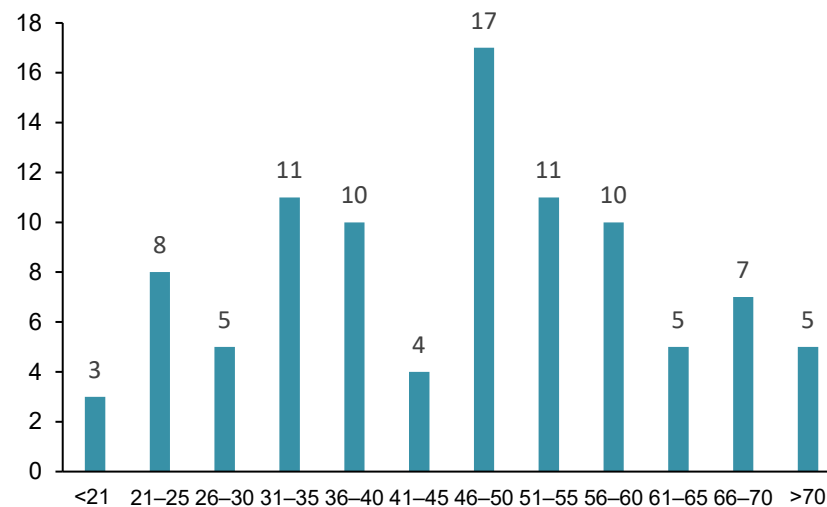
Figure 6. Firefighter Sudden Cardiac Deaths: 2022



Ages of firefighters

The firefighters who suffered fatal injuries in 2022 ranged in age from 19 to 85. Figure 7 shows the number of firefighter deaths in 2022 by age group. As the figure indicates, firefighters aged 46 to 50 experienced the highest number of fatal injuries with 11 deaths. This reflects in part the ability of many career firefighters to retire between 50 and 57 years of age. Sixteen of the 17 firefighters who were 61 years or older were volunteer firefighters. The number of deaths per age group generally declines with each subsequent age group. Seven of the firefighters who were 25 years or younger were volunteers, while three were career firefighters and one was a wildland contract firefighter.

Figure 7. Firefighter Deaths by Age: 2022



Multiple fatality incidents

There were six fatality incidents in 2022 that claimed the lives of more than one firefighter. This represents an increase over the two multiple-fatality incidents recorded in 2021 and is the highest number of multiple-fatality incidents since 2009, which also recorded six multiple-fatality incidents.

Four of the incidents involved vehicles, each resulting in two fatalities. The two remaining incidents involved structure fires, one in which three firefighters were killed in a building collapse and the other in which two firefighters died after sending a mayday from the second floor of a house.

- Two volunteer firefighters were killed in a motor vehicle collision with a semi-tractor trailer while returning from a mutual aid traffic incident. They were pronounced dead at the scene.
- Two volunteer firefighters were killed while responding to the scene of a vehicle incident when their apparatus was struck by a semi-tractor trailer while they were attempting to use an emergency crossover. Both firefighters died at the scene.
- Two volunteer firefighters were killed while returning from a wildland fire in a brush truck when their vehicle was struck by a truck that failed to yield, causing the brush truck to roll over.
- Two wildland contract pilots were killed when their helicopter crashed while fighting a wildland fire. The firefighters died from injuries shortly after being transported to a hospital.
- Three career firefighters died while fighting a fire inside a vacant rowhouse after a partial building collapse. The firefighters were removed following a mayday call, but one victim died at the scene and two succumbed after transport to a hospital. A fourth firefighter survived the collapse.

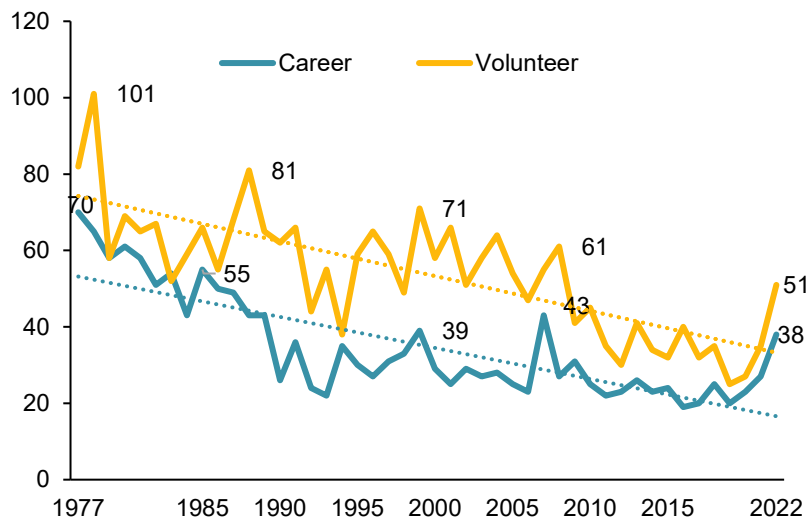
- Two volunteer firefighters responded to a late afternoon residential fire with possible entrapment. The firefighters sent mayday calls from the second floor approximately one hour into the fire. A rapid intervention team entered the structure and removed the victims, immediately transferring them to the hospital, but they succumbed to their injuries shortly afterward.

Career/volunteer comparison

Figure 8 shows the number of career and volunteer firefighter deaths since 1977. The figure shows that 51 volunteers and 38 career firefighters died as a result of fatal injuries in 2022. These totals represent a substantial increase over the 2021 total of 35 volunteer and 27 career firefighters. However, this figure includes 13 volunteer deaths that occurred within 24 hours of duty (12 cardiac deaths and one stroke) and four career cardiac deaths within 24 hours. If these deaths that have been included under the study's new reporting criteria are subtracted from the 2022 totals for consistency with prior counts, the increase is less dramatic, yielding counts of 38 volunteer and 35 career firefighter deaths in 2022.

As Figure 8 shows, there is a clear if irregular downward trend in the annual fatality counts over time for both career and volunteer firefighters, with the high for each decade in most cases being lower than the previous, even with the expanded inclusion criteria in 2022. The total of 51 volunteer fatalities in 2022 represents a 49 percent decrease from the high of 101 volunteer deaths in 1978, while the total of 38 career fatalities in 2022 represents a 46 percent decrease from the high of 70 deaths in 1977.

Figure 8. Career and Volunteer Deaths: 1977–2022



Even with the increase over 2021 totals influenced by the inclusion of 24-hour fatalities, the total of 51 volunteer deaths in 2022 is far lower than the average total of 67 annual volunteer deaths in the early years of the study, while the total of 38 career firefighter deaths is lower than the average total of 57 annual deaths in the study's early years.

A breakdown of career and volunteer firefighter deaths is available in Table 1.

Non-municipal firefighters

Seven non-municipal firefighters suffered fatal injuries in 2022. Six of these firefighters were contractors to state or federal land management agencies and one was a full-time wildland firefighter. Three of the firefighters were killed when they were struck by falling trees while performing duties at wildfires. An additional three firefighters were killed in helicopter crashes while supporting firefighting at wildfires. The remaining firefighter suffered an unknown medical emergency while serving as a crew boss at a wildfire.

Long-term effects of work as a firefighter

This study focuses on firefighter deaths resulting from traumatic injury, cardiac deaths, and strokes or aneurysms. NFPA recognizes that work as a firefighter is also responsible for fatalities for chronic illnesses, such as cancer or heart disease, that arise from occupational factors and can prove fatal. However, it is not possible to include deaths resulting from chronic and multifactorial exposures due to limitations in establishing work relationships between exposures and deaths.

An additional challenge for establishing a comprehensive count of firefighter deaths is the well-publicized problem of firefighter suicide. Although this study includes firefighter suicides that occurred on-duty, work as a firefighter is also recognized as contributing to suicides that occur when firefighters are off-duty or have retired.

Suicide: According to the [Firefighter Behavioral Health Alliance \(FBHA\)](#), 80 firefighters died by suicide in 2022. (This number might change as new reports are validated by the FBHA.)

Recognition of the importance of behavioral health programs and peer support for firefighters has become widespread in recent years. As with heart disease and cancer, this is a problem that follows firefighters after their careers end, whether in retirement or some other form of separation from the fire service.

Many programs exist to address these problems, including [Share the Load](#), an effort by the [National Volunteer Fire Council \(NVFC\)](#) that connects firefighters, EMTs, and their families with resources and support for their mental well-being. In June 2020, the NVFC launched a directory of licensed behavioral health professionals familiar with the fire service culture to help improve access to behavioral health care for firefighters. The directory can be accessed on the [Share the Load web page](#).

In addition, the IAFF has offered advice on [establishing peer support programs](#). In October 2019, the IAFF launched a suicide reporting system for its members, and it has developed material on coping in the aftermath of a friend or colleague's death by suicide.

Additionally, in collaboration with the National Fallen Firefighters Foundation (NFFF), the Medical University of South Carolina has developed [a training course](#) for counselors who work with firefighters.

NFPA 1500™, *Standard on Fire Department Occupational Safety, Health, and Wellness Program*, requires access to a behavioral health program that provides assessment, counseling, and treatment for such issues as “stress, alcohol and substance abuse, anxiety, depression, traumatic exposure, suicidality, and personal problems.” The goal of such programs is to change the culture of the fire service, help people to identify warning signs, eliminate any stigma associated with mental health issues and asking for help, and provide training and assistance with retirement planning. According to FBHA statistics, almost one-fifth of the firefighters and EMTs who died by suicide were retired. Early recognition and treatment of behavioral health issues are key to addressing this problem.

Cancer: Cancer is well-recognized as a significant risk in the fire service. A significant development in the past year was a finding by the International Agency for Research on Cancer in July 2022 that working as a firefighter is a cause of cancer (sufficient evidence for mesothelioma and bladder cancer and limited evidence for several other types of cancer). Firefighters are only the second occupational group to be considered for inclusion as a cause of cancer.

Although we cannot identify the total number of fire service-related cancer deaths that occur each year, 348 firefighters who were added to the National Fallen Firefighter Memorial died of cancer in 2022.

Attention has increasingly focused on cancer risks and cancer prevention in the fire service through research, education, behavioral changes, and a variety of controls to minimize exposure to contaminants. To this end, the National Institute for Occupational Safety and Health (NIOSH) has created a National Firefighter Registry to promote a better understanding of the links between workplace exposures as a firefighter and cancer. The registry is voluntary; additional information can be found here: <https://www.iaff.org/national-firefighter-registry/>.

Conclusion

Work as a firefighter includes significant physical demands and takes place in environments that include a range of hazardous conditions. Inclement weather and night-time conditions can add additional risk to the performance of firefighting duties. Moreover, as this report clearly shows, the risk of injury for firefighters is not confined to work at fire scenes but also includes training activities, non-fire emergencies, and transport to and from emergency scenes.

Although the downward trend in the annual number of fatal firefighter injuries is an encouraging indication that injury prevention efforts through the years are meeting with success, there is a clear need for continuing attention to firefighter safety and health.

To this end, sudden cardiac deaths remain a critical concern, with the inclusion of deaths within 24 hours of duty bringing the issue into sharper focus. Fitness programs, annual medical evaluations, and medical monitoring are well-recognized preventive measures for cardiac health for all firefighters. But the predominance of volunteer firefighters among the sudden cardiac deaths within 24 hours suggests the need for additional areas of intervention. Age is an important risk factor for cardiac injury and is an issue that is particularly relevant to the volunteer firefighter community.

Education about symptoms of cardiac distress should be a component of risk reduction efforts for firefighters. Such efforts have special importance for volunteers, who may not return to the station following an alarm and have immediate access to medical treatment.

Vehicle crashes and struck-by-vehicle incidents—a perennial concern for firefighters—accounted once again for a substantial share of the fatal injury deaths in 2022. Three two-fatality crashes in which fire department vehicles were struck by trucks were especially notable and underscore the importance of vehicle safety awareness, as well as outreach to the public and the transportation industry.

Finally, the injuries at structure fires due to roof or floor collapses, falling objects, entrapment, or rapid fire progress serve as a cautionary reminder that building fires are burning hotter and faster than previously due to the proliferation of synthetic materials in indoor furnishings and engineered structural components. It is vital that firefighter activities inside structures be undertaken with special consideration for the potential of a premature failure of structural components within this new context for building fires.

Advances in firefighting practices and procedures, communications and equipment, training programs, and education have all helped to improve safety and health outcomes for the firefighting community through the years. Still, the unique variety of hazards encountered by firefighters across their multiple types of duties pose an ongoing challenge for comprehensive injury prevention. Meeting this challenge will require commitment from a variety of actors within and outside the fire service.

Acknowledgments

This study is made possible with the cooperation and assistance of the United States fire service, the CDC's National Institute for Occupational Safety and Health, the United States Fire Administration, the Forest Service of the US Department of Agriculture, the Bureau of Indian Affairs, and the Bureau of Land Management of the US Department of the Interior. The authors also thank Rita Fahy, the long-time overseer of the NFPA firefighter fatality study, for her generous assistance throughout the study period.

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NFPA No. FFF10

Table 1. Comparison of On-Duty Deaths of Career and Volunteer Firefighters: 2022*

	Career Firefighters		Volunteer Firefighters	
	Number of Deaths	Percent of Deaths	Number of Deaths	Percent of Deaths
Type of duty				
Operating at fireground	13	34%	14	27%
Responding to or returning from alarms	5	13%	16	31%
Operating at non-fire emergencies	3	8%	6	12%
Training	4	11%	6	12%
Normal station activity	11	29%	3	6%
Emergency medical service	1	3%	3	6%
Other on-duty activity	1	3%	3	6%
TOTALS	38	100%	51	100%
Cause of fatal injury				
Overexertion/stress/other related medical	22	58%	26	51%
Rapid fire progress	2	5%	4	8%
Struck by vehicle	4	11%	4	8%
Motor vehicle crash	2	5%	6	12%
Fell	1	3%	1	2%
Structural collapse	5	13%	0	0%
Overturned, no collision	0	2%	3	6%
Assault	1	3%	1	2%
Struck by equipment	1	3%	0	0%
Struck by falling object	0	0%	1	2%
Trapped underwater	0	0%	2	4%
Trapped by explosion	0	0%	1	2%
Contact with fire	0	0%	1	2%
Undetermined	0	0%	1	2%
TOTALS	38	100%	51	100%

*The data in this table includes municipal firefighters only.

Table 1. Comparison of On-Duty Deaths of Career and Volunteer Firefighters: 2022* (Continued)

	Career Firefighters		Volunteer Firefighters	
	Number of Deaths	Percent of Deaths	Number of Deaths	Percent of Deaths
Nature of fatal injury				
Sudden cardiac death	14	37%	22	43%
Internal trauma/crushing	10	37%	15	29%
Asphyxia, including smoke inhalation	2	5%	2	4%
Burns	0	0%	4	8%
Stroke	3	11%	1	2%
Gunshot, projectile wound	1	4%	1	2%
Drug overdose	2	5%	0	0%
Drowning	0	0%	2	4%
Unspecified medical symptoms	3	8%	4	8%
Undetermined	3	8%	0	0%
TOTALS	38	100%	51	100%
Rank				
Firefighter	25	66%	22	43%
Company officer	10	26%	9	18%
Chief officer	2	5%	17	33%
Fire investigator	0	0%	1	2%
Undetermined or not reported	1	3%	2	4%
TOTALS	38	100%	51	100%
Ages of firefighters — All deaths				
20 and under	1	4%	2	4%
21 to 25	2	5%	5	10%
26 to 30	1	3%	2	4%
31 to 35	7	18%	4	8%
36 to 40	5	13%	4	8%
41 to 45	1	3%	2	4%
46 to 50	11	29%	5	10%
51 to 55	4	11%	7	14%
56 to 60	5	13%	4	8%
61 to 65	1	3%	4	8%
66 to 70	0	0%	7	14%
71 to 75	0	0%	2	4%
Over 75	0	0%	3	6%
TOTALS	38	100%	51	100%

*The data in this table includes municipal firefighters only.

Table 1. Comparison of On-Duty Deaths of Career and Volunteer Firefighters: 2022* (Continued)

	Career Firefighters		Volunteer Firefighters	
	Number of Deaths	Percent of Deaths	Number of Deaths	Percent of Deaths
Ages of firefighters — Sudden cardiac deaths only				
21 to 25	0	0%	0	0%
26 to 30	0	0%	0	0%
31 to 35	3	30%	1	6%
36 to 40	0	0%	1	6%
41 to 45	0	0%	0	0%
46 to 50	4	40%	1	6%
51 to 55	0	0%	1	6%
56 to 60	2	20%	2	13%
61 to 65	1	10%	2	13%
Over 65	0	0%	8	50%
TOTALS	10	100%	16	100%
Ages of firefighters — Sudden cardiac deaths only				
21 to 25	0	0%	0	0%
26 to 30	0	0%	1	8%
31 to 35	0	0%	0	0%
36 to 40	0	0%	1	6%
41 to 45	0	0%	0	0%
46 to 50	1	25%	3	25%
51 to 55	1	25%	2	17%
56 to 60	2	50%	1	6%
61 to 65	0	0%	1	8%
66 to 70	0	0%	2	17%
Over 70	0	0%	1	8%
TOTALS	4	100%	12	100%

*The data in this table includes municipal firefighters only.

Table 1. Comparison of On-Duty Deaths of Career and Volunteer Firefighters: 2022* (Continued)

	Career Firefighters		Volunteer Firefighters	
	Number of Deaths	Percent of Deaths	Number of Deaths	Percent of Deaths
Fireground deaths by fixed property use				
Homes	5	38%	5	36%
Apartments	3	23%	0	0%
Clinic or infirmary	0	0%	1	7%
Unspecified residential	2	15%	0	0%
Agricultural structure	0	0%	2	14%
Wildland	1	8%	4	29%
Parking lot	1	8%	0	0%
Vehicle	0	0%	2	14%
Undetermined	1	8%	0	0%
TOTALS	13	100%	14	100%
Years of service				
6 to 10	3	11%	7	14%
11 to 15	5	4%	5	10%
16 to 20	7	33%	3	6%
21 to 25	7	7%	6	12%
26 to 30	5	7%	5	10%
31 to 35	3		4	8%
36 to 40	0	0%	3	6%
41 to 45	0	0%	2	4%
46 to 50	0	0%	1	2%
More than 50	0	0%	3	6%
TOTALS	38	100%	51	100%

*The data in this table includes municipal firefighters only.

Select 2022 firefighter fatal injury narratives

Captain shot and killed on fire scene

A 47-year-old fire captain was shot and killed while operating at a structure fire. In the early morning hours, the fire department was dispatched to a reported dumpster fire up against a commercial building.

During operations, the captain and the crew of his engine company were assigned to enter the commercial structure to check for fire extension. The captain was in the process of forcing entry through a rear roll-up door using a saw to cut the lock when an occupant fired a gun multiple times through the door, striking the captain in the chest. The captain was able to immediately retreat toward his apparatus where firefighters discovered he had been hit by the gunfire.

Life-saving efforts were immediately initiated on the injured captain, and he was transported to the hospital where he later succumbed to his injuries. The alleged shooter was subsequently arrested, and the incident remains under investigation.

31-year-old firefighter killed in collapse

At 1:04 p.m. the fire department was dispatched to a reported structure fire in a multifamily residential dwelling. On arrival, companies reported heavy fire showing from the structure and the incident commander immediately requested a second alarm, bringing additional companies to the scene.

Members of the initial engine company stretched an attack line and were operating with four members on the second floor of the three-story wood frame residential structure when conditions began to deteriorate. The incident commander was ordering all firefighters to evacuate the building when conditions rapidly deteriorated, causing a sudden collapse of the second floor. Of the four-person crew, three were able to escape through windows and using ladders at other

egress points. The deceased firefighter was caught directly under the collapse and was unable to escape. A mayday was transmitted, and a third alarm was requested, bringing the total number of firefighters on scene to over one hundred and thirty (130). The trapped firefighter was subsequently removed from the building but succumbed to his injuries.

According to the medical examiner, the cause of death was listed as smoke inhalation. The cause of the fire remains under investigation.

Chief killed after fall in station

A 54-year-old fire chief was killed while performing station cleaning and maintenance duties. At approximately 6:30 p.m. the fire chief was using a hydraulic lift while performing routine cleaning and station maintenance. The chief was working on the elevated lift in close proximity to one of the station bay doors when the door was inadvertently opened, striking the lift and causing the chief to fall approximately 25 feet to the floor below.

He was immediately treated for his injuries and transported to the hospital by other on-scene members of the department. He passed away from blunt force trauma one day later.

Fire lieutenant killed when struck by tractor-trailer truck

While operating at the scene of a motor vehicle accident on a two-lane highway, a 35-year-old fire lieutenant was killed and a sheriff's deputy was injured when a tractor-trailer truck drove into the accident scene.

At approximately 3 p.m., fire and EMS units were dispatched to a motor vehicle accident with injuries. Road conditions were reported to be wet on the two-lane highway. Crews extricated and treated the vehicle occupants.

After the incident was mitigated and the injured civilians were transported to the hospital, the engine company and sheriff's deputy remained on scene to complete administrative duties.

As the incident was concluding, a semi-tractor trailer struck the rear of the engine which was positioned to protect the scene. The tractor trailer then veered off to the right, striking the original accident vehicle and the sheriff's deputy. The truck then rolled over and came to rest on its side, trapping the fire lieutenant underneath. Additional emergency units were brought to the scene to tend to the injured sheriff's deputy and to extricate the fire lieutenant from under the cab of the truck.

Once the fire lieutenant was extricated, it was determined he had succumbed to his injuries, and he was pronounced deceased on the scene by the medical examiner.

Two firefighters killed when their apparatus was struck while en route to emergency scene

A 43-year-old fire captain and a 69-year-old firefighter were responding to a motor vehicle accident scene shortly after midnight when the fire apparatus they were riding in was struck by a semi-tractor-trailer truck. The fire apparatus, a 2000-gallon water tender, was attempting to turn into an emergency crossover from the 4-lane highway when it was struck by a semi-tractor-trailer traveling in the same direction. The collision caused the tender to roll and subsequently ignite in flames. The tender had all of its emergency lights activated at the time of the crash. The captain and firefighter both succumbed to thermal and traumatic injuries; the driver of the tractor-trailer was uninjured.

Helicopter crash kills fire lieutenant and three flight crew

A 44-year-old career fire lieutenant was killed, along with three sheriff's deputies, when the helicopter they were riding in crashed when returning from the day's mission.

At approximately 2:00 p.m., the helicopter launched from its home base to respond to a wildfire and assist with bucket drops and other aerial support for the fire crews on the ground. The flight crew consisted of a pilot, two tactical observers, and the fire lieutenant, who was serving as the rescue specialist for this mission. After performing approximately 20 bucket drops, the crew returned to the staging airport to refuel. The aircraft then took off from the staging area at approximately 6:40 p.m. to return to its home base, as their missions for the day were complete.

At about 7:20 p.m., the last automatic dependent surveillance-broadcast (ADS-B) data indicated the craft was traveling west about one-half mile (0.8 km) from the eventual crash site. Witnesses reported seeing the helicopter rapidly descending without making any turns and then described seeing a large cloud of dust coming from the suspected crash site.

Police dispatch received reports of a downed aircraft in the area. While en route to the site, dispatch reported one of the occupants was on the phone providing the location of the crash. That caller had subsequently stopped responding just prior to the arrival of the first officers. It was later determined it was the fire lieutenant/rescue specialist who was able to call 911 and provide information regarding the crash site.

The initial responders attempted to provide life-saving measures but determined all four occupants had succumbed to their injuries. It was reported the lieutenant died from blunt force trauma caused by the helicopter falling greater than 500 feet. The crash remains under investigation.

Firefighter succumbs to medical issue while operating at structure fire

Just after 1:00 a.m., the fire department was dispatched to a reported fire in a multifamily structure. On arrival to the three-story wood-

framed structure, the first companies were met with heavy black smoke and fire in the rear of the building. The fire had already extended into the attic space of the large structure. As crews were attacking the fire, a 46-year-old firefighter, who was assigned as the apparatus operator and was outside the building, suddenly became ill. The firefighter was able to transmit his own mayday to alert the firefighters still battling the two-alarm blaze of his condition. Firefighters on scene immediately found the firefighter unresponsive and began life-saving measures, including CPR and defibrillation. The firefighter was transported to the hospital where he succumbed a short time later from an apparent heart attack.