RESEARCH

Firefighter Fatalities in the US – 2019

Rita F. Fahy, Jay T. Petrillo and Joseph L. Molis

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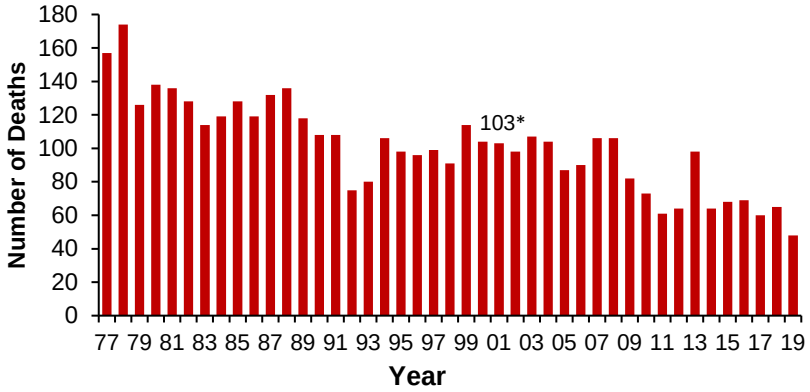
2019 Experience

In 2019, 48 firefighters died while on duty in the US, a sharp drop from the previous five years (2014 to 2018), when deaths averaged 65 per year. This is the first year that the annual total has been below 50 deaths.

Figure 1 shows the on-duty firefighter deaths for the years 1977 through 2019, excluding the 340 firefighter deaths on 9/11, and the cancer-related deaths of firefighters who responded to the World Trade Center that have occurred since 2001.[1]

Figure 1. On-Duty Firefighter Deaths 1977–2019



* excluding the 340 firefighter deaths at the World Trade Center in 2001.

Of the 48 firefighters who died in the US while on duty in 2019, 25 were volunteer firefighters, 20 were career firefighters, one was an employee of a state land management agency, one was an employee of a federal land management agency, and one was a civilian employee of the military.[2]

There were no multiple-fatality incidents in 2019, the only time that has happened since NFPA began doing this study in 1977.

Analyses in this report examine the types of duty associated with firefighter deaths, the cause and nature of fatal injuries to firefighters, and the ages of the firefighters who died. They highlight deaths on the fireground and in motor vehicle-related incidents.[3] Finally, the study presents summaries of individual incidents that illustrate important concerns for firefighter safety.

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

Introduction

Each year, NFPA collects data on all the firefighter fatalities in the US that resulted from injuries or illnesses that occurred while the victims were on-duty. The term *on duty* refers to:

- Being at the scene of an alarm, whether it is a fire or non-fire incident (including EMS calls)
- Responding to or returning from an alarm
- Participating in other fire department duties, such as training, maintenance, public education, inspection, investigation, court testimony, or fundraising
- Being on call or standby for assignment at a location other than at the firefighter's home or place of business

On-duty fatalities include any injury sustained in the line of duty that proves fatal, any illness that was incurred as a result of actions while on duty that proves fatal, and fatal mishaps involving nonemergency occupational hazards that occur while on duty. The types of injuries included in the first category are mainly those that occur at a fire or other emergency incident scene, in training, or in crashes while responding to or returning from alarms. Illnesses (including heart

attacks) are included when the exposure or onset of symptoms occurred during a specific incident or on-duty activity.

The types of firefighters included in this study are:

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

Fatal injuries and illnesses are included even in cases where death is considerably delayed. When the injury and death occur in different years, the incident is counted for the year of the injury.

The NFPA recognizes that other organizations report numbers of duty-related firefighter fatalities using different, more expansive definitions and include deaths that occurred when the victims were off-duty. (See, for example, the US Fire Administration and National Fallen Firefighters Foundation websites.) Readers comparing reported losses should carefully consider the definitions and inclusion criteria used in any study.

Long-term effects on firefighters' physical and emotional health

This study focuses on the deaths of firefighters that are due to specific events while on-duty, but NFPA recognizes that a comprehensive study of on-duty firefighter fatalities would include chronic illnesses, such as cancer or heart disease, that arise from occupational factors and prove fatal. The number of deaths due to long-term exposure, however, cannot be estimated at this time because of limitations in tracking the exposure of firefighters to toxic environments and substances and the potential long-term effects of such exposures.

Besides the challenges that firefighter illnesses pose for a complete picture of the firefighter fatality problem, we would be remiss if we did not also monitor the increasingly well-publicized problem of firefighter suicide.

Suicide: According to the Firefighter Behavioral Health Alliance (FBHA), 119 firefighters and 20 EMTs and paramedics died by suicide in 2019. (This number may change as new reports are validated by 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, they 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.

The International Association of Fire Fighters (IAFF) has offered advice on establishing a peer support program. In October 2019, the IAFF launched a suicide reporting system for its members and has developed material on coping in the aftermath of a friend or colleague's death by suicide.

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.

Both the US House and Senate have introduced bills to establish a public safety officer suicide reporting system at the Centers for Disease Control and Prevention to collect information on the incidence of suicide in this group and to aid in the study of ways to reduce deaths by suicide among firefighters and other first responders by improving detection, prevention, and treatment of behavioral health issues. It would also allow funding for peer support programs. The legislation was introduced in the House in 2019 and in the Senate in January 2020.

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 including "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 the 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 die by suicide were retired firefighters and EMTs. 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. 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. Although we cannot identify the total number of fire service-related cancer deaths that occur each year, the International Association of Fire Fighters alone lists on its website more than 130 firefighter cancer deaths in 2019.

Studies have shown a link between cancer and firefighting. The National Institute for Occupational Safety and Health (NIOSH) undertook two large studies focused on firefighter cancer and concluded that firefighters face a 9 percent increase in cancer diagnoses and a 14 percent increase in cancer-related deaths compared to the general population in the US. The first study was a multi-year project to examine the cancer risk of firefighters using health records of approximately 30,000 current and retired career firefighters from three large city fire departments to look at mortality and cancer incidents. The second study looked at exposure-response among 20,000 firefighters from the same fire departments. Results of the first phase, which reported evidence of a relationship between firefighting and cancer, were published in October 2013. Results of the second study, published in 2015, showed a relationship between firefighting and lung cancer and leukemia.

A 30-year prospective research study on cancer in the fire service is currently underway. This project, unlike previous retrospective studies, will be able to look at changes over time that may result from exposure to carcinogens. The initial phase of the study, funded by the Department of Homeland Security/Federal Emergency Management Agency Assistance to Firefighters Grant Program, created the framework for this long-term project.

In 2018, Congress passed legislation directing the Centers for Disease Control and Prevention (CDC) to develop and maintain a voluntary registry of firefighters in the US that can be used to monitor the incidence of cancer in the fire service. This data will be linked to data in state cancer registries and will be available to researchers. NIOSH will develop and maintain the registry, which will be open to all current and former firefighters.

In efforts to raise awareness in the fire service of the heightened risk of cancer and ways to reduce exposure, valuable video presentations have been produced by organizations including, among others, the Boston Fire Department, which has a dedicated website (takenosmoke.org) and YouTube channel. Other videos are available from the University of Cincinnati and Cincinnati Fire Department and the National Fallen Firefighters Foundation. These videos help to inform firefighters of the steps they can take to address the hazards they face. The Firefighter Cancer Support Network is another excellent resource for access to information on health-related topics and support and mentorship following a cancer diagnosis.

Other efforts to inform safe practices in the fire service stem from research undertaken by the Fire Protection Research Foundation, including an ongoing four-phase study to enhance the cleaning procedures for PPE that are outlined in NFPA 1851, *Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting*, and an earlier respiratory exposure study that was completed in 2012.

At the University of Miami, a symposium called Building a Scientific Roadmap for Cancer Control and Prevention in the US Fire Service was held in mid-June of 2019. The presentations from that event are available on the symposium website.

Cardiac issues: Heart disease and other cardiac issues have long been recognized as significant health risks in the fire service.[4] Sudden cardiac death has consistently accounted for the largest share of on-duty firefighter deaths since NFPA began this study in 1977. NFPA has several standards that focus on firefighter health risks. For example, NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*, outlines for fire departments the medical requirements that must be met by candidate firefighters and incumbent fire department members. NFPA 1500 calls for fire departments to establish a firefighter health and fitness program that meets NFPA 1583, *Standard on Health-Related Fitness Programs for Fire Department Members*, and requires that firefighters meet the medical requirements of NFPA 1582.

Information on developing a wellness and fitness program is also available from other organizations; for example, from the International Association of Fire Chiefs/IAFF Fire Service Joint Labor-Management Wellness-Fitness Initiative and the National Volunteer Fire Council's Heart-Healthy Firefighter Program. The Heart-Healthy Firefighter Program was launched in 2003 to address heart attack prevention for all firefighters and EMS personnel through fitness, nutrition, and health awareness.

While this report focuses on deaths that result from specific on-duty activities, NFPA is focused on all aspects of health and safety in the fire service and EMS. One example is the Fire Protection Research Foundation's work on cancer prevention behaviors and the health and wellness provisions of NFPA 1500 and NFPA 450, *Guide for Emergency Medical Services and Systems*. The remainder of this report will cover the on-duty fatalities in 2019.

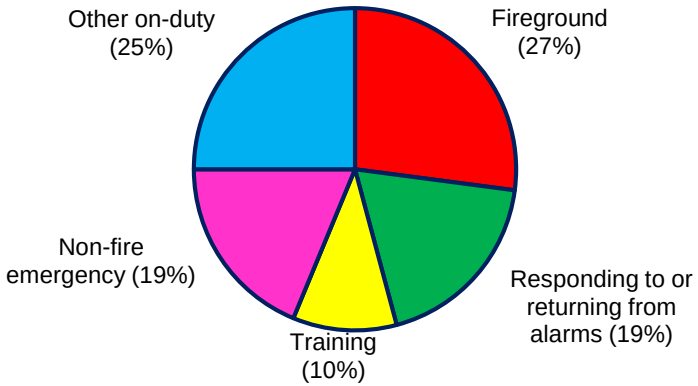
Type of duty

In this report, we look at four major categories of types 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 48 deaths by the type of duty. The largest share of deaths occurred while firefighters were operating

at fires or explosions (13 deaths). This is the lowest number of deaths at fire scenes ever reported in this study, and it is the third time in the past four years that the total has been below 20 deaths. 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.

Figure 2. Firefighter Deaths by Type of Duty – 2019



Ten of the 13 deaths occurred at structure fires and three were on wildland fires. Six of the 13 fire ground victims were career firefighters, five were volunteer firefighters, one was a federal wildland agency employee, and one was a civilian employee of the military. The deaths at structure fires are discussed in more detail below.

Nine firefighters died at non-fire emergencies. Of those, seven were operating at motor vehicle crashes, one was at a medical call, and one had responded to the report of a smell of gas. Two of the nine suffered sudden cardiac death and one suffered a stroke. Two were struck by passing vehicles. One fell from an elevated roadway. One stepped on downed power lines and was electrocuted. The firefighter who was on a medical call was shot and killed by the patient. The firefighter who responded to the call reporting the smell of gas was killed (and six others were seriously injured) when a propane gas explosion occurred.

Nine firefighters were killed responding to or returning from alarms, marking the third consecutive year in which the number of deaths in this category has been 10 or fewer. Five of these nine firefighters suffered fatal cardiac events. Two were killed in motor vehicle crashes. One was struck by a vehicle. One firefighter fell from the cab of a responding apparatus as it turned at an intersection. All the vehicle-related and sudden cardiac deaths are discussed in more detail later in this report. All of the victims were volunteer firefighters. There has been a marked reduction in both crash deaths and cardiac-related deaths while responding to or returning from alarms over the past 40 years. Over the first 10 years that NFPA conducted this study, from 1977 through 1986, an average of 36 deaths per year occurred while firefighters were responding to or returning from alarms. The number of deaths that occurred while responding to or returning from calls has averaged 13 per year over the past 10 years and 11 per year over the past five years.

Five deaths occurred during training activities. Sudden cardiac death claimed the lives of four of the five; one firefighter died of heatstroke. One of the victims had been the instructor at a Rapid Intervention Team (RIT) drill. One was involved in vehicle extrication training at the fire station. One firefighter passed away overnight while attending a conference. One firefighter, a recruit, was participating in search-and-rescue training at a regional training center. The firefighter who died of heatstroke was engaged in a training hike.

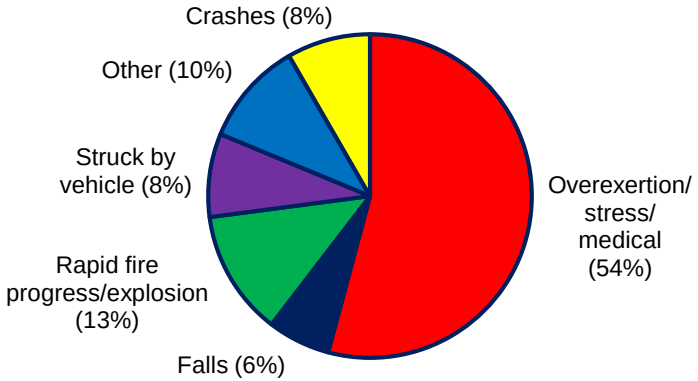
The remaining 12 firefighter fatalities in 2019 involved a variety of normal station, administrative, or maintenance activities. Six of these fatalities were due to sudden cardiac death and one to stroke while firefighters were working around the station. One fire chief suffered sudden cardiac death at the funeral of another firefighter. One firefighter suffered sudden cardiac death after conducting a pump test

at the department's training facility. One firefighter who had been diagnosed with post-traumatic stress disorder died by suicide at the fire station. One firefighter was killed in an explosion that occurred while firefighters were preparing fireworks for their community's holiday firework display. One firefighter driving from one fire station to another for an overtime shift was killed in a motor vehicle crash.

Cause of fatal injury or illness

Figure 3 shows the distribution of deaths by cause of fatal injury or illness. The term *cause* refers to the action, lack of action, or circumstances that resulted directly in the fatal injury.[5]

Figure 3. Firefighter Deaths by Cause of Injury – 2019



Overexertion, stress, and medical issues accounted for more than half of the deaths in 2019. Of the 26 deaths in this category, 22 were classified as sudden cardiac deaths (usually heart attacks) and two were due to stroke. One was a death by suicide and one death was due to heatstroke. See the next page for more details on sudden cardiac deaths.

Six firefighters were killed as a result of fire progress or explosions. In separate incidents, two firefighters were killed when they became trapped in three-story apartment buildings — one during suppression operations and the other during a search for occupants. One firefighter was overrun while fighting a grass fire. One firefighter was killed, and six others were seriously injured, in a propane gas explosion while they were investigating a reported smell of gas. One firefighter operating a handline at the top of a grain silo was killed when an explosion occurred, and he fell from the roof. One firefighter assembling fireworks for a community holiday display was killed when one of the devices exploded and ignited all the devices in the structure in which he was working.

Four firefighters were killed in vehicle crashes. Four other firefighters were struck by vehicles, and one firefighter fell out the door of a moving apparatus. These vehicle-related deaths are discussed in detail later in this report.

Besides the firefighter who fell from the apparatus, two others died in falls — one from the snow-covered roof of a four-story building while attempting to access a chimney fire and the other from a bridge while working at the scene of a motor vehicle crash.

One firefighter became lost inside on the upper story of a vacant furniture store when the stairs to the ground floor collapsed as firefighters were evacuating the building.

While operating outside a single-family home, a firefighter was struck when the brick gable wall of the building collapsed.

A firefighter igniting small fires at a controlled burn was killed when the torch attached to her vehicle over pressured and ruptured, engulfing her in flames.

A firefighter was electrocuted when a utility line collapsed on him at the scene of a motor vehicle crash.

A firefighter was shot and killed by an unruly patient during an EMS call.

Nature of fatal injury or illness

The term *nature* refers to the medical process by which death occurred and is often referred to as *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. As in almost every year since 1977, sudden cardiac death accounted for the largest share of the deaths annually, with 22 deaths. Sudden cardiac deaths will be discussed in more detail in the next section.

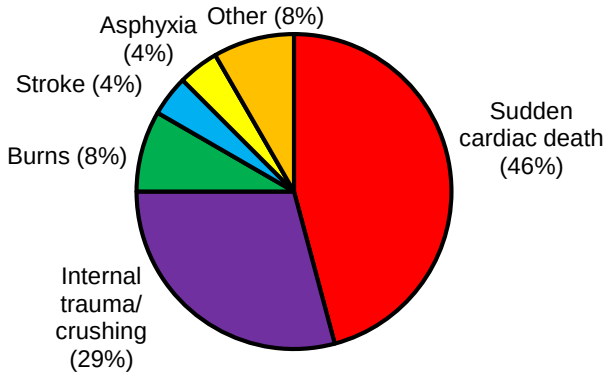
The next leading cause of death was internal trauma and crushing, with 14 deaths.

Four firefighters died of burns, two of asphyxia or smoke inhalation, two suffered fatal strokes, and there was one death each due to electrocution, heatstroke, gunshot, and suicide.

Sudden cardiac deaths

In 2019, 22 sudden cardiac deaths resulted with onset while the victim was on-duty. This is the fourth consecutive year that the toll has been below 30, but it still accounts for the largest share of the deaths while on duty in 2019. Cardiac-related events accounted for 44 percent of the on-duty fatalities over the past 10 years.

Figure 4. Firefighter Deaths by Nature of Injury – 2019

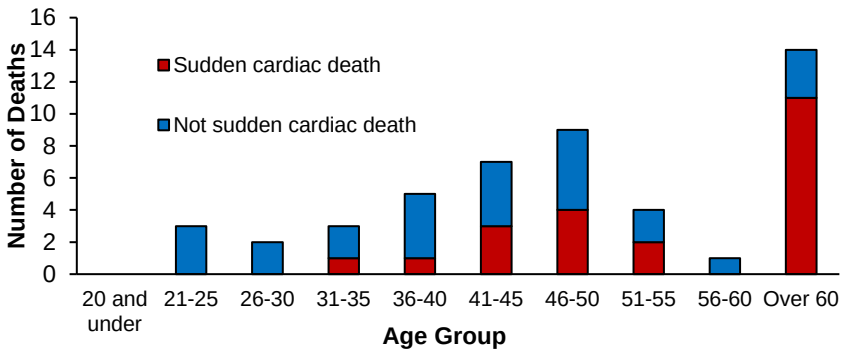


From 1977 through 1986, an average of 60 firefighters a year suffered sudden cardiac deaths while on duty (44.7 percent of the on-duty deaths during that period). These are cases in which the onset of symptoms occurred while the victim was on-duty and death occurred immediately or shortly thereafter. The average number of sudden cardiac deaths fell to 44 a year in the 1990s and to 29 in the past decade. Despite this reduction, sudden cardiac death continues to be the number one cause of on-duty firefighter fatalities in the US and in almost every year has accounted for the single largest share of deaths in the year. In addition, countless deaths occur annually of current and former firefighters whose health was compromised during their years in the fire service. For 2019, the US Fire Administration is processing almost a dozen fatalities that could potentially qualify for federal death benefits under the Hometown Heroes Act (deaths within 24 hours of non-routine strenuous or stressful physical activity).

Ages of firefighters

The firefighters who died in 2019 ranged in age from 21 to 81, with a median age of 46.5 years. Figure 5 shows the distribution of firefighter deaths by age and whether the cause of death was sudden cardiac death or not.

Figure 5. Firefighter Deaths by Age and Cause of Death – 2019

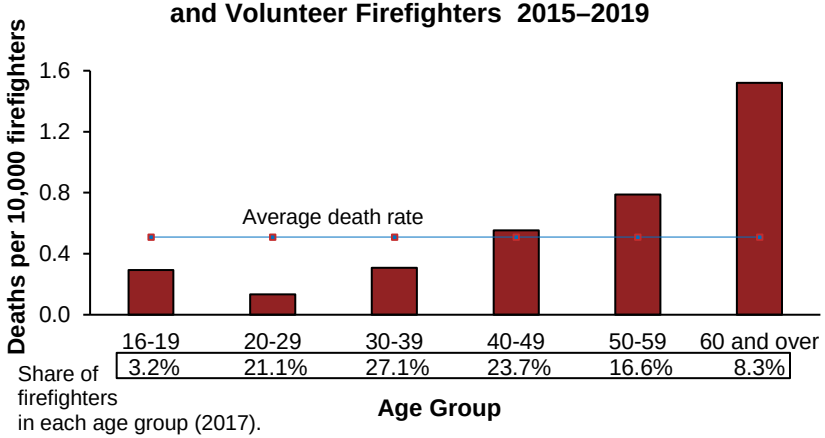


Sudden cardiac death accounts for a higher proportion of the deaths among older firefighters, as might be expected. Three-quarters of the firefighters over age 60 who died in 2019 died of heart attacks or other cardiac events.

Figure 6 shows death rates by age, using combined career and volunteer firefighter fatality data for the five-year period from 2015 through 2019 and the estimated average number of career and volunteer firefighters in each age group from NFPA's 2017 profile of fire departments.[6]

The lowest death rate was for firefighters between the ages of 20 and 29. Their death rate was about a quarter of the all-age average. The death rate for firefighters aged 60 and over was three times the average. Firefighters aged 50 and over accounted for half of all the on-duty firefighter deaths over the five-year period, although they represent only one-quarter of all career and volunteer firefighters in the US.

Figure 6. On-Duty Death Rates per 10,000 Career and Volunteer Firefighters 2015–2019



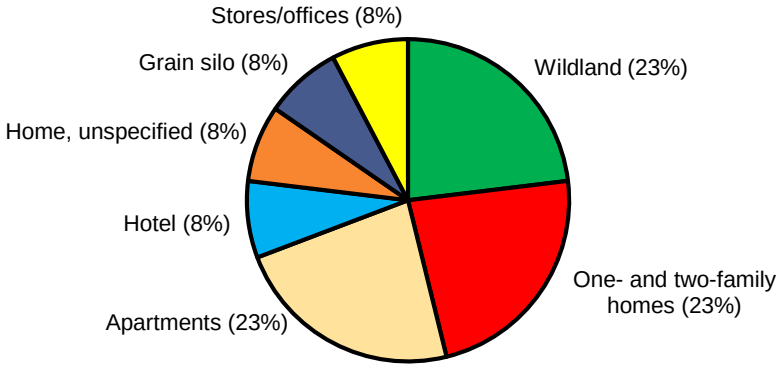
Fire ground deaths

Of the 13 fireground fatalities, five were due to internal trauma or crushing injuries, three were due to sudden cardiac death, three were due to burns, and two were due to asphyxia or smoke inhalation. Ten of the 13 deaths occurred at structure fires and three on wildland fires.

This is the lowest number of fireground deaths since this study was first done in 1977 and is the third time in the past four years that the total has been below 20. Except for 2001 at the World Trade Center and 2013, when an exceptionally high number of firefighters were killed at the scene of fires (19 firefighters on the Yarnell Hill wildland fire and nine in an explosion at a fertilizer plant), deaths on the fireground have been declining fairly steadily since 1999.

Figure 7 shows the distribution of the 13 fireground deaths by fixed property use. The 10 deaths at structure fires include three in fires involving one- and two-family homes, three in apartment buildings, one in an unspecified type of housing, one at the scene of a hotel fire, one at a grain silo, and one in a vacant furniture store.

Figure 7. Fireground Deaths by Fixed Property Use*



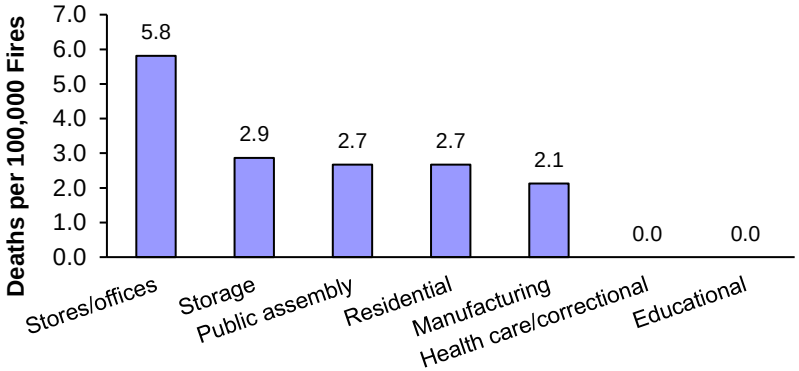
* There were 13 deaths on the fireground in 2019.

None of the structures in which firefighters died was reported to have had an automatic fire suppression system.

Of the three firefighters who died at wildland fire incidents, two died of burns and one was killed in a helicopter crash.

To put the hazards of firefighting in various types of structures into perspective, the authors examined the number of fireground deaths per 100,000 structure fires by property use. Estimates of the structure fire experience in each type of property were obtained from the NFPA's annual fire loss studies from 2014 through 2018 (the 2019 results are not yet available) and from the updated firefighter fatality data for the corresponding years. The results are shown in Figure 8.

Figure 8. On-Duty Fireground Deaths per 100,000 Structure Fires 2014–2018



This figure illustrates that, although many more firefighter deaths occur at residential structure fires than at fires in any other type of structure, fires in some nonresidential structures, such as manufacturing, public assembly, storage, and mercantile properties, are as hazardous, if not more so, on average, to firefighters. There were 3.0 fireground deaths per 100,000 nonresidential structure fires from 2014 through 2018, compared to 2.7 deaths per 100,000 residential structure fires. The highest death rates over the five-year period occurred in stores and offices. The low rate in educational and health care/correctional properties over that five-year period may reflect the fact that these occupancies are among the most regulated, most protected, and most frequently inspected and that their occupants are among the most likely to call the fire department to report fires while the fires are still in their early stages.

From 2010 through 2019, there were 17 deaths in 14 fires in vacant buildings and buildings under construction or renovation.

Vehicle-related deaths

In 2019, nine firefighters died in vehicle-related incidents, including four firefighters who died in vehicle crashes, four who were struck by vehicles, and one who fell from a moving vehicle.

Two of the four firefighters who died in crashes were killed while responding to emergencies — one to a motor vehicle crash and one to a wildland fire. One firefighter was driving from his shift at one fire station to an overtime shift at another station. One firefighter was in a helicopter working at a prescribed burn.

- A firefighter responding to a vehicle crash in a fire department pickup truck rear-ended a logging truck traveling in the left lane in front of him when it slowed to make a left turn. The firefighter, who was not wearing a seatbelt, was trapped in the vehicle. He was speeding, and driver inattention was also cited as a factor in the crash.

- A firefighter driving a tanker to a wildland fire overcorrected when the vehicle went onto the right shoulder. The vehicle crossed the centerline, struck an embankment on the other side of the road and overturned. The firefighter was not wearing a seatbelt and was ejected. Speed was a factor in the crash.

- A firefighter driving from one station to another in his personal vehicle for an overtime shift was struck head-on by another vehicle. The on-coming vehicle was attempting to pass another vehicle. The firefighter was not wearing his seatbelt and was ejected.

- A firefighter was killed when a helicopter crashed during operations at a prescribed burn. The helicopter was returning to the staging area when the engine lost power and the aircraft descended into the trees, struck the ground, and landed on its side. The pilot and another crew member survived the crash.

Over the years, crashes have frequently been the second leading cause of firefighter deaths, after sudden cardiac death. However, over the past 10 years, the average number of deaths in crashes has been 10 per year. This is the second time in the past 10 years that there have been fewer than five deaths in crashes.

Four firefighters were killed when struck by vehicles — two while operating at crash scenes, one at the scene of a structure fire, and one while returning from a fire.

- One firefighter stopped at the scene of a motor vehicle crash while responding to a medical call. While checking the driver of one of the two vehicles involved in the crash, he was struck by the side mirror of a passing semi-tractor trailer truck and pinned between the two vehicles. He was wearing a traffic safety vest. No other details about scene security were reported.

- A firefighter was struck at the scene of a pre-dawn motorcycle crash. The road had been closed to passing traffic, with emergency vehicles parked with their lights flashing. The driver of a semi-tractor trailer failed to stop and struck two parked cars at the scene before striking the firefighter who was standing near the original crash site. The driver said that he thought the lights ahead of him were the lights of an oncoming ambulance and that faulty brakes on his truck prevented him from stopping in time.

- A firefighter was retrieving a tool from his fire truck that was parked at the scene of a structure fire. He tripped getting out of the driver’s side of the truck, fell into the path of a passing vehicle, and was run over. The driver did not have time to react and could not avoid him.

- Two firefighters were in a tanker returning from a fire call when they got out of the truck to check the tires after hearing a strange noise. While standing on the dark, unlit narrow road, they were struck by the

personal vehicle of another firefighter who did not see them standing in the road. One of the firefighters was killed and the other was injured.

- A firefighter responding to a motor vehicle crash in the front passenger seat of a fire engine fell to the ground and struck his head when the cab door opened as the vehicle slowly made a left-hand turn from a stop sign. There was no mechanical problem with the door or its latch. The victim's seatbelt was unfastened.

NFPA publishes several standards related to road and vehicle safety issues, including the following:

- NFPA 1002, *Standard for Fire Apparatus Driver/Operator Professional Qualifications*, identifies the minimum job performance requirements for firefighters who drive and operate fire apparatus in both emergency and nonemergency situations.
- NFPA 1451, *Standard for a Fire and Emergency Service Vehicle Operations Training Program*, provides for the development of a written vehicle operations training program, including the organizational procedures for training, vehicle maintenance, and identifying equipment deficiencies.
- NFPA 1911, *Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Emergency Vehicles*, details a program to ensure that fire apparatus are serviced and maintained to keep them in a safe operating condition.
- NFPA 1901, *Standard for Automotive Fire Apparatus*, addresses vehicle stability to prevent rollovers, and gives manufacturers options on how to provide it. New vehicles will have their maximum speed limited, based on their weight, and will have vehicle data recorders to monitor, among other things, acceleration and deceleration, and seatbelt use.
- NFPA 1906, *Standard for Wildland Fire Apparatus*, establishes minimum design, performance, and testing requirements for new vehicles over 10,001 lb. (4,500 kg) gross vehicle weight rating that are specifically designed for wildland fire suppression.
- NFPA 1091, *Standard for Traffic Incident Management Personnel Professional Qualifications*, originally published in 2015, identifies the minimum job performance requirements necessary to conduct temporary traffic control duties at emergency incidents on or near an active roadway.
- NFPA 414, *Standard for Aircraft Rescue and Fire-Fighting Vehicles*, covers the criteria for design, performance, and acceptance of aircraft rescue and firefighting vehicles that carry personnel and equipment to the scene of an aircraft emergency.

The provisions of NFPA 1500, *Standard on Fire Department Occupational Safety, Health, and Wellness Program*, include requirements that operators successfully complete an approved driver training program, possess a valid driver's license for the class of vehicle, and operate the vehicle in compliance with applicable traffic laws. All vehicle occupants must be seated in approved riding positions and secured with seatbelts before drivers move the apparatus, and drivers must obey all traffic signals and signs and follow all the laws and rules of the road. These rules include coming to a complete stop at red traffic lights, stop signs, stopped school buses with flashing warning lights, blind intersections and other hazardous intersections, and unguarded railroad grade crossings. Passengers are required to remain seated and must not release or loosen their seatbelts for any reason while the vehicle is in motion. In related efforts, the US Fire Administration has a website with resources on emergency vehicle and roadway operations safety.

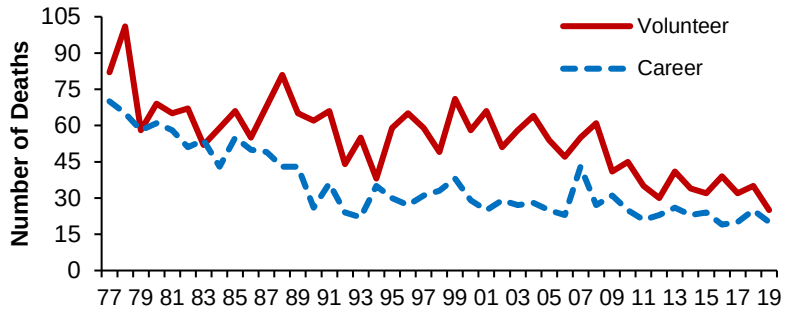
The focus of vehicle safety programs should not be exclusively on fire department apparatus, as, over the years, private vehicles have been the vehicles most frequently involved in road crashes. NFPA 1500 includes a requirement that when members are authorized to respond to incidents or to fire stations in private vehicles, the fire department must establish specific rules, regulations, and procedures relating to the operation of those vehicles in an emergency mode. NFPA 1451 also requires training for those using privately-owned vehicles.

Requirements are also in place for emergency personnel operating on roadways. The 2009 version of the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD), revised in 2012, requires anyone working on a roadway to wear a visibility vest compliant with ANSI 107, *High-Visibility Safety Apparel and Accessories*. An exemption was created for firefighters and others engaged on roadways that allows them to wear NFPA-compliant personal protective clothing (turnout gear) when directly exposed to flames, heat, and hazardous material. The 2018 edition of NFPA 1500 has a new chapter on traffic incident management that requires training on safety at incidents on roadways. It also sets requirements on wearing high-visibility garments, using fire apparatus in a blocking position to protect firefighters, and using advance warning devices to caution oncoming drivers about operations on the roadway. The 2009 edition of NFPA 1901 requires that breakaway high-visibility vests compliant with ANSI 207, *High-Visibility Public Safety Vests*, be carried on all new fire apparatus. MUTCD 2009 allows emergency responders to use them in lieu of ANSI 107-compliant apparel. Advice on compliance with the updated Federal rules can be found on the MUTCD website. NFPA 1901 also requires reflective striping for improved visibility on new apparatus and a reflective chevron on the rear of fire apparatus.

Career/volunteer comparison

Figure 9 compares the number of deaths of career firefighters and volunteer firefighters from local fire departments since the study was first done in 1977. The 25 deaths of volunteer firefighters is the lowest reported in all the years of this study, and a sharp drop from the annual average for volunteer firefighters over the previous 10 years (36 deaths per year). It is also far lower than the average of 67 deaths per year in the earliest years of this study. The 20 deaths of career firefighters while on-duty in 2019 is the third time in the past four years that the total has been 20 or lower. In the earliest years of this study, the annual average number of deaths of career firefighters while on duty was 57.

Figure 9. Career and Volunteer Firefighter Deaths 1977–2019*



* Excluding the firefighter deaths at the World Trade Center in 2001.

A breakdown of the fatality experience of the 45 career and volunteer firefighters killed in 2019 is shown in Table 1.

Intentional fires and false calls

In 2019, one firefighter collapsed and died at the scene of a fire that was deliberately set on the porch of a single-family home. From 2010 through 2019, 31 firefighters (4.6 percent of all on-duty deaths) died in connection with intentionally set fires, either at the fire or while responding to or returning from the fire.

In 2019, one firefighter died after responding to the station for what turned out to be a false call. Over the past 10 years, five firefighter deaths have resulted from false calls, including malicious false alarms and alarm malfunctions.

In summary

The hazardous nature of firefighting cannot be fully captured in a study that focuses only on deaths that occur while firefighters are on the job. But it is not possible to accurately assess the total number of deaths and injuries that have resulted annually due to long-term exposures to carcinogens and physical and emotional stress and strain. This report focuses on the deaths of firefighters resulting from specific injuries or exposures while on duty in 2019. A complete picture of duty-related fatalities would also include the cancer, cardiac, stress, and other fatalities that were caused by exposures to toxins or the emotional toll of responses. Other sources can provide some perspective on these aspects of the overall fatality problem. As mentioned above, the IAFF website lists more than 130 firefighter cancer deaths that were reported to them in 2019 and the FBHA reported that 119 firefighters and 20 EMTs and paramedics died by suicide in 2019. Over the past several years, in their annual report on US firefighter deaths, the US Fire Administration has included an average of 15 firefighters a year who qualified for Hometown Heroes Act benefits, which cover firefighters who suffer a heart attack or stroke within 24 hours of engaging in non-routine stressful or strenuous activity on duty.

Last year was marked by historic lows for deaths of firefighters while on duty. The 48 on-duty firefighter deaths in the US in 2019 was by far the lowest death toll reported for this study. Sudden cardiac death, although it accounted for almost half of the fatalities, was also at the lowest level ever. The 22 sudden cardiac deaths in 2019 is almost one-third lower than the annual average over the previous 10 years. Deaths at structure fires continued the recent trend of fewer than a dozen. Deaths in road vehicle crashes and deaths of volunteer firefighters were also at record lows. Although deaths of career firefighters were not at their lowest level ever, the total has been 25 or fewer for nine of the past 10 years.

It is important to note that one year's experience cannot be interpreted as evidence of a trend, and we know already that the death toll in 2020 will likely be higher as a result of the COVID-19 deaths that have already been reported. But there are promising indications that real, sustained progress has been made in reducing deaths in some categories, such as cardiac-related issues, structure fires, and vehicle crashes. Other findings are not as positive, however; a firefighter was shot and killed at an EMS call in 2019, the ninth firefighter to be murdered on duty in the past 10 years.

References

[1.] NFPA's files for firefighter on-duty fatal injuries are updated every year.

[2.] For this report, the term *volunteer* refers to any firefighter whose principal occupation is not that of a full-time, paid member of a fire department. The term *career* refers to any firefighter whose occupation is that of a full-time, paid fire department member.

[3.] For this report, the term *motor vehicle-related incident* refers to motor vehicle collisions (including aircraft and boats) and rollovers, as well as to incidents such as falls from or struck by vehicles where the involvement of the vehicle played an integral role in the death.

[4.] E. S. Soteriades, et al., "Cardiovascular Disease in US Firefighters: A Systematic Review," *Cardiology in Review*, Vol. 19, No. 4, July/August 2011, pp. 202-215.

[5.] The categories for cause of injury and nature of injury are based on the 1981 edition of NFPA 901, *Uniform Coding for Fire Protection*.

[6.] Averages were calculated from the 2017 fire department profile report. B. Evarts and G. Stein, "US Fire Department Profile 2017," National Fire Protection Association: Quincy, MA, 2019.

Acknowledgments

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To learn more about research at NFPA visit nfpa.org/research.

E-mail: research@nfpa.org.

NFPA No. FFF10

Table 1. Comparison of On-Duty Deaths Between Career and Volunteer Firefighters, 2019*

	Career Firefighters		Volunteer Firefighters	
	Number of Deaths	Percent of Deaths	Number of Deaths	Percent of Deaths
Type of duty				
Operating at fireground	6	30%	5	20%
Responding to or returning from alarms	0	0%	9	36%
Operating at non-fire emergencies	3	15%	6	24%
Training	1	5%	3	12%
Other on-duty	10	50%	2	8%
TOTALS	20	100%	25	100%
Cause of fatal injury				
Overexertion/stress/other related	9	45%	16	64%
Rapid fire progress/explosion	4	20%	2	8%
Struck by vehicle	2	10%	2	8%
Motor vehicle crash	1	5%	2	8%
Fell	2	10%	1	4%
Structural collapse	1	5%	0	0%
Exposure to electricity	0	0%	1	4%
Lost inside	0	0%	1	4%
Assault	1	5%	0	0%
TOTALS	20	100%	25	100%
Nature of fatal injury				
Sudden cardiac death	7	35%	15	60%
Internal trauma/crushing	7	35%	6	24%
Burns	2	10%	1	4%
Asphyxia, including smoke inhalation	1	5%	1	4%
Stroke	1	5%	1	4%
Gunshot	1	5%	0	0%
Suicide	1	5%	0	0%
Electrocution	0	0%	1	4%
TOTALS	20	100%	25	100%

Table 1. Comparison of On-Duty Deaths Between Career and Volunteer Firefighters, 2019*, Continued

	Career Firefighters		Volunteer Firefighters	
	Number of Deaths	Percent of Deaths	Number of Deaths	Percent of Deaths
Rank				
Firefighter	14	70%	13	52%
Company officer	6	30%	3	12%
Chief officer	0	0%	9	36%
TOTALS	20	100%	25	100%
Ages of firefighters — All deaths				
21 to 25	1	5%	2	8%
26 to 30	1	5%	0	0%
31 to 35	3	15%	0	0%
36 to 40	5	25%	0	0%
41 to 45	1	5%	4	16%
46 to 50	6	30%	3	12%
51 to 55	3	15%	1	4%
56 to 60	0	0%	1	4%
61 to 65	0	0%	3	12%
Over 65	0	0%	11	44%
TOTALS	20	100%	25	100%
Ages of firefighters — Sudden cardiac deaths only				
31 to 35	1	14%	0	0%
36 to 40	1	14%	0	0%
41 to 45	1	14%	2	13%
46 to 50	2	29%	2	13%
51 to 55	2	29%	0	0%
56 to 60	0	0%	0	0%
61 to 65	0	0%	3	20%
Over 65	0	0%	8	53%
TOTALS	7	100%	15	100%

Table 1. Comparison of On-Duty Deaths Between Career and Volunteer Firefighters, 2019*, Continued

	Career Firefighters		Volunteer Firefighters	
	Number of Deaths	Percent of Deaths	Number of Deaths	Percent of Deaths
Fireground deaths by fixed property use				
Dwellings	1	17%	2	40%
Apartments	3	50%	0	0%
Unreported-type home	0	0%	1	20%
Wildland fire	0	0%	1	20%
Hotel/motel	1	17%	0	0%
Grain elevator	1	17%	0	0%
Vacant store	0	0%	1	20%
TOTALS	6	100%	5	100%
Years of service				
5 or less	4	20%	4	16%
6 to10	3	15%	1	4%
11 to 15	4	20%	3	12%
16 to 20	6	30%	2	8%
21 to 25	2	10%	4	16%
26 to 30	1	5%	3	12%
Over 30	0	0%	6	24%
Not reported	0	0%	2	8%
TOTALS	20	100%	25	100%
Attributes of fireground deaths**				
Intentionally set fires	0		1	
Search and rescue operations	2		0	
Motor vehicle crashes	1		2	
False alarms	0		1	

*This table does not include the three victims who were employees or contractors with federal or state land management agencies or civilian employees of the military.

**Because these attributes are not mutually exclusive, totals and percentages are not shown.

2019 Firefighter fatality narratives

Fall from roof in silo explosion

Firefighters responded to an early morning report of a fire smoldering in a concrete silo at a corn processing plant. The silo held gluten pellets. Two firefighters were operating on the roof of the silo when an explosion occurred. One firefighter fell nearly 100 feet (30 meters) to the ground and suffered fatal injuries. The second firefighter fell into the silo, and suffered serious injuries in the fall.

The fire was discovered by workers who had been working at the site to clear a blockage near the bottom of the silo. The clearing process involved using a high-pressure water head to break up the material blocking the flow of product. When they arrived at work that day, they found that material that had been removed from the silo the previous day was smoldering. They attempted to extinguish the fire themselves until they noticed more burning material falling out of the hopper at the bottom of the silo and called the fire department.

Arriving firefighters focused their initial attack in the pit area near the bottom of the silo. After making several unsuccessful attempts to extinguish the fire over the course of approximately two hours, they decided to change their plan of attack and fight the fire from the roof of the silo. The bucket of the ladder truck could not reach the top of the silo—it was about 10 feet (3 meters) short—so two firefighters carried two 50-foot (15-meter) sections of 3-inch (7.6-centimeter) hose to the roof of the silo. Guided by a plant employee, it took them 15 to 20 minutes, via stairs and an elevator, to reach the catwalk on top of the silos, at which point the employee retreated due to the smoky conditions. Once atop the silo, the firefighters lowered one section of hose down to a firefighter in the bucket, who connected the hose to the discharge in the front of the bucket while the two firefighters dropped the hose into the silo through an access vent and began flowing water into the silo.

About 10 minutes later, an explosion occurred in the silo, and the victim, a 33-year-old career lieutenant, fell from the roof, striking a canopy below before falling to the ground. Resuscitation efforts began immediately, and the firefighter was taken by helicopter to the hospital where he died of traumatic injuries. The firefighter who fell into the silo was removed through an access hatch on a small platform between the burning silo and an adjacent silo. Once extricated, he was flown by helicopter to the hospital where he was treated for traumatic injuries. He returned to firefighting activities several months later. The firefighter in the bucket of the aerial apparatus and another firefighter on the ground suffered bruising and muscular injuries when they were knocked down by the force of the explosion.

The fire was finally extinguished the following afternoon.

Investigators determined that the explosion most likely resulted from the ignition of combustible gas but could not completely rule out a combustible dust explosion. They also determined that the root cause of the explosion was the application of water from the top of the silo. As a result of the state Occupational Safety and Health Administration investigation, the plant operator and cleaning company were cited and fined for several safety violations related to their handling of the incident.

Firefighters trapped in structure fire

A fire captain died as a result of exposure to intense fire and heat conditions while conducting search operations at a fire in a three-story apartment building.

Just before 11 a.m., an emergency call reported smoke in a three-story apartment building with a person trapped on the third floor. Firefighters arrived at the six-unit building to find heavy fire at the rear of the structure. While one firefighter raised a ladder on the side of the building to a third-floor window where a person was last seen, a 32-year-old captain and a 20-year-old firefighter went up the front stairs to conduct a primary search of the apartment. Leaving the charged hose line in the stairwell, they entered the apartment where they encountered intense heat and zero visibility.

As they proceeded through the apartment, they heard over the radio that the trapped occupant had been rescued from a window. They turned back toward the stairwell to leave the building but encountered extreme fire conditions and were trapped. They called a Mayday but received no response. They began to search for another exit or an area of safe refuge within the apartment. At the rear of the apartment, the captain shielded the other firefighter from the fire conditions with his body.

At about the same time, a crew from a neighboring fire department entered the front stairwell, following the first crew's handline. They found the hose burned through in the stairwell and transmitted another Mayday call. Ground ladders were raised to windows to assist the trapped firefighters.

Eventually, the trapped firefighter became aware of water knocking down the fire around them, and the room began to cool down. As visibility improved, he noticed a window; he tried to alert the captain but realized he was unconscious. Unable to move the captain by himself, he tried to attract the attention of firefighters on the ground but was not seen or heard. He was able to retrieve his radio and reported their location and situation. Firefighters raised a ground ladder to the porch of the apartment and removed the captain, who was unresponsive. EMTs at the scene started CPR on the captain. He was transported to the hospital, where he died.

The captain's death was due to hyperthermia and/or hypoxia; the other firefighter suffered burn injuries but was not hospitalized. Three other firefighters were also treated at the hospital and released.

The fire started when a discarded cigarette ignited nearby combustibles on the third-floor porch and spread into the apartment.

In a tragic footnote to this incident, the fire chief from another department suffered a fatal heart attack while attending the captain's funeral.

Gable wall collapse at structure fire

A 37-year-old fire captain was killed, and three others — a captain from another fire department and two firefighters — were injured while operating at a mutual aid structure fire in a neighboring community.

County dispatch received a call at 4:15 p.m. reporting the fire at a one-story, brick, single-family home. The caller said that all the occupants were out of the house, but that the homeowner was attempting to re-enter the structure to rescue pets. The dispatcher mistakenly sent a neighboring fire department to the fire but did tell them that the occupants were out of the house. The sheriff's office was also dispatched and asked to keep the occupants outside the home.

Within minutes, the fire department requested mutual aid from two other fire departments. Several minutes later, the sheriff's department confirmed that all the occupants were out of the building, but that information was not shared with the responding fire departments.

The first apparatus arrived 12 minutes after the initial call, and reported the house was fully involved, with heavy smoke and fire emitting through the roof and windows. Firefighters discovered hoarding conditions after gaining entry to the house.

At 4:34 p.m., 19 minutes after the initial call, the victim's fire department was dispatched to assist as mutual aid. The captain and two firefighters arrived at 4:46 p.m. By then, a portion of the roof had been consumed by fire, and fire was still burning in the basement.

After conferring with the incident commander, the captain and his two firefighters were assigned to the left-hand side of the structure to gain access to the basement through the garage door. Initially, the captain and one firefighter operated a one-and-three-quarter-in. (4.5 cm) handline and a thermal imaging camera through an unlocked door into the garage while the other firefighter, along with a captain and firefighter from another department, attempted to cut through the larger garage door with a saw. Use of the saw on the garage door placed the firefighters directly under the gable. Once they created the opening in the garage door, the captain and the firefighter redeployed to the newly created opening under the gable and operated in the same manner, alternating between identifying hot spots with the thermal camera and spraying water in that area.

Nearly 45 minutes into the fire, the gable wall, which had lost its support when that area of the roof burned away, collapsed onto the firefighters below. The captain was found lying supine with his self-contained breathing apparatus still in place, but he was unconscious with no detectable pulse or respirations. Firefighters immediately started CPR and the captain was transported via helicopter to an emergency facility where he later succumbed to crushing injuries to his head, neck, and chest. The other firefighters in the collapse zone received varying degrees of injuries and were treated and transported to area hospitals.

Over the course of the fire, six fire departments were involved in suppression activities. A state investigation report on the fire indicated that several command duties outlined in NFPA 1561, *Standard on Emergency Services Incident Management System and Command Safety*, had not been followed. These included establishing a command post, using an accountability system, and conducting ongoing situation assessments. A unified command was not established. A complete walk around the structure was not conducted until after the collapse occurred.

Gunshot at EMS call for narcotic overdose

A 36-year-old firefighter was shot and killed while on an EMS call. The 14-year veteran firefighter responded at approximately 5:30 p.m. to reports of a man having a seizure. The unconscious victim was found on a transit bus, not breathing. Firefighters began treatment while awaiting the arrival of an ambulance and medics. When the medics arrived, firefighters continued to assist with the patient. The patient eventually regained consciousness and spontaneous respirations after the administration of the narcotic antagonist, naloxone.

The firefighters, medics, and police officers began transferring the patient to a stretcher when he became unruly and uncooperative. Medics and firefighters attempted to calm the patient by explaining that he needed to be transported to the hospital. He was advised that the beneficial effects of the medicine they had just administered would wear off, rendering him unconscious again. Police eventually had to step in and attempt to control the patient.

While police officers were trying to calm the patient and search for weapons, he pulled a small pistol from his pocket and began firing.

As the police officers and firefighters took cover, gunshots hit one firefighter in the back, a police officer in the leg, and a civilian in both the head and leg.

As the police continued to exchange gunfire with the suspect, the other firefighters on scene immediately emerged from cover to retrieve a medical equipment bag and to tend to the injuries of the downed firefighter. The firefighter was ashen and without a pulse and respirations. Medics and firefighters were able to restore his pulse and transport him to the hospital where he later succumbed to a single gunshot wound to his back. The suspect was eventually shot and killed by police on scene. The police officer and civilian who were also shot in the incident were both expected to recover.

Explosion while preparing for community fireworks display

A firefighter was killed and another was severely injured when aerial shells exploded while they were preparing for a fireworks display.

Twelve firefighters were involved in preparations for the community's Fourth of July fireworks display in a city-owned storage facility. The building was a windowless concrete block structure with a metal roof, a metal roll up door on one side of the structure, and two sets of double doors. Firefighters moved shells from a storage container outside into the structure where they fused the aerial shells with electric matches. The prepared shells were then stored in the structure.

The firefighters had been working for three hours and were almost finished when a shell one firefighter was holding ignited and exploded. That explosion caused other explosions involving all the shells in the building. The resulting pressure buildup blew out the walls, and burning material ignited the other contents of the building. The two firefighters in the immediate area were severely burned and were airlifted to the trauma unit.

One of them, a 46-year-old firefighter, succumbed to his injuries six weeks later. The 36-year-old firefighter who had been holding the shell that exploded was treated for burns and released after approximately one month in the hospital. The other 10 firefighters received minor injuries and were treated at the scene or in the emergency room and released.

A state fire marshal's investigation determined the cause of the explosion to be accidental.

Heat exposure during wildland fire training hike

At approximately 8:40 a.m., an engine crew consisting of an officer and two firefighters began a training hike as part of a daily fitness routine. All three firefighters, dressed in full wildland personal protective equipment and carrying hand tools, began the approximately 1.5-mile (2.4-kilometer) hike through terrain consisting of gravel and loose boulders. The trail included flat areas as well as slopes and substantial elevations. The weather was sunny with a temperature of 78 degrees F (26 degrees C) and a relative humidity of 63 percent. The expected time to complete the hike was 30 minutes.

During the hike, the officer and one firefighter had to wait for the second firefighter to catch up on more than one occasion. After completing the hike in approximately 40 minutes, the officer determined they did not meet the 30-minute time requirement, and after a 20-minute break to rehydrate they would repeat the hike.

At approximately 9:40 a.m., the crew began the second hike. One firefighter noticed that the other firefighter didn't seem to fully recover from the first hike. During the second hike, the firefighter needed to take numerous breaks. After climbing over one of the elevated ridges, he fell forward and sat down. The officer and the second firefighter took measures to cool him, removing his helmet,

jacket, and shirt and pouring water over his head, but his mental status declined. A medical response, including an airlift, was initiated, but due to the location and difficult terrain, it was almost two hours before the patient reached the hospital. The firefighter was unresponsive but breathing during transport. He succumbed to his injuries early the next morning.

An autopsy determined that the 28-year-old firefighter had died from heat exposure with a body temperature that had reached 107 degrees F (42 degrees C). The death was ruled accidental.

Water tanker crash while responding to brush fire

A 45-year-old volunteer firefighter was killed in a mid-afternoon crash while responding alone to a reported brush fire.

The firefighter, who had been a member of the fire department for only a few months, was driving westbound in a water tanker carrying 1,900 gallons of water when the vehicle went onto the shoulder. The firefighter overcorrected, causing the truck to cross the centerline of the two-lane road, strike a rock embankment on the opposite side, and overturn. The truck came to rest in the westbound lane, facing east, with the tank separating from the truck. The victim, who was not wearing a seatbelt, was ejected and pronounced dead at the scene

The weather was clear and the road was straight and dry. Speed may have been a factor, as the vehicle was traveling at 60 mph (100 kph) in a 30 mph (50 kph) zone.

The fire turned out to be a controlled burn.

Struck by passing vehicle at crash scene

While responding to a medical call at 3:30 p.m., two firefighters came upon a two-vehicle crash along a two-lane highway and pulled over to assist the vehicles' occupants. One firefighter, who was wearing a traffic safety vest, was at the driver's side window of one of the vehicles assessing the driver when he was struck in the head by the side mirror of a passing semi-truck and pinned between the two vehicles.

The victim, a 46-year-old career fire engineer with 22 years of service, was treated at the scene and transported to the hospital, where he died of multiple blunt-force injuries.

Overrun after vehicle becomes stuck at wildland fire

An assistant chief became entangled in brush and suffered fatal burns while attempting to outrun a fast-spreading grass fire.

Firefighters from the state's wildland management agency and the local fire district were called to respond to a fast-moving grass and brush fire just before 4 p.m. Fire danger was at its highest level, with the temperature near 90 degrees F (32 degrees C), humidity at 19 percent, and wind at 15 mph (24 kph) and gusting to 25 mph (40 kph).

The fire was first reported to be about the size of a basketball court and spreading to a nearby home. A subsequent call at 4:06 p.m. reported the fire to be the size of a football field. At 4:09 p.m., the first-arriving firefighters found that the fire already covered five to 10 acres (two to four hectares), with 9- to 15-foot (3- to 5-meter) flames.

Because the local firefighters knew that structures were threatened, they donned structural firefighting gear. An assistant chief left the station with another firefighter in a brush truck, wearing turnout pants, with his jacket stowed between the cab of the truck and the rear-mounted storage compartment. They arrived at the fire at 4:15 p.m. and initially focused on protecting a recreational vehicle and a bulldozer. When a second brush truck arrived at their location, they headed further north to protect a cluster of structures up the road.

The assistant chief drove to the site along a trail while the firefighter rode on the outside of the vehicle, operating a hose line on the flames in an attempt to keep the fire from spreading toward the structures. At a bend in the trail, the assistant chief stopped the truck on the grass as the firefighter got off the truck and extended the hose line toward the fire.

The wind suddenly shifted, and the fire began spreading toward them. The assistant chief yelled to the firefighter to drop the hose and run to the truck. The fire was moving too fast, however, and the firefighter was unable to get in the passenger-side door. Running to the other side of the truck, he climbed onto the outside of the vehicle as the assistant chief tried to drive away. After traveling only a few feet, the truck became stuck and was engulfed by flames. Both men ran from the truck, heading toward the trail along slightly different paths. The assistant chief apparently became entangled in debris hidden in the vegetation and was overrun by fire. The firefighter reached the trail just as the fire, now out of fuel, died down.

He immediately headed back to find the assistant chief and located him about 150 feet (45 meters) from the truck. The firefighter called a Mayday at 4:26 p.m. Medical assistance headed immediately to the site, including a local EMT who had heard the radio traffic reporting the fire and self-dispatched to the scene, anticipating that medical assistance might be needed.

The 55-year-old victim was airlifted to a hospital where he died more than four weeks later of burns over 60 percent of his body. The incident report indicated that a contributing factor in the severity of the victim's burn injuries may have been that he was not wearing his turnout coat or a Nomex shirt when he was caught in the fire.

By the time the fire was contained, 90 minutes after the alarm, it had extended to 107 acres (43 hectares).

U.S. Department of Justice Death, Disability and Educational Benefits for Public Safety Officers and Survivors

Line of duty deaths: The Public Safety Officers' Benefits (PSOB) Act, signed into law in 1976, provides a federal death benefit to the survivors of the nation's federal, state, local and tribal law enforcement officers, firefighters, and rescue and ambulance squad members, both career and volunteer, whose deaths are the direct and proximate result of a traumatic injury sustained in the line of duty. The Act was amended in 2000 to include FEMA employees performing official, hazardous duties related to a declared major disaster or emergency. Effective December 15, 2003, public safety officers are covered for line-of-duty deaths that are a direct and proximate result of a heart attack or stroke, as defined in the Hometown Heroes Survivors' Benefits Act of 2003. The Dale Long PSOB Improvements Act of 2012 expands the Hometown Heroes Act to include vascular ruptures.

A 1988 amendment increased the amount of the benefit from $50,000 to $100,000 and included an annual cost-of-living escalator. On October 1 of each year, the benefit changes as a result. The enactment of the USA PATRIOT bill in 2001 increased the benefit to $250,000. As of October 1, 2019, the current benefit is $365,670, a lump sum and tax-free benefit.

A decedent's spouse and minor children are the first eligible beneficiaries for PSOB Program purposes. In cases in which the public safety officer had no surviving spouse or eligible children, the death benefit is to be awarded to either the individual most recently designated as beneficiary for PSOB benefits with the officer's public safety agency, organization, or unit, or, if there is no designation of beneficiary of PSOB benefits on file, then to the individual designated as beneficiary under the most recently executed life insurance policy on file with the agency at the time of death. (See 42 U.S.C. § 3796(a)(4) for specific details.) If no individuals qualify under 42 U.S.C. § 3796(a)(4), then the benefit is paid to the public safety officer's surviving parents; if the officer is not survived by a parent, the benefit may be paid to the officer's children who would be eligible to receive it but for their age (i.e., adult children).

Information regarding eligibility for benefits in connection with deaths or disability due to COVID-19 can be found in guidance posted on the PSOB website: https://psob.bja.ojp.gov/COVID-19.

Line of duty disabilities: In 1990, Congress amended the PSOB benefits program to include permanent and total disabilities that occur on or after November 29, 1990. The amendment covers public safety officers who are permanently unable to perform any gainful employment in the future. PSOB is intended for those few, tragic cases where an officer survives a catastrophic, line of duty injury. Only then, in the presence of the program's statutory and regulatory qualifying criteria, will PSOB's disability benefit be awarded. The bill's supporters anticipated that few PSOB disability claims would be eligible annually.

Public Safety Officers' Educational Assistance Program (PSOEA): An additional benefit, signed into law in October 1996 and amended in 1998, provides an educational assistance allowance to the spouse and children of public safety officers whose deaths or permanent and total disabilities qualify under the PSOB Act. This benefit is provided directly to dependents who attend a program of education at an eligible education institution and are the children or spouses of covered public safety officers. It is retroactive to January 1, 1978, for beneficiaries who have received or are eligible to receive the PSOB death benefit. Students may apply for PSOEA funds for up to 45 months of full-time classes. As of October 1, 2019, the maximum benefit a student may receive is $ 1,248 per month of full-time attendance.

Further benefits information: To receive additional information on filing a disability claim or to receive additional information about coverage, call, email, or write the Public Safety Officers' Benefits Office, Bureau of Justice Assistance, Office of Justice Programs, U.S. Department of Justice, 810 7th Street, N.W., Washington DC 20531. The telephone number is (888) 744-6513 and the email address is AskPSOB@usdoj.gov. Please note that the PSOB Customer Resource Center is available to take calls Monday through Friday from 8:00 AM until 4:30 PM ET. PSOB death claims can be filed online as well at: https://www.psob.bja.ojp.gov/benefits/.