Fire-Related Firefighter Injuries Reported to the National Fire Incident Reporting System (2010-2012)

These topical reports are designed to explore facets of the U.S. fire problem as depicted through data collected in the U.S. Fire Administration's (USFA's) National Fire Incident Reporting System (NFIRS). Each topical report briefly addresses the nature of the specific fire or fire-related topic, highlights important findings from the data, and may suggest other resources to consider for further information. Also included are recent examples of fire incidents that demonstrate some of the issues addressed in the report or that put the report topic in context.

Findings

- From 2010 to 2012, an estimated 70,450 firefighter injuries occurred annually. Of these injuries, 31,550 occurred on the fireground, and 4,150 occurred while responding to or returning from an incident.
- The majority of fire-related firefighter injuries (87 percent) occurred in structure fires. In addition, on average, structure fires had more injuries per fire than nonstructure fires.
- Injuries resulted in lost work time for 42 percent of firefighters with reported fire-related injuries.
- Fires resulting in firefighter injuries were more prevalent in July at 12 percent and peaked between the hours of 1 and 4 p.m.
- Overexertion/Strain was the cause of 27 percent of reported fire-related firefighter injuries.

Every occupation brings degrees of safety risk. At the fire scene, on the way to or from a fire, or even while training, firefighters face the chance of suffering an injury and possibly death. Each year, tens of thousands of firefighters are injured while fighting fires, rescuing people, responding to emergency medical and hazardous material incidents, or training for their job. Annually, from 2010 to 2012, there were an estimated 70,450 firefighter injuries. Of these injuries, 31,550 occurred on the fireground. An additional 4,150 injuries occurred while responding to or returning from an incident, which includes but is not limited to fires.[1, 2, 3] While the majority of injuries are minor, a significant number are debilitating and career-ending. Such injuries exact a great toll on the fabric of the fire service.

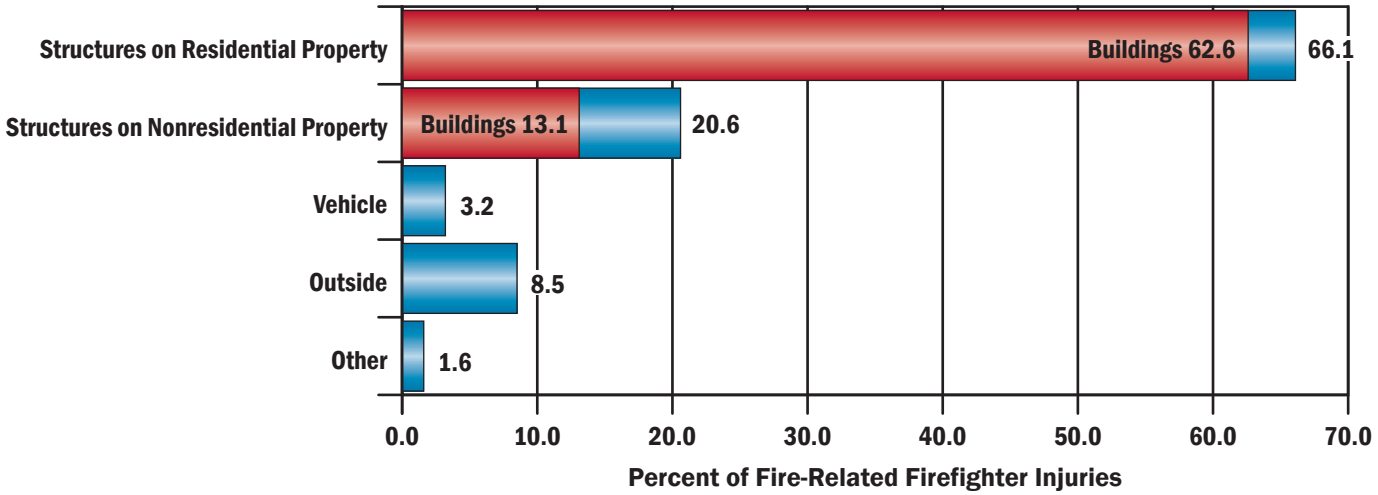
From the need to adjust staffing levels and rotations to accommodate injuries to the focus of the fire service on injury prevention, injuries and their prevention are a primary concern. In addition, the fire service has done much to improve firefighter safety. Firefighter health and safety initiatives, incident command structure, training, and protective gear are but a few areas where time, energy and resources have been well-spent. Nonetheless, firefighting by its very nature is a hazardous profession. Injuries can and do occur.

This topical report addresses the details of firefighter injuries sustained at, responding to or returning from a fire incident, focusing on data as reported to the National Fire Incident Reporting System (NFIRS) from 2010 to 2012, the most recent data available at the time of the analysis.[4] This current topical report is an update to the "Fire-Related Firefighter Injuries Reported to NFIRS" (Volume 11, Issue 7) topical report, which was released in February 2011. The statistics presented are from the analysis of the 2010 to 2012 NFIRS Version 5.0 data.[5]

Fire-Related Firefighter Injuries by General Property Type

From 2010 to 2012, 87 percent of the fire-related firefighter injuries reported to NFIRS were associated with structure fires (Figure 1). Three times as many firefighter injuries occurred in residential structures as in nonresidential structures, tracking with overall residential/ nonresidential fire incidence. Firefighter injuries in residential structures accounted for 66 percent of firefighter injuries, a majority of which occurred in residential building fires.[6] Building fires also made up more than half of the firefighter injuries in structure fires on nonresidential properties. Outside, vehicle and other fires combined accounted for 13 percent of firefighter injuries from 2010 to 2012.[7]

Figure 1. Fire-Related Firefighter Injuries by General Property Type (2010–2012)



Source: NFIRS 5.0.

Fire-Related Firefighter Injuries per Fire

Firefighters are 11 times more likely to be injured in structure fires than in nonstructure fires (e.g., vehicle fires, outdoor fires), as shown in Table 1. Building fire injury rates are shown separately in Table 2.

Table 1. Fire-Related Firefighter Injury Rates per 1,000 Fires by General Property Type (2010–2012)

General Property Type	All Fires
Structure	13.4
Residential	13.0
Nonresidential	14.9
Nonstructure	1.2
Vehicle	1.4
Outside and other	1.2
Total/Overall	5.7

Source: NFIRS 5.0.

Table 2. Fire-Related Firefighter Injury Rates per 1,000 Building Fires by Type (2010–2012)

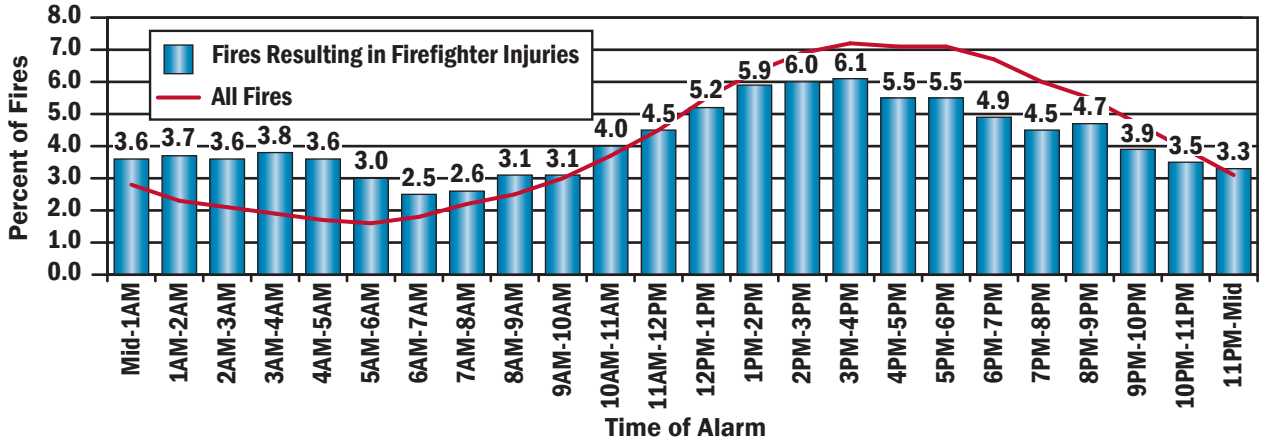
Type	Fires
Buildings	12.5
Residential	12.9
Nonresidential	10.6

Source: NFIRS 5.0.

When Fire-Related Firefighter Injuries Occur

As shown in Figure 2, fires resulting in firefighter injuries occurred most frequently in the midday, peaking from 1 to 4 p.m. After 6 p.m., fires resulting in injuries decreased until midnight. A small peak is then seen from midnight to 5 a.m. After 5 a.m., the numbers of fires resulting in firefighter injuries decreased, reaching the lowest point between 6 and 7 a.m. After 7 a.m., the number of fires resulting in injuries gradually increased to the start of the peak period. The peak period (1 to 4 p.m.) accounted for 18 percent of fires resulting in firefighter injuries.[8] The time of alarm profile for fires resulting in firefighter injuries tracked similarly with that for fires overall.

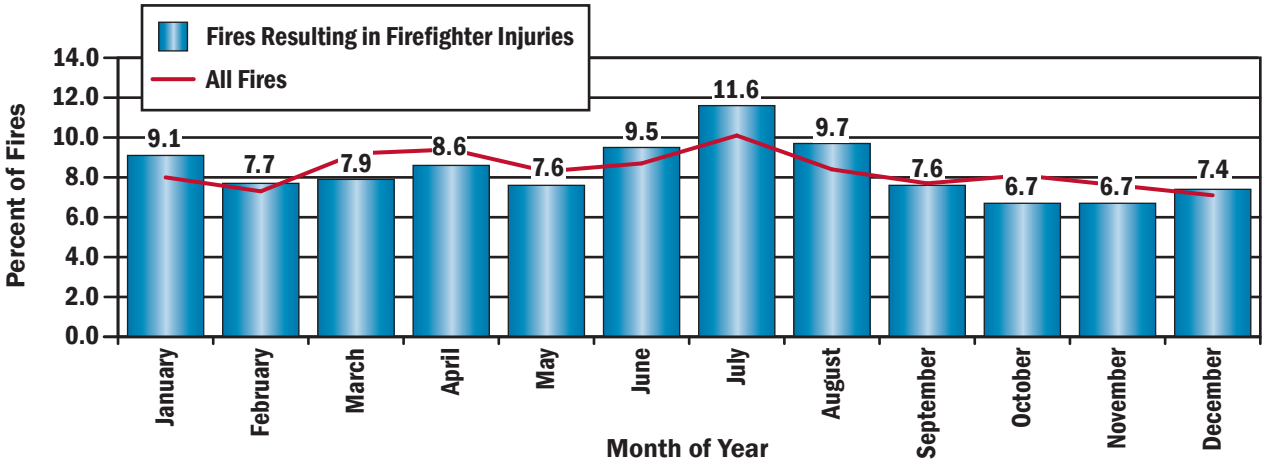
Figure 2. Fires Resulting in Firefighter Injuries by Time of Alarm (2010-2012)



Source: NFIRS 5.0.
Note: Total does not add up to 100 percent due to rounding.

Figure 3 illustrates that fires resulting in firefighter injuries were highest in the summer and lowest in the fall. The summer peak occurred during July (12 percent). Fires resulting in firefighter injuries were lowest in October (7 percent) and November (7 percent). Fires resulting in firefighter injuries by month tracked similarly with the month of occurrence for all fires.

Figure 3. Fires Resulting in Firefighter Injuries by Month (2010-2012)



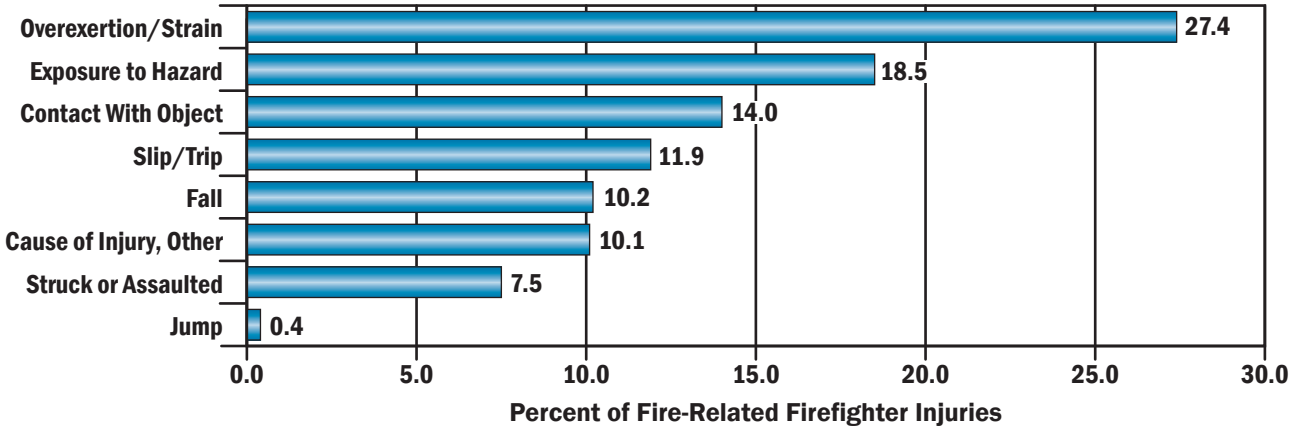
Source: NFIRS 5.0.
Note: Total does not add up to 100 percent due to rounding.

Cause and Nature of Fire-Related Firefighter Injuries

Figure 4 shows that 27 percent of all fire-related firefighter injuries were caused by overexertion/strain. The next three leading reported causes combined accounted for 44 percent of fire-related firefighter injuries: exposure to hazard (19 percent), contact with object (14 percent), and slip/trip (12 percent).[9]

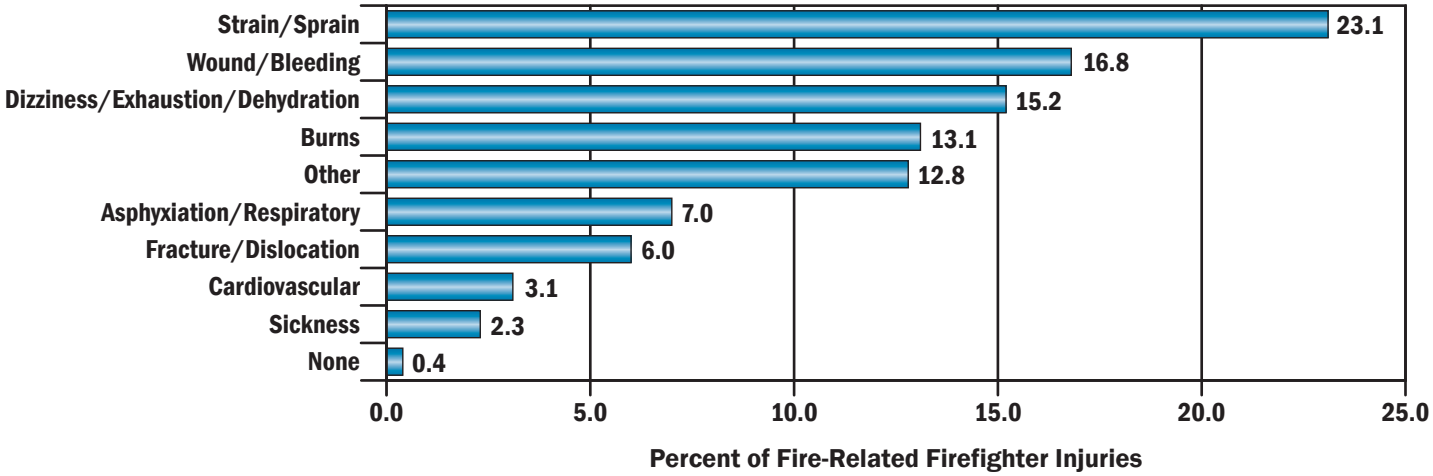
Not surprisingly, the leading nature of injury was strain at 23 percent, closely associated with overexertion/strain as the cause of the injury (Figure 5). Wound/Bleeding and dizziness/exhaustion/dehydration accounted for an additional 17 percent and 15 percent of fire-related firefighter injures, respectively.

Figure 4. Fire-Related Firefighter Injuries by Cause of Injury (2010–2012)



Source: NFIRS 5.0.
Notes: Includes only injuries where cause of injury was specified. The cause of injury was specified in 72 percent of reported injuries.

Figure 5. Fire-Related Firefighter Injuries by Nature of Injury (2010–2012)



Source: NFIRS 5.0.
Notes: Includes only injuries where the nature of injury was specified. The nature of injury was specified in 81 percent of reported injuries. Total does not add up to 100 percent due to rounding.

Severity of Fire-Related Firefighter Injuries

More than half of fire-related firefighter injuries (58 percent) resulted in no lost work time, as shown in Table 3. These injuries were treated on-scene with first aid or after the incident by a physician, either at a medical facility or in a doctor's office. About 42 percent of fire-related firefighter injuries resulted in lost work time. The majority of the lost work time injuries (93 percent of lost work time injuries or 40 percent of all fire-related firefighter injuries) were moderate in severity. Severe or life-threatening injuries accounted for 3 percent of firefighter injuries.

Table 3. Severity of Fire-Related Firefighter Injuries (2010–2012)

Severity	Percent of Fire-Related Firefighter Injuries
First aid only, no lost time	23.6
Treated by physician, no lost time	34.1
Moderate severity, lost-time injury	39.5
Severe, lost-time injury	2.3
Life-threatening, lost-time injury	0.5
Total	100.0

Source: NFIRS 5.0.
Notes: Includes only injuries where severity was specified. The severity of the injury was specified in 100 percent of reported injuries.

Fire-Related Firefighter Injuries by Age and Gender

Table 4 shows the percent of firefighter injuries based on gender. The majority of all fire-related firefighter injuries, 95 percent, were sustained by males. This statistic is comparable with the composition of the fire service during this period — males constituted 96 percent of employed firefighters between 2008 and 2012.[10]

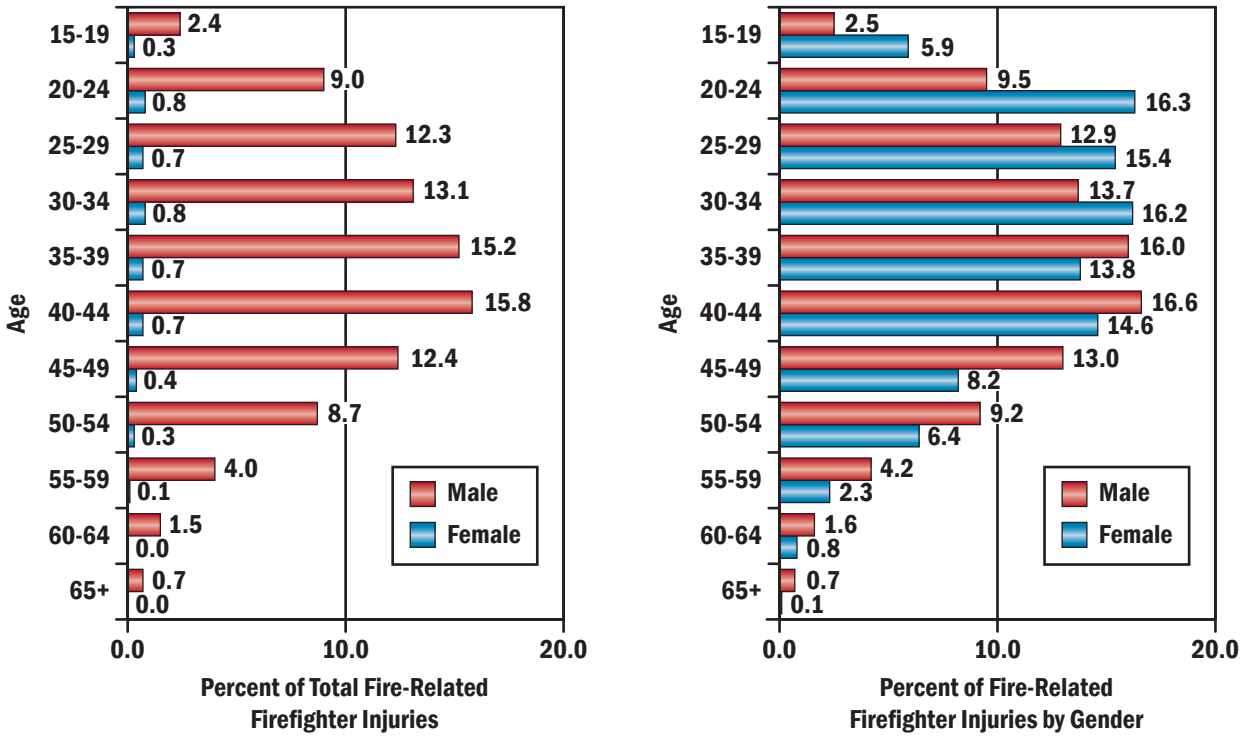
Table 4. Percent of Fire-Related Firefighter Injuries by Gender (2010–2012)

Gender	Percent of Fire-Related Firefighter Injuries
Male	95.3
Female	4.7
Total	100.0

Source: NFIRS 5.0.
Notes: Includes only injuries where gender was specified. Gender was specified in 100 percent of reported injuries.

Figure 6 shows two different profiles of fire-related firefighter injuries by age and gender. The left graphic shows male and female injuries as a percent of the total injuries (all bars add to 100 percent). The right graphic shows the age distribution of injuries by gender (each distribution adds to 100 percent). Both graphs show that male firefighter injuries peaked between ages 40-44 and female firefighter injuries peaked between ages 20-24 and 30-34. Overall, nearly one-third of all fire-related injuries (32 percent) occurred to firefighters aged 35-44.

Figure 6. Fire-Related Firefighter Injuries by Age and Gender (2010–2012)



Source: NFIRS 5.0.
Notes: Includes only injuries where the age of the firefighter was between 15 and 100 and gender was specified. Age was specified in 97 percent of the reported male injuries and 98 percent of the reported female injuries. Totals may not add up to 100 percent due to rounding.

The leading reported causes of injury among younger firefighters were related to overexertion/strains and exposure to hazards, while among older firefighters, overexertion/strains and slips/trips were the most common injuries. These results, among other factors, relate to physical fitness variations with age and the effect of age on type of assignments.

Fire-Related Firefighter Injuries by Affiliation and Age

Injuries to career firefighters were the largest share (68 percent) of the reported fire-related injuries (Table 5). Nationally, only 31 percent of the fire service is career firefighters.[11]

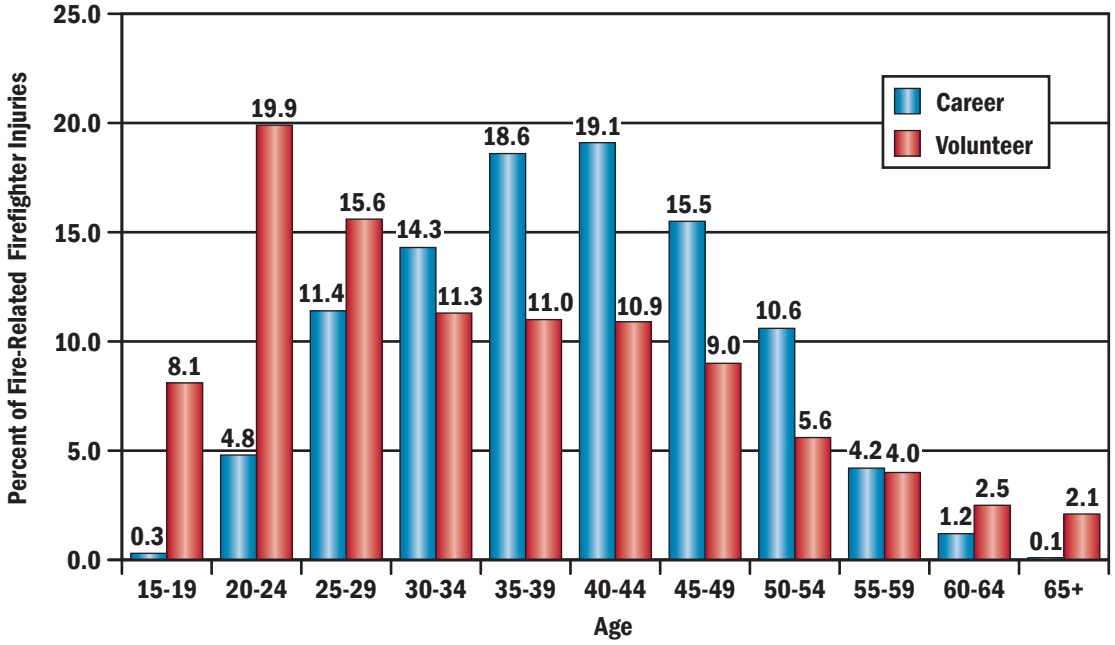
Table 5. Fire-Related Firefighter Injuries by Affiliation (2010–2012)

Affiliation	Percent of Fire-Related Firefighter Injuries	Percent of All Firefighters
Career	67.8	30.8
Volunteer	32.2	69.2
Total	100.0	100.0

Source: NFIRS 5.0.
Notes: Includes only injuries where affiliation was specified. Affiliation was specified in 73 percent of reported injuries.

As shown in Figure 7, injuries to career firefighters occurred in midcareer (ages 35-44) with the peak between ages 40 and 44 at 19 percent. Injuries to volunteers, on the other hand, were sustained predominately by the younger members of the organization. Firefighters under the age of 25 accounted for 28 percent of injuries in the volunteer service.

Figure 7. Career and Volunteer Fire-Related Firefighter Injuries by Age (2010–2012)



Source: NFIRS 5.0.
Notes: Includes only injuries where the age of the firefighter was between 15 and 100 and affiliation was specified. Age was specified in 96 percent of the reported injuries to career firefighters and 98 percent of the reported injuries to volunteer firefighters. Overall, both age and affiliation were specified in 71 percent of all reported firefighter injuries. The total percentage for career fire-related firefighter injuries does not add up to 100 percent due to rounding.

Career firefighters also experienced proportionally more fire-related injuries that resulted in lost time than their volunteer counterparts, as shown in Table 6. Volunteer firefighters, on the other hand, received far more injuries that resulted in no lost time.

Table 6. Overall Comparison of Fire-Related Firefighter Injury Severity by Affiliation (2010–2012)

Affiliation	Severity		Total
	No Lost Time	Lost Time	
Overall	57.7	42.3	100.00
Career	47.9	52.1	100.00
Volunteer	77.1	22.9	100.00

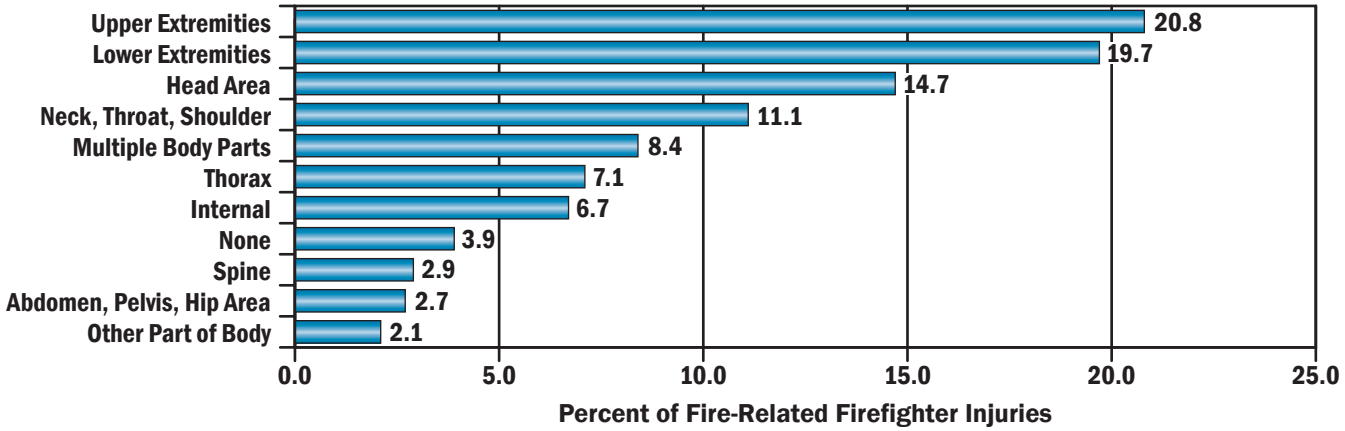
Source: NFIRS 5.0.
Notes: Includes only injuries where affiliation and severity were specified. Severity was specified in 100 percent of reported injuries, and affiliation was specified in 73 percent of reported injuries.

Part of Body Injured in Fire-Related Firefighter Injuries

Injuries to the upper and lower extremities (arms/hands and legs/feet) accounted for 41 percent of fire-related firefighter injuries (Figure 8). The head and shoulder regions accounted for an additional 26 percent of injuries.

Of the fire-related firefighter injuries that occurred to the upper extremities (where the nature of the injury was specified), 46 percent involved wounds/bleeding, 20 percent were burns, and 14 percent were strains/sprains. The majority of the injuries that occurred to the lower extremities were strains/sprains at 58 percent. Injuries to the lower extremities also involved wounds/bleeding (12 percent) and fractures (12 percent). Burns (35 percent) and wounds/bleeding (28 percent) accounted for 63 percent of fire-related firefighter injuries to the head area.

Figure 8. Fire-Related Firefighter Injuries by Part of Body Injured (2010-2012)



Source: NFIRS 5.0.
Notes: Includes only injuries where part of body injured was specified. The part of body injured was specified in 75 percent of reported injuries. Total does not add up to 100 percent due to rounding.

Location of Fire-Related Firefighter Injuries and Type of Activity When Injured

Of all fire-related firefighter injuries, 95 percent occurred at the scene (Table 7). Fifty-two percent of the injuries occurred outside the structure, and 43 percent occurred inside the structure. All other locations produced far fewer injuries.

Table 7. Location of Fire-Related Firefighter Injuries (2010-2012)

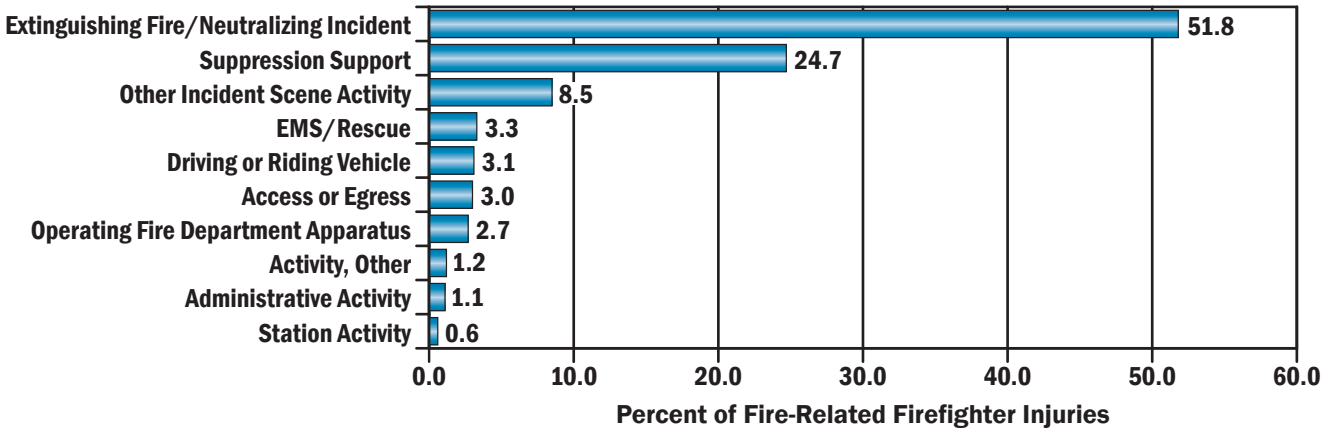
Location Where Injured	Percent
At scene, outside structure	52.1
At scene, inside structure	43.1
At fire department location	2.3
En route/Returning	1.5
Location, other	1.0
Total	100.0

Source: NFIRS 5.0.
Notes: Includes only injuries where the location of injury occurred was specified. The location where injury occurred was specified in 75 percent of reported injuries.

As shown in Figure 9, the largest percent of fire-related firefighter injuries occurred while extinguishing the fire/neutralizing the incident (52 percent). This is followed by suppression support and other incident scene activity, which made up 25 percent and 9 percent of the injuries, respectively.

Of those fire-related firefighter injuries that occurred while extinguishing the fire/neutralizing the incident, 40 percent were strains/sprains (20 percent) and burns (20 percent). Wounds/Bleeding (25 percent) and strains/sprains (22 percent) accounted for 47 percent of the injuries that resulted from suppression support activities.

Figure 9. Fire-Related Firefighter Injuries by Type of Activity (2010-2012)



Source: NFIRS 5.0.
Notes: Includes only injuries where type of activity was specified. The type of activity was specified in 78 percent of reported injuries.

Factor Contributing to Injury in Fire-Related Firefighter Injuries

When a factor was specified as contributing to the firefighter's injury, fire development — fire progress, smoky conditions and the like — and slippery or uneven surfaces accounted for 55 percent of fire-related firefighter injuries, with fire development as the leading factor contributing to injury (Table 8). The third and fourth general factors contributing to injury included other factor and collapse or falling object, which made up 20 percent and 15 percent, respectively.

Table 8. General Factor Contributing to Fire-Related Firefighter Injuries (2010-2012)

General Factor Contributing to Injury	Percent
Fire development	31.2
Slippery or uneven surfaces	23.5
Other factor	20.2
Collapse or falling object	15.4
Holes	3.9
Vehicle or apparatus issue	3.1
Lost, caught, trapped or confined	2.3
Civil unrest/Hostile acts	0.4
Total	100.0

Source: NFIRS 5.0.
Notes: Includes only injuries where a factor contributing to injury was specified. The factor contributing to injury was specified in 48 percent of reported injuries.

Protective Equipment Failure in Fire-Related Firefighter Injuries

Very few of the fire-related firefighter injuries reported to NFIRS indicated problems with firefighter protective gear — only 9 percent indicated protective gear failures as a factor in the injury.[12] Modern equipment and equipment standards, combined with current equipment replacement cycles, may preclude protective equipment failures. Firefighter gloves with wristlets, protective coats, positive-pressure self-contained breathing apparatus, and hoods accounted for 43 percent of equipment problems.

Responses and Physical Condition Prior to Injury in Fire-Related Firefighter Injuries

Most firefighters (82 percent) were reported as being well-rested before their injury occurred — this applies to both minor and severe injuries, as shown in Table 9.

Table 9. Firefighter Physical Condition Prior to Fire-Related Injury (2010-2012)

Physical Condition Prior to Injury	Severity		Overall
	No Lost Time	Lost Time	
Rested	81.6	81.5	81.6
Fatigued	13.0	12.6	12.8
Injured or ill	2.2	3.3	2.7
Physical condition, other	3.2	2.7	3.0
Total	100.0	100.0	100.0

Source: NFIRS 5.0.
Notes: Includes only injuries where the physical condition and severity of injury were specified. Severity was specified in 100 percent of reported injuries, and physical condition was specified in 65 percent of reported injuries. Totals may not add to 100 percent due to rounding.

The number of fire department responses attended prior to the injury, however, does appear to result in more severe injuries. Table 10 shows that firefighters with one or more responses in the immediate 24-hour period prior to the time of injury had a higher percentage of injuries that resulted in lost time than firefighters who reported no prior responses. It is important to note, however, that 72 percent of all fire-related firefighter injuries occurred when a firefighter had no prior responses.

Table 10. Responses Prior to Fire-Related Firefighter Injuries (2010-2012)

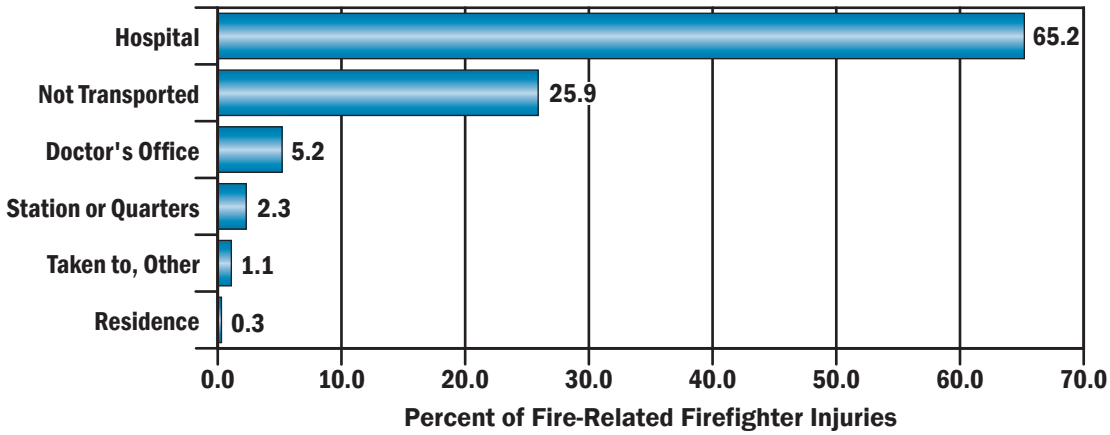
Number of Responses Prior to Injury	Severity		Total	Overall
	No Lost Time	Lost Time		
No prior responses	59.9	40.1	100.0	72.0
One prior response	58.0	42.0	100.0	10.6
Two prior responses	55.1	44.9	100.0	5.7
Three prior responses	50.8	49.2	100.0	4.1
Four or more prior responses	52.5	47.5	100.0	7.6
Overall total				100.0

Source: NFIRS 5.0.
Notes: Includes only injuries where number of responses prior to injury and severity of injury were specified. The number of responses prior to injury was specified in 92 percent of reported injuries.

Type of Medical Care for Fire-Related Firefighter Injuries

Regardless of the apparent severity of an injury, it is a common safety precaution to transport an injured firefighter to a hospital. Of the reported fire-related injuries, 65 percent of the firefighters were transported to hospitals to be treated for their injuries (Figure 10). Another 26 percent were treated but not transported to a medical facility or other location. Very few firefighters sought medical care for fire-related injuries at a doctor's office.

Figure 10. Fire-Related Firefighter Injuries by Where Treated (2010-2012)



Source: NFIRS 5.0.
Notes: Includes only injuries where treatment information was specified. Treatment information was specified in 73 percent of reported injuries.

Examples

The following are recent examples of fire-related firefighter injuries reported by the media:

- September 2014: An early morning house fire in East Northport, New York, resulted in minor injuries for two firefighters. The fire started shortly after 1 a.m. and was under control in over an hour. The firefighters were transported to a local hospital where one was treated for a hand injury and the other for smoke inhalation. The residents of the home escaped the blaze uninjured. As reported, the cause of the fire remains under investigation.[13]

- August 2014: A volunteer firefighter sustained injuries in an accident involving the firetruck that he was driving near Milton, West Virginia. The crash occurred around 2 p.m. as he was returning to the station after attending a morning fire. The firefighter was bleeding at the scene and was treated for his injuries. The truck overturned during the incident and was deemed a total loss.[14]

- August 2014: A firefighter sustained minor injuries during a small church fire in Twin Falls, Idaho. Firefighters responded to the scene around 5 p.m. to find a bush outside the church on fire. Crews extinguished the fire, but entered the attic of the church to search for more signs of fire. During the search, one firefighter fell through ceiling tiles and suffered nonlife-threatening injuries. The firefighter was transported to a local hospital for evaluation and was reported to be in good condition. The blaze started when a church volunteer attempted to burn off weeds around the exterior of the building. No other injuries were reported.[15]

- August 2014: A firefighter suffered first- and second-degree burns to his lower leg while battling a fire in the Lassen National Forest, southeast of Burney, California. The firefighter, 27, was injured when the ground below him collapsed, and he fell into a burned-out root system where there was fire and burning weeds. He was airlifted to a medical center for treatment and was later released the same day. The firefighter was expected to make a full recovery in about a month and a half. The cause of the blaze was unknown, and the blaze had been burning since July 31.[16]

Firefighter Health and Safety

A key mission of the U.S. Fire Administration (USFA) is to reduce firefighter injuries and on-duty fatalities through leadership, advocacy, coordination and support. USFA facilitates this through the research and special studies conducted by its National Fire Data Center. These initiatives cover topics to support firefighter health and safety, including:

- Firefighter health, wellness and fitness: http://www.usfa.fema.gov/operations/ops_wellness_fitness.html.
- Emergency vehicle and roadway operations safety: http://www.usfa.fema.gov/operations/ops_vehicle.html.
- Firefighter protective equipment and clothing research: http://www.usfa.fema.gov/operations/ops_ppe.html.
- Fire service operational safety: http://www.usfa.fema.gov/operations/ops_safety.html.
- Health and safety resources for the volunteer fire service: http://www.usfa.fema.gov/operations/ops_volunteer_fire_service.html.

Additionally, USFA's National Fire Academy (NFA) has numerous training courses in firefighter health and safety topics. Further information on NFA training opportunities may be found on this page of the USFA website: http://www.usfa.fema.gov/training/nfa/.

NFIRS Data Specifications for Fire-Related Firefighter Injuries

Data for this report were extracted from the NFIRS annual Public Data Release files for 2010, 2011 and 2012. Only Version 5.0 data were extracted.

- All fires were included, as defined by the following Incident Type categories:

Incident Type	Description
100, 163	Other fires
111-123	Structure fires
130-138	Vehicle fires
140-162, 164-173	Outside

Note: Incident Type 110 was not included in the analysis.

- Aid Types 3 (mutual aid given) and 4 (automatic aid given) were included to allow for proper counting of firefighter injuries.

Building fires were defined by the following criteria:

- Structure Type:
  - For Incident Types 113-118:
    - 1—Enclosed building.
    - 2—Fixed portable or mobile structure, and Structure Type not specified (null entry).
  - For Incident Types 111 and 120 to 123:
    - 1—Enclosed building.
    - 2—Fixed portable or mobile structure.

- Residential and nonresidential were defined by:
  - Residential — Property Use 400-499.
  - Nonresidential — Property Use except 400-499.

The analyses contained in this report reflect the current methodologies used by USFA. USFA is committed to providing the best and most currently available information on the U.S. fire problem and continually examines its data and methodology to fulfill this goal. Because of this commitment, data collection strategies and methodological changes are possible and do occur. As a result, analyses and estimates of the fire problem may change slightly over time. Previous analyses and estimates on specific issues (or similar issues) may have used different methodologies or data definitions and may not be directly comparable to the current ones.

Information regarding USFA's national estimates for residential building fires as well as the data sources used to derive the estimates can be found in the document, "Data Sources and National Estimates Methodology Overview for the U.S. Fire Administration's Topical Fire Report Series (Volume 15)," http://www.usfa.fema.gov/downloads/pdf/statistics/data_sources_and_national_estimates_methodology.pdf. This document also addresses the specific NFIRS data elements analyzed in the topical reports, as well as "unknown" data entries and missing data.

To request additional information or to comment on this report, visit http://www.usfa.fema.gov/contact.html.

Notes:

[1]Injury estimates are from the National Fire Protection Association's (NFPA's) U.S. Firefighter Injuries — 2012, Michael J. Karter, Jr. and Joseph L. Molis, October 2013, and previous reports in the series. Annual averages of the NFPA estimates of overall firefighter injuries, firefighter fireground injuries, and firefighter injuries that occurred while responding to or returning from an incident were taken for the three-year period from 2010 to 2012. The estimate of overall firefighter injuries includes fire-related and nonfire-related injuries.

[2]In this topical report, all firefighter injury estimates are rounded to the nearest 25.

[3]In order to get the best estimate of firefighter injuries that are fire-related, an unknown portion of the NFPA estimate of injuries categorized as responding to or returning from an incident (which includes but is not limited to fires) should be added to the estimate of firefighter fireground injuries.

[4]Fire department participation in NFIRS is voluntary; however, some states do require their departments to participate in the state system. Additionally, if a fire department is a recipient of a Fire Act Grant, participation is required. From 2010 to 2012, 70 percent of NFPA's annual average estimated 1,365,300 fires to which fire departments responded were captured in NFIRS. Thus, NFIRS is not representative of all fire incidents in the U.S. and is not a "complete" census of fire incidents. Although NFIRS does not represent 100 percent of the incidents reported to fire departments each year, the enormous dataset exhibits stability from one year to the next, without radical changes. Results based on the full dataset are generally similar to those based on part of the data.

[5]Firefighter injuries reported to NFIRS may be the result of operations at the fire scene or responding to or returning from an incident.

[6]In NFIRS Version 5.0, a structure is a constructed item of which a building is one type. In previous versions of NFIRS, the term "residential structure" commonly referred to buildings where people live. To coincide with this concept, the definition of a residential structure fire for NFIRS 5.0 has, therefore, changed to include only those fires where the NFIRS 5.0 Structure Type is 1 or 2 (enclosed building and fixed portable or mobile structure) with a residential property use. Such structures are referred to as "residential buildings" to distinguish these buildings from other structures on residential properties that may include fences, sheds and other uninhabitable structures. In addition, confined fire incidents that have a residential property use but do not have a Structure Type specified are presumed to occur in buildings. Nonconfined fire incidents that have a residential property use without a Structure Type specified are considered to be invalid incidents (Structure Type is a required field) and are not included.

[7]For the analyses in Figure 1 and Table 1, vehicle fire incidents include those with mobile property not involved in ignition but burned, as well as mobile property involved in ignition that burned. Vehicle fires exclude mobile property involved in ignition but did not itself burn; these incidents are included in the outside and other General Property Type category.

[8]For the purposes of this report, the time of the fire alarm is used as an approximation for the general time at which the fire started. However, in NFIRS, it is the time at which the fire was reported to the fire department.

[9]Total does not equal 44 percent due to rounding.

[10]U.S. Department of Labor, Bureau of Labor Statistics, Annual Average Tables Employment and Earnings, 2008-2012 as reported in the following: Michael J. Karter, Jr. and Gary P. Stein, U.S. Fire Department Profile Through 2012, NFPA, October 2013. This statistic may reflect only a portion of the volunteer firefighters (i.e., those firefighters who are paid per call).

[11]Michael J. Karter, Jr. and Gary P. Stein, NFPA, U.S. Fire Department Profile Through 2010, October 2011; U.S. Fire Department Profile Through 2011, October 2012; U.S. Fire Department Profile Through 2012, October 2013.

[12]Protective equipment failure was specified in 86 percent of reported injuries.

[13]Adina Genn, "2 Firefighters Suffer Minor Injuries in E. Northport Blaze," patch.com, Sept. 24, 2014, http://patch.com/new-york/commack/2-firefighters-suffer-minor-injuries-e-northport-blaze-0 (accessed Sept. 30, 2014).

[14]MetroNews Staff, "Milton firefighter injured in crash," wvmetronews.com, Aug. 29, 2014, http://wvmetronews.com/2014/08/29/milton-firefighter-injured-in-crash/ (accessed Sept. 30, 2014).

[15]Joey Martin, "Local firefighter sustains injuries in fall," www.kmvt.com, Aug. 18, 2014, http://www.kmvt.com/news/latest/Local-Firefighter-Sustains-Injuries-In-Fall-271773091.html (accessed Sept. 30, 2014).

[16]Kevin MacMillan, "Tahoe firefighter, 27, recovering from injuries in Western blaze," www.tahoedailytribune.com, Aug. 14, 2014, http://www.tahoedailytribune.com/news/12604853-113/fire-overby-tahoe-firefighters (accessed Sept. 30, 2014).