



MULTIPLE FATALITY FIRES

REPORTED TO NFIRS
1994–1996



**MULTIPLE-FATALITY FIRES
REPORTED TO NFIRS
1994–1996**

October 1999

*Federal Emergency Management Agency
United States Fire Administration
National Fire Data Center*

This publication was produced under contract EMW-95-C-4717 by TriData Corporation for the United States Fire Administration, Federal Emergency Management Agency. Any information, findings, conclusions, or recommendations expressed in this publication do not necessarily reflect the views of the Federal Emergency Management Agency or the United States Fire Administration.

CONTENTS

Executive Summary	1
Introduction	2
Methodology	4
Differences Between Single- and Multiple-Fatality Fires	5
Cause	5
Area of Fire Origin	6
Form of Heat of Ignition and Form of Material Ignited	7
Time of Day	8
Smoke Alarms	9
Age of Victim	10
Gender of Victim	11
Victim Condition Before Injury	11
Activity at Time of Injury	12
Similarities Between Single- and Multiple-Fatality Fires	13
Fixed Property Use	13
Level of Fire Origin	14
Type of Material Ignited	14
Month of Year	15
Nature of Injury	15
Multiple-Fatality Fires in Non-Residential Structures	16
Type of Property	16
Cause	17
Month	17
Recommendations	18

EXECUTIVE SUMMARY

Each year in the United States, there are more than 2,800 fatal residential home fires. Nearly one in six of these fires is a multiple-fatality fire, a fire in which more than one civilian is killed. This report characterizes multiple-fatality fires by contrasting them with single-fatality fires. By analyzing the events and circumstances surrounding different types of fatal fires, this report provides insight into how they can be prevented and how lives can be saved.

Since the majority of fire deaths among civilians occur in the home, residential structures are the primary focus of this report. Findings are based on comparisons of multiple- and single-fatality fires that occurred between 1994 and 1996 and were reported to the National Fire Incident Reporting System (NFIRS).

The major findings of this study are:

- The leading causes of multiple-fatality fires during 1994–1996 were slightly different from the causes of single-fatality fires. Heating, arson, and children playing with fire-starting materials were the leading causes of multiple-fatality fires. Smoking, arson, and heating were the leading causes of single-fatality fires. The proportion of fatal fires caused by children playing with fire-starting materials in multiple-fatality fires is twice that of single-fatality fires.
- Thirty-five percent of multiple-fatality fires originate in lounge areas. Bedrooms and hallways/stairways were the second and third leading areas of fire origin, respectively. For single-fatality fires, bedrooms and lounge areas were the leading areas of fire origin, followed by kitchens.
- Similar proportions of multiple- and single-fatality fires occurred in homes without working smoke alarms. Multiple-fatality fires, however, were more likely to occur in homes where an alarm was present, but inoperable.
- Multiple-fatality fires occurred most often between midnight and 6 a.m.
- Forty-five percent of all victims of multiple-fatality fires were children under the age of 10. Only 15 percent of victims were 60 years of age or older.
- In single-fatality fires, male fatalities outnumbered female fatalities by 70 percent. In multiple-fatality fires, males were 13 percent more likely than females to die. Females accounted for a much higher proportion of victims in multiple-fatality fires.
- Half of the victims of multiple-fatality fires were asleep at the time of the fire. Compared to single-fatality fires, fewer victims of multiple-fatality fires were impaired by drugs or alcohol or were bedridden.

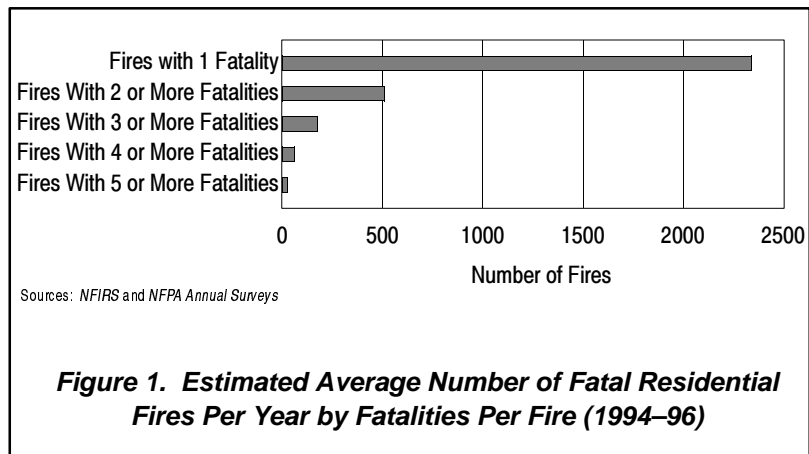
INTRODUCTION

Each year there are more than 2,800 fatal residential fires in the United States. Nearly one in six of these fires takes more than one life. As a result of these multiple-fatality fires, an average of 1,365 lives are claimed annually, many of whom are children.

While the characteristics of fatal fires are well established, less is known about the unique characteristics of multiple-fatality fires. Generally, fatal fires are more likely to occur at night, are more often caused by smoking or children playing with fire-starting materials, and are more likely to occur in residences without working smoke alarms. This report compares multiple-fatality fires with single-fatality fires in an attempt to establish the characteristics of multiple-fatality fires as well as to identify differences for use by the fire service in the prevention of fatal fires— specifically, multiple-fatality fires.

The emphasis of this report was on residential structure fires where the vast majority of multiple-fatality fires occur. Multiple-fatality fires in non-residential structures, however, are also briefly examined.

While other analyses have used five or more fatalities in a residential structure fire and three or more fatalities in a non-residential structure fire as the respective definitions of either a catastrophic or multiple-fatality fire, the analyses in this report are based on two or more civilian deaths. Figure 1 shows the average number of fatal residential fires by number of fatalities per fire; of particular interest is the dramatic difference between the number of single-fatality fires and fires with two or more fatalities. Although the difference between fires with three, four, and five deaths are notable, these differences are not the primary target of this analysis.



Comparisons of multiple- and single-fatality residential fires revealed notable differences in 10 aspects of these fires:

- Cause of fire
- Area of fire origin
- Form of heat of ignition (heat source)

- Form of material ignited
- Time of day
- Performance or presence of smoke alarms
- Age of victim
- Gender of victim
- Victim's condition before injury
- Victim's activity at time of injury.

The analysis also identified similarities between multiple- and single-fatality fires. These similarities include:

- Type of residential structure
- Level of fire origin
- Type of material ignited
- Month of year
- Nature of victim injuries.

This report is divided into five sections: (1) the methodology used in gathering the data used in this report; (2) the differences between single- and multiple-fatality fires in residential structures; (3) the similarities between single- and multiple-fatality fires in residential structures; (4) multiple-fatality fires in non-residential structures; and (5) recommendations for the prevention of multiple-fatality fires.

METHODOLOGY

Two sources of data were used for this analysis. The primary source is quantitative data from the National Fire Incident Reporting System (NFIRS). Provided within NFIRS reports are data concerning the origin and cause of the fire incident, time and day of the incident, presence and operation of smoke alarms, extent of flame spread, and a host of other data. The civilian casualty form, a separate, detailed section of the NFIRS report, includes information about the victim, such as age, gender, and activity at the time of the fire. By no means are either of the data lists for fire incidents or fire casualties exhaustive. The second source of data used in this report include descriptions of actual fire incidents that involve multiple fatalities. These accounts are gathered from the responding fire department's narrative accounts of fire incidents as well as from news sources. Synopses of these incidents are included throughout this report to provide readers with a realistic view of these tragedies, many of which were preventable.

NFIRS is a data system maintained by the U.S. Fire Administration. Established in the late 1970s, today it is the largest fire data set in the world. The NFIRS data set is updated annually with nearly one million new fire incident records. Fire departments from all regions of the country report the number and types of fires to which they respond. While the system is voluntary, it is estimated that between one-third and one-half of the nation's fire departments participate in NFIRS. The data set, however, is not complete as many departments do not participate in NFIRS and many small fires that damage property are contained without the assistance of local fire departments.

Since multiple-fatality fires are a relatively small subset of fire incidents reported to NFIRS, three years of data (1994–1996) were used as the basis for the findings of this report. As a result of this aggregation of data, the impact of year-to-year fluctuations in the data is minimized. In the few cases in this report where specific numbers of fires or victims are noted, the numbers are averages for the 1994–1996 period based on NFIRS data adjusted for national estimates of the annual fire problem (see note below). In all cases, percentages drawn from NFIRS have been adjusted to reflect only those cases where data were provided or values were known.

Note: Where numbers of fires or victims are presented, these figures are either annual estimates of fire losses as determined by the National Fire Protection Association (NFPA) or NFIRS figures. Fire departments do not always provide complete data on their reports to NFIRS. These “unknowns” have been apportioned to the other categories in this report, resulting in “adjusted percentages.” This methodology has been adopted by the U.S. Fire Administration (USFA); see *Fire in the United States, 1987–1996*, published by the USFA and available at the USFA Website (<http://www.fema.usfa.gov>), for a complete explanation of this methodology.

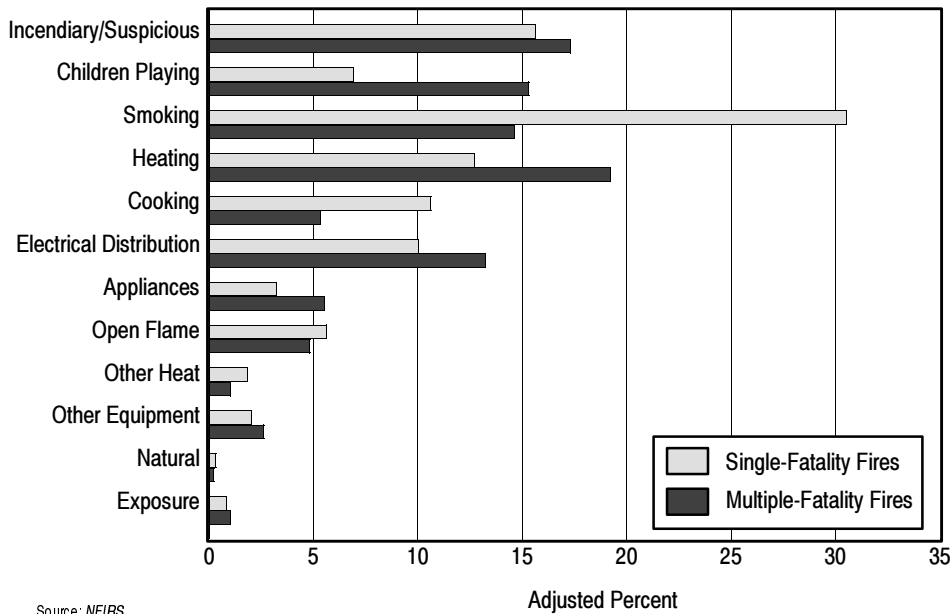
DIFFERENCES BETWEEN SINGLE- AND MULTIPLE-FATALITY FIRES

Cause

The top three causes of multiple-fatality fires between 1994 and 1996 were heating (19 percent), arson (17 percent), and children playing with fire-starting materials (15 percent) (Figure 2). Together these three causes accounted for over one-half of all multiple-fatality residential fires and fire deaths. (The frequency of fires due to arson and children playing with fire is particularly troublesome because these fires are avoidable.)

Seattle, WA—September 1997

An **electric heater** ignited a couch that was close to it. The resulting fire claimed the lives of one infant and one toddler. According to residents, complaints had been made to the landlord about the heating system. It is unknown if there were operating smoke alarms.



Source: NFIRS

Figure 2. Causes of Fatal Residential Structure Fires (1994–96)

Of particular concern is the evidence showing that where a child plays with fire-starting materials, regardless of the number of fatalities, other household members are in grave danger. When these fires occur, the child responsible for the blaze is often killed, but so are others (including other children). Children-playing fires accounted for 8 percent of all fatal home fires and 33 percent of all fire victims under the age of 9.

As noted, the leading cause of multiple-fatality fires was heating, which accounted for 19 percent of fires. Analysis of only those fires with three or more victims, however, revealed arson as the leading

cause accounting for 22 percent of multiple-fatality fires. Heating was the second leading cause of fires with three or more victims at 16 percent. The frequency of smoking and children-playing fires was slightly lower for fires with more than three victims, whereas the frequency of cooking and appliance fires was slightly higher.

The leading causes of single-fatality fires were smoking, arson, and heating. These three causes accounted for almost 60 percent of all fires with one fatality. Particularly revealing is the predominance of smoking fires, which accounted for 31 percent of single-fatality fires. In contrast, smoking accounted for only 15 percent of multiple-fatality fires. Arson and heating fires were the second and third leading causes of single-fatality fires at 16 percent and 13 percent, respectively.

Area of Fire Origin

The leading area of fire origin for multiple-fatality fires was lounge areas (35 percent), such as the living room or family rooms (Figure 3). This was largely due to heating, arson, and smoking fires, which were more likely to begin in lounge areas. Fires started by children playing with fire-starting materials were also likely to originate in lounge areas. Bedrooms, followed by hallways/stairways, were the second and third leading areas of fire origin, respectively.

Mississippi—February 1996
 An unattended burning candle in the **living room** of a one-story, single-family home ignited a couch. Fire spread through the entire dwelling, killing the seven occupants, including two teenagers and one infant. There were no operational smoke alarms in the residence.

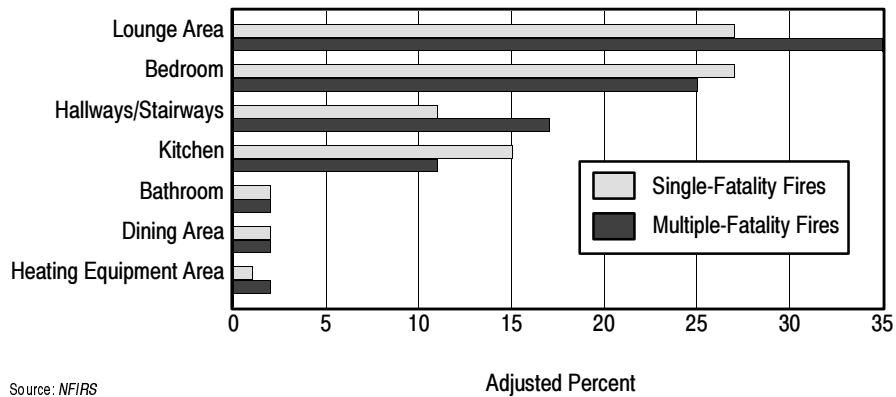


Figure 3. Area of Fire Origin (1994–96)

For single-fatality fires, lounge areas and bedrooms were tied as the leading areas of fire origin, followed by kitchens. One-third more single-fatality than multiple-fatality fires started in kitchens. This reflects the fact that cooking fires account for more single-fatality than multiple-fatality fires.

Form of Heat of Ignition and Form of Material Ignited

Open flame, as the form of heat ignition (or heat source), accounted for one-quarter of all multiple-fatality fires. This is due to the high proportion of multiple-fatality fires that are started by children playing with matches, lighters, or other items coded as open flame sources (Figure 4). Electrical arcing and overloading accounted for an additional 21 percent. The leading form of material ignited in multiple-fatality fires was structural components, which reflects the roll of heating fires in multiple-fatality fires (Figure 5). Furniture and soft goods ranked second and third, respectively. The soft goods category includes bedding and clothing—items that are often the form of material ignited when a lighted cigarette or other smoking product is dropped. Children playing with fire are particularly likely to ignite soft goods, such as clothing and bedding.

Copake, NY—May 1996

Four people, three of them children, were killed after a 16-year old tripped while carrying a **lighted kerosene lantern**. The fire spread quickly through the kitchen to the rest of the house, trapping the boy's father and three younger siblings.

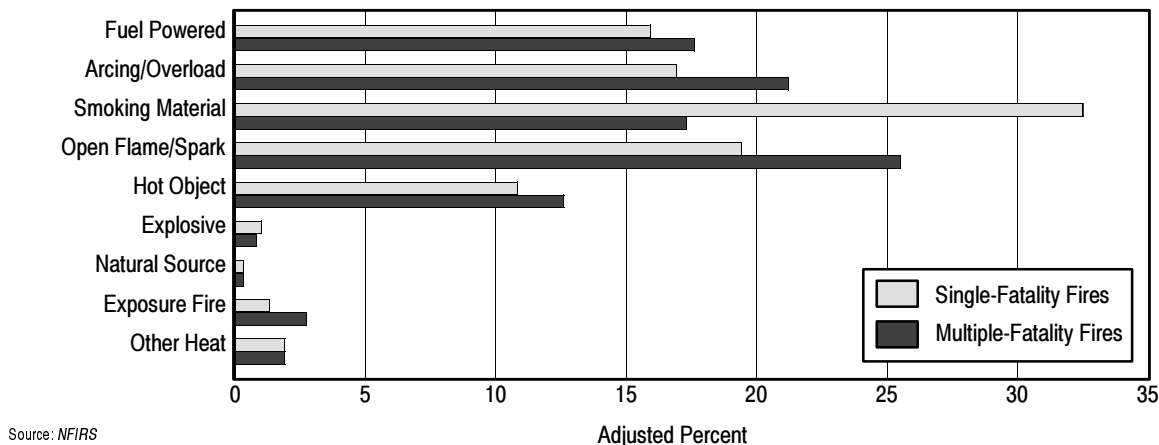


Figure 4. Form of Heat of Ignition (1994–96)

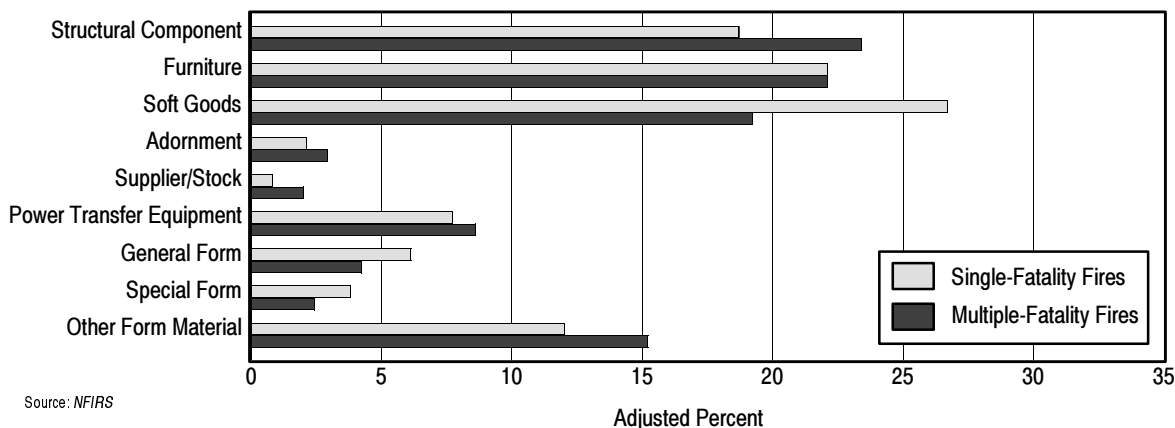


Figure 5. Form of Material Ignited (1994–96)

In single-fatality fires, the leading form of heat of ignition was smoking materials, reflecting the dominance of smoking as the leading cause of these fires. Similarly, the leading forms of material ignited were soft goods and furniture (including upholstered items).

Time of Day

Fatal fires are far more likely to occur at night and in the early morning hours than nonfatal fires (Figure 6). Both single- and multiple-fatality fires exhibit a similar pattern in the time of day in which they occur. For incidents with more than one fatality, an even higher proportion of fires occurred in the early morning hours. Fires occurring between midnight and 6:00 a.m. accounted for 47 percent of all multiple-fatality fires compared to just over 35 percent of single-fatality fires. While single-fatality fires occur at all hours of the day, multiple-fatality fires occur less frequently during the afternoon and early evening hours.

Baltimore, MD—January 1994
 Eight people (seven children and one adult) were killed in an **early morning (4:30 a.m.)** fire. A large pile of clothing ignited after it had been left to dry on top of a heating register located over a gas-fired furnace. The fire smoldered, eventually building up enough heat and smoke/gases to overcome the house's occupants who were sleeping in bedrooms on the second floor. The home had no smoke alarms.

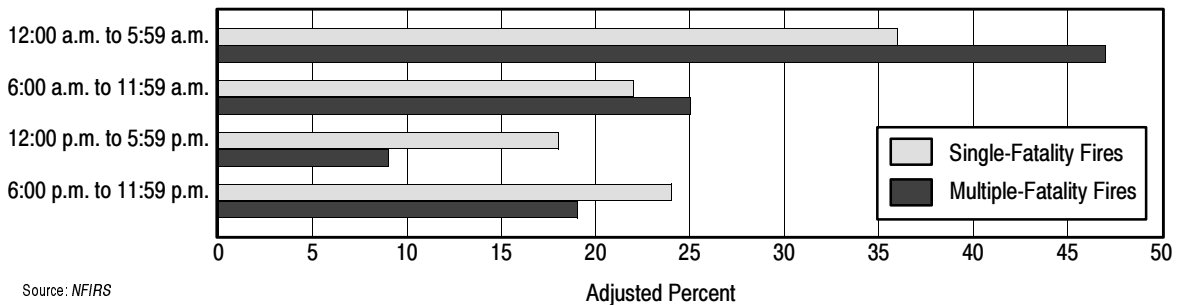


Figure 6. Time of Day (1994–96)

Despite the increased incidence of residential fires during the morning and evening hours, residents are generally awake and thus able to detect and escape from a fire before succumbing to smoke and flames.

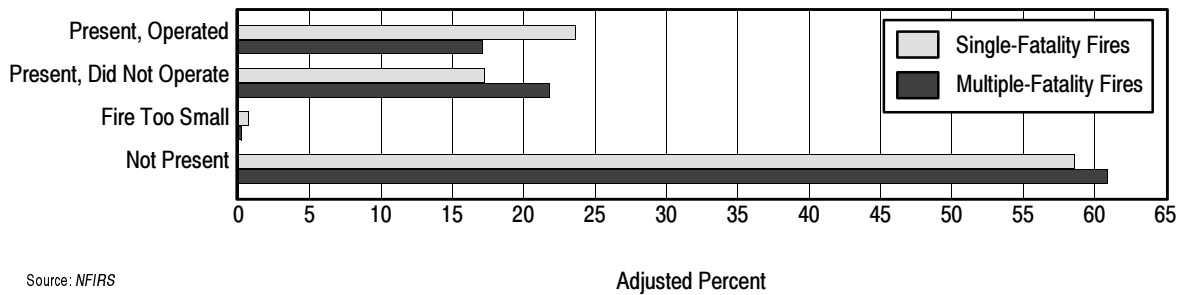
The leading cause of fire during the early morning peak for multiple-fatality fires is heating; for single-fatality fires, it is smoking. For multiple-fatality fires, 56 percent of all heating fires occurred between midnight and 6 a.m.

Smoke Alarms

A disproportionate number of all fatal fires occurred in homes without working smoke alarms. Nearly 60 percent of single- and multiple-fatality fires occurred in homes where no smoke alarms were present (Figure 7).

Baltimore, MD—February 1994

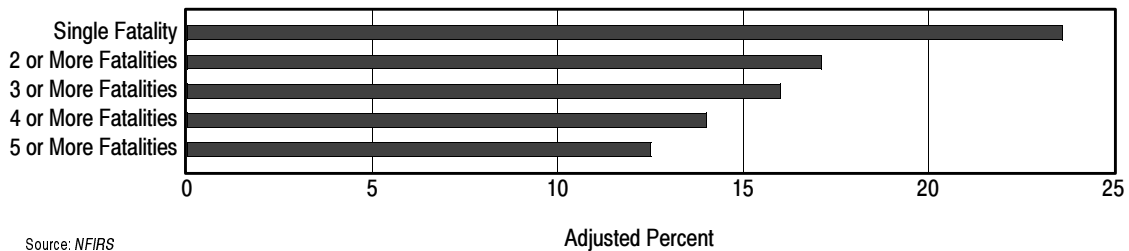
Nine people were killed in a late night fire in a residence **without a working smoke alarm**. Candles used to light the house came in contact with bedding on a sofa bed. One man did wake during the fire, but the heavy fire conditions prevented him from alerting the other occupants of the house.



Source: NFIRS

Figure 7. Smoke Alarm Performance (1994–96)

It is troubling, however, that as the number of victims in a fatal fire increased, the likelihood that a smoke alarm notified the occupants of the presence of the fire decreased. In fires with single fatalities, a smoke alarm operated in 24 percent of the reported incidents; this notification steadily drops as the number of fatalities increased. For fires with five or more fatalities, smoke alarms operated in only 13 percent of the reported incidents. Conversely, 76 percent of single-fatality fires occurred in homes where there was no notification of the fire—either there was no alarm present or there was a malfunctioning alarm. This number continues to increase as does the number of victims per fire (83, 84, 86, and 88 percent for 2 or more victims, 3 or more victims, 4 or more victims, and 5 or more victims, respectively) (Figure 8).



Source: NFIRS

Figure 8. Incidents With Operational Smoke Alarms (1994-96)

Age of Victim

The very young and the very old have the highest fire death rates in the United States. There are dramatic differences in the age profiles of multiple-fatality fire victims versus single-fatality fire victims. The very young were the largest age group represented in multiple-fatality fires; conversely, the very old were the largest age group represented in single-fatality fires.

Cleveland, OH—January 1994

Five children and their mother were killed when a fire broke out in their home at approximately 3:30 a.m. The family was sleeping upstairs when an overloaded electrical outlet ignited the fire in a downstairs bathroom. It is unknown whether the home had smoke alarms; however, the only survivor of the fire was awakened not by an alarm, but by one of his children (who perished in the fire).

While victims age 9 or younger comprise 45 percent of all those killed as a result of multiple-fatality fires, only 10 percent of multiple-fatality victims are over the age of 70 (Figure 9). As the total numbers of victims rose in residential structures, so did the proportion of victims age 9 or younger. Over one-half of all victims of fires with three or more fatalities were 9 or younger.

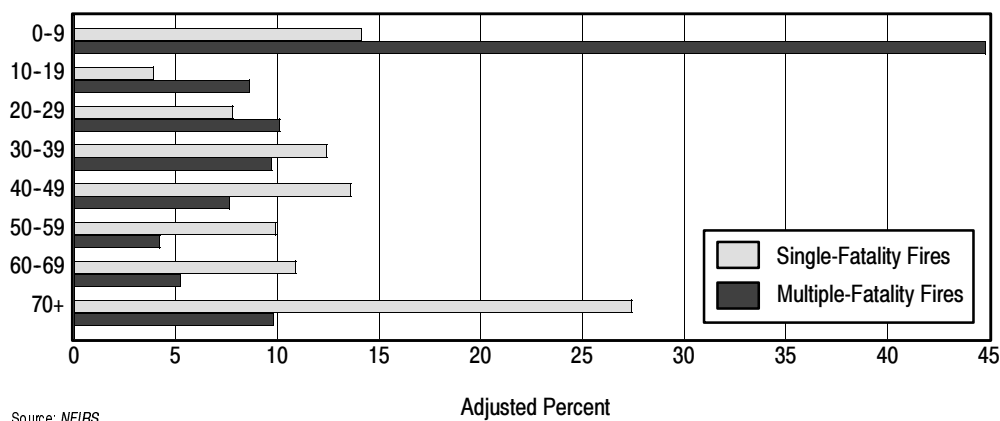


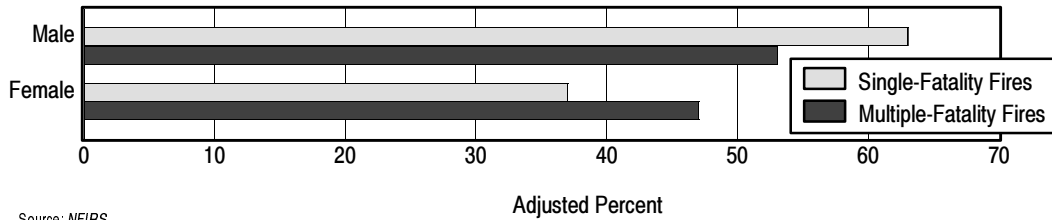
Figure 9. Age of Victim (1994–96)

Among single-fatality fire victims, only 14 percent were age 9 or younger, while 27 percent were age 70 or older. The elderly are more likely to die as the result of single-fatality fires because they often live alone. Like the elderly, persons in the middle age groups (those ranging from age 30 through 59), made up a higher proportion of victims in single-fatality fires (36 percent) than in multiple-fatality fires (22 percent).

The leading cause of fires that killed children age 9 or younger was children playing with fire-starting materials, followed by arson and heating fires. The leading causes of multiple-fatality fires that killed persons age 70 or older were smoking and heating.

Gender of Victim

The gender of victims was closely related to their ages. In multiple-fatality fires, males were slightly more likely (13 percent) to be killed than females (Figure 10). However, males were 70 percent more likely than females to die as the result of single-fatality fires. Previous research indicates that male and female fire death rates are relatively similar among children. Among older persons, however, fire deaths rates are significantly higher for men than for women. Due to the increasing proportion of victims who are children and the similarity in their fire death risks by gender, males and females die in multiple-fatality fires in more nearly equal numbers as the number of fire death increased.



Source: NFIRS

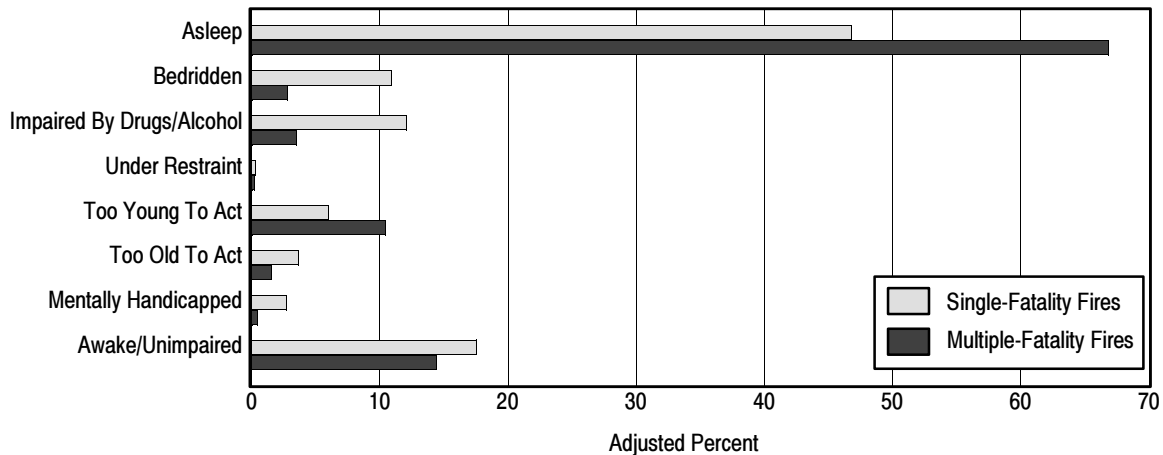
Figure 10. Gender of Victim (1994–96)

Victim Condition Before Injury

Victims of multiple-fatality fires were more likely to have been asleep or too young to act at the time of the fire than in single-fatality fires. (Figure 11) In single-fatality fires, victims were several times more likely to have been bedridden or impaired by alcohol or drugs. They were also more likely to have been too old to act, mentally handicapped, or awake and unimpaired.

Dundalk, MD—September 1999

Two adults and four children died in the Baltimore suburb of Dundalk. The fire started at about 4:30 a.m. and the intense blaze engulfed the two-story home within an hour. All six victims were found in their second floor bedrooms where they had been **sleeping**.



Source: NFIRS

Figure 11. Condition Before Injury (1994–96)

Condition before injury was also linked to the cause of fires. In all fatal fires, victims who were bedridden or impaired by drugs or alcohol were more likely to die in a smoking-related fire. In fires with only one victim, the leading cause was smoking fires. When a person who drops a lighted cigarette or other smoking material is bedridden or impaired by alcohol or drugs, the individual is more likely to have difficulty escaping and, consequently, are more likely to be killed as a result of the fire.

Activity at Time of Injury

Half of all multiple-fatality victims were sleeping and an additional 29 percent were trying to escape (Figure 12). In addition, multiple-fatality victims were more likely to be attempting rescue and less likely to be attempting to extinguish the fire.

The fire victim's activity was also linked to gender. Females were more likely to try to escape the fire than males and less likely to attempt to extinguish it.

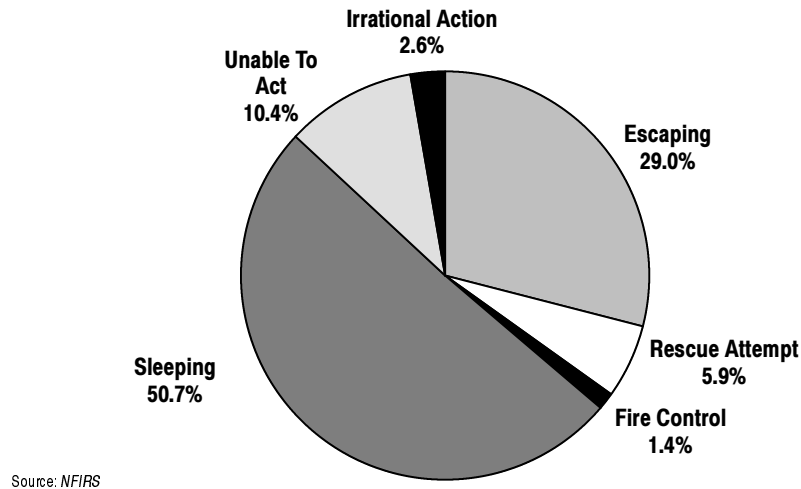


Figure 12. Activity at Time of Injury in Multiple-Fatality Fires (1994–96)

SIMILARITIES BETWEEN SINGLE- AND MULTIPLE-FATALITY FIRES

The previous analyses have shown that multiple-fatality fires in NFIRS differed from single-fatality fires in important ways. Differences included the leading causes of fire, areas of fire origin, time of day, and the age and gender profiles of victims. However, although there were differences between multiple- and single-fatality fires, this study also identified common characteristics. This section describes attributes common to the multiple- and single-fatality fires occurring in residential structures that were reported to NFIRS from 1994 through 1996.

Fixed Property Use

The vast majority (roughly 80 percent) of both multiple- and single-fatality fires occurred in one- and two-family dwellings. In comparison, about 17 percent of these fatal fires occurred in apartments (Figure 13). However, when only those multiple-fatality fires with three or more fatalities are considered, the percentage occurring in apartments rises slightly to 21.

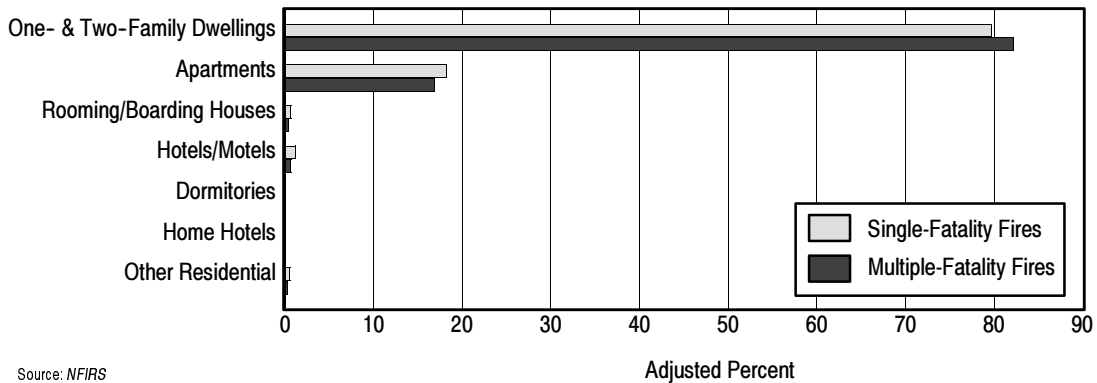
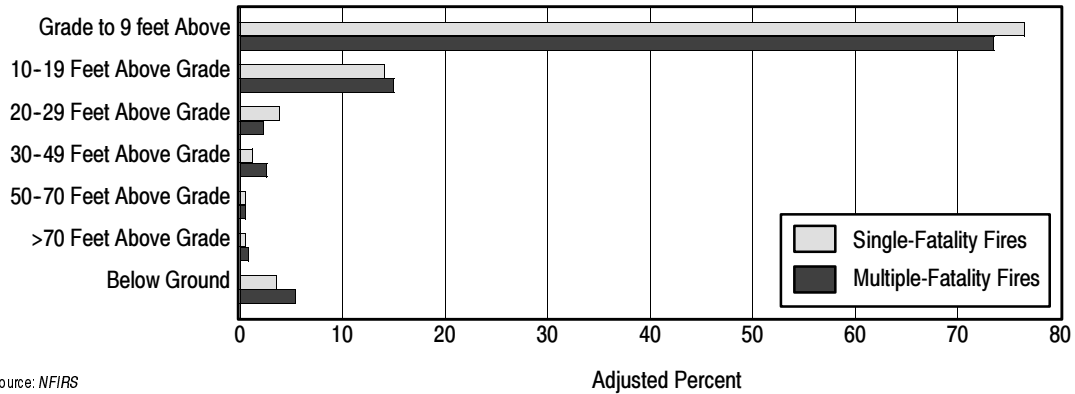


Figure 13. Residential Property Type (1994–96)

Level of Fire Origin

Nearly three-quarters of multiple- and single-fatality fires originated on the ground floor (grade to 9 feet above grade) (Figure 14). The next most common level of fire origin was 10 to 19 feet above grade—most often the second floor in one- and two-family residences.



Source: NFIRS

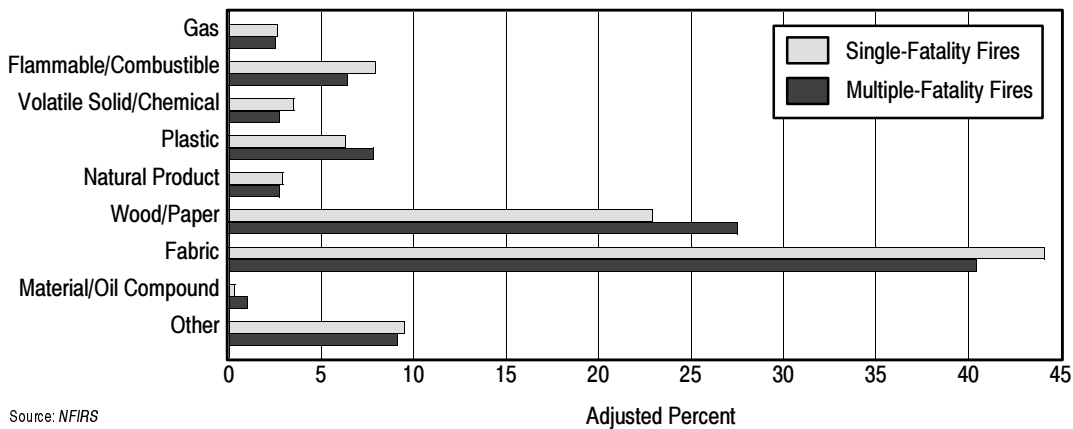
Figure 14. Level of Fire Origin (1994–96)

Type of Material Ignited

Fabric was the leading type of material ignited in both multiple- and single-fatality fires (Figure 15). Fires, in which fabric is the type of material first ignited, are commonly associated with smoking, children playing with fire-starting materials, and heating—all of which factored heavily into the profile of multiple- and single-fatality fires between 1994 and 1996. Wood/paper was the second leading category of material ignited, followed by the “other” category.

Moorhead, MN—January 1995

Seven people (six of them children) were killed by an early morning fire in their home. A cigarette dropped into a couch by an adult victim, the children’s mother, ignited the fire. The fire caused a build-up of smoke in the apartment causing the carbon monoxide levels to be four times the lethal percentage. The mother had pulled the smoke alarm’s battery free from its contacts rendering it inoperable.



Source: NFIRS

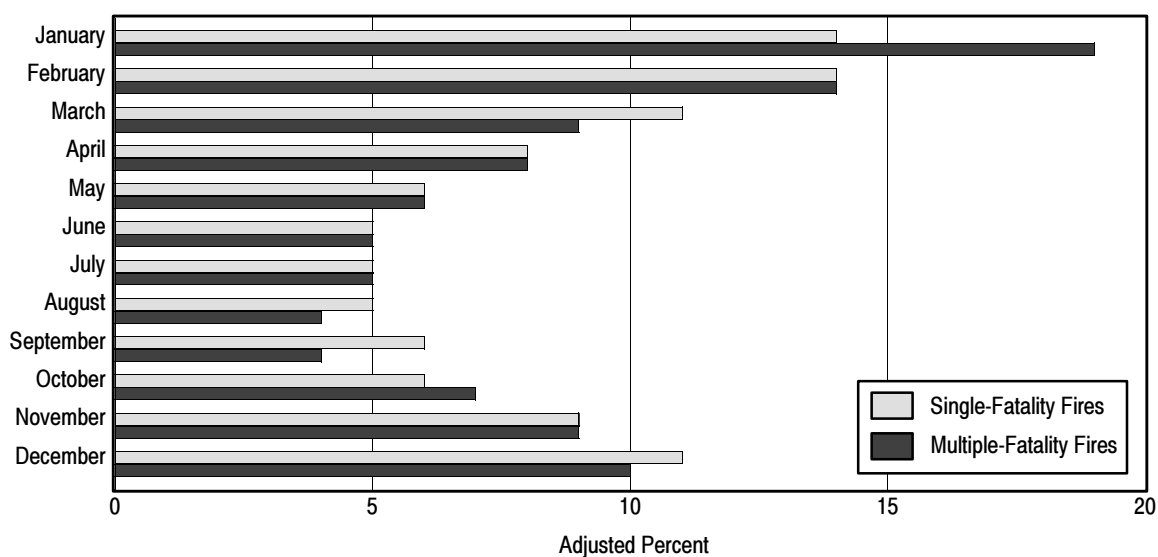
Figure 15. Type of Material Ignited (1994-96)

Month of Year

More multiple- and single-fatality fires occurred during the winter months than during any other time of the year (Figure 16). The prevalence of single- and multiple-fatality fires during winter months is consistent with the high incidence of heating fires during this period. Of the winter months, January is the month with the highest occurrence of both single- and multiple-fatality fires with 14 and 19 percent of fire deaths, respectively.

Cleveland, OH—January 1994

Four children were killed in this **January** fire after a 3-year old stuck a piece of paper into a gas heater. This led to the ignition of combustibles in the surrounding dining room. The adults, sleeping at the time, were awakened by smoke in time to escape the residence, though none of the children survived. The child who started the fire had a history of playing with the gas heater. There were no smoke alarms in the home.

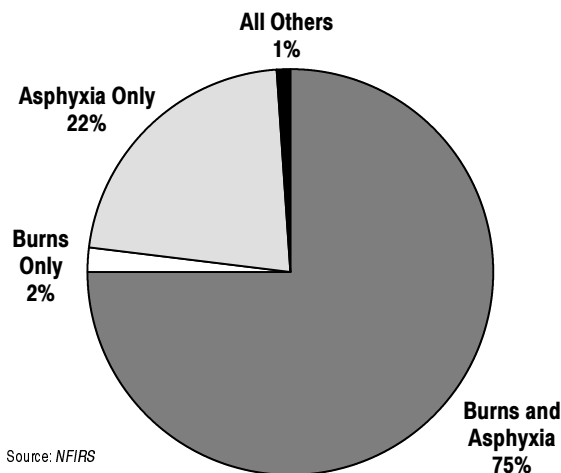


Source: NFIRS

Figure 16. Month of Year (1994–96)

Nature of Injury

The nature of the injuries responsible for fire deaths was similar among victims of multiple- and single-fatality fires (Figure 17). Over 70 percent of victims experienced both burns and asphyxia; 22 percent died from asphyxia alone. Fewer than 2 percent of victims of multiple-fatality fires died exclusively from burns.



Source: NFIRS

Figure 17. Nature of Injury in Multiple-Fatality Fires (1994–96)

MULTIPLE-FATALITY FIRES IN NON-RESIDENTIAL STRUCTURES

This section provides a brief overview of multiple-fatality fires occurring in non-residential structures. Differences in the type of property, cause, and month of the fire are considered. It should be noted that fires resulting in multiple civilian casualties in non-residential structures are relatively rare events compared to deaths in residential fires. The information below is based on 33 non-residential, multiple-fatality structure fires reported to NFIRS from 1994 to 1996. Caution should be used in interpreting the results due to the small number of fires in the dataset.

Type of Property

The leading type of property in multiple-fatality fires was institutional property, a category that includes hospitals, nursing homes, and prisons (Figure 18). Storage property ranked second. In contrast, the leading property type for single-fatality fires was storage property. Institutional property tied with office/store property as the next leading property type in single-fatality fires.

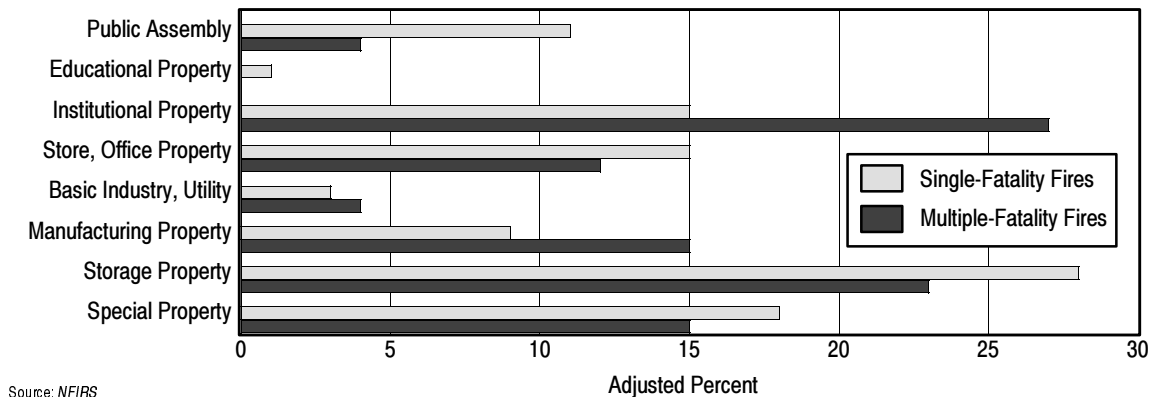


Figure 18. Type of Property for Fatality Fires in Non-Residential Structures Material Ignited (1994–96)

Cause

Heating fires and fires due to “other equipment” tied as the leading cause of non-residential, multiple-fatality fires (Figure 19); open flame fires were third. Together, these three causes accounted for 60 percent of non-residential, multiple-fatality fires. Due in large part to fatal arson fires set in storage structures, arson was the leading cause of single-fatality fires that occurred in non-residential structures.

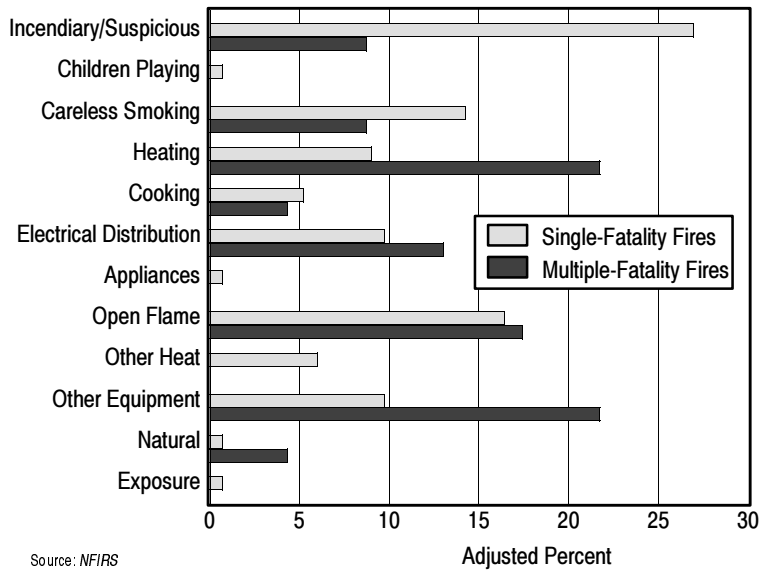


Figure 19. Cause of Fatal Fires in Non-Residential Structures (1994-96)

Month

Similar to multiple-fatality fires in residential structures, the majority of multiple-fatality fires in non-residential structures occurred in the winter months (Figure 20). This corresponds with a high incidence of heating fires during this period. More than 60 percent of non-residential, multiple-fatality fires occurred between December and March, while only 43 percent of non-residential, single-fatality fires occurred during these months.

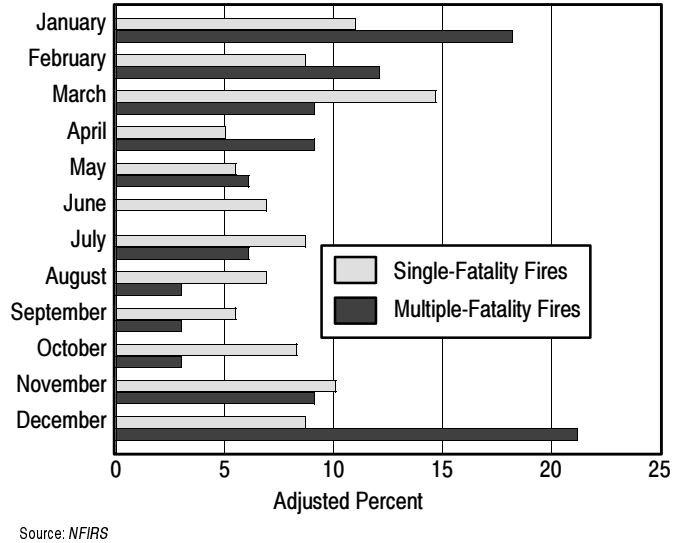


Figure 20. Month of Year of Fatal Fires in Non-Residential Structures (1994-96)

RECOMMENDATIONS

During the period from 1994 to 1996, over 1,500 fires killed two or more people. These fires resulted in approximately 4,100 deaths, an average of 1,365 per year. An additional 2,340 people were killed in single-fatality fires each year. The similarities and differences between single- and multiple-fatality fires have been examined within this report. The results of this analysis have enabled the formulation of a series of recommendations that may help to reduce the number of fatal fires.

The leading cause of multiple-fatality fires stems from heating one's home or office. The fire service and system engineers must educate the public on how to prevent these fires. Routine maintenance on heating equipment will reduce the possibility of a fire. Furthermore, special emphasis must be placed on the proper use of space heaters and alternative heating sources. Too many deaths occur when space heaters ignite the victim's clothing, upholstered furniture, or other combustibles. When the victim is in proximity to the area of fire origin, there is little hope for survival.

The second leading cause of multiple-fatality fires is arson. The law enforcement community and the fire service must continue to work together to combat this crime. Increased enforcement of existing laws and effective utilization of juvenile arson prevention and rehabilitation programs, in addition to the development of new, innovative programs and enforcement techniques, can reduce the threat of arson in this country.

The third leading cause of multiple-fatality fires is from children playing with fire-starting materials. Through fire prevention education programs and increased supervision by parents and other caretakers, these fires can be greatly reduced in number.

One common thread throughout the multiple-fatality incident synopses and also demonstrated in the data, is the lack of working smoke alarms. With the proper early notification that working smoke alarms offer, many of these deaths may have been prevented. Fire service professionals, public fire educators, and fire prevention specialists should continue their efforts to educate the public on the life-saving need to install and maintain smoke alarms in all properties.