

U.S. Fire Administration / National Fire Data Center

# Residential Fires and Older Adult Casualties

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Homeland  
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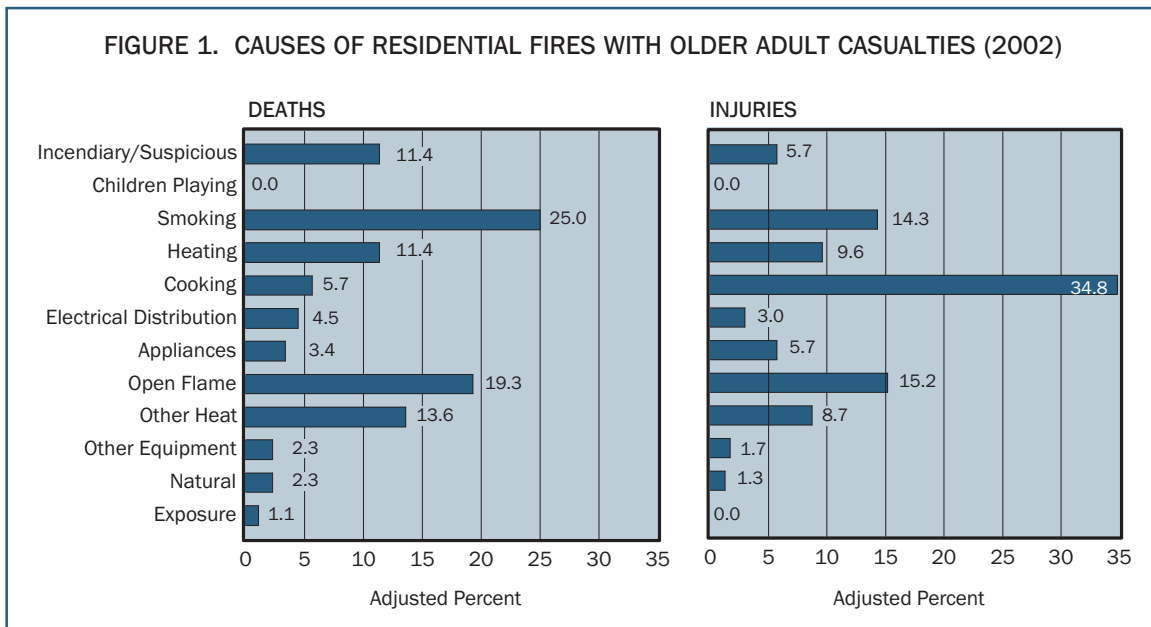
## Findings

- In 2002, an estimated 2,320 older adults were injured or killed in residential fires.
- Smoking was the leading cause of residential structure fires (25%) that resulted in older adult fatalities.
- Upholstered furniture and bedding were the primary items ignited in smoking fires with older adult fatalities.
- Cooking was the leading cause of fires resulting in older adult fire injuries.
- Thirty-nine percent of older adults killed in residential structure fires were asleep when the fire started; 32% of older adults were trying to escape when they died.

An estimated 720 adults aged 65 or older were killed in residential fires in 2002. These deaths accounted for nearly 27% of all residential fire deaths that year. An additional 1,600 older adults were injured in residential fires—11% of residential fire injuries in 2002.<sup>1</sup> Coupled with an increasing older population, these statistics indicate a problem of growing concern to the fire service.

## CAUSES OF RESIDENTIAL FIRES WITH OLDER ADULT CASUALTIES

As shown in Figure 1, smoking was the leading cause of residential structure fires that resulted in one or more older adult fatalities (25%), followed by open flame fires (19%) and fires caused by other heat sources (14%).<sup>2,3</sup> The “open flame” category includes torches, candles, matches, lighters, open fire, ember, ash, rekindled fire,



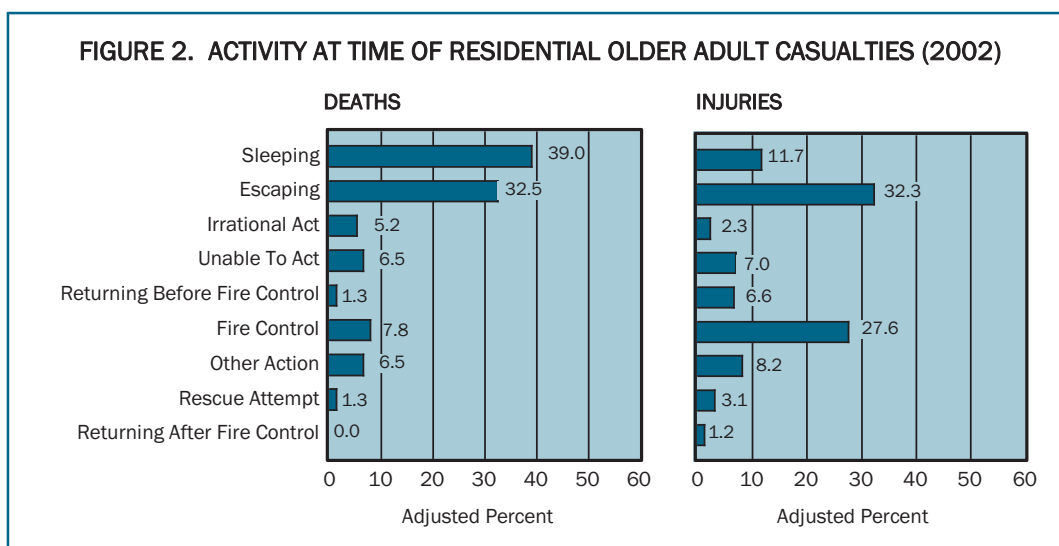
Source: NFIRS 5.0

and backfire from internal combustion engine as the source of heat. For fires that resulted in one or more older adult fatalities, hot embers were the primary open flame source. The “other heat” category includes items such as fireworks and explosives, heat from electrical equipment arcing or overloading, and heat or sparks from miscellaneous hot objects not covered by other causes. No one item accounted for a substantial number of these fires. By comparison, for all 2002 residential fatalities, the leading cause of fatal residential fires was arson (22%), followed by smoking (21%) and open flame (15%).

The leading cause of all fires that caused injuries in the home in 2002 was cooking (29%). For fires that resulted in injuries to one or more older adults, cooking fires play a larger role—35% of fires that lead to older adult injuries are cooking fires. Fires caused by open flames (15%) and smoking (14%) are the second and third leading causes of older adult injuries (Figure 1).

### ACTIVITY WHEN OLDER ADULTS ARE INJURED

Figure 2 illustrates the leading activities of older adults prior to their injuries in 2002. Thirty-nine percent of older adults who were killed in residential structure fires were asleep at the time of the fire. Thirty-two percent were trying to escape when they died, and 8% were attempting to control the fire. For those older adults who were injured, 32% were trying to escape, 28% were attempting to control the fire, and 12% were asleep.



Source: NFIRS 5.0

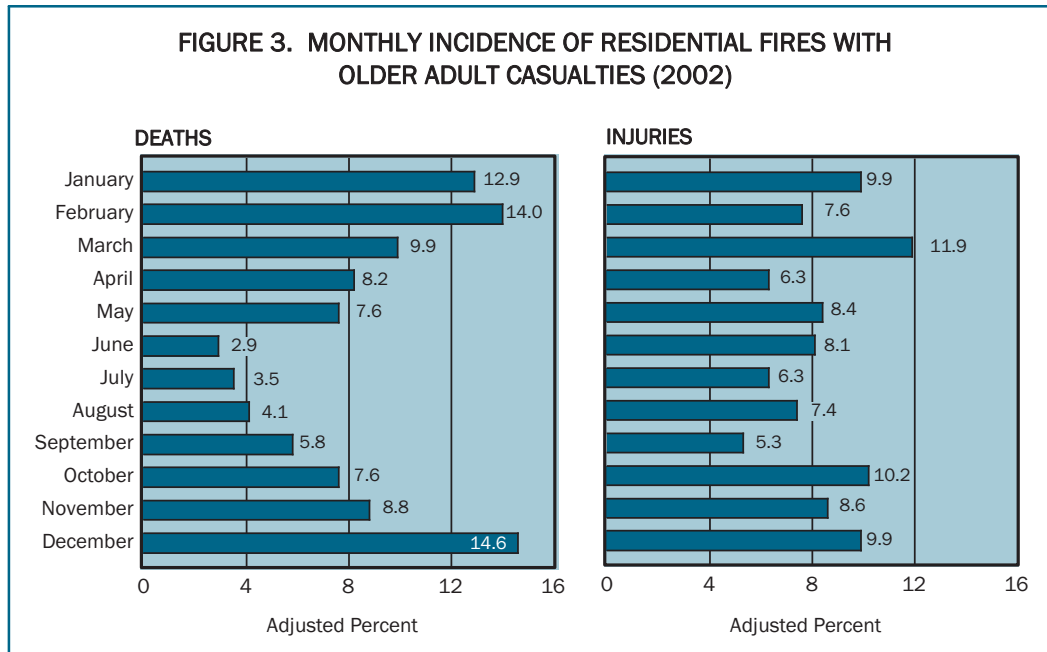
### MATERIALS IGNITED

Upholstered furniture, wearing apparel, and bedding were the materials first ignited in 40% of fires with older adult fatalities. Cigarettes were the primary heat sources for upholstered furniture and bedding fires, consistent with smoking fires as the leading cause of fires with older adult fatalities. Heat from equipment, in addition to cigarettes, was responsible for igniting wearing apparel. Cooking materials were ignited in 20% of fires that injured older adults. Heat from operating equipment was the primary cause of these cooking materials fires.

## TIME OF YEAR

Similar to the trends seen in fires that cause casualties, peak months for fires that cause older adult fatalities were the winter months, December through February, as shown in Figure 3. These increases are consistent with general trends, where winter sees an increase in structural fires, many of which are caused by heating and cooking. As expected, during the winter months there were an increased number of heating fires with older adult casualties. Fatal smoking fires, however, were reasonably consistent throughout the year.

March and October were peak months for fire injuries in 2002. While cooking fires were the primary cause of older adult fire injuries in all months, an increase in open flame fires in March and heating fires in October contributed to these peaks.



Source: NFIRS 5.0

## AGE

Over 80% of older adult fire casualties were between the ages of 65 and 84, tracking with the age distribution of the older population (87% of older adults are between the ages of 65 and 84).<sup>4</sup>

When compared to the under-65 adult population (adults 18–64), older adults are more likely to experience fatal injuries in fires and this likelihood increases with age. At older ages, increasingly more casualties tend to be fatalities as the oldest old tend to be more vulnerable to the effects of fire. As seen in Table 1, adults over age 65 have 2.5 times the casualty death rate as do younger adults (adults 18–64) and the oldest adults have nearly 3.5 times this casualty rate.

**TABLE 1. RESIDENTIAL ADULT FIRE CASUALTIES (2002)**

Age Group	Deaths (percent)	Injuries (percent)	Casualty Death Rate*
Adults 18–64	11.7	88.3	12
Adults over 65	29.8	70.2	30
65–74	26.7	73.3	27
75–84	28.2	71.8	28
85 and older	40.7	59.3	41
All Adults	14.8	85.2	15

\* Deaths per 100 Casualties

Source: NFIRS 5.0

## EXAMPLES

The following are a few recent examples of fires that have involved older adults:

- May 2005: Fire investigators in Clarksville, Tennessee, are still working to find the cause of a fire that killed an elderly couple early on a Sunday morning. A 78-year-old man and his 63-year-old wife apparently died while trying to put out the flames.<sup>5</sup>
- February 2005: In Luna Pier, Michigan, a second-story fire at a senior citizens' apartment building took the life of a 67-year-old woman and left 30 other older adults homeless. The woman, who was attending a tenant meeting elsewhere in the building when the fire struck, returned to her apartment where a cigarette had been left unattended on a couch.<sup>6</sup>
- December 2004: A Christmas Eve fire resulted in the death of an 80-year-old man after his clothing caught on fire while working near a fireplace in his Atherton, California, home. His 79-year-old wife was critically injured.<sup>7</sup>
- August 2004: An 86-year-old senior died shortly after being rescued from his burning home in Mount Olive, North Carolina. The fire started when his son lit a cigarette in the next room, where a LP gas torch was located.<sup>8</sup>

## CONCLUSION

Because older adults account for a substantial portion of fire deaths and fire injuries, the USFA has been working toward the goal of reducing fire deaths and injuries to older adults. A number of resources to help address the fire problem for adults are available from USFA. A *Fire Safety Campaign for People 50-Plus* (<http://www.usfa.fema.gov/50plus>) addresses lifestyle strategies of safe smoking, safe cooking, and safe heating to reduce the incidence of fires that traditionally affect older adults. For information on issues and risks for older adults and fire, USFA offers several reports. Under the Topical Fire Research Series, two topical reports are available online: *Fire Risk to Older Adults* (Vol. 4, Issue 9, December 2004) and *Older Adults and Fire* (Vol. 1, Issue 5, January 2001). These topicals are outgrowths of larger analytic reports, *Fire Risks for the Older Adult* and *Fire and the Older Adult*.<sup>9</sup>

To request additional information or comment on this report, visit  
<http://www.usfa.fema.gov/applications/feedback>

## Notes:

- <sup>1</sup> Loss estimates are based on 2002 National Fire Incident Reporting System (NFIRS) data and national residential structure fire loss estimates from the National Fire Protection Association's (NFPA's) *Fire Loss in the United States During 2002*.
- <sup>2</sup> Distribution statistics are based on data from the NFIRS 2002. At the time of this report, NFIRS continues to transition from version 4.1 to 5.0. Due to issues related to accurately converting version 4.1 data to version 5.0, this report is based on data reported only in version 5.0.
- <sup>3</sup> Percentages on each chart are rounded to one decimal point. Textual discussions cite these percentages as whole numbers.
- <sup>4</sup> Older adult population distributions are based on 2002 population projections, [http://www.census.gov/popest/archives/2000s/vintage\\_2002/NA-EST2002-ASRO-03.html](http://www.census.gov/popest/archives/2000s/vintage_2002/NA-EST2002-ASRO-03.html).
- <sup>5</sup> Lilla Marigza, "Deadly fire kills elderly Clarksville couple," WKRN-TV News2, May 1, 2005, <http://www.wkrn.com/Global/story.asp?S=3284707>.
- <sup>6</sup> Steve Eder, "Apartment Fire Kills Woman, 67," Toledoblade.com, February 24, 2005, <http://www.toledoblade.com/apps/pbcs.dll/article?AID=/20050224/NEWS07/502240482>.
- <sup>7</sup> Jay Thorwaldson, "Christmas Eve Fire Kills Physician," Palo Alto Weekly Online Edition, December 29, 2004, [http://www.paloaltoonline.com/weekly/morgue/2004/2004\\_12\\_29.digest.shtml](http://www.paloaltoonline.com/weekly/morgue/2004/2004_12_29.digest.shtml).
- <sup>8</sup> Bonnie Edwards, "Fire Kills Man Despite Firemen's Heroics," Goldsboro News-Argus, Wayne County, NC, August 19, 2004, [http://www.newsargus.com/news/archives/2004/08/19/fire\\_kills\\_man\\_despite\\_firemens\\_h](http://www.newsargus.com/news/archives/2004/08/19/fire_kills_man_despite_firemens_h).
- <sup>9</sup> USFA's online reports can be accessed from <http://www.usfa.fema.gov/statistics/reports/>.