

Fire and Burn Injuries

Overview

Every three hours, a fire-related death occurred in the U.S. in 2009. Similarly, someone was injured in a fire every 31 minutes.¹ Every year, more than 380,000 Americans suffer from burn injuries.² Yet many fires and burns can be prevented, both at home and in the workplace.

- Burns may be caused by heat, fire, radiation, sunlight, electricity or chemicals.³
- Fires and explosions accounted for almost 3% of the 4,340 workplace fatalities in 2009.⁴
- In more than 80% of all burns, the hand is involved. Even if a burned hand does not play a major role in survival, its function and appearance are important for professional life.⁵
- Alcohol use contributes to an estimated 40% of adult residential fire deaths.⁶
- Children younger than 5 years and adults 65 years and older are the two highest risk age groups for death from fires and burns. Children are at increased risk for home fire deaths because of limited awareness of fire dangers and the inability to safely exit a house during a fire without the assistance of an adult. People ages 75 years and older are at the highest risk of death due to limited mobility.^{7, 8}

Costs and Impact

- Fires and burns represent only 1% of all injuries in the U.S., but treatments cost over \$10.4 billion a year [2010 dollars].⁹

- In 2000, fires and burns caused \$6.2 billion in productivity losses, equal to \$8.6 billion in 2010 dollars.⁹
- In 2005, lit tobacco products caused an average of 9,400 fires in U.S. non-residential (i.e., business) structures, resulting in \$97 million in direct property damage.¹⁰
- Smoke alarms are a proven way to reduce death, injury and property damage resulting from fires, and provide \$770 in benefits for the cost of a \$44 smoke alarm.¹¹

Employer Strategies for Prevention

Employers should promote fire and burn prevention awareness among employees on two fronts: the worksite and the home.

ON THE JOB

- **Direct targeted education and prevention programs to workers**
 - Educate employees about burn protection, especially those who work in high-risk occupations, such as vehicle and equipment cleaners, food service personnel and mechanics.¹²
 - Provide adequate protective gear for the head and upper extremities. The majority of on-the-job burn injuries are due to exposure to caustics substances and hot objects.¹²
 - Advise employees who work outdoors to follow recommendations for sun safety, such as frequent sunscreen application and use of reflective clothing, hats and sunglasses.¹³



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Productivity losses due to fires and burns are highest among males ages 24-44 years and females 45-64 years, age ranges that include much of the active workforce.⁹

- **Tailor employee communications to the seasons and activities of the year**

- Share fireplace safety tips in the fall, and remind employees to clean out their chimneys and flues annually.
- Discuss home fire prevention especially during holiday seasons. For example, in December, educate employees about the proper use and handling of Christmas tree lights.
- Similarly, celebrations that traditionally involve drinking (e.g., New Year's, St. Patrick's Day and Super Bowl parties) provide a basis to talk about the role of alcohol in residential fires.
- Remind employees about safe grilling techniques, adequate sunscreen use and proper handling of firecrackers when summer begins. Sixty percent of firecracker-related injuries occur around the 4th of July.¹⁴

- **Train workers about fire hazards in the workplace and about what they should do in a fire emergency**

- Create a plan that outlines the assignments of key personnel in the event of a fire and provides an evacuation plan for workers on site.¹⁷
- Set up a "fire plan" prior to beginning any demolition job.¹⁷
- Provide an adequate number and type of fire extinguishers mounted in readily accessible locations.¹⁷
- Develop in-house seminars (e.g., "lunch and learns") and post information on the intranet that teaches employees strategies for fire/burn safety and prevention. Seminars are also a good opportunity for employees to develop family escape plans for their households.

- **Provide a safe working environment**

- Ensure that there are working smoke alarms and sprinklers in all facilities.¹⁷
- Train workers on how to safely use equipment such as fire extinguishers.
- Offer first aid classes. First aid can help employees recognize when a burn requires medical attention and enable them to treat minor burns more effectively.¹⁸

- **Partner with health plans to educate in-network pediatricians and primary care providers about burn prevention strategies**

- Ask that providers discuss burn prevention with parents during periodic well-child visits.¹⁵
- Require primary care providers to carefully evaluate seniors for burn risk. Risk factors include a history of minor burns, dementia, disabilities and certain medications.¹⁵
- Ask primary care providers to counsel older adults on ways to prevent burns (e.g., fire alarms, adequate supervision, bathroom safety equipment, etc.).¹⁶

IN THE HOME

- **Install and maintain smoke alarms¹⁹**

- Install smoke alarms in every bedroom, outside each separate sleeping area, and on every level of the home, including the basement.²⁰ Smoke alarms decrease the chances of dying in a house fire by 40%-50%.⁹
- Test smoke alarms monthly by pushing the test button.²⁰
- Replace alkaline batteries in all smoke alarms at least once per year.²⁰ Never borrow smoke alarm batteries for other purposes.²¹

- **Practice safe cooking, as cooking equipment is the number one cause of residential fires¹**

- Ensure that children are not left unattended in the kitchen.¹⁵ Forty-one percent of reported home fires started in the kitchen or cooking area.²²
- Maintain awareness of children in the food preparation area. The majority of burns children experience, especially those between the ages of 6 months and 2 years, are from hot foods and liquids spilled where food is prepared and served.¹⁴

- **Talk with family members about fire safety**

- Develop a family escape plan, including an established meeting place in case of fire. Only 50% of U.S. families currently have such an escape plan.²²
- Throw away any frayed or damaged electrical cords and cover any electrical outlets that are within a child's reach.



- Tell employees about high-risk times of the day and year for fires. Thirty-eight percent of deaths due to home fires occur between December-February.²³ Reported home fires peak around the dinner hours of 5 p.m. to 8 p.m.

• **Watch the water temperature**

- Set the temperature on hot water heaters no higher than 120 degrees Fahrenheit.
- Test the water before placing a child in the bathtub.¹⁸ Hot tap water accounts for nearly 1 in 4 of all scald burns among children and is associated with more deaths and hospitalizations than any other hot liquid burns.¹⁴

Useful Resources

Centers for Disease Control and Prevention:

[Fire Deaths and Injuries: Prevention Tips](#)

Ameriburn.org: [Burn Care Facilities in the United States](#)

Journal of the American Medical Association: [Patient Page: Burn Injuries](#)

Job Accommodation Network: [Accommodation and Compliance Series: Employees with Burn Injuries](#)

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