Massachusetts Burn Injury Reporting System

2014 Annual Report

Department of Fire Services
Division of Fire Safety

Charles D. Baker, Governor
Daniel Bennett, Secretary of Public Safety & Security
Peter J. Ostroskey, State Fire Marshal

Massachusetts Burn Injury Reporting System

2014 Annual Report

29 Years

Helping Prevent Burn Injuries

Publication Number: 16-071-DFS-01
Authorized by Gary Lambert, State Purchasing Agent

Peter J. Ostroskey, State Fire Marshal
Commonwealth of Massachusetts • Department of Fire Services
Post Office Box 1025 State Road • Stow, Massachusetts 01775
Telephone (978) 567-3300 • Facsimile (978) 567-3199
www.mass.gov/dfs

Table of Contents

Executive Summary

M-BIRS was established in the Department of Public Safety in 1984 as a tool to help fire service and law enforcement personnel identify arsonists that may have been burned while setting fires. M-BIRS, along with the Office of the State Fire Marshal, was carried over to the Department of Fire Services in 1996. It remains a joint program of the Department of Fire Services and the Massachusetts Department of Public Health (DPH). The "Burn Registry" also provides valuable data on the nature of the burn problem in the Commonwealth. In 2014, the thirtieth full year of the Massachusetts Burn Injury Reporting System (M-BIRS), 40 acute care hospitals and other health care facilities reported 364 victims of burns. Forty-nine (49) of these 364 victims received care at two Massachusetts hospitals and were reported to the system twice.

Massachusetts is renowned for its medical institutions and in particular for the advanced treatment available for burn and trauma victims. Many advances in treatment that have lead to increased ability for victims to survive serious burn injuries took place in Massachusetts. Those advances started in the desperate days after the deadly 1942 nightclub fire at Boston's Cocoanut Grove and continue today with advances from the 2003 Station nightclub fire in West Warwick, RI.

Statutory Authority for M-BIRS in MGL 112, Section 12A
According to Massachusetts General Law (MGL) Chapter 112, Section 12A, the treatment of all burn injuries extending over 5% or more of a person's body surface area must be reported immediately to the State Fire Marshal.

M-BIRS Has Two Main Purposes — Identifying Arsonists and Burn Prevention
Data collected by the Massachusetts Burn Injury Reporting System is used in several ways. Investigators use the data to determine if an arsonist was treated for a burn that resulted from an attempt to illegally burn a building or vehicle. If these burns are not reported promptly, arsonists may continue to light fires that threaten life and property.

Our data has also been used to identify problems that need to be addressed by public education, regulation, or development of appropriate intervention strategies. We need to know what type of activities cause injuries, if the injuries are seasonal and how old the victims are in order to develop and implement effective prevention programs. We appreciate the efforts of the many dedicated doctors, nurses and clerical personnel who report the burn injuries promptly and completely. They make the program work.

Painful, disfiguring and expensive burn injuries exact a tremendous toll from their victims, their families and society. The statistics in this report illustrate the need for more burn prevention education and indicate to whom specific safety messages should be targeted.

State Fire Marshal Peter J. Ostroskey invites fire, health and medical professionals, classroom and community educators, day care teachers and elder service workers to join with him in making the Commonwealth safer from burn injuries.

DPH Alerts OSHA to Severe Burn Injuries in the Workplace
DPH notifies one of the three Occupational Safety and Health Administration (OSHA) area offices about those companies in which an employee was burned as a result of explosions, chemical exposures, electrocutions, or those that appeared to indicate likely violations of OSHA standards. Twenty-one (21) burn injuries were referred to OSHA in 2014 for cases that met their criteria.

Scalds Caused 46% of Reported Burn Injuries
Scalds have been the leading cause of burn injuries for the past 29 years. In 2014, scalds caused 167, or 46%, of the burn injuries reported to M-BIRS. Cooking liquids caused the majority of scald burns. Hot beverages, hot tap water, and hot foods also caused significant numbers of scald burns.

Keep Hot Liquids Away from Babies and Preschoolers
In 2014, young children were the most frequent victims of scald burns. Forty-nine percent (49%) of the 167 scald victims were under five years old, and most were less than one year. Children under five years of age were nearly nine times more likely to be scalded. Hot beverages posed the greatest risk to these young children; parents and caregivers of young children must remember that it is dangerous to drink hot beverages while holding a baby.

Set Hot Water Heaters at 125°F or Lower
Hot tap water is also a danger to very young children. It takes only one second of exposure to water at 155°F to cause a third degree burn. Hot water heaters should be set to temperatures of 125°F or lower. Massachusetts state law states that the temperature must be set between 110°F and 130°F. Caregivers should never leave a baby or toddler alone in a bath. Young children like to turn knobs and use levers and they may turn on the hot water when an adult is distracted.

Kitchen Is a Dangerous Place
A significant number of the burn injuries occur in the kitchen each year. Flame burns such as sleeves igniting while cooking, scald burns from grease splatters and hot liquids while cooking take place in the kitchen as well as scalds to young children who inadvertently get in the way. Since we must cook every day, we must learn to do so safely.

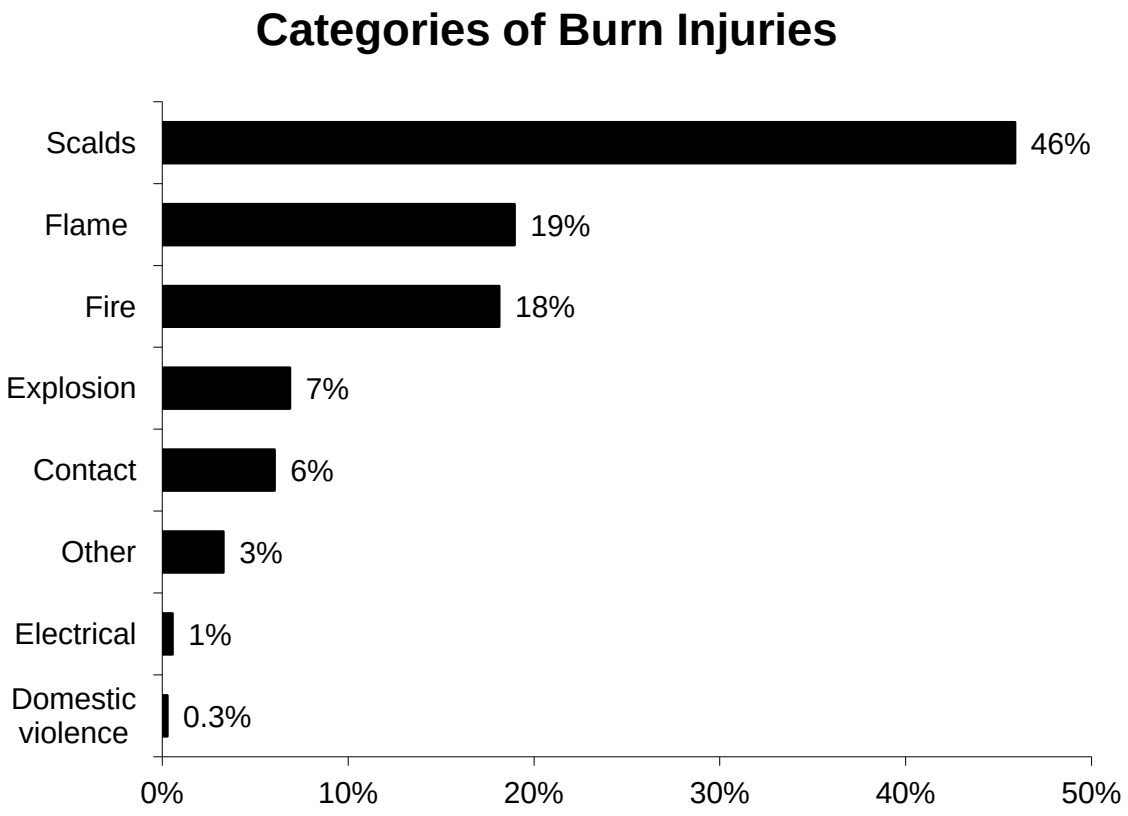
Cooking Fire Safety Campaign
The Department of Fire Services developed a public awareness campaign focused on cooking fire safety as it is the leading cause of home fires and injuries. The Cooking Fire Safety Campaign has two key messages: *Stand by Your Pan* and *Put a Lid On It*.

Flame Burn Injuries Cause the 2nd Most Burn Injuries
Flame burn injuries were the second highest cause of burn injuries in 2014 accounting for 19% of these burn injuries. Cooking related flame burn injuries caused 28% of flame burns in 2014. Burns from fires caused 18% of the 2014 burn injuries. Camp or bon fires caused 42% of these burn injuries.

Over 2/3 of Burns Occurred in the Victim's Home
Of the 364 burn injuries reported to M-BIRS in 2014, 251, or 69%, occurred in the victim's home or surrounding yard. Over half, or 52% of these burn injuries were scalds. Three (3), or 1% of the home-related burn injuries resulted in the victim succumbing to his or her injuries.

Causes of Burn Injuries

In this report, we look at burn injuries in two different ways. In the first section, we look at the type of incident that caused the burn. Was the burn caused by a fire, a flame[1], a scald or something else? In the second section we look at burns by age, gender, work-related burns, burns in the home, burns reported by individual hospitals, and burn injuries by month.



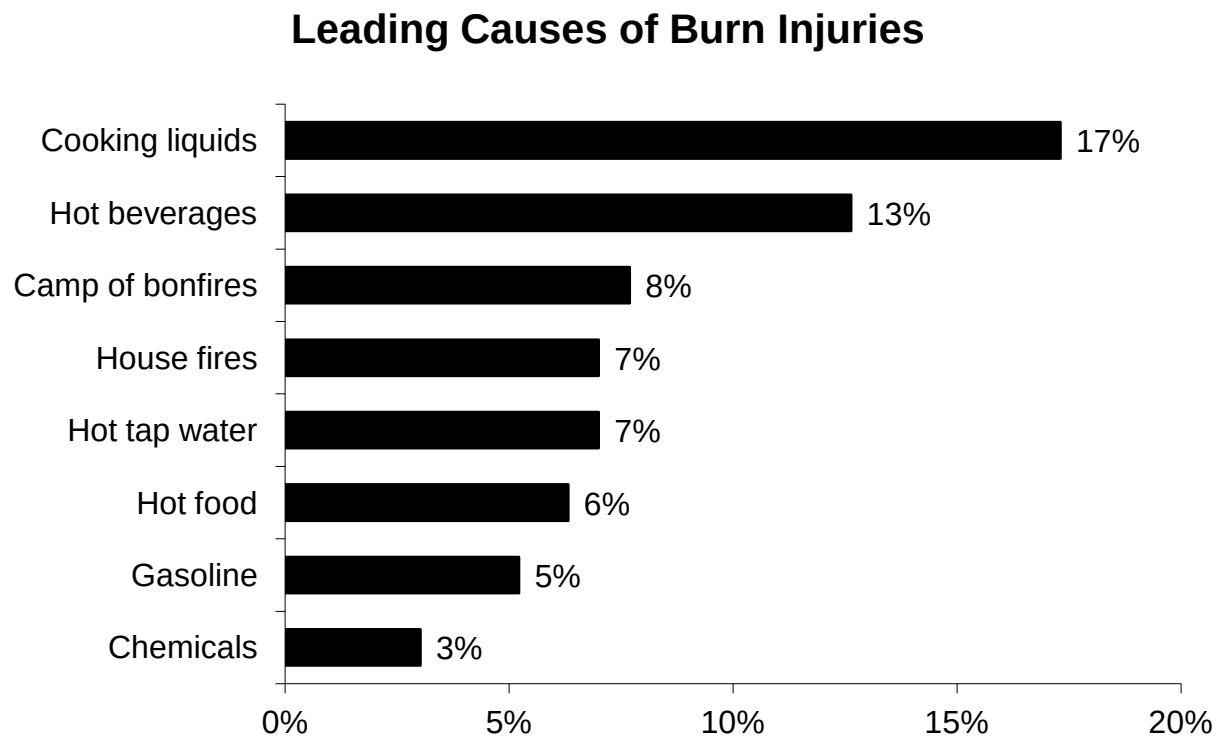
Almost 1/2 of All Burn Victims Never Come Near a Flame

Scalds from cooking liquids and grease, hot liquids, tap water, food and steam caused 46% of the 364 burn injuries reported in 2014. Flames from burning clothing, bedding or similar objects caused 19% of the burns. Eighteen percent (18%) were caused by fires. Explosions caused 7% of these burns; 6% were caused by contact with hot objects. Three percent (3%) of the reported burns in 2014 had other causes, such as chemical burns or sunburns; Electrical incidents such as electrocutions caused 1% of the burns and less than 1% were caused by an incidence of domestic violence.

[1] A burn is said to result from a flame when the fire is confined to the victim or the victim's clothing. When a wider area burns, the injury is considered to result from fire.

Type of Incidents Causing Burn Injuries

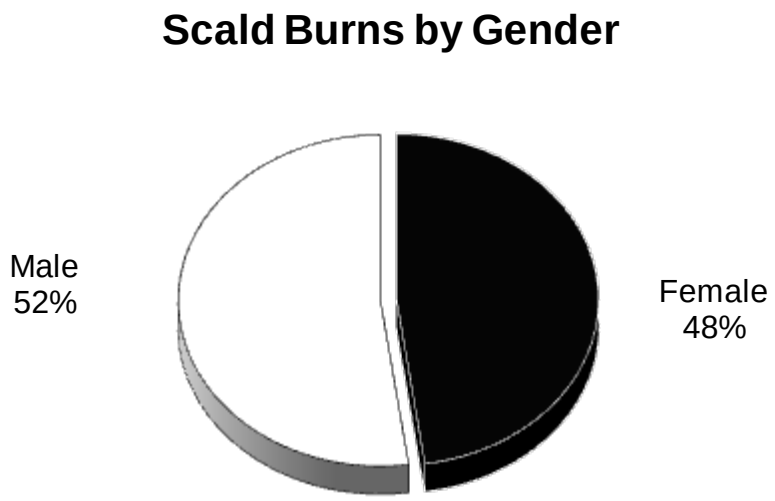
Look at Specific Causes and Equipment to Develop Prevention Strategies
To develop effective burn prevention policies and programs, we must first look at the specific items or behaviors that caused the burns. Seventeen percent (17%) of the 364 burn injuries reported in 2014 were scalds from cooking liquids. Thirteen percent (13%) of the burns were caused by hot beverages. Camp or bonfires caused 8% of total burn injuries. House fires and hot food each caused 7% and hot tap water caused 6% of the burn injuries in 2014. Gasoline caused 5% of total burns; and chemicals were involved in 3% of the total burn injuries in Massachusetts in 2014. For more information, please refer to the table *Specific Causes of Burn Injuries* in the Appendix.



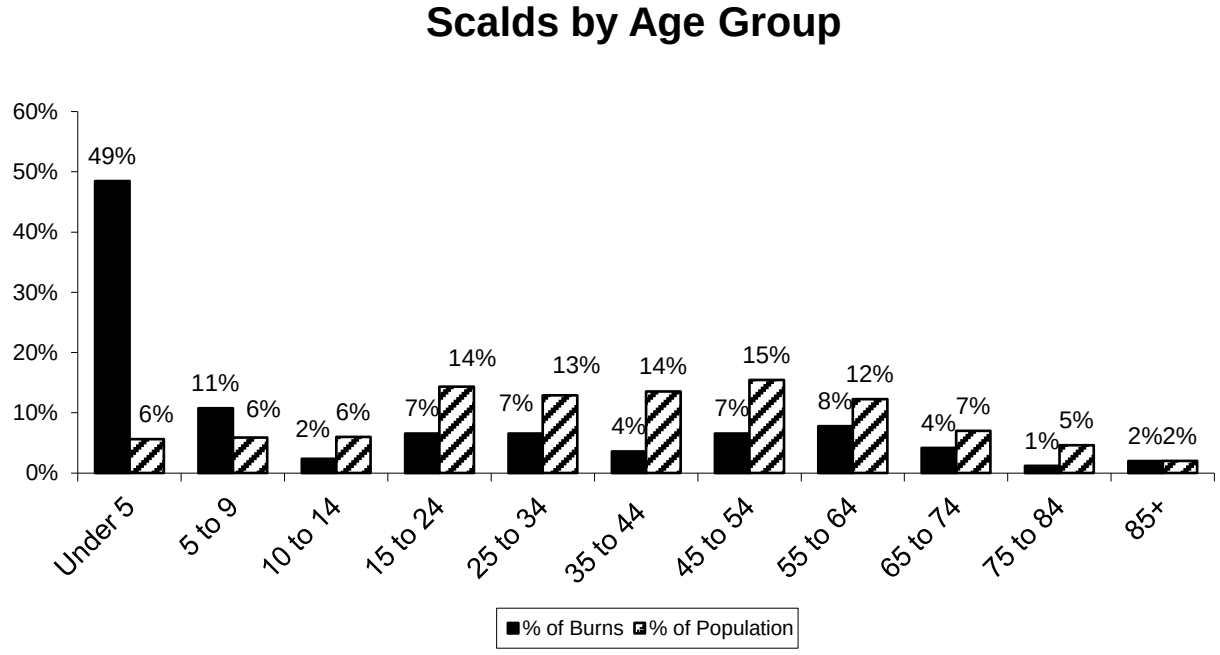
Burn Injuries Caused by Scalds

Scalds Have Been the Leading Cause of Burn Injuries Every Year
Scalds have been the leading cause of burn injuries every year since the inception of M-BIRS. The percentage of total burns has ranged from a high of 47% last year and in 1998 to a low of 35% in 2005. The 10-year average from 2005 through 2014 is 42% of total annual reported burns.

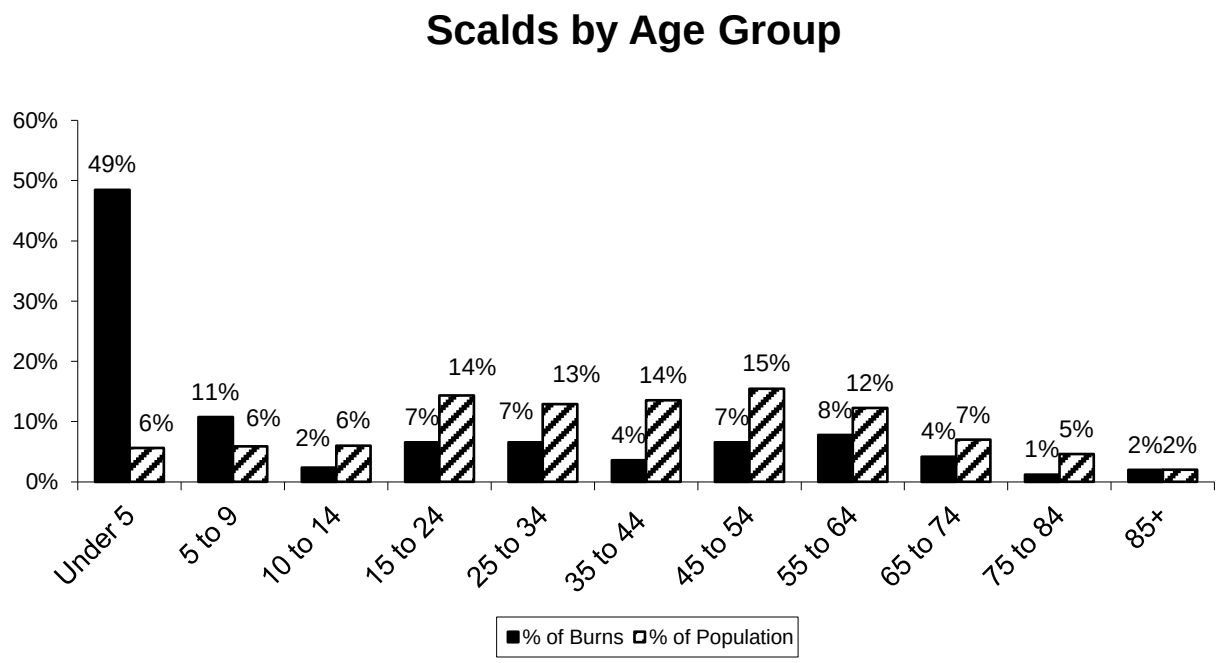
Scalds Caused 46% of All Burns
One hundred and sixty-seven (167), or 46%, of the 364 reported burns were scalds. Seventeen (17), or 10%, of the 167 scalds occurred while the victim was working. Eighty-seven (87), or 52%, of the 167 scald victims were male and 80, or 48%, were female.



Children Under 5 Years Old Were Most at Risk for Scald Burns
Young children were the most frequent victims of scald burns. According to the 2010 U.S. Census, children under the age of five comprised 6% of the Massachusetts population. However that same age group accounted for almost half, or 49%, of all scald burns in 2014. Fifty-five



(55), or 33%, were infants one year old or younger. Children aged five to nine accounted for 11% of scald burn injuries, while children aged 10 to 14 accounted for 2% of these injuries.



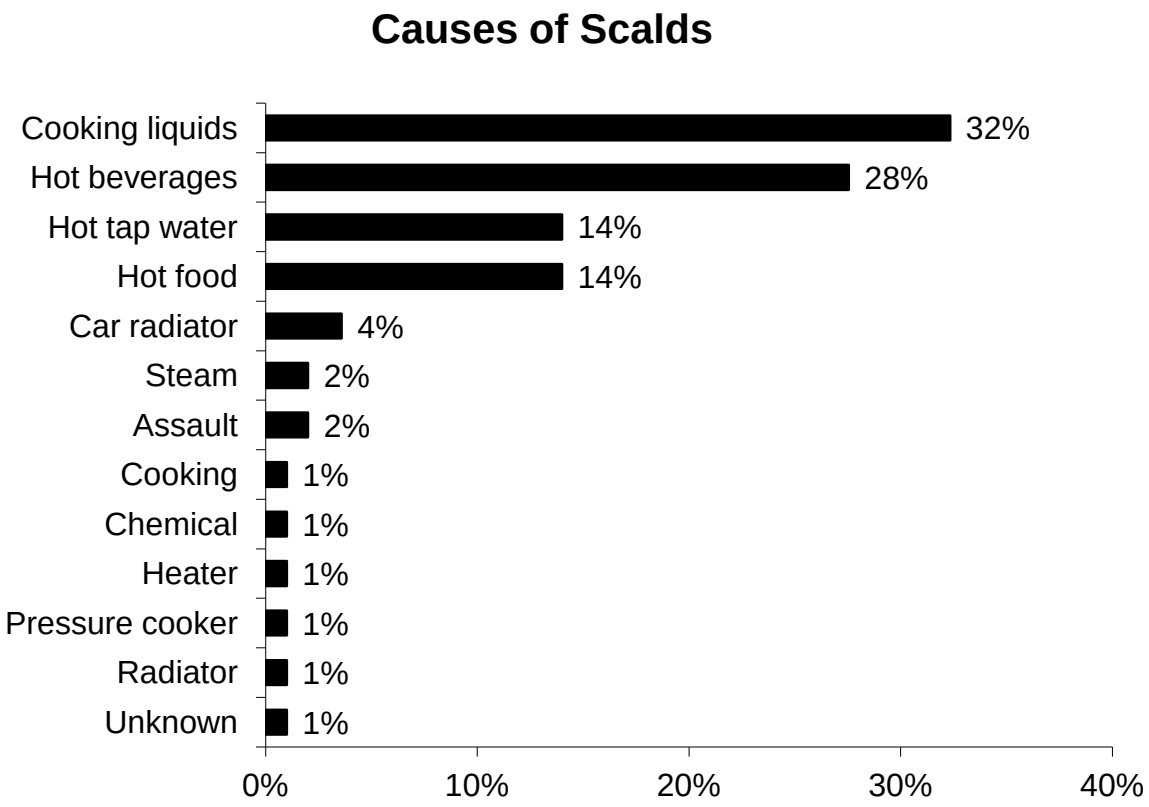
Pre-schoolers Nearly 9 Times More Likely to Suffer Scald Burns

Many adults also suffered burns from scalds. Seven percent (7%) of scald burn victims were between 15 and 24 years old; 7% were between 25 and 34; 4% were between 35 and 44 years of age; 7% were between 45 and 54; 8% were between 55 and 64; 4% were between 65 and 74; 1% were between 75 and 84; and 2% were victims over the age of 84. A one-month old girl was the youngest scald burn victim, while the oldest victim was a 96-year old woman. When the black shaded bar of the graph representing the percent of scald burns is higher than the black and white shaded bar representing percent of population, higher than expected risk at this type of injury exists. Only pre-schoolers were scalded at a disproportionate rate; they were nearly nine times more likely to suffer a scald burn and children five to nine were almost twice as likely to suffer from a scald burn.

Cooking Liquids Caused 32% of All Scald Burns

Cooking liquids were the leading cause of scald burns, accounting for 32% of all scald burns in 2014. Scald burns from hot beverages were the second leading cause of scald burns, causing 28% of the 167 scald burns. Fourteen percent (14%) were caused by hot tap water. Another 14% were caused by hot food. Scald burns from car radiators caused 4% and steam and assaults each caused 2% of scald burns. A chemical, a heater, a pressure cooker, a radiator, an unspecified cooking act and an unknown scald burn each caused 1% of these scald burn injuries in 2014.

From the beginning of M-BIRS in 1984, hot beverages were the leading cause of scalds. However, this was not the case in 1999 or from 2005 through 2008[2]. Since 2010 cooking liquids has been the leading cause of scalds.



1-Year Old Boy Scalded by Cooking Liquids
On September 22, 2014, a 1-year old New Bedford boy received scald burns to 14% of his body surface area when boiling cooking oil fell on him.

56-Year Old Man Receives Scald from Car Radiator
On June 30, 2014, a 56-year old man received scald burns to 18% of his body surface area when he opened his car radiator and anti-freeze exploded on him.

Hot Cooking Liquids

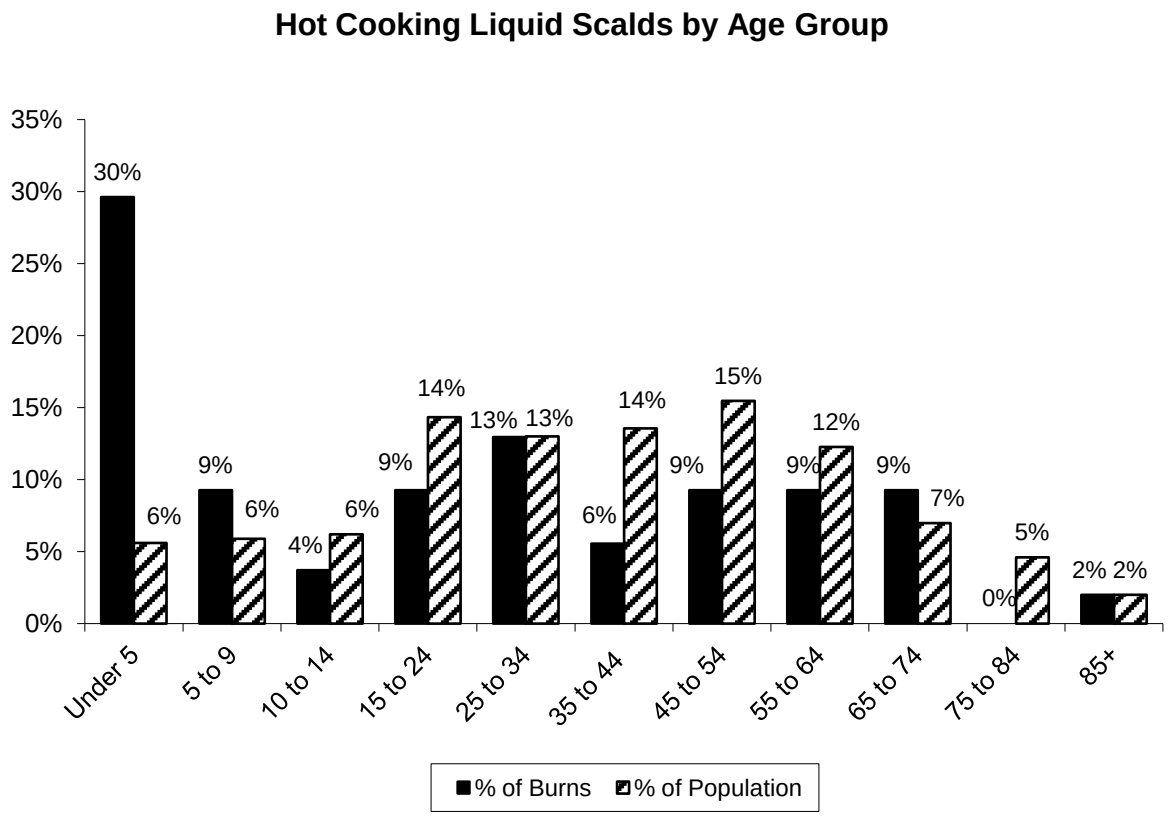
Hot Cooking Liquids Caused 32% of Scalds, 13% of All Burns
Scald burns from hot cooking liquids were the leading cause of all burn injuries. Hot cooking liquids which includes boiling water, grease and oil, caused 54, or 32%, of the 167 scald burns

[2]In 1999, and from 2005 – 2008 and 2010 - 2014, cooking liquids were the leading cause of scald burns. From 1984 – 1998, 2000 – 2004 and in 2009, hot beverage scalds were the leading cause.

and 15% of the 364 total burn injuries reported in 2014. Fifty-nine percent (59%) of the victims were female and 41% were male. Hot cooking liquids scalded 10 people while they were at work, of which four victims were women and six were men.

30% of Cooking Liquid Scald Victims Were Under 5

Those most likely to be under foot in the kitchen were most at risk to be burned by hot liquids on the stovetop. In 2014, 30% of the cooking liquid scald victims were under five years old. They were just under five and a half times more likely to be victims of a hot cooking liquid scald. This risk is most likely attributed to children getting in the way of adults as they prepare meals. Establishing a "No Zone" in the kitchen and putting toddlers safely in high chairs or playpens during meal preparation can reduce these injuries.



Nine percent (9%) were children between the ages of five and nine. Four percent (4%) of the victims were within the age group between 10 and 14; members of the age group between 15 and 24 accounted for 9%, this is most likely due to young adults working for the first time especially in fast food restaurants and also cooking for themselves. Thirteen (13%) were between 25 and 34. Six percent (6%) were between 35 and 44; 9% were between 45 and 54; another 9% were between 55 and 64; and 9% were between 65 and 74. No one between the ages of 75 and 84 was burned by cooking liquids in 2014, and 2% were over the age of 85. The youngest hot cooking liquid scald burn victim was an eight-month old boy, while the oldest person to have one of these burns was a 96-year old woman.

3-Year Old Scalded by Cooking Liquids
On August 19, 2014, a three-year old Bridgewater girl was splashed with boiling hot water when a pot of boiling water on the stove fell on her. She received scald burns to one-quarter of her body.

96-Year Old Woman Scalded by Cooking Liquids at Home
On June 2, 2014, a 96-year old Framingham woman was scalded by hot cooking liquids. She received burns to approximately 15% of her body surface area.

66-Year Old Man Scalded by Cooking Liquids at Work
On October 14, 2014, a 66-year old Peabody man was scalded at a bakery while he was at work. He spilled a vat of boiling water on his lower torso. He received burns to approximately 20% of his body surface area.

Hot Beverages

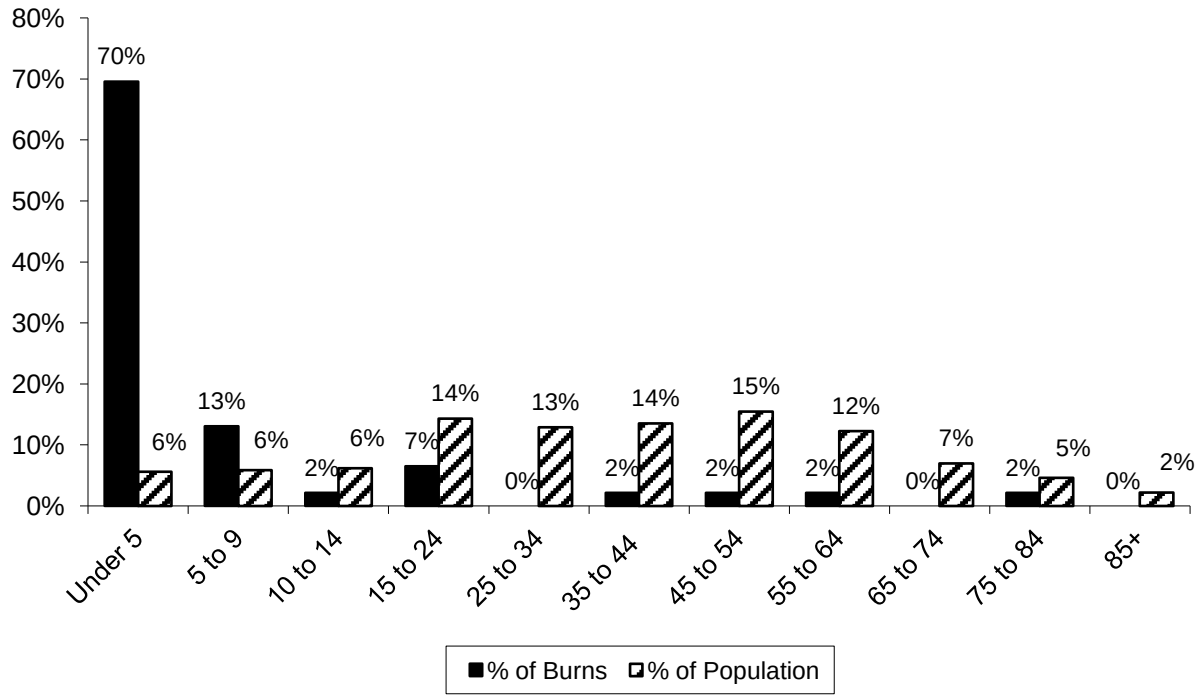
Hot Beverages Caused 28% of All Scalds
Forty-six (46), or 28%, of the 167 scald burns were caused by hot beverages. They accounted for 13% of the 364 total burn injuries. Since the inception of M-BIRS in 1984, hot beverages have historically been the leading cause of scald burns except for 1999 and 2005 to 2008. Since 2010 they have been the second leading cause of scald burns.

Fifty-four percent (54%) of the 46 hot beverage scald victims were male and 46% were female. In 2014, one woman was reported to have received a hot beverage scald while working.

70% of the Hot Beverage Scald Victims Were Under 5
Seventy percent (70%) of the 46 hot beverage scald victims were less than five years of age. Children under five years old were 12 times more likely to be scalded by a hot beverage. Twenty-seven (27), or 59%, of the victims who were scalded were one-year old or younger. Another three, or 7%, were two-year old toddlers. Last year, 83% of the victims of hot beverage scalds were also less than five years old.

Thirteen percent (13%) of the hot beverage scald victims were between five and nine years old; 2% were between the ages of 10 and 14; 7% were between the ages of 15 and 24; no one between 25 and 34 was reported to receive a scald from a hot beverage; 2% were between 35 and 44, 45 to 54, 55 to 64, and 75 to 84 years old. No one between the ages of 65 to 74 was scalded by a hot beverage in 2014. No one over the age of 78 was reported to have received a scald burn from a hot beverage in 2014. A nine-month old girl was the youngest person to be scalded by a hot beverage in 2014, while the oldest person was a 78-year old man.

Hot Beverage Scalds by Age Group



1-Year Old Scalded by Beverage
On January 31, 2014, a 1-year old girl was splashed with hot tea. She received severe scald burns to 23% of her body surface area.

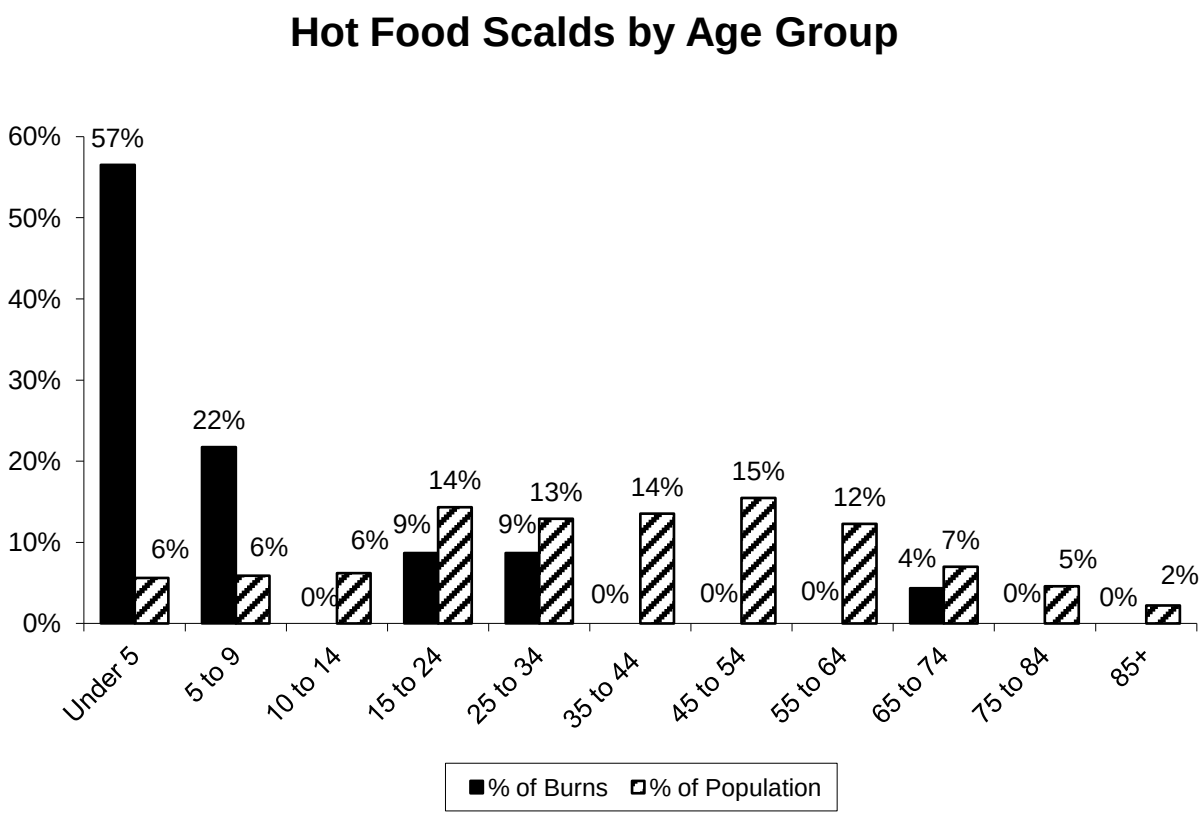
78-Year Old Man Scalded by Beverage
On September 12, 2014, a 78-year old man was pouring boiling water for tea when he had a seizure and spilled it on himself. He received scald burns to 17% of his body surface area.

Hot Food

Hot Food Caused 14% of Scalds, 6% of All Burns
Hot food caused 23, or 14%, of the 167 scald burns and 6% of the 364 total burn injuries reported in 2014. Fifty-seven percent (57%) of the victims were female and 43% were male. There was one work-related hot food scald reported in 2014, and it happened to a man.

Over 3/4 of Hot Food Scald Victims Were Under 10
Of the 23 reported scald victims from hot food in 2014, 18, or 78%, were under the age of ten. Thirteen (13), or 57%, were under five years old; five victims, or 22%, were between five and nine; there were no victims between the age of 10 and 14; two victims, or 9%, was between 15 and 24; another two victims, or 9%, were between 25 and 34. No one between 35 and 64 years

old was reported to have received a scald burn from hot food. The last victim, or 4%, was between 65 and 74 years old. No one over the age of 72 was reported to have received a scald burn injury from hot food in 2014. The youngest hot food scald burn victim was a three-month old boy, while the oldest person to have one of these burns was a 72-year old man.



2-Year Old Girl Receives Scald Burns from Food
On August 30, 2014, a 2-year old Lynn girl received scald burns to 7% of her body surface area when hot soup accidentally spilled on her.

Hot Tap Water

Hot Tap Water Caused 14% of All Scalds & 7% of All Burns
Excessively hot tap water caused 24, or 14%, of the 167 scald burns and 7% of the 364 total burn injuries reported to M-BIRS in 2014. Hot water heaters should be set to temperatures of 125º Fahrenheit or less. Massachusetts law states that the temperature must be set between 110º and 130º F and most dishwashers have coils to boost their internal water temperature. It is important for homeowners to make sure their own water heaters are set in the appropriate range. At 155º F it takes only one second to sustain a third degree burn. At 130º F it takes thirty seconds. At

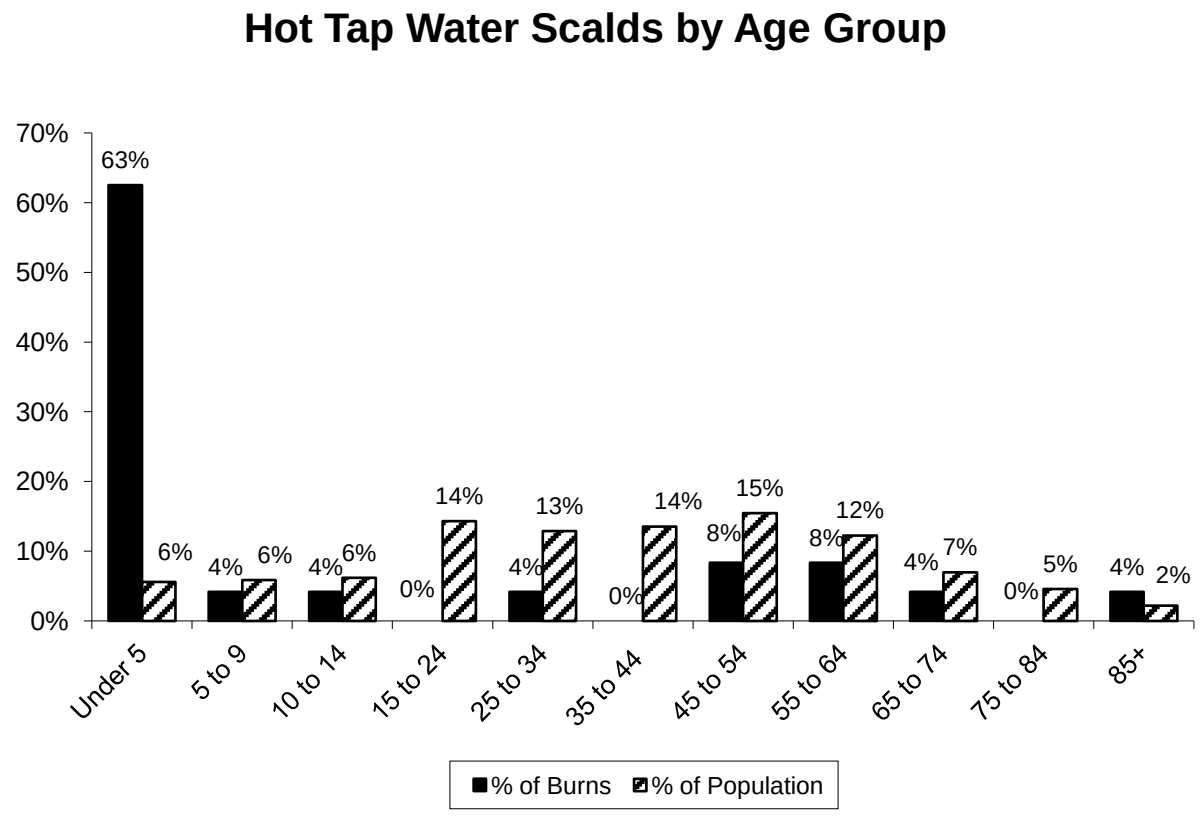
120º F it can take a full five minutes to sustain a third degree burn.[3] Adults may prepare a safe bath, but a child may turn on the hot water if left alone for a moment or two. Experts recommend placing a child in the tub facing away from the faucet.

In 2014, 67% of the victims were male while the other 33% were female. Two (2) of the 24 victims were scalded during work-related activities.

63% of Tap Water Scald Victims Were Under the Age of 5

Sixty-three percent (63%), or 15 of the 24 hot tap water scald victims, were less than five years old. Some were very young infants placed in water that was too hot for their sensitive skin. Other children were interested in exploring their environment and turned on faucets. In 2013, 13, or 52%, of the hot tap water scald burn victims were under the age of five.

Four percent (4%) were between five and nine years of age; another 4% were between 10 and 14 years of age; no one between the ages of 15 and 24 had a hot tap water scald; 4% were between the ages of 25 and 34; no one between the ages of 35 and 44 were reported to have had a hot tap water scald. Eight percent (8%) were between 45 and 54; another 8% were between 55 and 64; 4% were between 65 and 74; another 4% were over the age of 85. No one between the ages of 75 and 84 was reported to have a hot tap water scald in 2014. The youngest hot tap water scald burn victim was a one-month old boy, while the oldest person to have one of these burns was an 85-year old man.



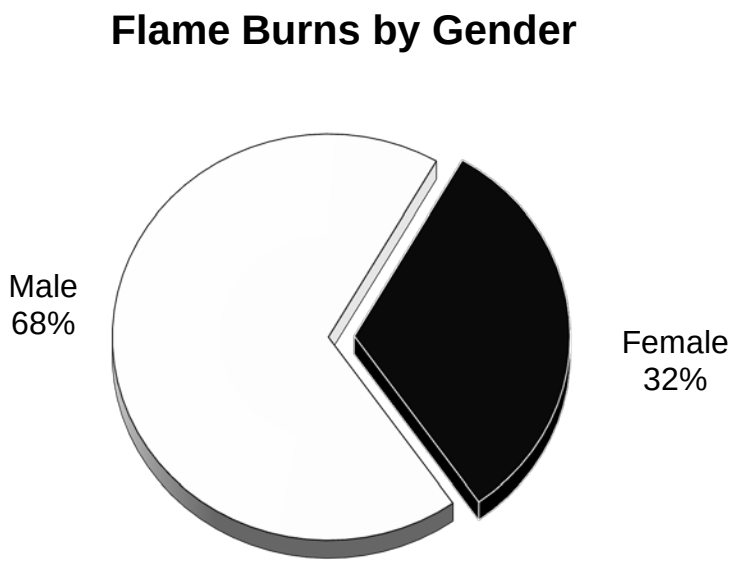
[3] Source: Knapp Burn Foundation

2 Young Brothers Severely Burned While Taking a Bath
Two (2) young brothers from Lynn, 2-years and 3-years old, were taking a bath when their babysitter left them alone in the bathtub. The younger of the two was scalded over 30% of his body. The older brother received life-threatening scald burns to approximately 80% of his body surface area.

Flame Burn Injuries

Flames Caused 19% of Reported Burn Injuries
There were 69 reported flame burn injuries. These 69 injuries accounted for 16% of the 364 burn injuries reported in 2014. A burn is said to result from flame when the fire is confined to the victim or the victim's clothing. When a wider area burns, the cause of the injury is considered a fire. Burns caused by self-immolation, smoking in bed or burning clothing usually result from flames.

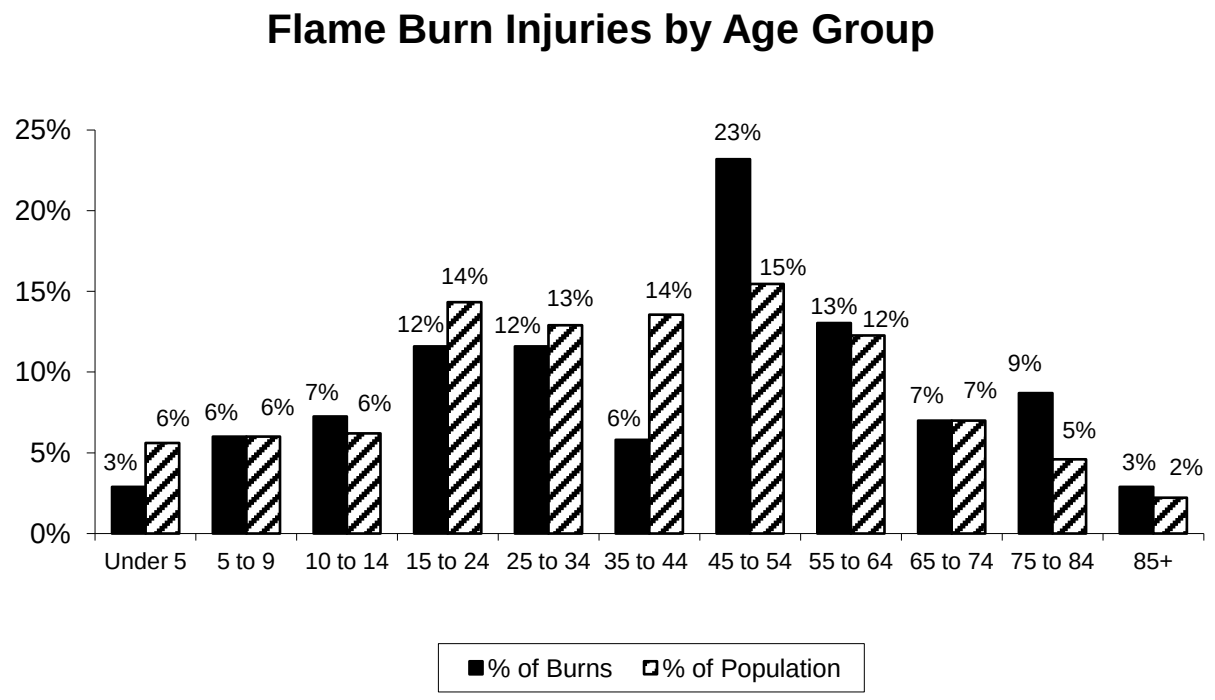
Sixty-eight percent (68%) of the flame burn casualties were male and 32% were female. Five (5), or 7%, of the 69 flame burns occurred during work-related activities; all five were men.



Adults 45 to 64 & Over 75 Faced Higher Risk of Flame Burns
Six (6) groups were at a higher risk for burns from flames. Children between 10 and 14 were 1.2 times more likely to be burned, adults between the ages of 45 to 54 were 1.5 times more likely; people between 55 and 64 were 1.1 times more likely to receive a flame burn injury; older adults

between the ages of 75 to 84 were nearly twice as likely; and older adults over the age of 85 were 1.3 times as likely to receive a flame burn injury.

There were two reported flame burn injury to children under the age of five, accounting for 3% of these burns. Six percent (6%) were between the ages of five and nine; 7% happened to children between 10 and 14; 12% were victims aged 15 to 24; another 12% were between 25 and 34; 6% were between 35 and 44; 23% were between 45 and 54; 13% were between 55 and 64; 7% were between the ages of 65 and 74; 9% were between 75 and 84; and 3% were over the age of 85. The youngest person to receive a flame burn injury was a three-year old boy, while the oldest was a 91-year old woman.



Cooking Was the Leading Cause of Flame Burns

Cooking was the leading cause of flame burn injuries in 2014. Nineteen (19), or 28%, of all flame burn victims received their injuries while cooking. Seven (7), or 10%, received their flame burn injuries from ignitions of hot cooking liquids, generally grease or oil. Four (4), or 6 %, were burned while barbequing on a grill; two involved gas grills. Four percent (4%), or three of the victims, were burned by a stove. Clothing ignitions while cooking were involved in two, or 3% of the cooking-related flame burns. An oven and unspecified cooking acts were each involved in one, or 1% of flame burn injuries.

Ignitable Liquids Were the 2nd Leading Cause of Flame Burn Injuries

In 2014, ignitable liquids caused 14, or 20%, of flame burn injuries. Gasoline caused 10, or 14%; and ignitable liquids other than gasoline caused four, or 6% of the flame burns.

Smoking Caused of 12% of Flame Burn Injuries
Smoking accounted for eight, or 12% of all flame burn injuries in 2014. Burns from cigarettes caused three, or 4%. Smoking while on oxygen and unspecified smoking acts each caused two, or 3%; and clothing ignitions from smoking caused one, or 1% of flame burn injuries.

Lighters Caused 10% of Flame Burns
Lighters were responsible for seven, or 10%, of flame burns in 2014. Six (6), or 9%, of these burns involved a child using a lighter.

Heating Equipment Caused 6% of Flame Burns
Heating equipment was responsible for four, or 6%, of flame burns in 2014. A fireplace, a heater, a portable heater and a woodstove each caused one, or 1%, of flame burn injuries in 2014.

Candles Caused 4% of Flame Burns
Candles were responsible for three, or 4%, of flame burns in 2014. Two (2), or 3%, of these three burns involved clothing ignitions.

Self-immolations Cause 4% of Flame Burns
Self-immolations caused three, or 4% of flame burn injuries. Unspecified clothing ignitions and fireworks each caused two, or 3% of these burns. Alcohol, an assault, a chemical, a car part, a medical procedure, an electrical event and an unknown flame burn each caused one, or 1% of flame burns in 2014.

41-Year Old Woman Dies by Self-Immolation
On September 6, 2014, a 41-year old Springfield woman sustained life-threatening burn injuries over 90% of her body when she poured gasoline over herself and ignited it. She succumbed to her injuries days later.

40-Year Old Man Burned by Diesel Fuel
On February 1, 2014, a 40-year old Newton man was at work when he was caught in a diesel fuel fire. The fire caused severe burns to approximately 42% of his body surface area.

48-Year Old Man Burned in Assault
On May 17, 2014, a 48-year old Waltham man was cooking his breakfast sitting on the banks of the Charles River after drinking and was set on fire by someone else. He was able to jump into the river but was left with severe burns to approximately 20% of his body surface area.

Clothing Ignitions

Clothing Ignitions Account for 22% of Flame Burn Injuries
There were 15 clothing ignitions resulting in flame burn injuries that accounted for 22% of all flame burn injuries. Clothing was the primary cause of the injury in seven of these injuries. Because of more detailed descriptions as to how burn injuries occurred, it was determined that clothes were also involved in eight additional injuries that were coded with a different primary description. There were three reported clothing ignitions while cooking in 2014 accounting for 4%. Smoking was involved in three clothing ignitions, accounting for 4%. Another three injuries,

or 4%, were children using lighters. Two (2) victims, or 3%, of flame burn clothing ignitions involved candles. Smoking and heating equipment each had two clothing flame burn injuries, accounting for 3%. Another two injuries, or 3%, were unspecified clothing ignitions. Gasoline caused one clothing ignition, accounting for 1% of all 2014 flame burn injuries.

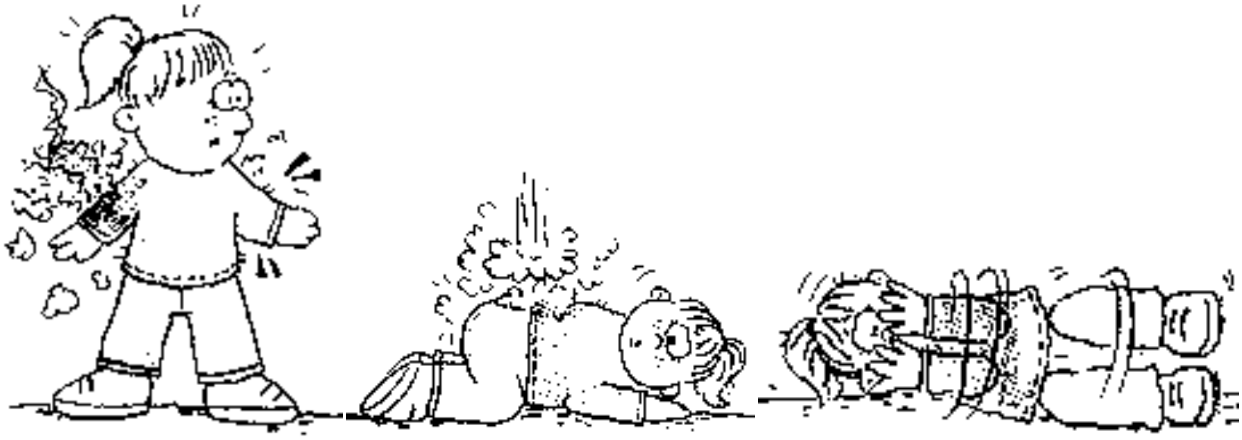
60% of Clothing Flame Burn Injuries Were Men
Nine (9), or 60%, of clothing ignition victims were men and six, or 40%, were women.

63-Year Old Man Severely Burned by Space Heater
On January 26, 2014, a 63-year old Hull man was burned when his space heater was on fire and ignited the clothes he was wearing. He received severe burns to approximately 34% of his body surface area.

16-Year Old Teenager Burned in Shop Class
On September 15, 2014, a 16-year old Lowell boy was in shop class pouring gasoline when a spark ignited the vapors and his clothes caught on fire. He received burns to approximately 10% of his body surface area.

ALWAYS REMEMBER TO:

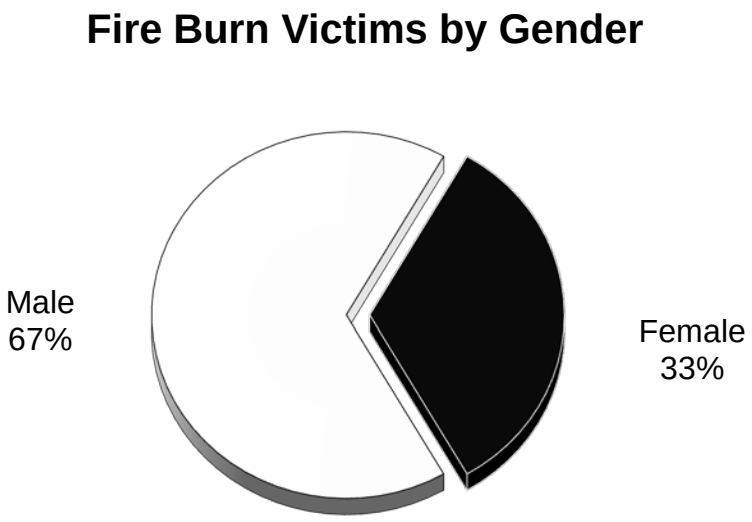
STOP DROP & ROLL



Burn Injuries Caused by Fires

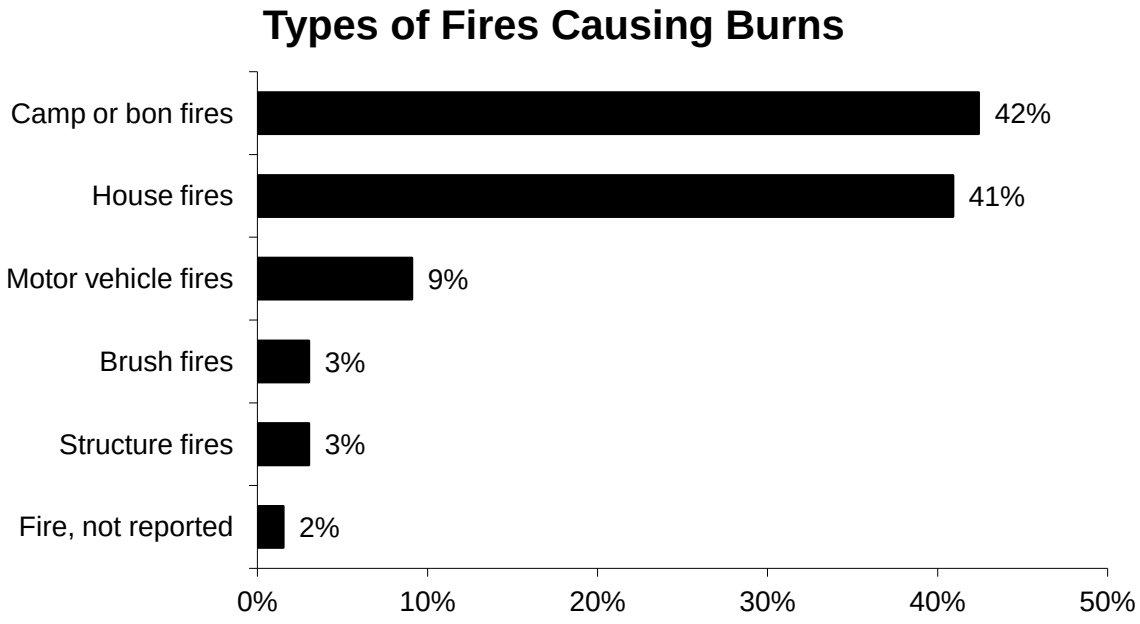
Fires Caused 18% of All Burn Injuries
Sixty-six (66), or 18% of the 364 burn injuries reported in 2014 were caused by fires. This is a 5% increase from the 64 fire burns reported the previous year. The highest number of burn injuries from a fire were the 96 burn injuries in 2003, excluding the 26 burn victims from the Station nightclub fire who were treated in Massachusetts.

Sixty-seven percent (67%), of the 66 victims were male and 33% were female. Analysis of data from the Massachusetts Fire Incident Reporting System found that the majority of fire injuries occurred while the victim was escaping or attempting to control the fire and that men are more likely than women to attempt to control the fire and become injured[4].



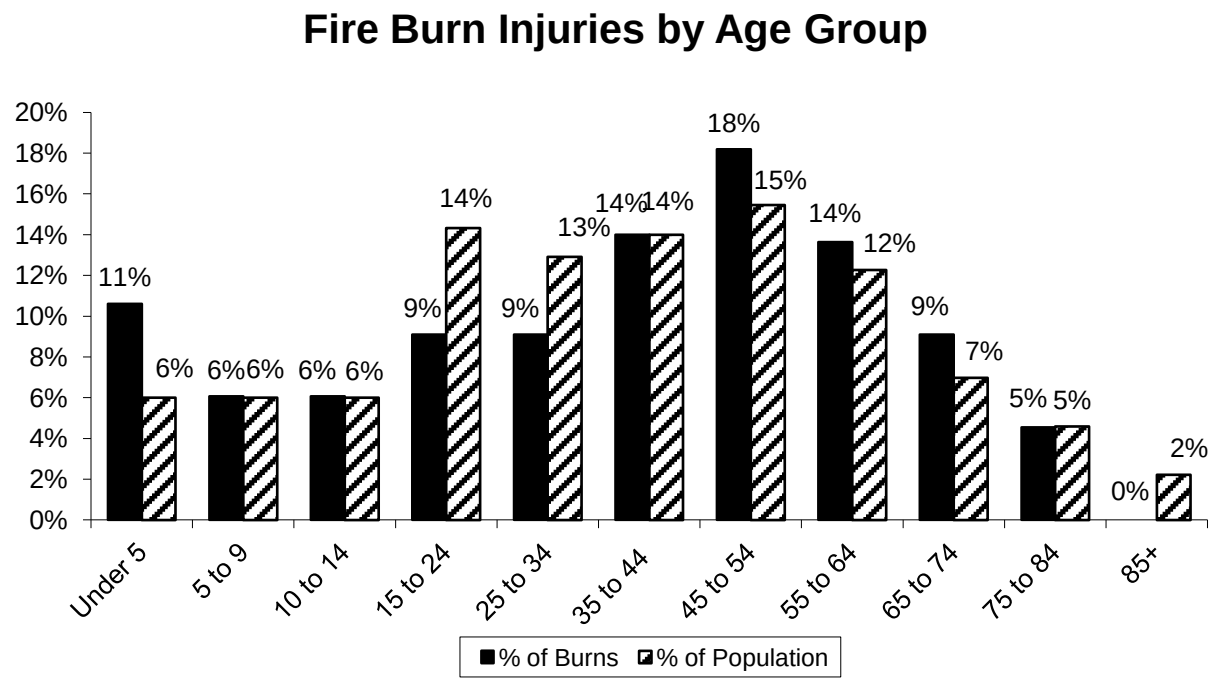
42% of Fire Burn Injuries Occurred at Camp or Bon Fires

Camp or bon fires caused 28, or 42% of the 67 fire burn injuries reported in 2014. House fires caused 27, or 41%. Six (6), or 9%, were due to motor vehicle fires; two, or 3% of the victims received their burns at brush fires; and another two, or 3%, were burned at structure fires. The type of fire for one fire burn injury, or 2%, was not reported.



Young Children Most Likely to Be Burned in Fires
Seven (7), or 11% of the victims burned in fire incidents were under five years old; four, or 6%, were between five and nine years of age; another four, or 6%, were between 10 and 14; six, or 9%, were between 15 and 24; another six, or 9%, were between 25 and 34; nine, or 14%, were between 35 and 44; 12, or 18%, were between the ages of 45 and 54; nine, or 14%, were between the ages of 55 and 64; six, or 9%, were between the ages of 65 and 74; and three, or 5%, were between the ages of 75 and 84. No one over the age of 78 was reported to receive a burn injury in a fire. There was one fire burn injury whose age was not reported.

Young children under five were almost twice (1.8) as likely to be burned in fires. Older adults between 65 and 74 were 1.3 times more likely and adults between the ages of 45 and 54 were 1.2 times more likely to be burned in a fire.



Reported Burns Are a Fraction of Injuries from Fires
Only burn injuries that extend to 5% or more of the body surface area and are treated by a medical professional are reported to the *Massachusetts Burn Injury Reporting System*. Consequently, the human cost of fires is under-reported in this analysis. Smoke inhalation, cuts, fractures and less severe burns incurred while fighting or fleeing the fire are not recorded here. Most fire deaths are not recorded in M-BIRS; only the severely burned who survive for a period of time and die later in a hospital are reported. Properly maintained smoke alarms and quick-response residential sprinklers could prevent many of the injuries caused by fires. Alarms sound an early warning to leave the area and quick-response sprinklers can control or possibly extinguish a fire in its earliest stages, thus preventing injuries.

Refer to MFIRS Annual Report for More Information about Fires
For more information about the causes of fires and fire-related casualties, please refer to the *Massachusetts Fire Incident Reporting System – Annual Reports*. Using data collected by the Massachusetts Fire Incident Reporting System (MFIRS), these reports examine the causes of fires, fire deaths and fire injuries. Information is provided on fires in different occupancies and on special topics such as children and fire, fires caused by smoking, electrical fires, cooking fires and heating equipment fires.

5 Fire Deaths Recorded in M-BIRS
Five (5) of the victims that were reported to have received their burn injuries from fires died as a result of their injuries. All five of the victims were Massachusetts residents. Of these victims, four of the victims died in residential fires; two by unspecified residential fires, one in a fire caused by smoking, and one was a firefighter who succumbed to his injuries after battling a fire started by welding[5]. One (1) victim died in a motor vehicle fire that was self-immolation.

Boston Firefighter Killed Fighting a House Fire
On March 26, 2014, 33-year old Boston Firefighter Michael Kennedy was killed when he and his partner, Lieutenant Edward Walsh, were trapped in the basement of a house fire started by windblown embers from welding. Lt. Walsh died on scene but FF Kennedy was transported to a local hospital where he succumbed to his injuries.

45-Year Old Woman Killed in House Fire
On April 21, 2014, a 45-year old Marlborough woman received life-threatening burns to approximately 80% of her body surface area when she was trapped in a house fire. She was transported to the hospital where she succumbed to her injuries four days later.

76-Year Old Woman Killed in House Fire
On December 29, 2014, a 76-year old Chelmsford woman was smoking in her apartment when she accidentally caught herself on fire. She was transported to a local hospital where she succumbed to her injuries later in the day.

44-Year Old Man Killed by Self-Immolation in Car Fire
On November 11, 2014, a 44-year old Middleton man killed himself by setting his car on fire while still inside.

59-Year Old Woman Injured While Smoking on Home Oxygen
On January 5, 2014, a 59-year old Hinsdale woman received severe burns to half her body when she was smoking on home oxygen and a fire started inside her home.

28-Year Old Man Injured in Boat Fire
On August 24, 2014, a 28-year old Boston man was injured in a boat fire in Provincetown Harbor. The victim ended up in the water and was pulled out by the assistant harbor master and flown to a Boston hospital for treatment. He received severe burns to 20% of his body surface area.

[5] This was the Beacon St. fire in Boston on 3/26/14, where this firefighter and another firefighter were trapped in the basement during the fire. His partner was not transported to a hospital and therefore not reported to M-BIRS.

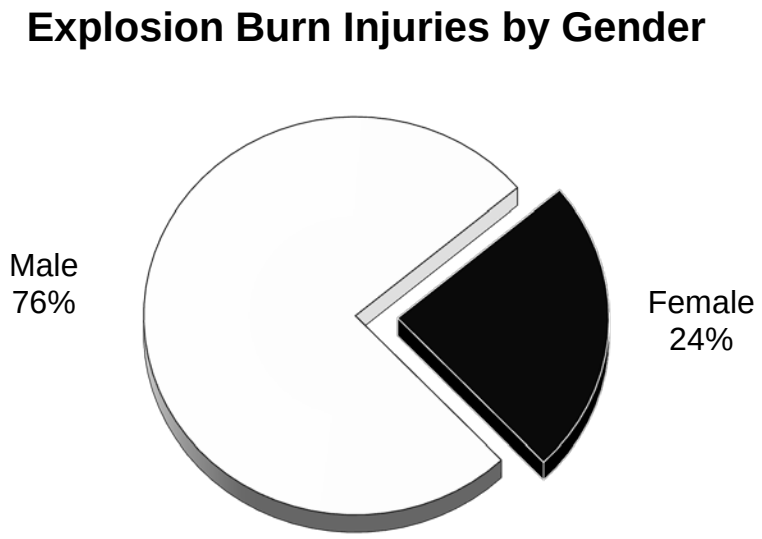
48-Year Old Man Injured While Smoking in Car
On December 5, 2014, a 48-year old Dedham man was smoking in his car with a gasoline can in the passenger seat beside him. The cigarette ignited the gasoline fumes, engulfing the car. He received life-threatening burns to 65% of his body surface area.

23-Year Old Man Burned by Camp Fire
On September 7, 2014, a 23-year old man who was possibly intoxicated fell into a camp fire. The victim received severe burns to 29% of his body surface area.

Burn Injuries Caused by Explosions

Explosions Caused 7% of Reported Burn Injuries
Twenty-five (25), or 7%, of the 364 burn injuries reported in 2014 were caused by explosions. Seventy-six percent (76%) of the explosion burn victims were male and 24% were female.

Ten (10) burns, or 40%, occurred during work-related activities. Eight (8) of these work-related victims were men and two were women. Two (2) of the explosion burn injuries involved fireworks.

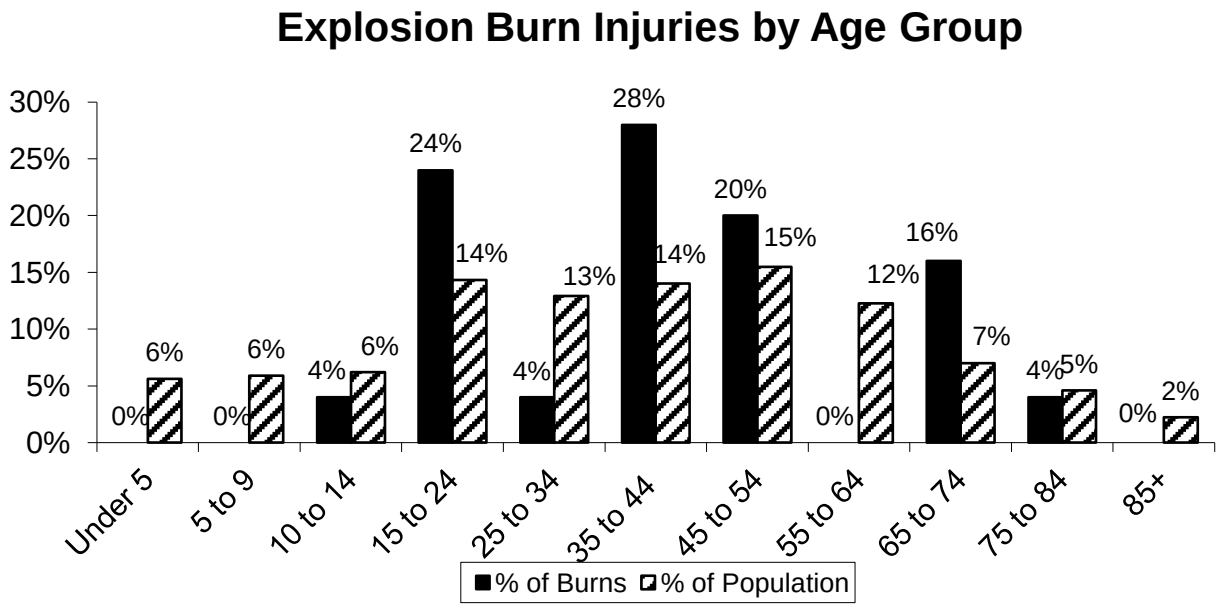


Out of these 25 injuries there were three explosion events with two or more injuries. The first one was a chemical explosion in Peterborough, NH. A 24-year old man and a 39-year old woman were treated in Massachusetts for their work-related injuries from this event. The next explosion

was an incident in a home in Tewksbury. An 18-year old woman, a 20-year old man and a 21-year old man were injured in an ignitable gas explosion. The third explosion incident occurred in Bristol, NH when an aerosol can exploded injuring a 50-year old woman and a 27-year old man while they were at work.

Young Adults & Middle-Aged Adults Face Greatest Risk of Explosion Burns

No one under the age of 12 was reported to have received a burn injury from an explosion in 2014. One (1) child, or 4%, between the ages of 10 and 14 received burn injuries from explosions. Six (6) young adults between the ages of 15 and 24 were burned in explosions, accounting for 24% of these burns; 4%, or one adult between the ages of 25 and 34 received an explosion related burn; seven, or 28%, were between 35 and 44; five or 20%, were between 45 and 54 years of age; no one between 55 and 64 years old was reported to have been burned by an explosion. Four (4) people, or 16%, between the ages of 65 and 74 were burned in explosions; and one person, or 4%, was between 75 and 84 years old. No one over the age of 77 received a burn injury due to an explosion. The youngest victim to receive a burn injury from an explosion in 2014 was a 12-year old girl; and the oldest person to receive one of these burns was a 77-year old man.



Ignitable Gases Were the Leading Cause of Explosion Burn Injuries

Ignitable gases accounted for 8, or 32% of the explosion-related burn injuries in 2014. Three (3), or 12%, were from propane; another three, or 11% were from unspecified ingitable gases, and one, or 4%, was from natural gas.

Explosions caused by chemicals resulted in four, or 16% of these injuries. Explosives caused three, or 12% of the burn injuries caused by explosions; Fireworks caused two injuries, or 8%, and explosives caused one, or 4%.

Aerosol devices caused two, or 8%, of these injuries. Another two, or 8% of the explosion burns involved ignitable liquids; gasoline and ignitable liquids other than gasoline each caused one, or 4%, of these injuries.

A car part, a car radiator, an electrical incident, a laser, a motor and a pressure cooker each accounted for one, or 4%, of the explosion related burn injuries in 2014.

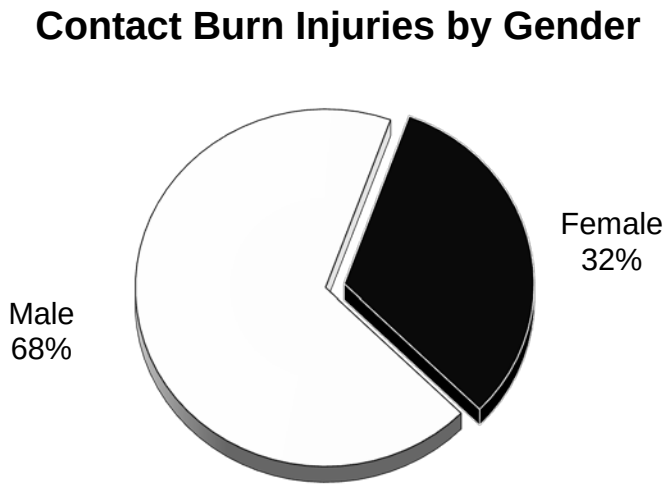
43-Year Old Man Injured in a Chemical Explosion at Work
On September 17, 2014, a 43-year old Chicopee man was injured as a result of a chemical (freon) explosion while he was working in Springfield. He received burns to approximately 40% of his body surface area.

18-Year Old Woman Injured by Gas Explosion
On March 25, 2014, an 18-year old Tewksbury woman received severe burns to 25% of her body surface area, when butane gas from the THC extraction process exploded inside the home.

47-Year Old Man Injured by Fireworks Explosion
On July 3, 2014, an 47-year old Braintree man received severe burns to 30% of his body surface area when he was struck in the chest by a mortar style firework.

Contact Burn Injuries

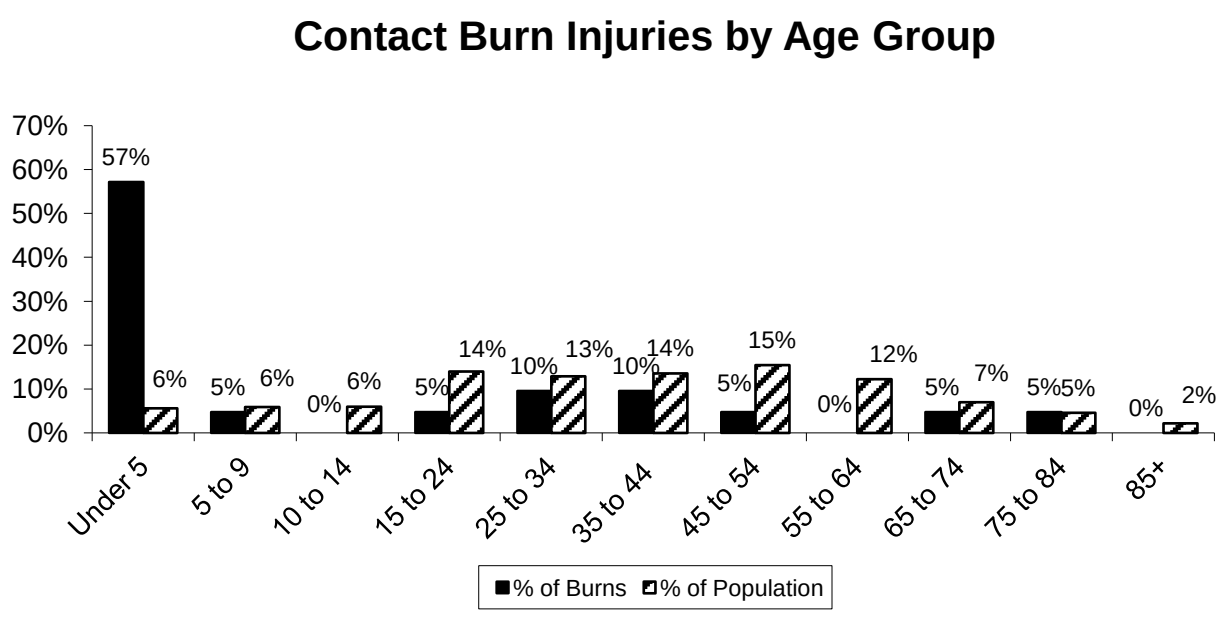
Contact with Hot Objects Caused 6% of Reported Burn Injuries
Twenty-two (22), or 6%, of the 364 burn injuries reported in 2014 were caused by contact with hot objects. Sixty-eight percent (68%) of the burn victims were male and 32% were female. There was one report of contact burns that occurred at work in 2014, and it happened to a man.



57% of Contact Burns Were to Children Under 5
Children under the age of five accounted for 12, or 57%, of all contact burns. Pre-schoolers faced just over 10 times the risk of contact burns. This disproportionate risk could be the result of young children exploring their environment and underscores the need for constant supervision of toddlers.

One (1) child, or 5%, was between the ages of five and nine. There were no reported contact burn injuries between the ages of 10 to 14. One (1) person, or 5%, was between the ages of 15 and 24; two of the victims, or 10%, were between 25 and 34; and another two injuries, or 10%, occurred to the age group 35 to 44; there was one contact burn to someone between the ages of 45 and 54, accounting for 5%; none of the victims were between the ages of 55 and 64; one victim, or 5%, was between the ages of 65 and 74; another victim, or 5%, was between the ages of 75 and 84. No one over the age of 75 received a contact burn injury in 2014. The youngest person to receive a contact burn in 2014 was a three-month old boy, and the oldest person was a 79-year old woman.

The following graph illustrates the data in the above paragraph.



Cooking Was the Leading Cause of Contact Burns
Contact with cooking equipment caused 10, or 18%, of the contact burns in 2014. Contact with stoves caused four, or 18%; contact with hot ovens caused three, or 14%, unspecified cooking devices caused 9%; and a hot plate caused one, or 5%, of contact burns in 2014.

Heating Equipment Was the Next Leading Causes of Contact Burns
Heating equipment caused six, or 27% of these burns; contact with a heater accounted for three, or 14%, radiators accounted for two, or 9%; and a woodstove was the cause of one, or 5% of these injuries.

Coming into contact with a hot clothes iron caused two, or 9%, and hot metal caused one, or 5%, of contact burns in 2014.

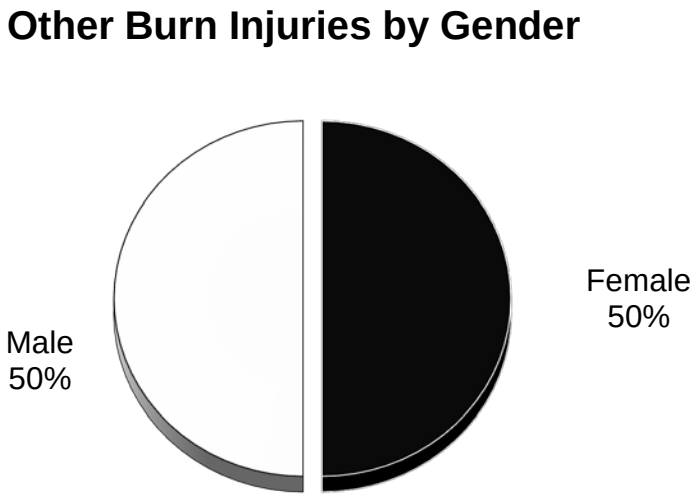
1-Year Old Burned by Metal Drum
On June 28, 2014, a 1-yearold Boston boy received burns to his face and hands when he ran into a metal drum with a fire inside of it which was being used to keep mosquitoes away.

8-Month Old Boy Burned by Clothes Iron
On July 21, 2014, an 8-month old Holyoke boy was burned when he grabbed a hot clothes iron that had just been shut off. He received burns to his arms and hands.

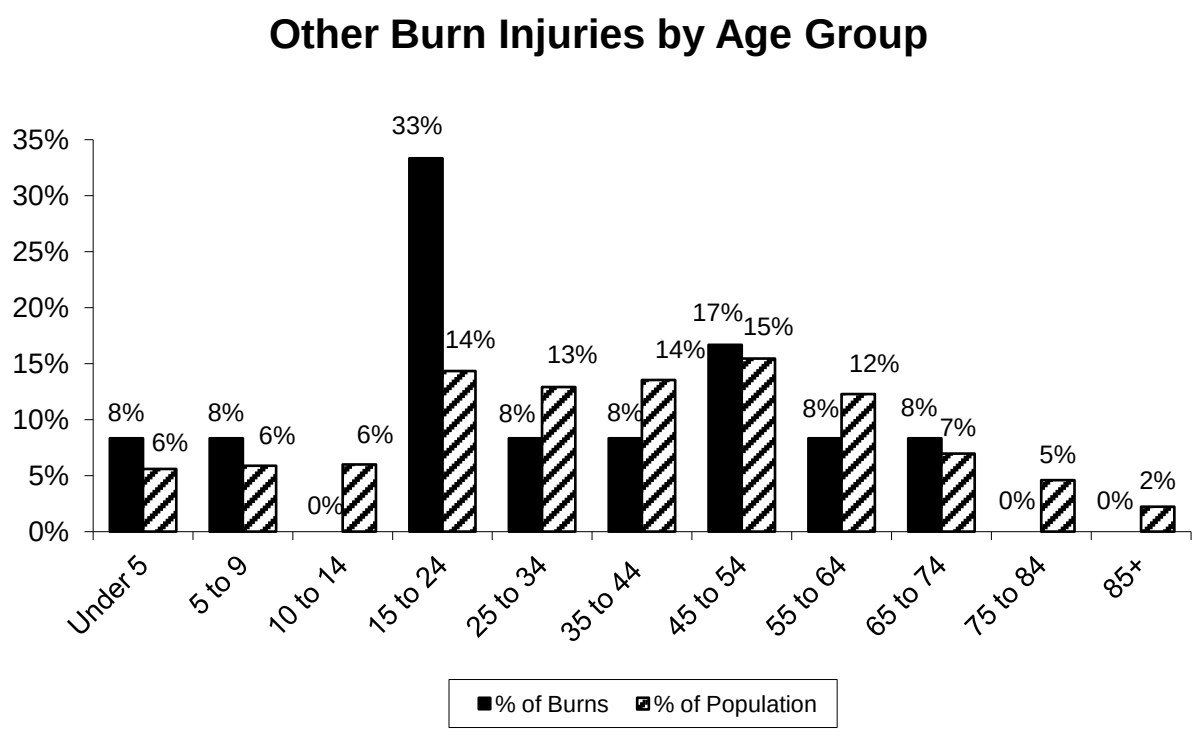
Other Types of Burn Injuries

***Other* Type Burns Cause 11 Injuries**
In 2014, there were 12 burn injuries that were characterized as *Other*. These 12 injuries caused 3% of all 2014 burn injuries. Five (5) burns, or 42%, were caused by severe sunburns. Five (5) *Other* burns, or 42%, were attributed to exposure to chemicals. Inhalant abuse and a candle were each the cause of one, or 8%, of *Other* burns.

Fifty percent (50%) of the 12 victims were male and 50% were female. Health care facilities reported that three, or 25% of the 12 *Other* burn victims were working when injured. Exposure to chemicals caused all the work-related injuries, who were all men.



1/3 of *Other* Burn Victims Were Between 15 & 24 Years Old
In 2014 there was one *Other* burn victim under five-years old; he accounted for 8% of these burns. Another victim was between five and nine, accounting for 8%. There were no victims reported between the ages of 10 and 14; four victims, or 33%, were between 15 and 24; one victim, or 8%, was between the ages of 25 and 34; another victim, or 8%, was between 35 and 44 years old. Two (2) victims, or 17%, were between 45 and 54 years old. One (1) victim, or 8%, was between 55 and 74 years of age. There was one reported *Other* burn injury in the age group 55 to 64, accounting for 8% of these burns. One (1) person, or 8%, between 65 and 74 was reported to receive an *Other* type burn in 2014. No one over the age of 65 suffered an *Other* type of burn injury. The youngest victim was a one-year old boy and the oldest victim was a 65-year old man.



22-Year Old Woman Burned by Inhalant Abuse
On August 16, 2014, a 22-year old woman received burns to 7% of her body surface area when she was abusing an inhalant.

65-Year Old Man Burned by a Chemical at Work
On May 9, 2014 a 65-year old Groveland man received chemical burns to 12% of his body surface area when his arm accidentally went into a container of sodium hydroxide while he was at work.

Electrical Burn Injuries

Only 2 Electrical Incidents
Two (2), or less than 1%, of the 364 burn injuries reported in 2014 were caused by electrical accidents. One (1) of the electrical burn victim was a man and the other was a woman. The male victim's burn occurred during work-related activities.

Only 2 Age Groups of Electrical Burn Victims
In 2014 there were no electrical burn victims under 31-years old. One (1) victim, or 50%, was between 25 and 34; and the other victim, or 50%, was between 45 and 54 years old. No one over the age of 45 suffered an electrical burn injury. The youngest victim was a 31-year old woman and the oldest victim was a 49-year old man.

1 of 2 Electrical Burns Were Electrocutions
One (1) of the two 2014 electrical burns were caused by electrocutions. The other one was caused by an unspecified electrical event.

49-Year Old Electrocuted at Work
On August 5, 2014, a 49-year old Vermont man received severe burns to approximately 5% of his body surface area when he electrocuted while he was working.

Domestic Violence Burn Injuries

Domestic Violence Burns Cause 1 Injury
In 2014, there was one burn injury that was characterized as domestic violence. This one burn accounted for less than 1% of the total 364 burn injuries in 2014. On October 13, 2014, a 77-year old woman received burns to 20% of her body surface area when hot cooking liquids were thrown at her during a domestic altercation.

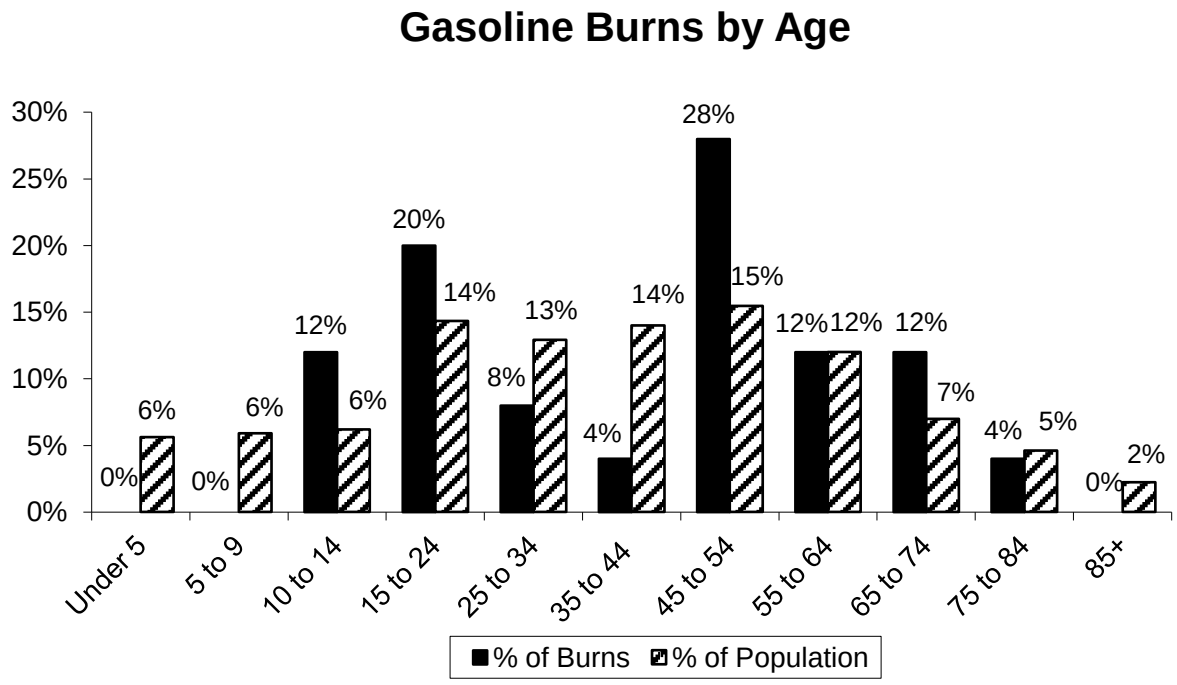
Gasoline Related Burn Injuries

Gasoline Involved in 7% of Reported Burn Injuries
Gasoline was involved in 25, or 7%, of the 364 burns reported to M-BIRS in 2014. Gasoline was the primary cause of the injury in 19, or 76%, of these injuries. Because of more detailed descriptions as to how burn injuries occurred, it was determined that gasoline was also involved in six additional, or 24%, of burn injuries that were coded with a different primary description, such as using it to start a woodstove or a barbeque.

Fifteen (15), or 60%, of the burn injuries involving gasoline were flame burn injuries. Nine (9), or 36%, of the gasoline related burn injuries were caused by fires. One (1), or 4%, of these injuries were caused by explosions. Twenty-three (23), or 92%, of the 25 gasoline related burn victims in 2014 were men, and two, or 8% were women. One (1), or 4%, of the injuries occurred during work-related activities. Six (6), or 24% of the gasoline burn injuries in 2014 were to children; 19, or 76% of these injuries occurred to adults.

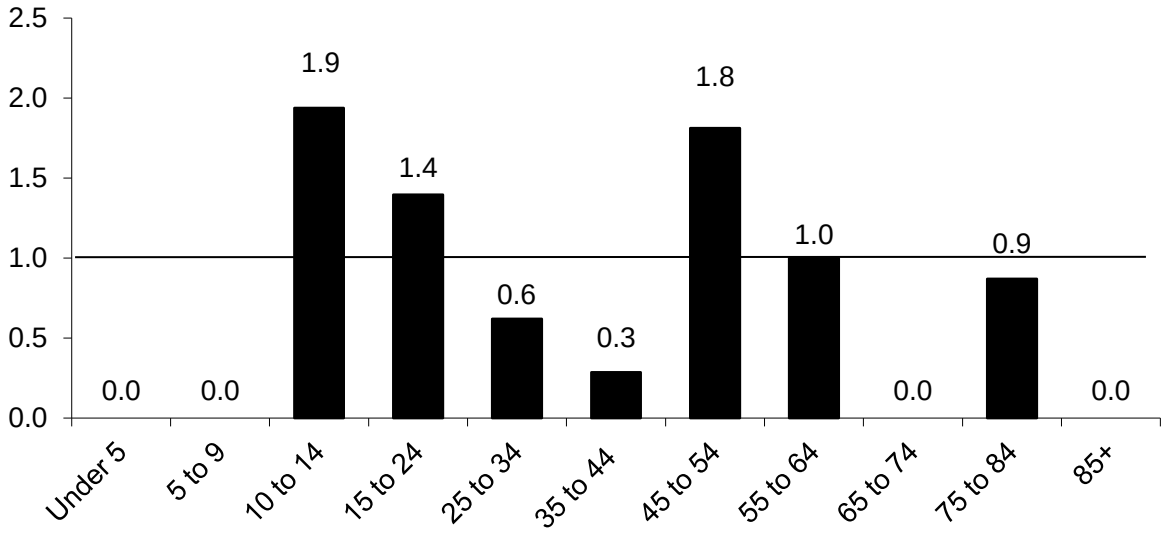
28% of Gasoline-Related Burn Victims Were Between the Ages of 45 & 54

No one under the age of 10 in 2014 was the victim of a burn injury involving gasoline. Three (3), or 12%, of the victims were between the ages of 10 and 14. This age group has historically been the most at risk for these types of injuries. Five (5), or 20%, of the victims were between 15 and 24. Two (2), or 8%, were between 25 and 34; one, or 4%, were between 35 and 44; seven victims, or 28%, were between the ages of 45 and 54; three victims, or 12%, were in the age group 55 to 64 years old; three victims, or 12%, were between 64 and 74; and one person, or 4%, was between 75 and 84. No one over the age of 76 was the victim of a gasoline related burn. The youngest victim was an 11-year old boy and the oldest victim was a 76-year old man.



The graph on the following page illustrates the risk factor for gasoline burns by age group. If an age group has a risk factor greater than one it is said that an individual in that age group has a greater risk of being burned by gasoline. If an age group has a risk factor less than one, then individuals in that age group have a lesser risk of receiving any burns involving gasoline. In 2014, young adults between the ages of 10 to 14 had the highest risk of getting a burn involving gasoline. Members of the age group 45 to 54 had the second highest risk of getting a gasoline burn which has historically, had the greatest risk of getting a burn involving gasoline.

Risk Factors for Gasoline Burns



42-Year Old Man Burned by Gasoline Fire While Working
On March 13, 2014, a 42-year old Haverhill man received burns to approximately 20% of his body surface area. The victim was pumping gas while someone was welding close by and sparks from the welding ignited the vapors from the gasoline.

2 Brothers Injured Using Gasoline
On November 15, 2014, two Fitchburg brothers, 11 and 13-years old poured gasoline over a camp fire that they had started to roast marshmallows. This resulted in severe burns to 16% and 35% of their body surface areas respectively.

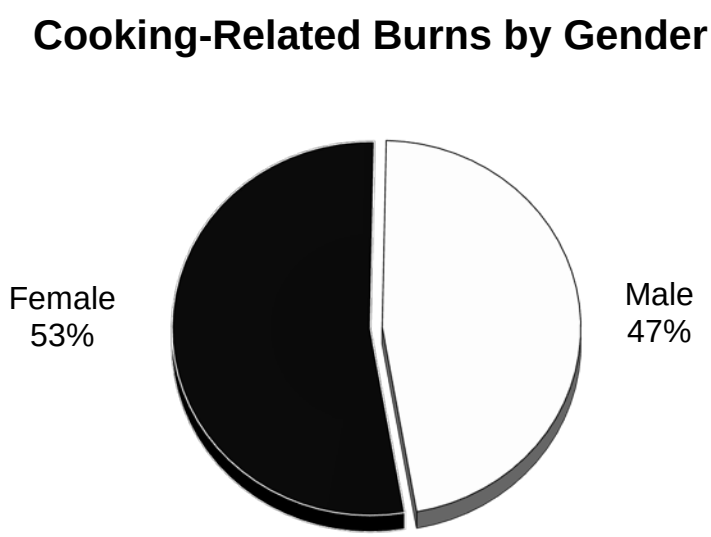
Some Safety Measures
It is actually gasoline vapors that burn, not the liquid itself. The vapors are generated at very low temperatures, are heavier than air and can travel a distance to find a spark or other ignition source. A spark or lit cigarette is enough to ignite the invisible fumes that may linger on clothing.

- If you must store gasoline, store it outside the home in a detached garage or shed in approved safety cans away from open flames, and out of reach of children.
- Never regularly carry gasoline in your trunk.
- A one-gallon approved container could be carried empty to be used only for emergencies.
- Never add gasoline to any fire or smoldering embers; the vapors spread quickly and ignite explosively.

Burns Caused by Cooking Activities

Cooking Activities Caused 31% of Reported Burn Injuries
Cooking activities caused 113, or 31% of the 364 total burn injuries reported to the Massachusetts Burn Injury Reporting System in 2014. Cooking activities were the primary cause of the injury in 109, or 97% of these injuries. Because of more detailed descriptions as to how burn injuries occurred, it was determined that cooking activities were also involved in four, or 4% of other burn injuries that were coded with a different primary description such as 'natural gas.'

Sixty (60), or 53%, of the 113 victims were female and 53, or 47%, were male. Fourteen (14), or 13%, of the 113 people burned by cooking activities were working when injured. Nine (9) were men and five were woman.



Scalds Cause 72% of Cooking-Related Burn Injuries
Eighty-one (81), or 72%, of the 113 burn injuries caused by cooking were scalds. Fifty-four (54), or 48% of these scald victims were injured by hot cooking liquids; hot food accounted for 22, or 19% of these injuries; two, or 2%, were caused by assaults; a clothing ignition, a pressure cooker, and an unspecified cooking act each accounted for one, or 1% of cooking injuries.

Eighteen (18), or 16%, of all cooking-related burns were flame burn injuries. Seven (7), or 6%, of the cooking-related flame burn injuries involved cooking liquids. Five (5), or 4%, of these injuries involved stoves or ovens. Four (4), or 4% of these flame burns involved barbeques. A clothing ignition was responsible for one, or 1% of cooking-related flame burn injuries in 2014.

Nine (9), or 8%, of all cooking-related burn victims received contact burns while cooking. Contact with stoves or ovens caused seven, or 6%, of these injuries. Unspecified cooking acts accounted for two, or 2%, of burn injuries while cooking.

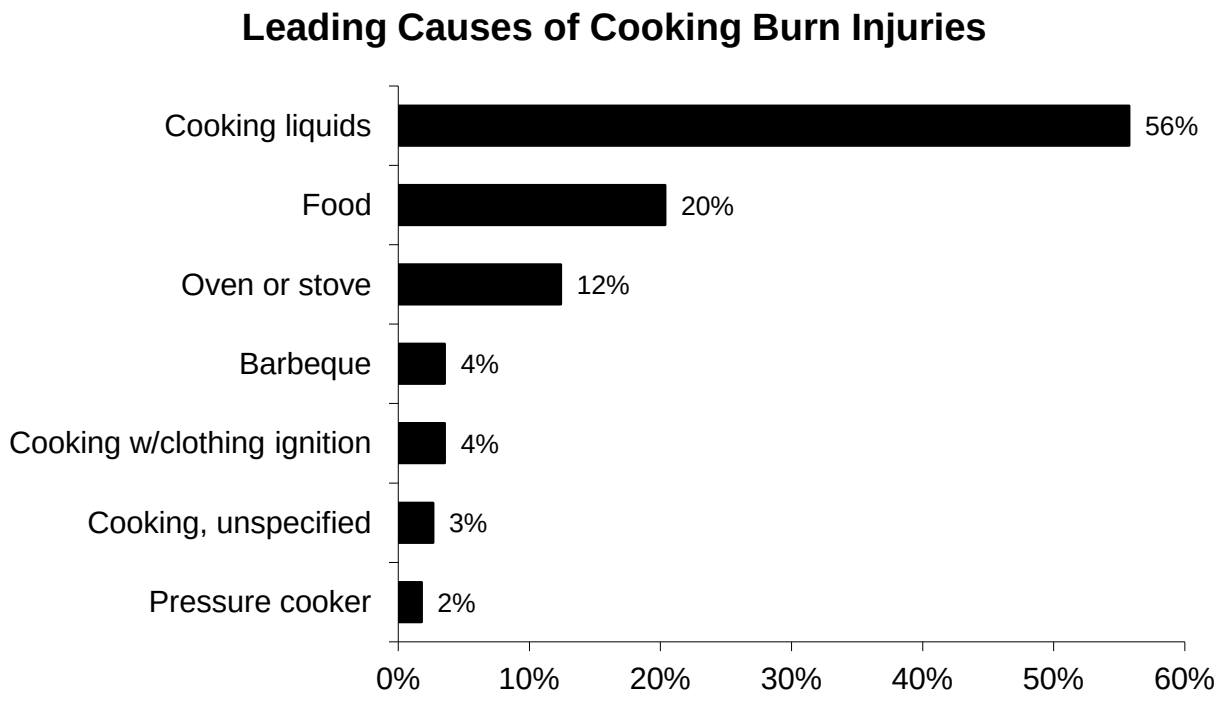
Three (3) victims received burn injuries in cooking-related explosions, accounting for 3% of cooking burn injuries in 2014. Stoves were involved in two, or 2%; and a pressure cooker was involved in one, or 1% of the cooking-related explosion burn injuries.

One (1) of these cooking burn injury victims, or 1%, received burn injuries from a house fire that was started by cooking liquids.

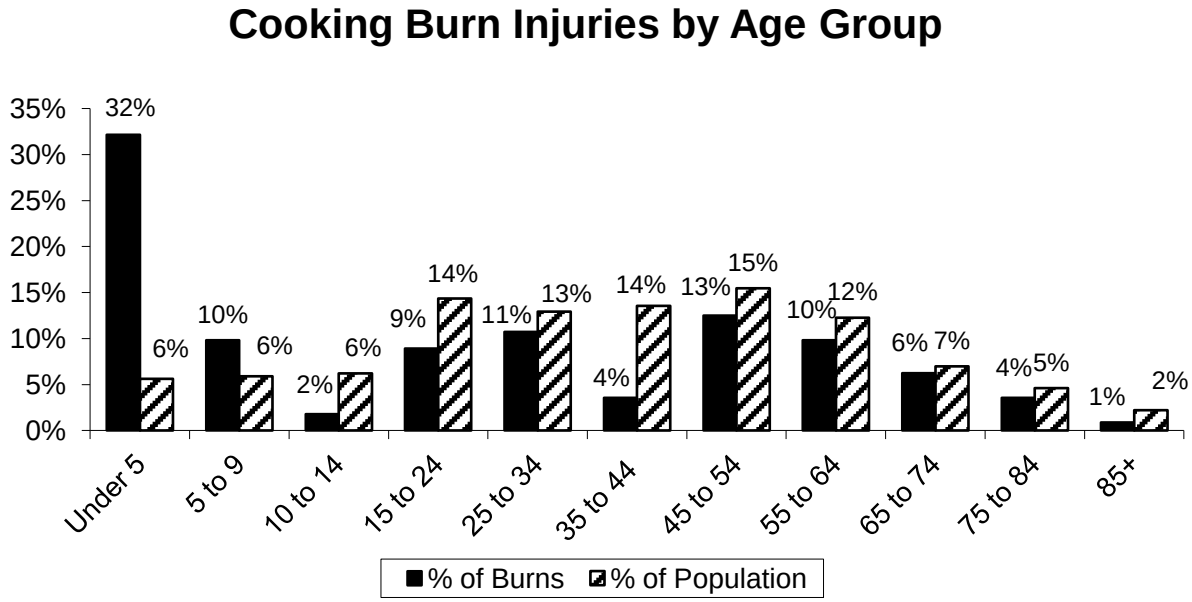
A domestic violence assault with hot cooking liquids also caused one, or 1%, of all cooking related burn injuries in 2014.

Cooking Liquids Were the Leading Cause of Cooking-Related Burns

Burns from cooking liquids were the leading cause of all cooking-related burns in Massachusetts in 2014. These burns accounted for 63, or 56% of all cooking-related burn injuries. Burns from hot food were the second leading cause of cooking-related injuries. They caused 23, or 20% of these injuries. Burns from conventional ovens and stoves caused 14, or 12% of these burns. Burns received while barbequing accounted for four, or 4%, of all cooking burn injuries. Clothing ignitions while cooking also caused four, or 4%. Unspecified cooking acts were responsible for three, or 3%, of these burns. Pressure cookers were involved in two, or 2%, of the cooking related burns in the Commonwealth in 2014.



Children Under 5 Over 5.5 Times as Likely to be Burned by Cooking Activities
Thirty-six (36), or 32%, of the cooking-related burn victims were under age five. This age group was 5.7 times more likely to be burned by cooking related activities. Eleven (11), or 10%, were between five and nine years of age; two, or 2%, were between 10 and 14; 10, or 9%, were between 15 and 24 years old; 12, or 11%, were between 25 and 34; four or 4%, were between 35 and 44; 14, or 13%, were between 45 and 54; 11, or 10%, were between 55 and 64; seven victims, or 6%, were between 65 and 74; four, or 4%, of the victims belong to the age group between 75 and 84 years of age; and one, or 1%, was over the age of 85. The youngest victim of a cooking-related burn was a three-month old boy who was burned by hot food, while the oldest victim was a 96-year old woman who was scalded by cooking liquids.



The cause of burns varied with age. Pre-schoolers generally do not cook. They do, however, grab pot handles and sometimes get underfoot when adults are cooking. Cooking liquids or cooking grease frequently scalds them. Adults should keep young children at least three feet away from the stove and food preparation areas while they are cooking.

In 2014 Older Adults Not at a Higher Risk for Cooking-Related Burn Injuries
Historically, older adults over the age of 65 were more likely to be burned while cooking. However in 2014, 12 older adults received burn injuries as a result of cooking. They represented 11% of the cooking burn injuries and 14% of the population, therefore were not injured by cooking at a disproportionate rate. Eight (8), or 67% of these victims were women and four, or 33%, were men. Seven (7) of these older adults were burned by cooking liquids, two were burned by clothing ignitions while cooking, one by hot food, one involved a stove, and another an oven.

4 Clothing Ignitions while Cooking
Loose-fitting sleeves can easily come into contact with burners and catch fire. Unlike 2013 where there were no reported clothing ignition while cooking, in 2014 there were four reported

clothing ignitions while cooking. These four burn injuries accounted for 4% of all cooking related burn injuries.

According to data collected by the Massachusetts Fire Incident Reporting System (MFIRS), unattended and other unsafe cooking practices caused 12,078 fires in 2014. These fires caused two civilian deaths, 87 civilian injuries, 27 fire service injuries along with $13.7 million in losses. Many of these people also suffered from smoke inhalation[6].

Serious Burns from Cooking

- On March 29, 2014, a 41-year old Lynn woman received scald burns to 30% of her body surface area when her pressure cooker exploded in front of her.
- On June 14, 2014, a 31-year old Harvard man received burns to 18% of his body surface area when the gas barbeque he was cooking on caught fire.
- On September 6, 2014, a 77-year old Brockton man received burn injuries to 16% of his body surface area when the oven he was using to heat his home ignited a nearby hand towel which in turn ignited the seat cushion on his wheel chair.
- On November 6, 2014, a 53-year old Stoughton woman attempted to heat up a pot of what she thought was coffee but was actually cooking grease and then exploded in her face burning approximately 18% of her body surface area.

Safety Measures

- ✓ Never leave cooking food unattended.
- ✓ Stand by your pan.
- ✓ Put a lid on stovetop fires, never move the pan.
- ✓ Keep a large pot lid handy to put out stovetop fires.
- ✓ Keep children at a safe distance from all hot items by using playpens, high chairs, etc.
- ✓ Create and enforce a 3 foot **NO** zone around the stove. Do not let children play around the stove or barbeque.
- ✓ Test all heated food before giving it to young children.
- ✓ Keep pot handles turned in over the stove or countertop.
- ✓ Always use oven mitts or potholders.
- ✓ Secure loose sleeves or wear short sleeves while cooking.
- 💣 Never use water on a stovetop grease fire.
- ✓ Read and follow directions when using microwave ovens and other cooking appliances.
- ✓ Children should not be allowed to use cooking or heating appliances until they are mature enough to understand safe-use procedures and tall enough to safely handle items and reach cooking surfaces.
- ✓ If cabinets exist over cooking surfaces use them to store only items that will not be needed during cooking.
- ✓ When barbequing, use only charcoal lighter fluid to start a fire. Once the coals have been ignited, never add more charcoal lighter fuel to the fire; the container may explode in your hand.

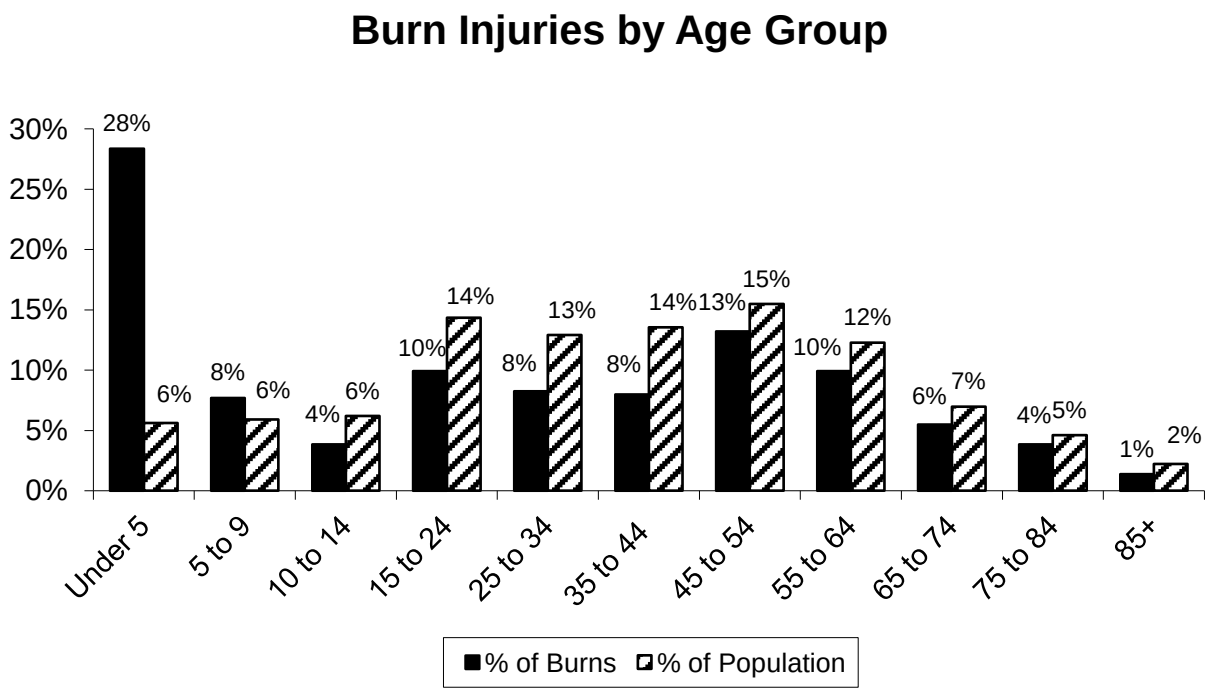
[6] 2013 Annual Report of the Massachusetts Fire Incident Reporting System; MA Dept. of Fire Services; pg. 129.

Burn Injuries by Age Group

Two (2) age groups of our population were at a greater than average risk of a burn injury in 2014. Although burn injuries were reported in all age groups, very young children suffer more than their share and are just over five times more likely to be burned. Children under the age of five were 5.1 times more likely to suffer a burn injury in Massachusetts. Children aged five to nine were also at a slightly higher risk, at 1.3 times more likely to receive a burn injury in 2014.

Twenty-eight percent (28%) of all burn victims were children under the age of five. One hundred and three (103) children under age five were seriously burned in 2014. Twenty-eight (28), or 8% of the burn injuries occurred to children aged five to nine; 14, or 4%, were youths aged 10 to 14. Thirty-six (36), or 10% of the burn victims, were young adults aged 15 to 24. Thirty (30), or 8% of the 2014 burn victims were adults aged 25 to 34. Twenty-nine (29), or 8%, were people aged 35 to 44. Forty-eight (48), or 13% of the burn injuries occurred to adults aged 45 to 54; 36, or 10% of people who were reported to have incurred burns were between 55 and 64; 20, or 6% of 2014 burn victims, were older adults in the 65 to 74 age group; another 14, or 4%, were in the 75 to 84 year old age group; and five adults over the age of 85, or 1% of all reported burn victims in 2014 received burns of more than 5% of their body surface area.

The following graph illustrates the figures in the previous paragraph.



Children Under 5 Highest Risk of Burn Injuries
The graph on the previous page compares the percentage of burn injuries incurred by each age group with the percentage that age group represents in the general population. Only 6% of the population in Massachusetts is under the age of five (source: 2010 U.S. Census data). We would expect therefore that children under five would account for a maximum of 6% of the burn injuries. In fact, they accounted for 28% of the reported burn injuries in 2014, making them 5.1 times more likely to suffer burn injuries. Children of this age group are the most dependent on others to protect them and are the least able to move out of harm's way unassisted.

The threat of burns is most severe for children less than two-years old. Sixty-seven (67) babies and toddlers under the age of two accounted for 18% of all burn victims, but all children under the age of five accounted for only 6% of the Massachusetts population.

Scald Burns the Leading Type of Burn to Most Age Groups
While scalds remain the leading cause of burn injuries overall, they were also the leading cause of burn injuries to seven of the age groups. Scalds were the leading cause of burn injuries in the age groups of children under five, children between the ages of five and nine, adults between the ages of 15 to 24, 25 to 34, 55 to 64, 65 to 74 and older adults over the age of 85.

Flame burns were the leading type of burn to children 10 to 14 years old, adults between the ages of 45 and 54, and older adults between 75 and 84. Burns from fire were the leading cause of burns to adults in the age group 35 to 44.

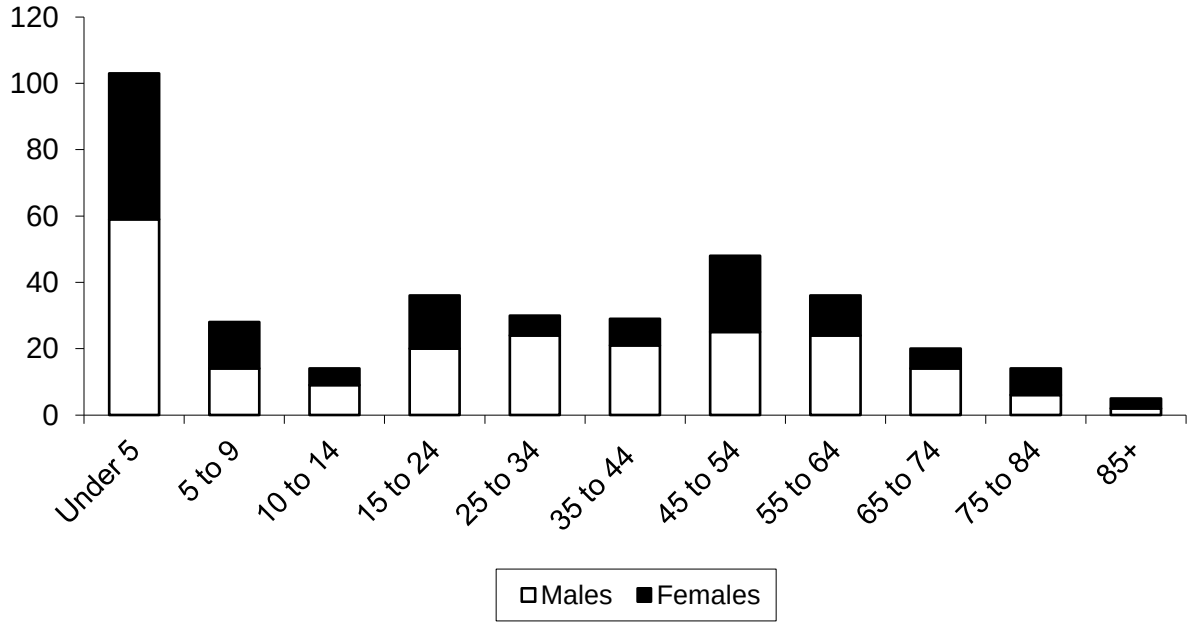
To learn more about the specific causes for each age group, please look at the age specific sections within *Burn Injuries by Age Group*.

Causes of Burn Injuries by Age and Gender

The leading causes of burn injuries vary widely between age groups depending on the nature of activities in which people are involved. Children under five are busy exploring their environment and reaching for anything in their grasp. Thirty-one percent (31%) of the burns incurred by these young children were scalds caused by hot beverages, 16% were caused by cooking liquids, and 15% were caused by scalds from hot tap water. Hot food, gasoline and other ignitable liquids were frequent causes of burn injuries to older teens and young adults.

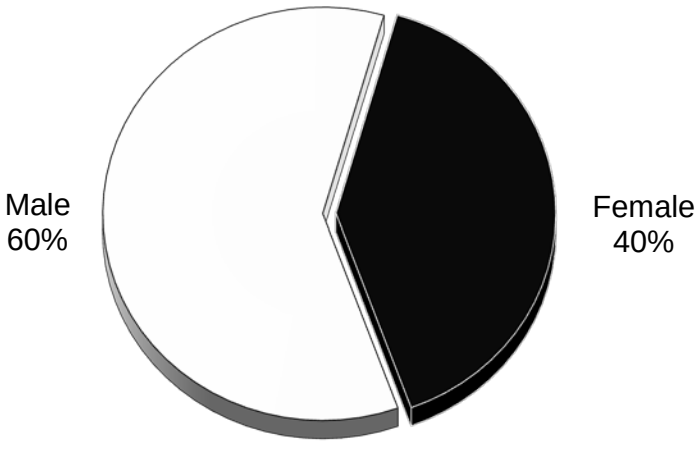
Parents of young children must learn about the danger of scalds from hot beverages, cooking liquids and tap water. Teens and young adults need information about cooking safely, procedures to follow when a car overheats and the correct uses of gasoline. To be effective, burn prevention educators must develop strategies that address the risk faced by each age group.

Burn Victims by Age and Gender



Except for the age groups of older adults between the ages of 75 and 84 and over the age of 85, males were burned more frequently than females. In the age group for children between the ages of five and nine there were an equal amount of boys and girls burned. In 2014, 218, or 60% of the 364 burn victims were male, and 15, or 40%, were female.

Burns by Gender



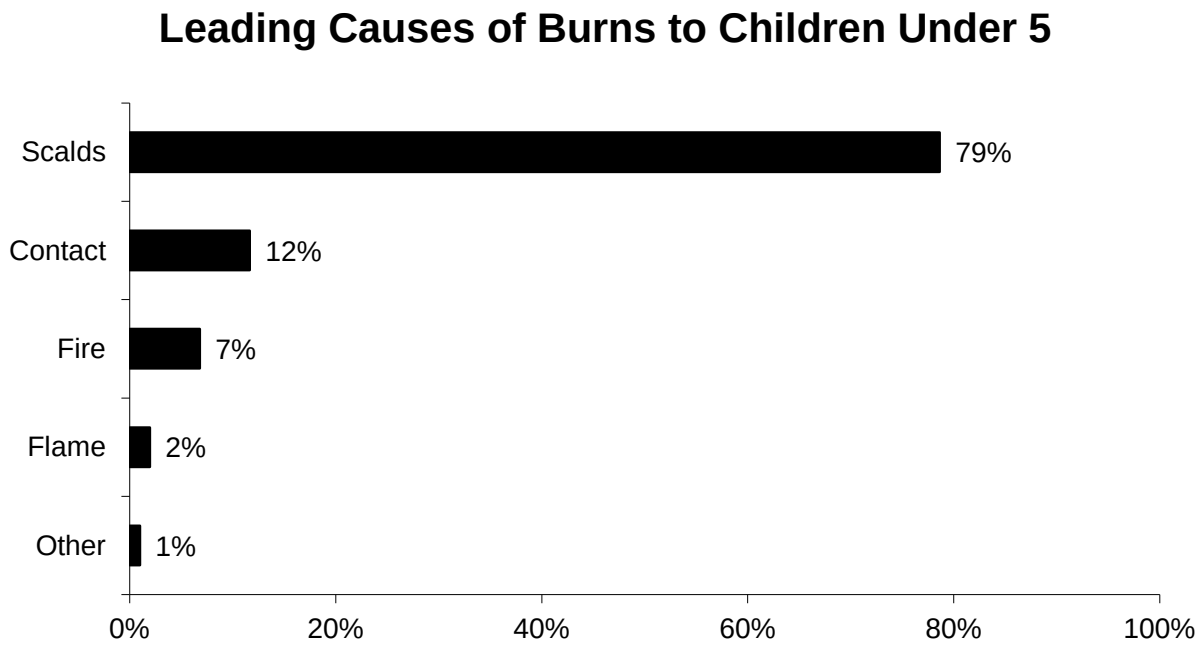
Children Under 5

28% of Reported Burns Incurred by Children Under 5
One hundred and three (103), or 28%, of the burn injuries reported to M-BIRS in 2014 were incurred by children under five years old. According to the 2010 U.S. Census, only 6% of Massachusetts residents are under the age of five. Children under five were 5.1 times as likely to be burned, as were members of the general population. No other age group faced a risk this high. Fifty-seven percent (57%) of burned pre-schoolers were boys and 43% were girls.

Scalds Caused 79% of Burns to Pre-Schoolers
Scalds caused 81, or 79%, of the burn injuries incurred by children under five. Thirty-two (32) were from hot beverages; 31 were from cooking activities; 16 burns were from cooking liquids, 13 were from hot food and two were from unspecified cooking activities. Fifteen (15) burns to children under five were from hot tap water. Chemicals, a radiator and steam each caused one burn to a child under five in 2014.

Contact burns accounted for 12, or 12%, of the injuries to children under the age of five. Six (6) children were burned during cooking activities; three from touching a stove and one each from touching a hot plate, an oven and an unspecified cooking implement. A clothes iron burned two children. Contact with heating equipment, a heater and a radiator caused two burns. A hot piece of metal and wax each caused one burn injury to this age group.

Fires caused seven, or 7% of the injuries to this age group. Four (4) involved camp fires, two of which involved the remaining embers, and one a clothing ignition. Three (3) injuries were caused by house fires, one of which was electrical.



Two (2) children, or 2%, received flame burn injuries, one from a candle and the other was a child using a lighter. Another child under the age of five, or 1%, was burned by a chemcial.

Children Ages 5 to 9

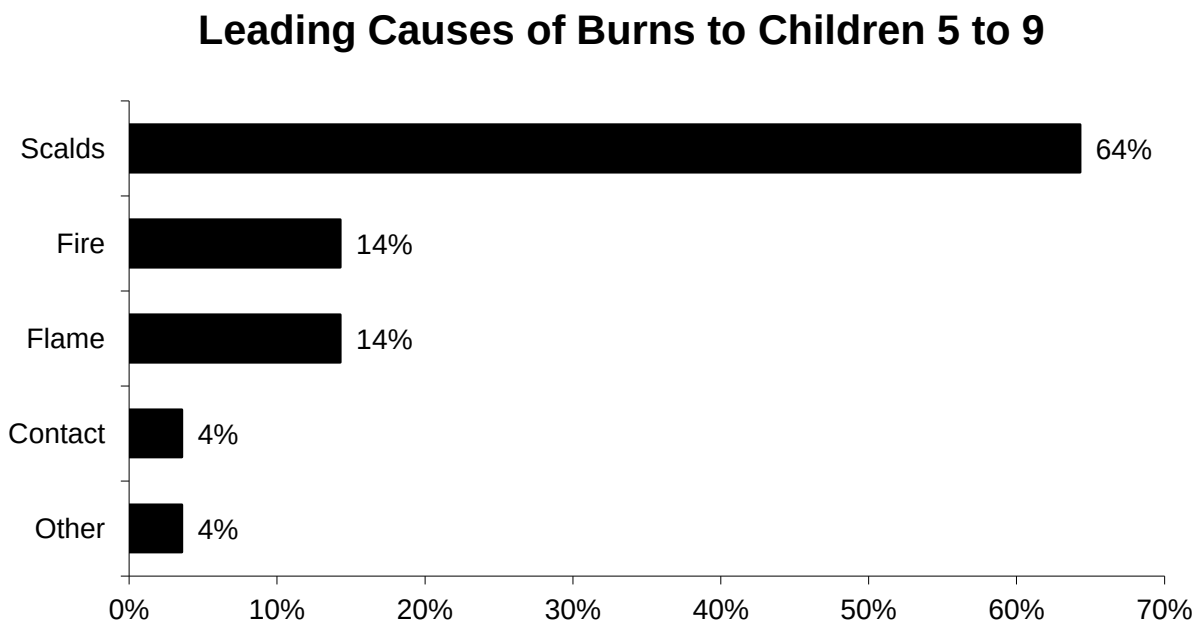
8% of Reported Burn Injuries Incurred by Children 5-9 Years of Age
Twenty-eight (28), or 8%, of the burn injuries reported in 2014 were incurred by children between five and nine years of age. Fourteen (14), or 50%, of the burn victims were girls, and 14, or 50%, were boys. Children in this age bracket accounted for 6% of the population of Massachusetts and 8% of the burn injuries in 2014.

Burns from Scalds Were the Leading Cause to Children 5-9
The leading cause of burn injuries to children aged five to nine were scalds. Scalds caused 18, or 64%, of the burn injuries incurred by children aged five to nine in 2014. The scald burn injuries included 10 from cooking activities, five from hot food and five from cooking liquids; six from hot beverages, one from hot tap water, and one from steam.

In 2014, burns from fires accounted for four burn injuries, or 14%, to this age group. Three (3) were caused by camp fires, one of them a clothing ignition, and a structure fire started by a child using matches caused another injury.

Flame burns also accounted for four, or 14%, of the burn injuries to this age group. A child using a lighter caused two burns and a candle igniting clothes and ignitable liquids each caused one of these flame burn injuries.

Contact with a hot oven caused one, or 4%, of these burns. One (1) child in this age group suffered sunburn, accounting for 4% of these injuries.



Children Ages 10 to 14

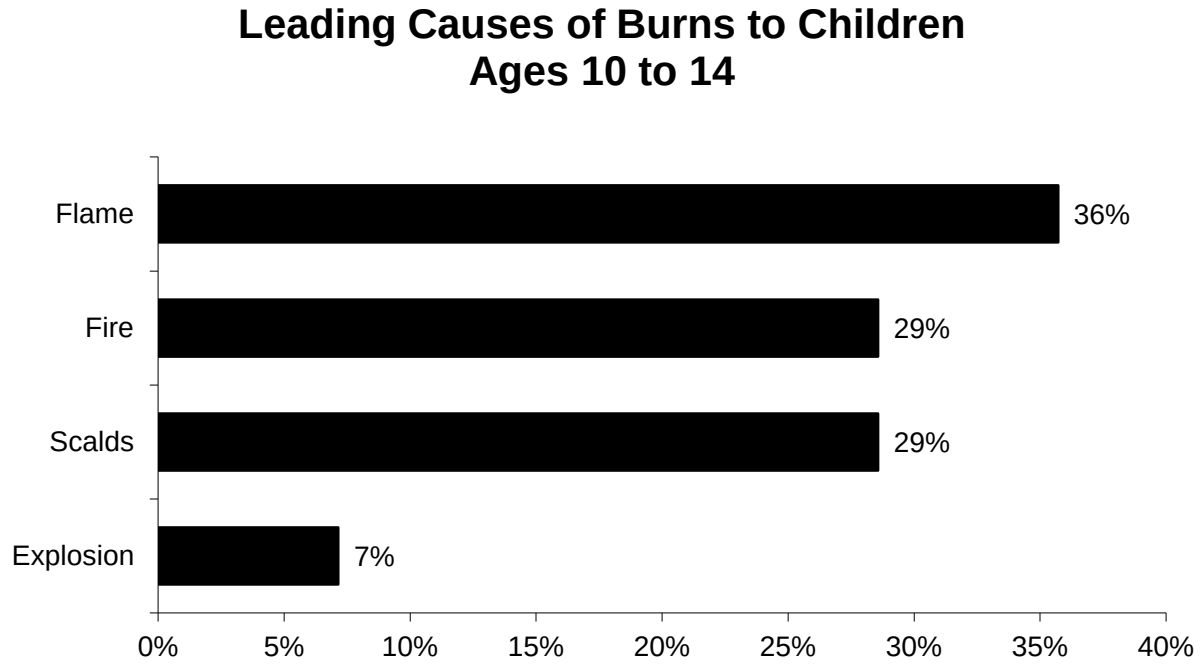
4% of Reported Burns Incurred by Children 10-14 Years of Age
Children between the ages of 10 and 14 suffered 14, or 4% of the burn injuries reported in 2014. Nine (9), or 64%, were boys and five, or 36%, were girls. Children in this age bracket accounted for 6% of the population in the Commonwealth of Massachusetts and 4% of the total reported burn injuries. At this age, children are exploring their environment more on their own, but often without the maturity or experience to reason out cause and effect.

Flame Burns Were the Leading Cause of Burns to Children 10-14
Flame burn injuries caused five, or 36%, of the burn injuries to children between the ages of 10 and 14. Children using lighters caused three of these burns. Fireworks and gasoline each caused one burn injury.

Burns from fire caused four burn injuries to this age group, accounting for 29% of these burns. Three of these burns involved camp fires, two of which involved gasoline. Another burn was from a boat fire.

Scalds also caused four, or 29% of the burns incurred by children aged 10 to 14. Cooking liquids caused two of these burns; and hot beverages and hot tap water caused one each.

One (1) pre-teen, or 7%, was injured by an explosion caused by an ignitable liquid.



Gasoline Caused 3 Pre-teen Burns
Historically gasoline, other ignitable liquids, and fireworks have been significant factors in pre-teen burn injuries. In 2014, they were only a factor in five, or 36%, of the burn injuries to pre-teens. Three (3) children misusing gasoline, one using another ignitable liquid and one playing with fireworks received burn injuries in this age group.

Ages 15 to 24

10% of Reported Burn Victims Between 15-24 Years of Age
Teens and young adults between the ages of 15 and 24 incurred 36, or 10% of the burn injuries reported in 2014. Twenty (20), or 56%, were male and 16, or 44%, were female. Young adults aged 15 to 24 accounted for 14% of the population of Massachusetts and 10% of the burn injuries in 2014. Six (6), or 17%, of the burn injuries incurred by this age group were work-related: four were male and two were female.

31% of Burns Were From Scalds
Eleven (11), or 31%, of the burn injuries to people 15 to 24 years of age were caused by scalds. Seven (7) were caused by cooking activities; five from cooking liquids and two from hot food. Hot beverages caused three of these injuries. An assault caused one of these burns.

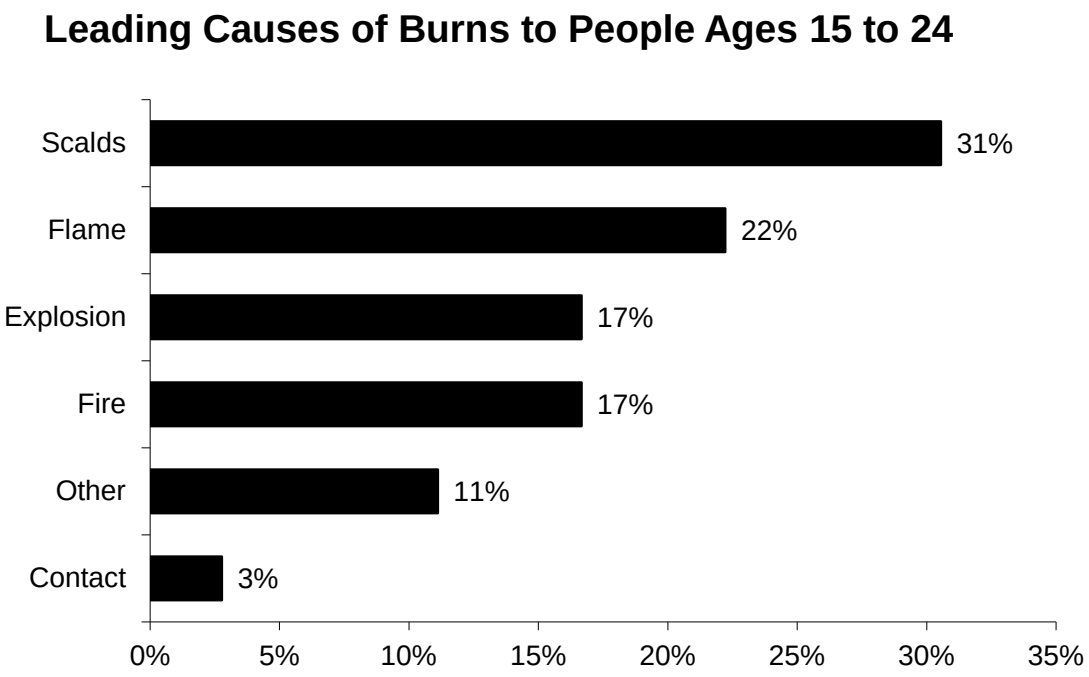
The second leading cause of burn injuries to this age group were flame burn injuries. Eight (8), or 22%, of the burn injuries to this age group were caused by flames. Cooking activities caused three of these injuries; two from cooking liquids and one from a barbeque. Ignitable liquids

caused two of these injuries; one from gasoline and another from an ignitable liquid other than gasoline. Alcohol, a clothing ignition, and a self-immolation each caused one injury.

Explosions injured six, or 17% of people in this age category. Ignitable gases were involved in four of these injuries; one was from propane and three were from other ignitable gases. A chemical and gasoline were each involved in one explosion burn injury to this age group.

Another 17%, or six, of the burn injuries incurred by people aged 15 to 24 were from fires. Five (5) victims received burns from camp or bonfires; two involved gasoline, two from camp fires and one from a bon fire. One (1) victim in this age group was burned in a house fire. Most young adults are injured in fires that occur outside the home.

Other type burns caused four, or 11%, of these injuries. Sunburns caused three of these burns and inhalant abused caused the other. Contact with hot wax caused one, or 3%, of the burns to this age group.



Ages 25 to 34

8% of Burns Were to Adults 25-34 Years of Age

Thirty (30), or 8% of the burn injuries reported in 2014 were incurred by people between 25 and 34 years of age. Twenty-four (24), or 80% of the victims were men and six, or 20% were women. Seven (7), or 23% of the burn injuries suffered by this age group were work-related; all

seven were men. People between the ages of 25 and 34 accounted for 13% of the population of Massachusetts while accounting for 8% of the total number of burn injuries reported in 2014.

Scald Burns Caused 37% of Burn Injuries

Scalds accounted for 11 burns, or 37% of the burn injuries for this age group. Nine (9) of the scalds involved cooking activities; seven were from cooking liquids and two were from hot food. Steam and hot tap water each caused a scald burn injury to this age group.

Flame burns caused eight, or 27% of the injuries to 25-34 year olds. Cooking caused two of these burns; one was from a gas barbeque and another was a clothing ignition while cooking. Two (2) of these injuries involved ignitable liquids; one involved gasoline, and the other another ignitable liquid. Another two involved smoking, one involved a cigarette and the other a clothing ignition from smoking. An unspecified clothing ignition and fireworks each caused one flame burn injury to someone in this age group.

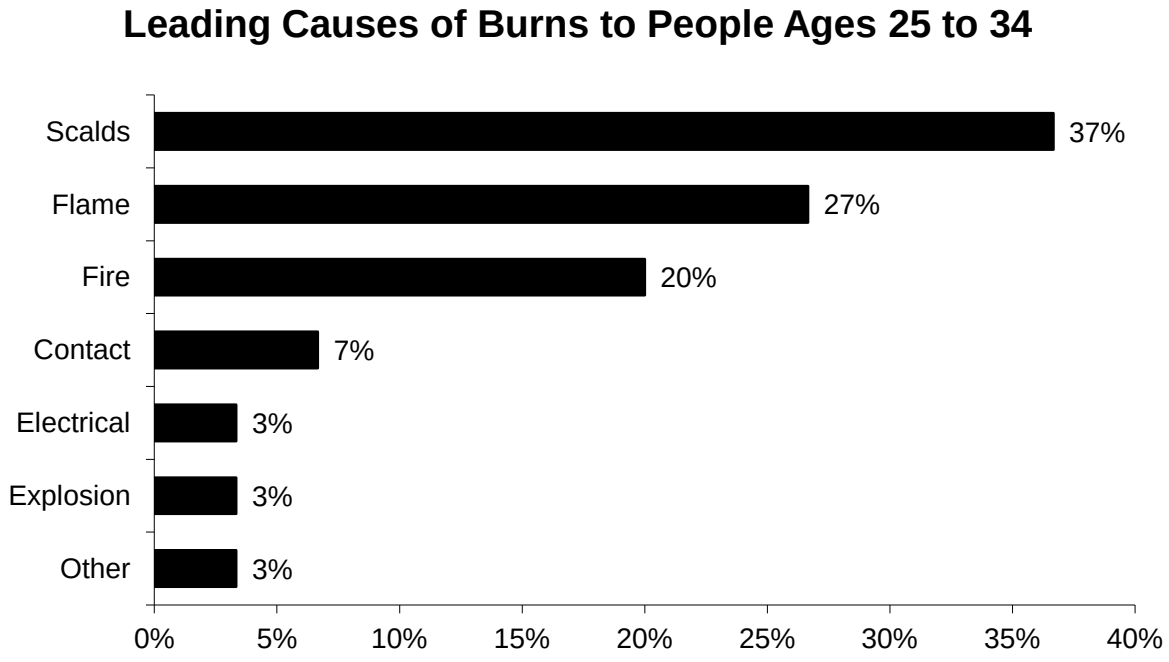
Burns from fires caused six burn injuries and accounted for 20% of the burn injuries to this age group. These fire-related burns included three from house fires with two of them being firefighter injuries; two from camp or bon fires with one from gasoline and the other from some other ignitable liquid; and one from a boat fire.

Contact burns caused two, or 7% of the injuries to this age group. Contact with hot wax and a woodstove each caused one contact burn injury to this age group.

One (1), or 3%, of people between the ages of 25 to 34 received electrical burns from being unspecified electrical events.

One (1), or 3%, of the burns to 25 to 34 year olds were caused by the explosion of an aerosol can.

Another person, or 3%, between the ages of 25 and 34 received an *Other* type burn. This person was burned by a candle.



Ages 35 to 44

8% of Reported Burn Victims Were Between 35-44 Years of Age
Twenty-nine (29), or 8%, of the burn injuries reported in 2014 occurred to people between the ages of 35 and 44. Twenty-one (21), or 72% of the victims were men and eight, or 28% of the victims were women. Adults between the ages of 35 and 44 accounted for 14% of the Massachusetts population but only 8% of the reported burns in 2014.

13% of Burn Injuries Were Work-Related
Fourteen (14), or 48%, of the burn injuries incurred by this age group were work-related. Two (2) of these work-related burn victims were women, and 12 were men.

Burns from Fires Were the Leading Cause of Injuries to 35-44
Burns from fires accounted for nine, or 31%, of the burn injuries to this age group. Five (5) were from house fires, with three being firefighters and one that was started with an ignitable liquid. Two (2) were from motor vehicle fires, one was from a motor vehicle crash and the other a self-immolation in a car. A structure fire that was arson and an unknown fire each caused one burn injury to this age group.

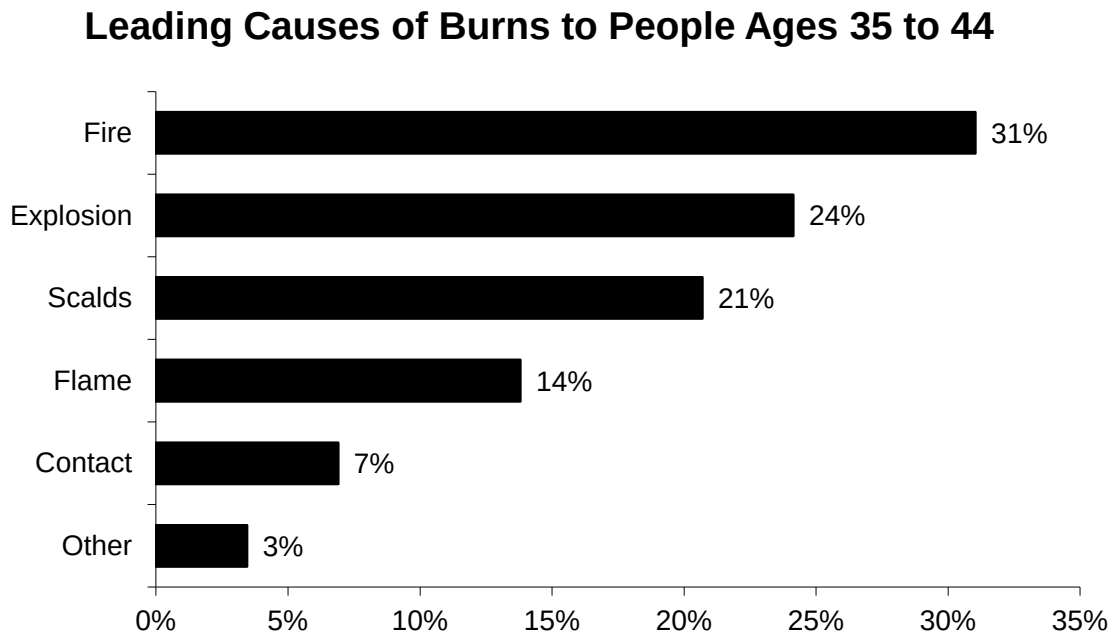
Explosions caused seven, or 24% of these injuries. Chemicals caused explosions that burned three people in this age group. Ignitable gases caused two of these injuries, one was from natural gas and the other was from propane. Fireworks and a pressure cooker each caused one of the explosion related burn injuries to this age group.

Scalds caused six, or 21%, of the burn injuries to this age group. Three (3) of these injuries involved cooking liquids. A car radiator, a hot beverage and an unknown scald burn were responsible for another of these injuries.

Flame burns caused four, or 14%, of burn injuries to adults between the ages of 35 and 44. Ignitable liquids, one of them from gasoline caused two burns to this age group. A chemical and self-immolation each caused one flame burn injury in this age group.

Contact with hot objects were responsible for two, or 7%, of injuries to people between the ages of 35 and 44. Both burns were from contact with heaters.

Other type burns accounted for one, or 3%, of burns to this age group. It was a chemical burn.



Ages 45 to 54

13% of Reported Burn Injuries Were Between 45-54 Years of Age
People between the ages of 45 and 54 incurred 48, or 13%, of the reported burns in 2014. Twenty-five (25) or 52% of the victims were male, and 23, or 48%, were female. Seven (7) of the 48 burn victims aged 45 to 54, or 15%, were burned while at work; five of them were men and two were women. This age group represents 15% of the population of Massachusetts while it received only 13% of the burn injuries in 2014.

Flame Burns Were the Leading Cause of Burns
Flame burns were incurred by 16, or 33% of the burn victims between the ages of 45 and 54. Cooking activities were responsible for six of these injuries; four were from cooking liquids and two were from barbeques. Gasoline caused three of these flame burns. An assault, a car part, a cigarette, an electrical problem, a medical device, a self-immolation and an unknown flame burn injury each caused one of the burns to this age group.

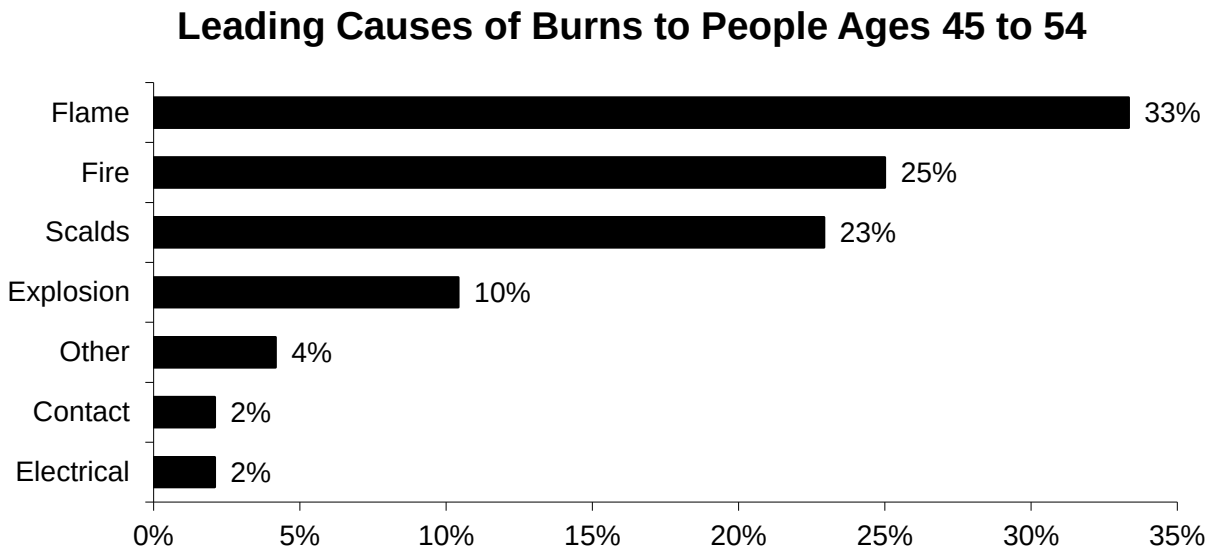
Burns from fires caused 12, or 25%, of the burn injuries to victims 45 to 54 years old. Six (6) burns were from camp or bon fires; five were from house fires, one was caused by smoking and another was from cooking; and one was from a motor vehicle fire started by a cigarette.

Scalds caused 11, or 23% of the burn injuries to this age group. Cooking liquids caused five. Car radiators and hot tap water were each responsible for two of these injuries. An assault and a hot beverage each caused one of these injuries.

Five (5) members of this age group were victims of explosions. They accounted for 10% of the burn injuries to this age group. An aerosol can, a car radiator, an unspecified electrical event, fireworks and natural gas each caused one of these injuries.

Other type burns caused two, or 4%, of these injuries. One was a chemical burn and the other a sunburn.

An unspecified cooking act accounted for the sole contact burn, or 2% of burn injuries to people between the ages of 45 and 54. An unspecified electrical burn was responsible for one, or 2%, of the burns to this age group.



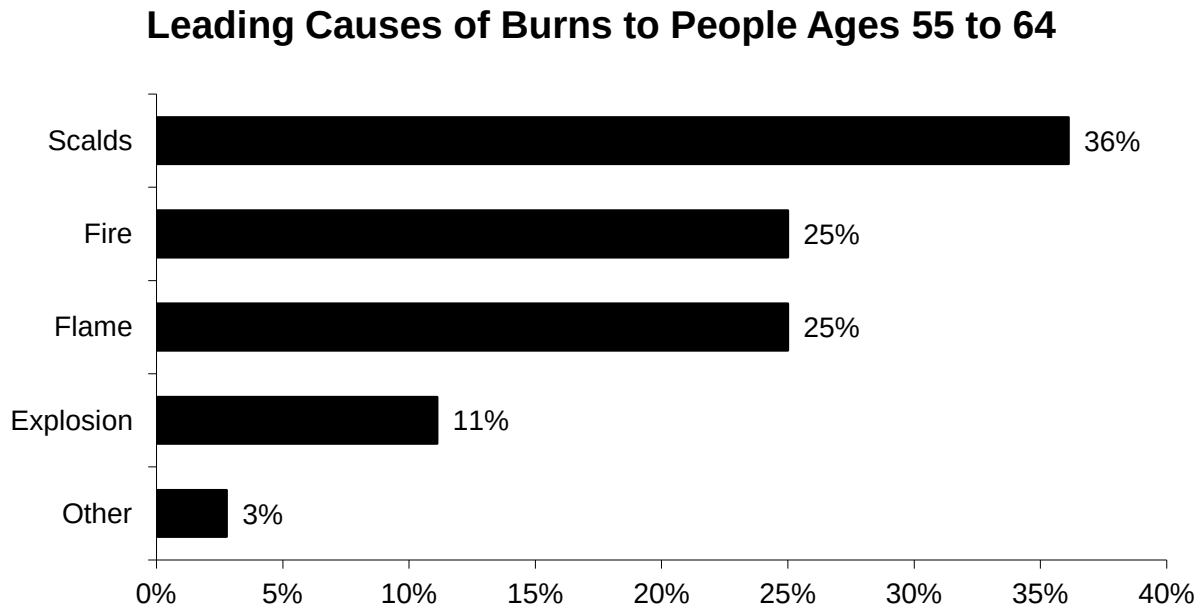
Ages 55 to 64

10% of Burn Victims Were Between 55-64 Years Old
Thirty-six (36), or 10% of the burns reported in 2014 were incurred by people between the ages of 55 and 64. Twenty-four (24), or 67% of the victims were men, and 12, or 33% were women. Six (6), or 17%, of the 36 burn injuries incurred by people between 55 and 64 years old were reported to be work-related; five of these burn victims were men and one was a woman. People of this age group represent 12% of the total population of Massachusetts but only received 10% of the burns in 2014.

Scalds Were the Leading Causes of Burns
Scalds caused 13, or 36%, of the burn injuries to people between the ages of 55 and 64. Cooking activities caused six of these burns; cooking liquids caused five, and a pressure cooker caused one of these burns. Car radiators were responsible for three and hot tap water caused two of these burns. An assault and a hot beverage each caused one scald burn injury to this age group in 2014.

Burns from fires caused nine injuries to people between the ages of 55 and 64 years of age in 2014, accounting for 25% of these injuries. Five (5) were injured in house fires, one involved a fireplace and another smoking on home oxygen. Two (2) were injured in camp or bon fires, gasoline and left over embers caused these burns. A brush fire and a motor vehicle fire started by gasoline each caused one burn injury to this age group.

Flame burns also accounted for nine, or 25%, of the injuries to this age group. Four (4) of these injuries involved cooking activities; three involved stoves and the other cooking liquids. Smoking caused three burns, one injury involved a cigarette. Gasoline and a heater each caused one flame burn injury to someone in this age group.



Burns from explosions caused four, or 11%, of the injuries to this age group. A car part, explosives, a laser and a motor were each the cause of one of these burn injuries.

A chemical burn caused one, or 3%, of the burns to people between the ages of 55 and 64 years of age in 2014.

Over 65 – Older Adults

39 Burn Victims Over 65 Years Old
Thirty-nine (39), or 11%, of the burn victims in 2014 were over 65 years old. Twenty (20) were between 65 and 74; 14 were between 75 and 84; and five were 85 years old or older. Twenty-two (22), or 56% of the victims were men, and 17, or 44%, were women. Older adults represent 14% of the total Massachusetts population but only 11% of the burn injuries in 2014, which means that in 2014 they were proportionately less likely to receive a burn injury.

Historically older adults account for 7% of the total number of burn injuries during the year. Since the inception of M-BIRS in 1984 there have been 14,646 reported burn injuries to M-BIRS, and 1,020 of these have been incurred by people over the age of 65. In 2014 and 2001, they accounted for 11% of the total number of burn injuries, the highest percentage of any year since the inception of M-BIRS. In 2006, older adults accounted for the smallest percentage of total burn injuries since 1984, 3%.

Flame Burns Caused 1/3 of Burns to Older Adults
Flame burns caused 13, or 33%, of the burn injuries to people over the age of 65. Cooking caused four of these burns; one involved cooking liquids, one a stove, another an oven, and the other a clothing ignition. Heating equipment caused three of these injuries; a fireplace, a portable heater and a woodstove each caused one of these injuries. Gasoline and smoking on oxygen each caused two flame burn injuries; and a lighter caused one injury to this age group.

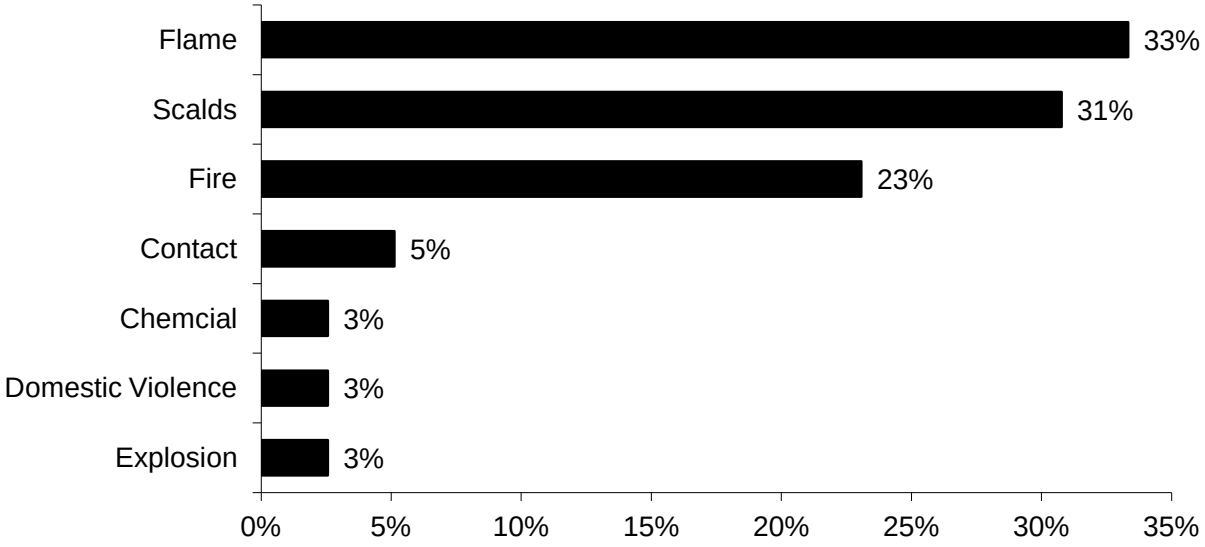
Scalds caused 12, or 31% of the burn injuries to this age group. Seven (7) of these involved cooking; six were from cooking liquids and one was from hot food. Two (2) of these injuries were caused by hot tap water, and a hot beverage, a heater and steam each caused one of these injuries.

Burns from fires caused nine, or 23%, of burn injuries to adults over the age of 65. Five (5) were from house fires, one caused by a machine. Three (3) were caused by camp or bon fires with gasoline and ignitable liquids each causing one of these injuries. And a clothing ignition during a brush fire accounted for one of these burn injuries.

Contact burns caused two, or 5%, of burns to older adults. Contact with a radiator and a stove each caused one of these burns.

A domestic violence incident involving cooking liquids, a propane explosion and a chemical burn each caused one, or 3%, of the burn injuries to older adults.

Leading Causes of Burns to Older Adults (65+)



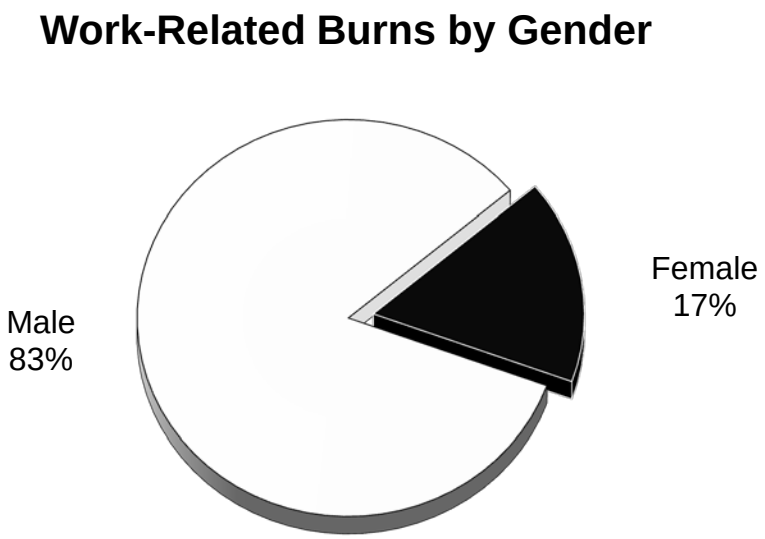
According to the Burn Awareness Coalition, the following scenarios increase the chance of a burn injury for older adults: smoking when tired, drinking alcohol or taking medications which can cause drowsiness, wearing loose fitting clothing while cooking, kitchen fires from unattended cooking, and grease fires on the stove top. During 2014, cooking accounted for 12, or 31% of the reported burn injuries in Massachusetts incurred by older adults, heating equipment accounted for five, or 13%, and smoking accounted for three, or 8%, of the burn injuries to older adults.

Safety Tips for Older Adults

- Cook with the pot and pan handles turned in.
- Wear clothes with short or tight fitting sleeves and watch for clothes touching elements on the stove.
- Never leave boiling, broiling or frying food unattended.
- Keep stove surfaces clean of built up grease.
- Do not attempt to lift or carry heavy pots of hot liquid or food.
- Do not use a cooking stove for heating purposes or for drying clothes.
- Remember “Stop, Drop, & Roll”: It just may save your life.
- Do not smoke when you are tired, drinking alcohol or taking medications that make you drowsy. If you must smoke, make sure there are working smoke detectors in the immediate vicinity.

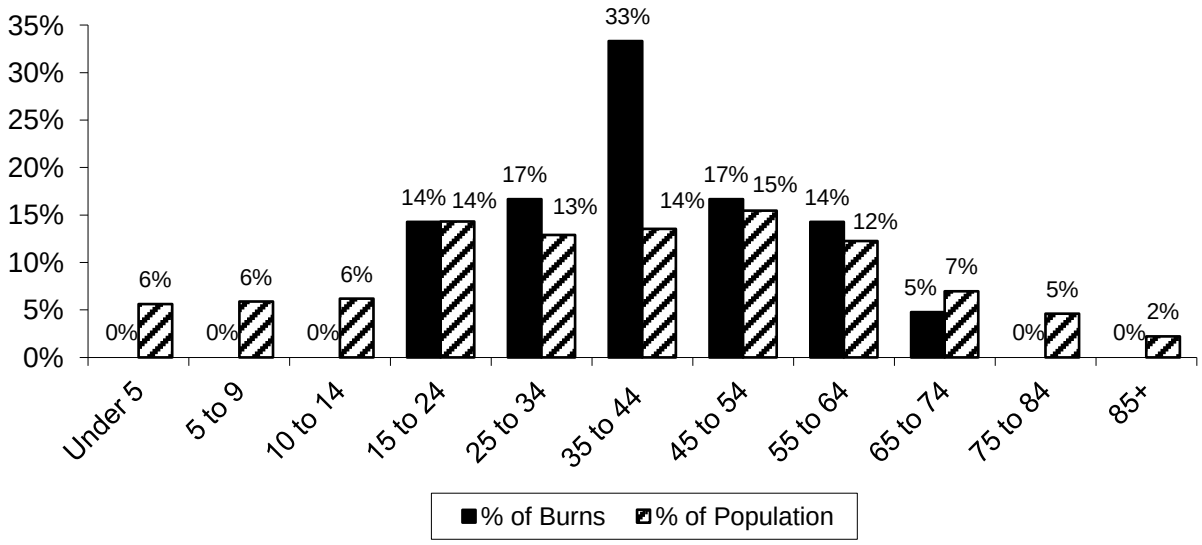
Work-Related Burn Injuries

12% of Reported Burns Occurred at Work
Massachusetts hospitals indicated that 42, or 12%, of the 364 burn injuries reported in 2014 occurred while the victim was at work. Men were much more likely to be burned while working than women. Thirty-five (35) men, or 83%, and seven women, or 17%, were burned at work in 2014.



1/3 of Work-Related Burns Incurred by People Between 35 and 44
No one under the age of 17 received a work-related burn in 2014. Six (6), or 14%, were between 15 and 24 years of age. Seven (7), or 17%, of the victims were between 25 and 34 years of age; 14, or 33%, belonged to the 35 to 44 age group. Seven (7), or 17%, of work-related burn injuries were victims 45 to 54 years old. Six (6), or 14%, of work-related burns occurred in the 55 to 64 age group, and two, or 5%, happened to people between the ages of 65 to 74; which was the oldest age group to have any work-related burns. The youngest person to receive treatment for a work-related burn in Massachusetts in 2014 was a 17-year old girl who received a scald burn from cooking liquids. The oldest victim to receive a work-related burn was a 66-year old man who received a scald burn from cooking liquids.

Work-Related Burns by Age Group



Scalds Caused 40% of Work-Related Burns
Scalds were the leading cause of work-related burns in 2014. These 17 burn injuries accounted for 40% of work-related burns. Eleven (11) involved cooking activities; 10 were caused by cooking liquids and one was caused by hot food. Car radiators caused three, and hot tap water was responsible for two of these burns. A hot beverage accounted for one of the work-related scald burns in 2014.

Explosions caused 10, or 24% of the work-related burns. Chemicals caused four of these injuries and aerosol cans caused two of these injuries. An electrical explosion, natural gas, a laser and a motor each caused one work-related explosion burn injury in 2014.

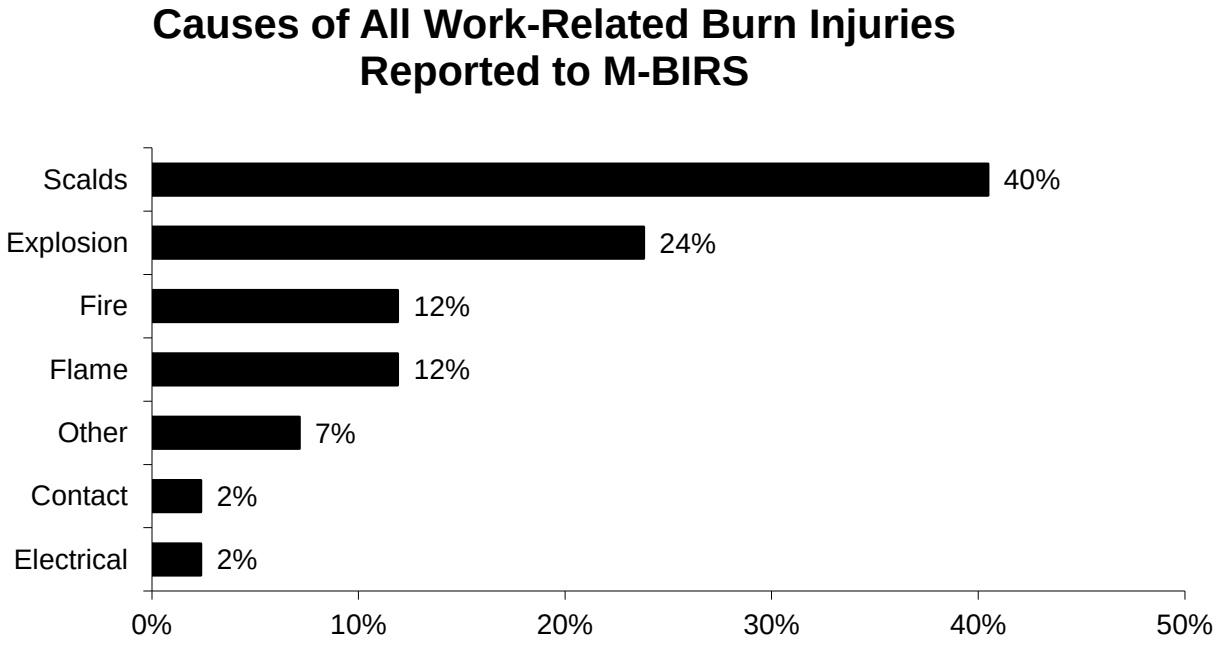
Five (5) victims were burned in house fires while at work in 2014. These five burns all happened to firefighters and accounted for 12% of the work-related burn injuries in 2014.

Flame burns also accounted for five, or 12% of these work-related burns. Ignitable liquids were responsible for two of these injuries; one was caused by gasoline, the other by another ignitable liquid. A chemical and a stove each caused one of the work-related flame burn injuries in 2014.

Chemicals caused three *Other* type work-related burns in 2014. They accounted for 7% of work-related burns.

One (1) victim, or 2%, received contact burns when he touched a heater while working in 2014. One electrocution accounted for the only electrical work-related burn, also accounting for 2%, of work-related burns in 2014.

The following chart shows the breakdown of the causes of all work-related burn injuries reported to M-BIRS regardless of whether they occurred in Massachusetts or not.



74% of Work-Related Burns Reported to M-BIRS Occurred in MA
Most, but not all of the work-related burn injuries treated in Massachusetts occurred in Massachusetts. Thirty-one (31), or 74%, of the 42 work-related burns reported to M-BIRS in 2014 occurred in Massachusetts. Six (6) of the work-related burns reported to M-BIRS occurred in New Hampshire, and one occurred in Maine. There were four reported injuries where the victims lived in Massachusetts but the address where the burn occurred was not reported.

Intervention and Prevention Efforts
The Massachusetts Department of Public Health (MDPH) tracks work-related burn injuries as part of ongoing sentinel surveillance of work-related injuries and illnesses in Massachusetts. MDPH refers burn injuries to the three area offices of the Occupational Safety and Health Administration (OSHA) for inspection, to ensure that the hazardous conditions associated with the burn injuries in employees in the private sector have been corrected and to ensure that workers are no longer at risk from hazardous conditions. MDPH also refers work-related burn injuries among public sector workers to the Massachusetts Department of Labor Standards (DLS).

MDPH requested that OSHA investigate 21 workplaces in 2014; OSHA was already involved in investigating three of them. One burn injury was referred to the Department of Labor Standards for a public sector employee.

OSHA enforcement activities resulted in highlighting several hazards. Employers are then directed to correct or abate the hazards. For example, an employee was burned as a result of using a torch to cut an oil line. The employer was cited and fined for failure to protect the worker

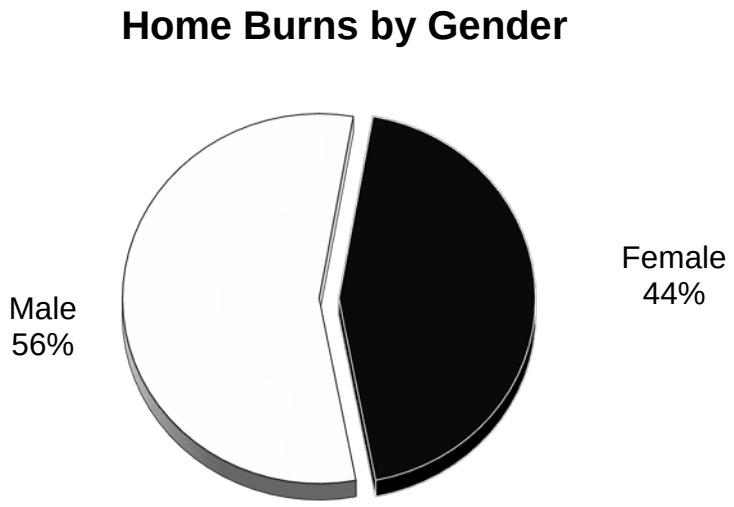
from burning and welding hazards and failure to complete a hazard assessment prior to assigning the worker to this task.

1 Work-related Fatality Due to Burn Injuries[7]
In 2014 there was only one work-related injury that led to the victim's death. This was Boston Firefighter Michael Kennedy. He was burned when he and his partner were trapped in the basement of a residential building fire. He succumbed to his injuries hours later in a local hospital.

The relationship between the Department of Fire Services, Department of Public Health and OSHA serves as a model for how state and federal agencies can collaborate around the country. Based on this model, MDPH has also initiated referrals for amputation injuries, and is working on a guide for health departments to learn about OSHA which will enhance communication and action on serious work-related cases.

Burn Injuries in the Home

Over 2/3 of Burn Injuries Occur in the Home
The home is the most common place for burn injuries to occur. In 2014, 251 people, or 69%, of all the reported burn injuries took place in the victim's home or surrounding yard. More men were burned at home than women. One hundred and forty (140) men, or 56%, and 111 women, or 44%, were burned at home in 2014.



[7] FF Kennedy's partner, Lt. Edward Walsh, died in this fire also but he died at the scene and was not transported to a hospital, so a burn injury report was never filed.

Over 1/2 of All Home Burns Are Scalds
One hundred and thirty (130), or 52%, of the burn injuries that occurred in the home in 2014 were scalds. Cooking activities caused 61 of these home burn injuries; cooking liquids caused 41, hot foods caused 18, and unspecified cooking acts caused two. Hot beverages caused 37 of burns at home. Scalds from hot tap water accounted for 20 of these burns and steam was responsible for four burn injuries. Assaults and car radiators each caused two of these burns. Heating equipment also caused 2 of these injuries; a heater and a radiator each caused one of these injuries. A chemical and an unknown scald burn each accounted for one of all home burn injuries in 2014.

Flame Burns Were the 2nd Leading Cause of Burns at Home
Flame burns were the second leading cause of burn injuries in the home. Flame burns accounted for 47, or 19% of all home-related burn injuries. Cooking activities accounted for 17 home flame burn injuries; cooking liquids caused seven, grills caused three, another three were caused by stoves, clothing ignitions while cooking caused two, an oven and an unspecified cooking act each accounted for one of these injuries. Seven (7) were caused by ignitable liquids; five were from gasoline and two were from other ignitable liquids. Smoking caused six of these flame burn injuries; cigarettes, smoking while on oxygen and other smoking activities each caused two injuries. Another six of these burn injuries involved lighters; five of these involved children using lighters. Heating equipment caused four of these burns, a fireplace, a heater, a portable heater and a woodstove each caused one injury. Two (2) of these injuries resulted from self-immolations. A candle, a car part, a clothing ignition, an electrical act, and fireworks each caused one of the home burn injuries in 2014.

Burn Injuries From Fires Responsible for 16% of Burns in Homes
Burn injuries from fires accounted for 40, or 16% of all burn injuries in homes. Twenty (20) injuries were from house fires. There were 15 injuries caused by camp or bon fires in the victim's yards. Brush fires and motor vehicle fires each caused two of these injuries. Children using matches caused one structure fire in the backyard shed in 2014.

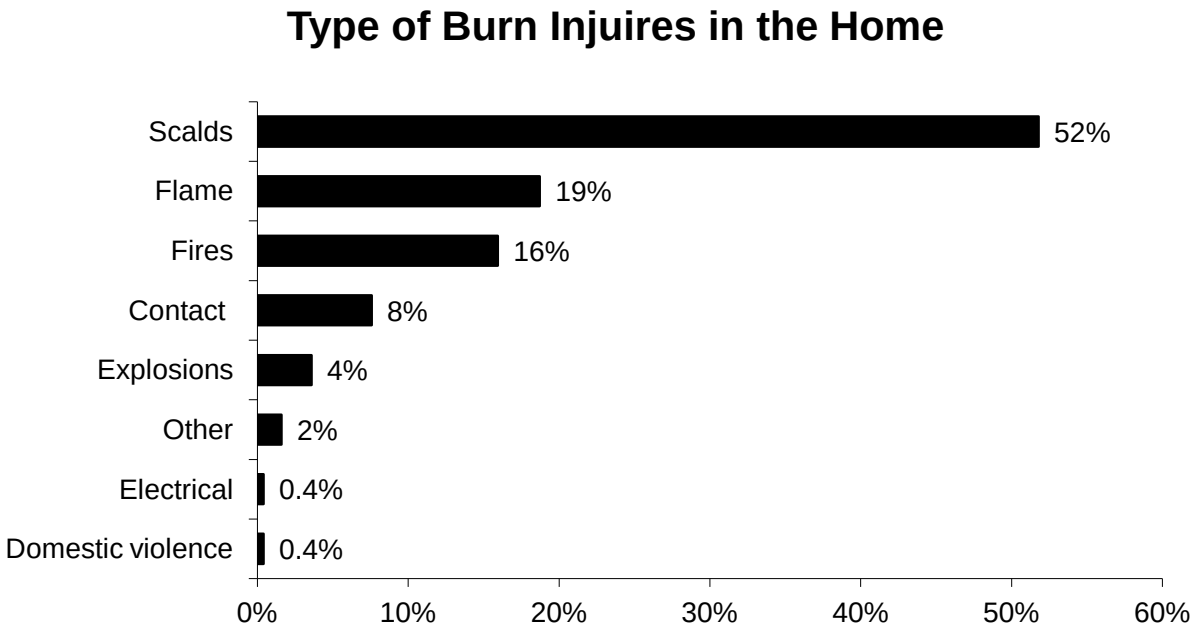
8% of Home Burns Come from Touching Hot Items
Contact burn injuries accounted for 19, or 8% of all the burn injuries that occurred in homes in 2014. Cooking activities caused nine of these burns; four from contact with a stove, three from touching an oven and two from unspecified cooking acts. Touching heating equipment burned five victims at home; two injuries involved heaters, another two were caused by touching radiators and the other a woodstove. Contact with a hot piece of metal caused one of the reported burn injuries that occurred in homes in 2014.

Explosions Responsible for 4% of Burns in Homes
Explosions caused nine, or 4%, of all reported burn injuries in homes in 2014. Ignitable gases were involved in four of these burn injuries; two involved propane, one involved natural gas and another an unspecified ignitable gas. Explosives were involved in two explosion related burn injuries in the home in 2014; one involved explosives and the other fireworks. Two (2) of these injuries involved ignitable liquids one of which was gasoline. A pressure cooker was involved in one of the 2014 home explosion burn injuries.

***Other* Types of Burns Caused 2% of Home Burns**
Four (4) *Other* types of burn injuries were reported occurring to victims in their homes in 2014, accounting for 2% of home burn injuries in 2014. Two (2) of these injuries involved chemicals one a candle and the other involved a sunburn.

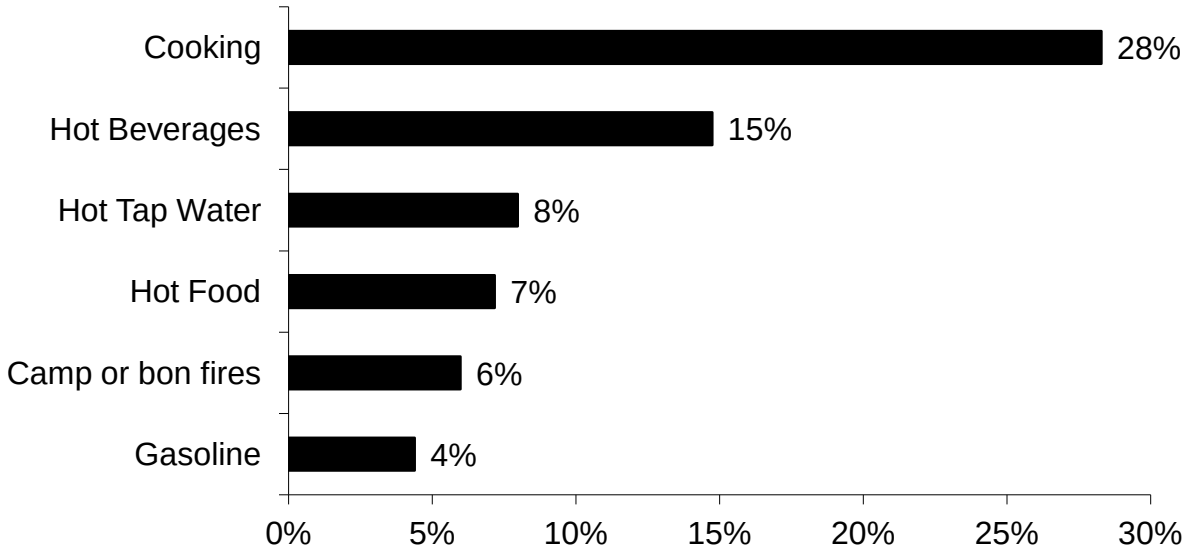
1 Home Electrical Burn
One (1) person received an electrical burn at home in 2014 from an unspecified electrical event. This injury accounted for less than 1% of all burns in the home in 2014.

1 Case of Domestic Violence in the Home
In 2014, one person was burned in a case of domestic violence in the home. This burn injury from cooking liquids accounted for less than 1% of all home burns.



Cooking Caused Almost 28% of Burn in Homes
In 2014 cooking activities, other than hot food, caused the most overall burns regardless of burn type. Burns from cooking caused 71, or 28% of burns in Massachusetts homes. Hot beverages were the cause of 37, or 15%, of home burns in 2014. Hot tap water accounted for 20, or 8% of these burns. Hot food was the cause of 18, or 7% of home burns in 2014. Camp or bon fires in people's back yards caused 15, or 6% of these burns. Gasoline was involved in 11, or 4% of home burn injuries.

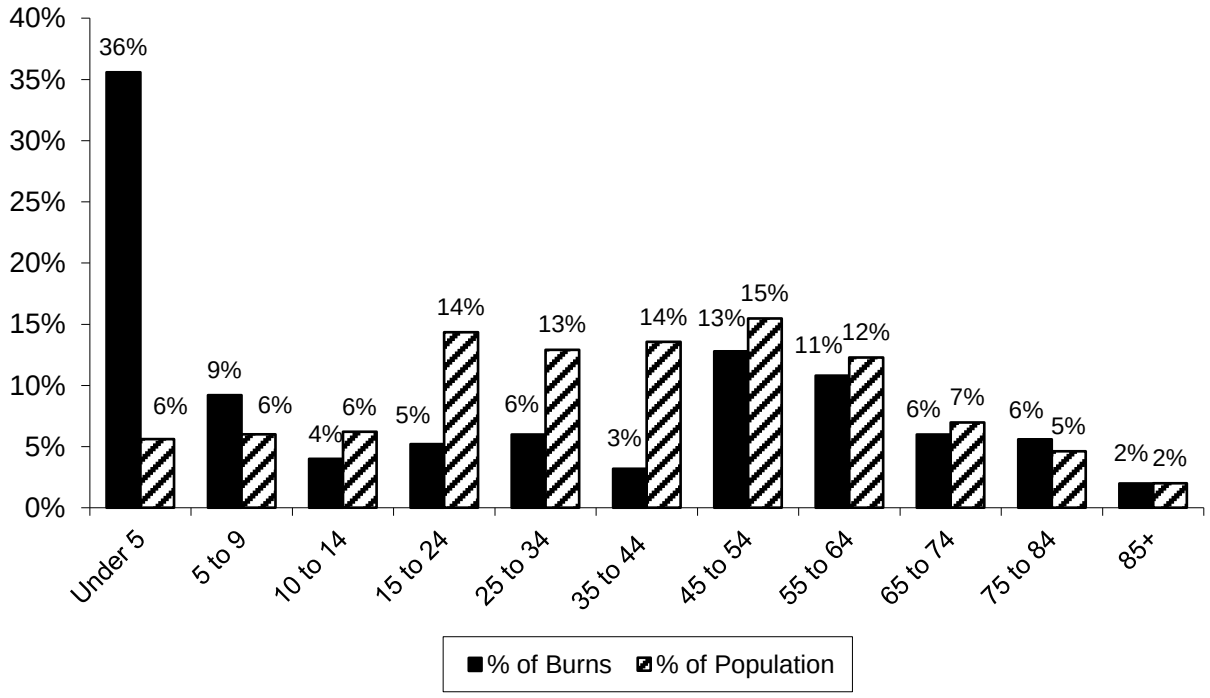
Leading Types of Burn Injuries in the Home



Over 1/3 of Home Burns Were to Children Under 5

Thirty-six percent (36%) of the 251 victims that received their burns at home were less than five years old. They were 6.3 times more likely to suffer a burn at home. Children between the ages of five and nine received 9% of the burn injuries that occurred in people's homes, while children aged 10 to 14 accounted for 4% of these injuries. Young adults between the ages of 15 and 24 accounted for 5% of these burns; 6% were between 25 and 34; 3% were between 35 and 44; 13% were between 45 and 54; 11% were between 55 and 64; 6% were between 65 and 74; 6% were between 75 and 84; and 2% were over the age of 85.

Home Burn Injuries by Age Group



Touching a Hot Oven Burns Youngest Victim
A one-month old girl, who received contact burns to her left hand from touching a hot oven, was the youngest victim to receive an at-home burn injury. The oldest victim to receive a burn at home was a 96-year old woman who received burns to 15% of her body surface area from cooking liquids.

3 of the Home Burns Resulted in Death
Three (3), or 1%, of the 251 reported burn injuries that occurred in homes in 2014 resulted in death for the victim. All three of these deaths were women who died in house fires. The youngest victim was a 45-year old woman who died in a smoking fire. The oldest victim to succumb to her injuries was a 76-year old woman who received burns to 95% of her body surface in a house fire.

For more information on all residential fire deaths please refer to the annual reports of the Massachusetts Fire Incident Reporting System (MFIRS). Most victims of fatal fires die immediately and are not reported to or captured by M-BIRS.

Burn Injury Reports by Hospital

Forty-two (42) out of the 97 acute care health care facilities in Massachusetts submitted a total of 413 burn injury reports for 364 individual victims to the Massachusetts Burn Injury Reporting System (M-BIRS). Some were treated at more than one hospital, resulting in more burn reports than total victims. For information on the number of burn reports submitted by each hospital, please refer to the table *Number of Reported Burn Injuries Per Hospital* in the Appendix.

Law Requires Hospitals to Report Burn Injuries Over 5% of the Body
Massachusetts General Law (MGL) Chapter 112, Section 12A requires all physicians and medical treatment facilities to immediately report treatment of every burn injury extending to 5% or more of a person's body surface area to the State Fire Marshal and to the police department in the community in which the burn occurred.

Hospitals May Fax Reports or Call and Submit Written Reports
Health care facilities have a choice about how to report burn injuries. Health care providers may fax their burn injury reports to the State Fire Marshal at the Department of Fire Services, (978) 567-3199. A completed transmission will satisfy both the telephone and written notification provisions of the law. Hospitals not opting for the fax report method must report burn injuries by telephone at (800) 475-3443 and submit a written report.

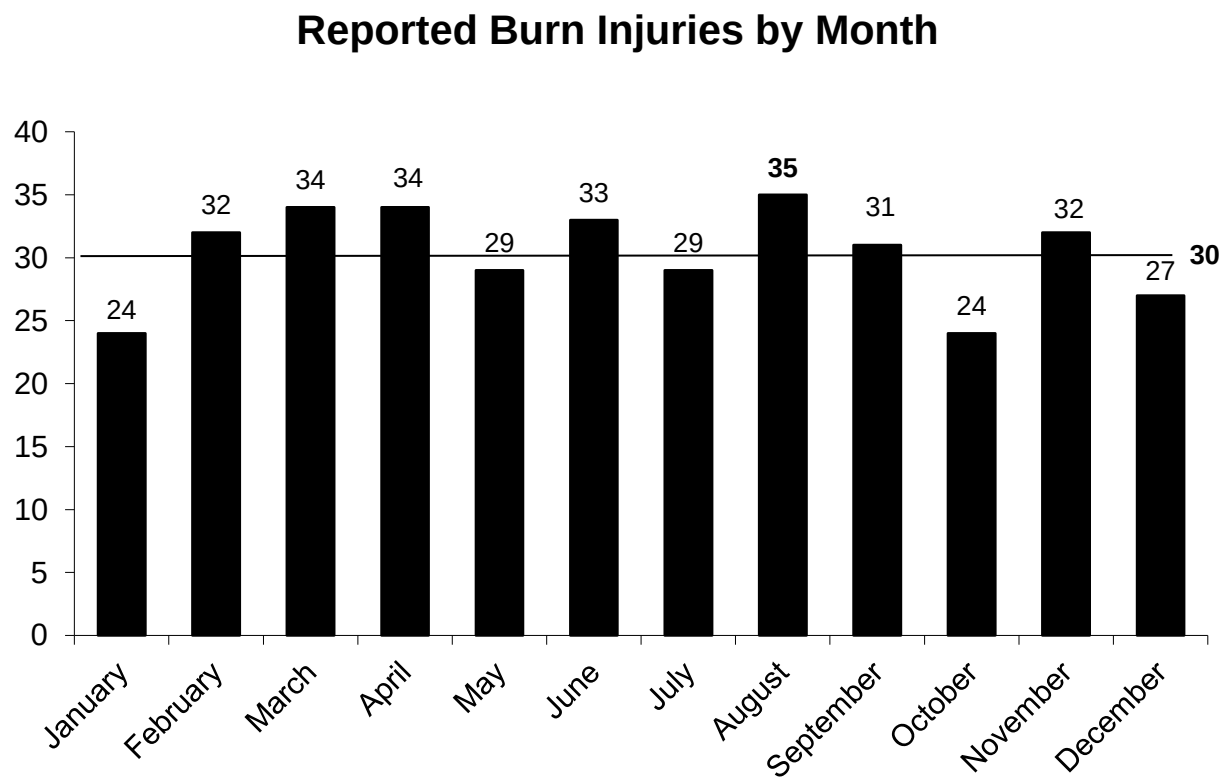
Although M-BIRS was instituted under the Department of Public Safety in June of 1984, Massachusetts hospitals have been required to report burn injuries to a government agency since 1973. M-BIRS, along with the Office of the State Fire Marshal, was carried over to the newly created Department of Fire Services in 1996. It remains a joint program of the state Department of Fire Services and the Massachusetts Department of Public Health.

M-BIRS Has Two Main Purposes — Identifying Arsonists and Burn Prevention
Data collected by the Massachusetts Burn Injury Reporting System is used in several ways. Investigators use the data to determine if an arsonist was treated for a burn that resulted from an attempt to illegally burn a building or vehicle and then attempt to avoid detection by seeking medical treatment far from the crime scene. Our data has also been used to identify problems that need to be addressed through public education or regulation and to develop appropriate strategies. We need to know what type of activity injures who, if the injuries are seasonal, and how old the victims are in order to develop and implement effective prevention programs. We appreciate the efforts of the many dedicated doctors, nurses and clerical personnel who report the burn injuries promptly and completely. They make the program work.

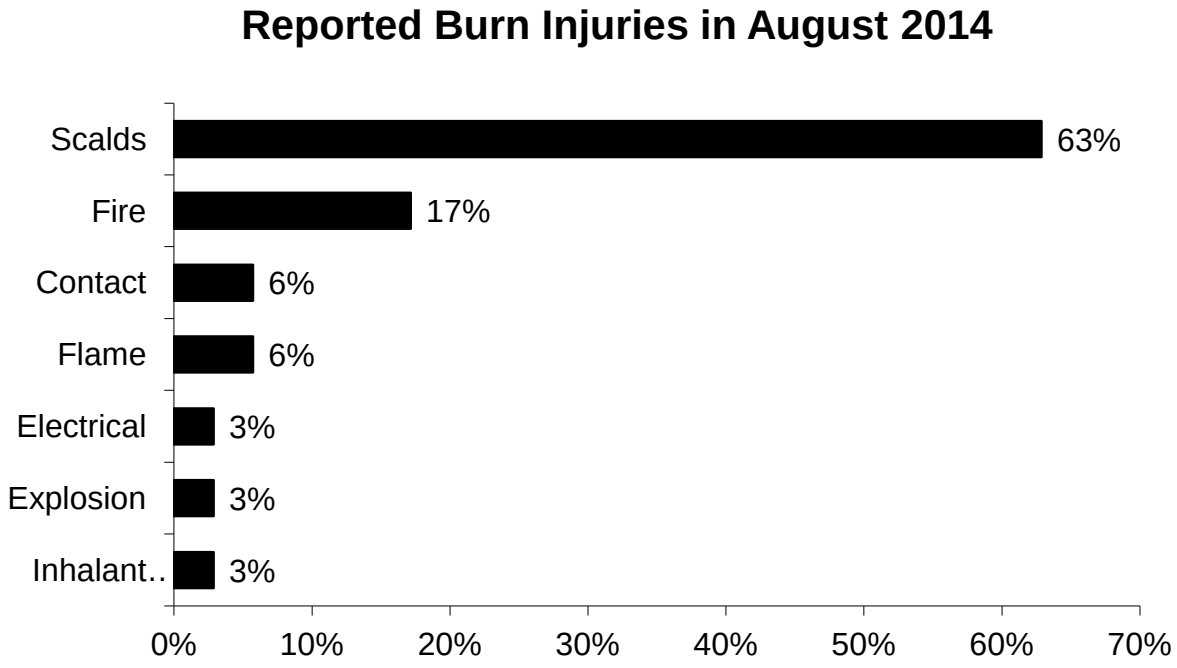
Burn Injuries by Month

Average of 30 Burns a Month
An average of 30 burns was reported during each month of 2014, from a low of 24 in January and October to a high of 35 in August. It is less than the 5-year (2010-2014) average of 34 burns per month and also below the 10-year (2005-2014) average of 33 burns per month.

Scalds caused the most burn injuries during all 12 months of the year.



August Was the Peak Month for Burns
August was the peak month for burns in 2014. Thirty-five (35) burn injuries were reported to M-BIRS during August. Scalds accounted for 22, or 63% of these burns during this month. Burns from fires caused six, or 17% of the burn injuries in August. Contact burns and flame burn injuries each caused two, or 6%, of these burns. Electrical burns, explosions and inhalant abuse each caused one, or 3% of these injuries.

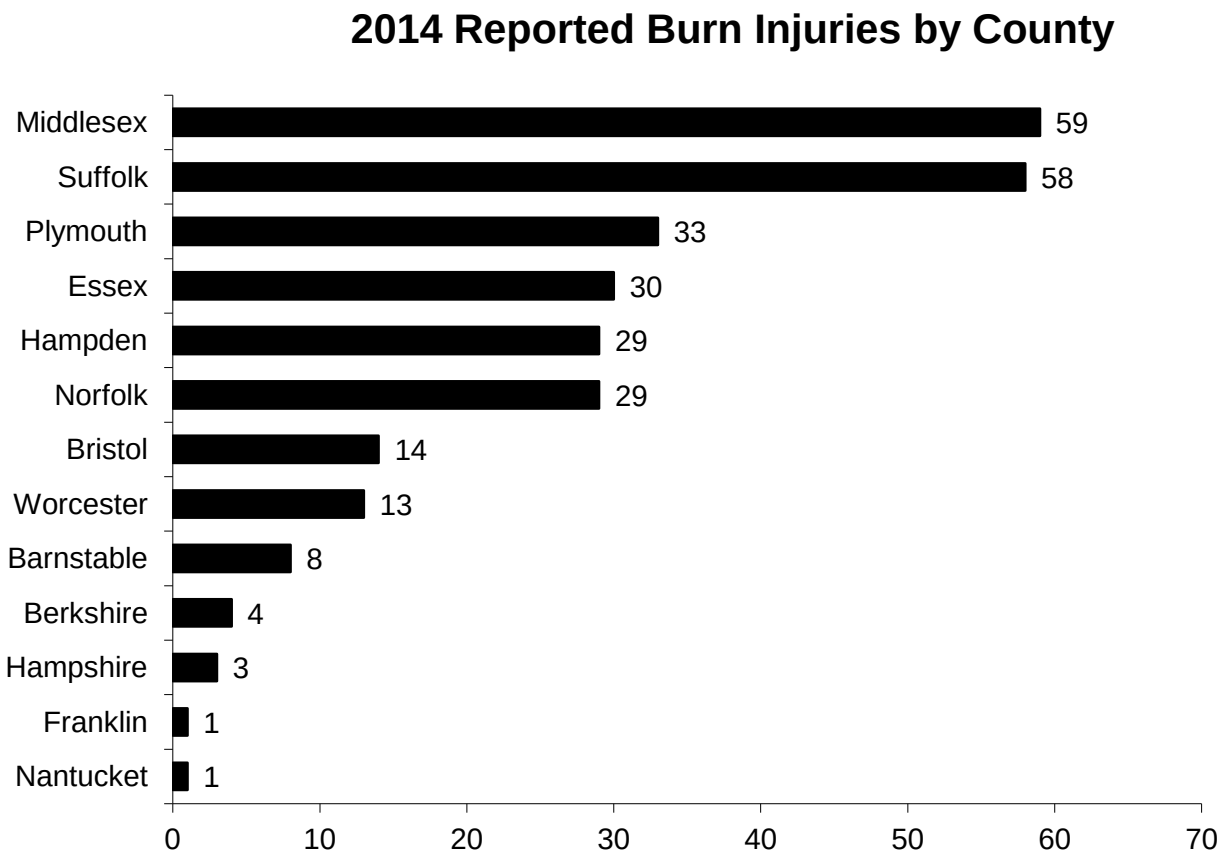


For more information, please refer to the table *Causes of Burn Injuries by Month* in the Appendix.

Geographical Demographics

Massachusetts Burn Victims from 111 Cities and Towns
Massachusetts medical facilities treated 282 residents of 111 Massachusetts cities and towns. Burn victims came from 13 counties in the Commonwealth with none reported in Dukes County in 2014. The largest numbers of reported burn injuries were incurred by residents of Middlesex, Suffolk and Plymouth counties. It appears that some large Boston hospitals (Suffolk County) may have under reported the burns they treated.

Eighty-two (82) burn victims from out-of-state received treatment at Massachusetts facilities. Some of the people were injured while vacationing here; others came to Massachusetts specifically for the specialized treatment of burn injuries that is available in the Commonwealth.



For information on the number of burn victims from each Massachusetts community, please refer to the table *Burn Injuries by Victim's Community* in the Appendix.

Boston & Springfield had the Most Reported Burn Injuries
Boston was home to the most burn injury victims with 51 of its residents reported to have a burn injury in 2014. This is the same number that was reported in 2013. Springfield had the second largest number of victims with 12. Brockton and Lowell each had nine injury reports. Chicopee had seven of their residents with reported burns. Lynn and Weymouth each had six residents with burn injuries in 2014.

Burns Per 10,000 Population
The map on page 63, *2014 Burns by 10K Population*, displays the number of burns reported by community per 10,000 of its residents. The darker the community is shaded the more burns per 10,000 population were reported from that municipality. Cities and towns that are white did not have a reported burn injury in 2014.

If we look at the number of burn injuries compared to the total population of the individual community we get a different picture. One would expect the bigger cities and towns to have more burn injuries because of their populations. When we calculate the rate of reported burn injuries for every 10,000 people in a given municipality, the ranking changes. The top six communities in terms of the total number of reported injuries fall towards the bottom of the

rankings. Communities with one, two or three reported burns take over the top spots because of the very small populations. These communities may have a rate that far exceeds the actual number of burns that were reported. The legend symbols are consistent in both maps.

West Stockbridge had the highest rate of burn injuries per 10,000 population at 7.66. Next highest was Hinsdale with 4.92 burn injuries per 10,000 population; Holbrook had 4.63; Hull had 3.89; Ashby had 3.25; and Middleton had 2.23 burn injuries per 10,000 population[8].

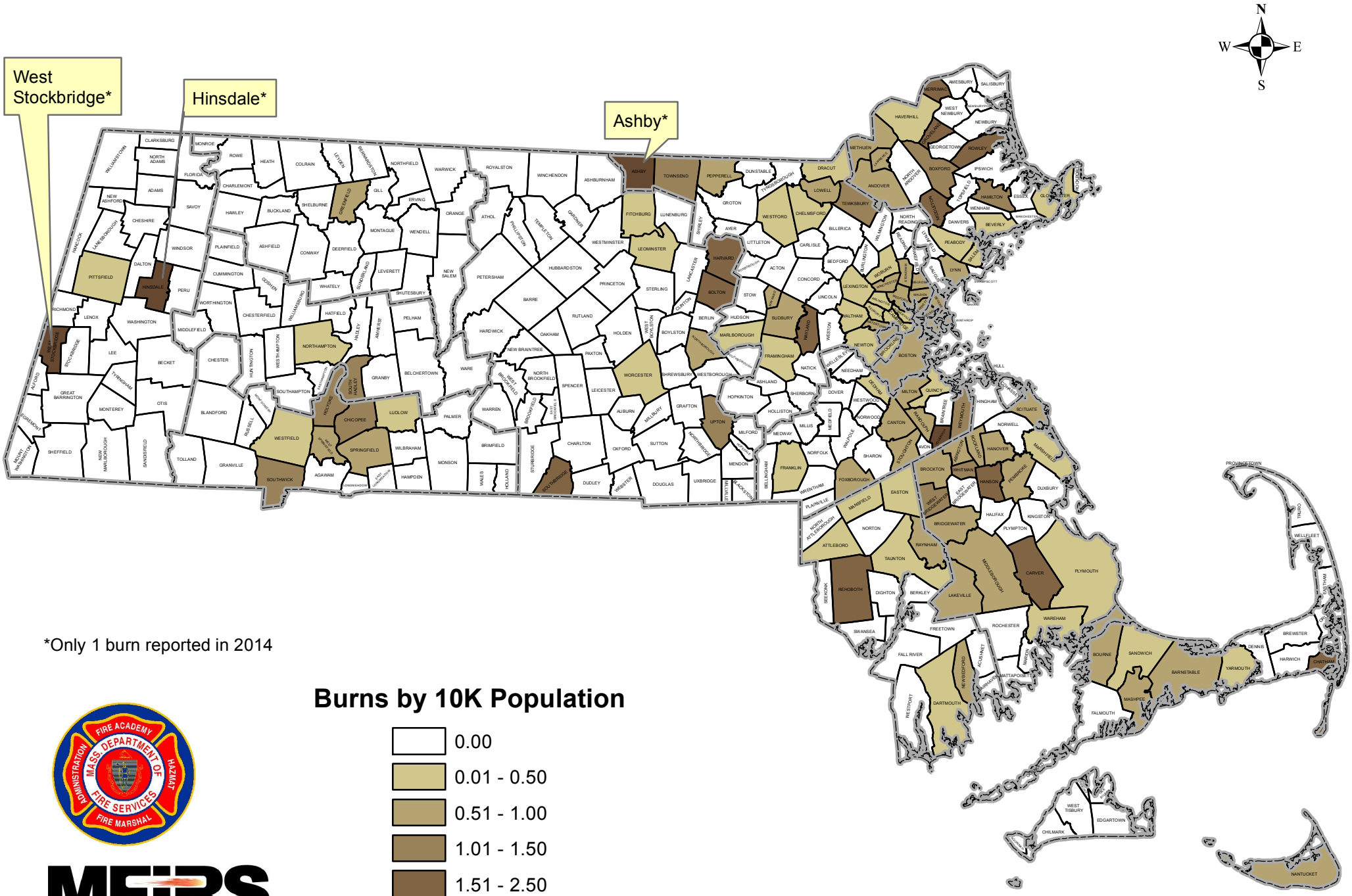
Scalds Per 10,000 Population

The map on page 64, *2014 Scalds per 10K Population*, displays the rate of reported scald burn injuries by the victim's home community for every 10,000 of that community's population. The darker the community is shaded the more burn injuries per 10,000 people were reported from that municipality. Cities and towns that are white did not have a reported burn injury in 2014.

Manchester had the highest rate of 9.74 scald burn injuries per 10,000 population. Next highest was Holbrook with 3.71 scald burn injuries per 10,000 population; Southbridge had 1.79; Merrimac had 1.58; and Boxford had 1.26 scald burn injuries per 10,000 population[9].

[8] West Stockbridge, Hinsdale and Ashby each only had 1 reported burn injury in 2014.
[9] Merrimac and West Bridgewater each had only 1 reported scald burn injury in 2014.

2014 MA Burns by 10K Population



*Only 1 burn reported in 2014

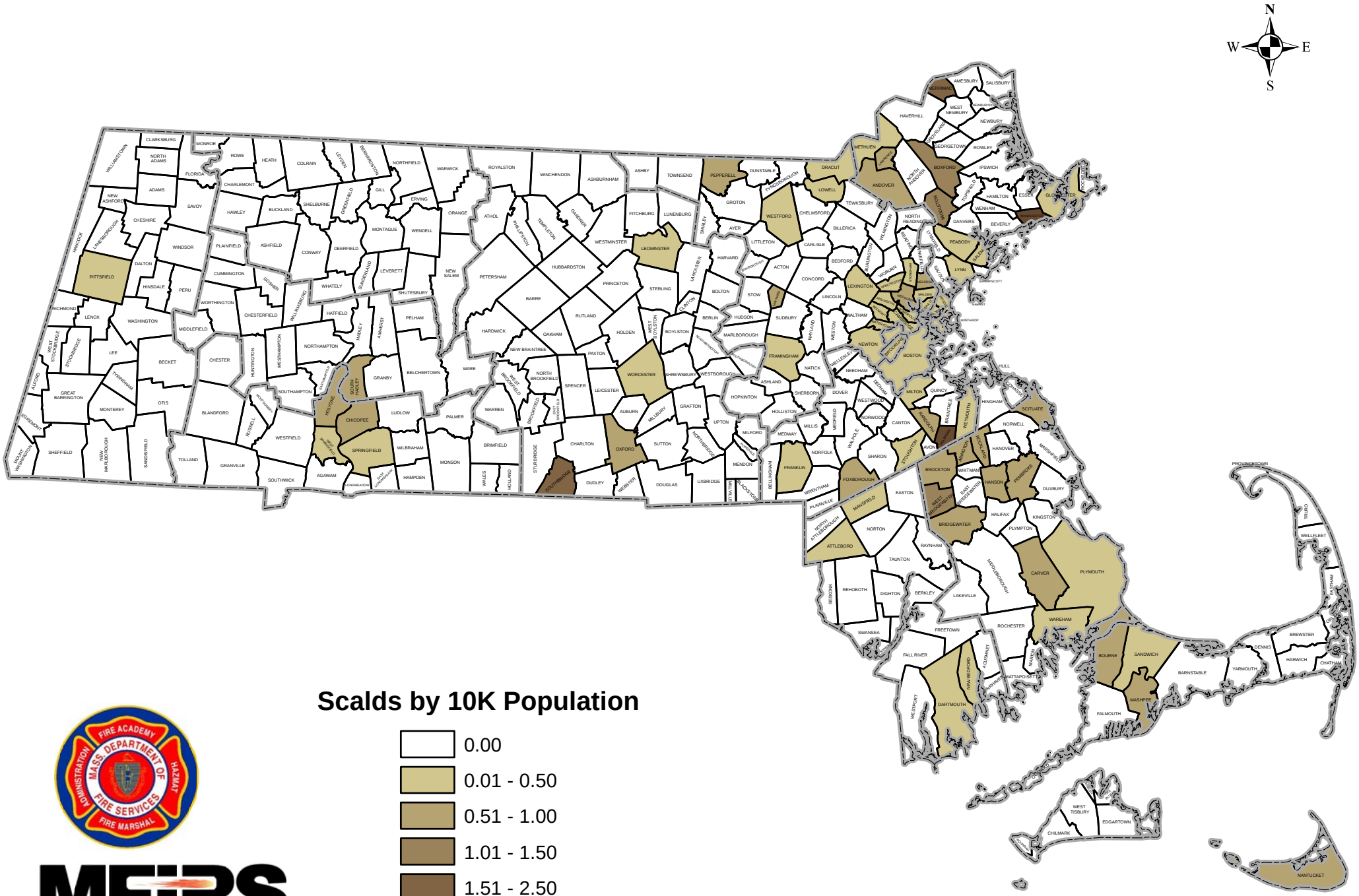
Burns by 10K Population

- 0.00
- 0.01 - 0.50
- 0.51 - 1.00
- 1.01 - 1.50
- 1.51 - 2.50
- 2.51 - 7.66

Miles
0 5 10 20 30 40

MFIRS
Massachusetts Fire Incident Reporting System

2014 MA Scalds by 10K Population



MFIRS
Massachusetts Fire Incident Reporting System

2014 Appendix

* Italicized names are sub-categories for the headings listed above them.

Specific Causes of Burn Injuries

Cause	# of Burns	% of Burns
Scalds	**167**	**45.9%**
Cooking	80	21.2%
Cooking Liquids	*54*	*14.8%*
Food	*23*	*6.3%*
Cooking (Unspec.)	*3*	*0.8%*
Pressure Cooker	*1*	*0.3%*
Beverages	46	12.6%
Hot Tap Water	24	6.6%
Car Radiator	6	1.6%
Steam	4	1.1%
Assault	3	0.8%
Heating Equipment	2	0.5%
Heater	*1*	*0.3%*
Radiator	*1*	*0.3%*
Chemical	1	0.3%
Unknown	1	0.3%
Flame Burns	**69**	**19.0%**
Cooking	19	5.2%
Cooking Liquids	*7*	*1.9%*
Cook/Clothes	*2*	*0.5%*
Barbeque (gas)	*2*	*0.5%*
Barbeque	*2*	*0.5%*
Stove	*2*	*0.5%*
Stove (gas)	*2*	*0.5%*
Cooking (Unspec.)	*1*	*0.3%*
Oven	*1*	*0.3%*
Ignitable Liquids	14	3.8%
Gasoline	*10*	*2.7%*
Ignitable Liquids	*4*	*1.1%*
Smoking	8	2.2%
Cigarette	*3*	*0.8%*
Smoking on Oxygen	*2*	*0.5%*
Smoking (Unspec.)	*2*	*0.5%*
Smoking/Clothes	*1*	*0.3%*
Lighter	7	1.9%
Child w/Lighter	*6*	*1.6%*
Lighter	*1*	*0.3%*
Heating Equipment	4	1.1%
Fireplace	*1*	*0.3%*
Heater	*1*	*0.3%*
Portable Heater	*1*	*0.3%*
Woodstove	*1*	*0.3%*

Cause	# of Burns	% of Burns
Flame Burn (con't)		
Self-immolation	3	0.8%
Candles	3	0.8%
Candle/Clothes	*2*	*0.5%*
Candle	*1*	*0.3%*
Clothes (Unspec.)	2	0.5%
Fireworks	2	0.5%
Alcohol	1	0.3%
Assault	1	0.3%
Chemical	1	0.3%
Car Part	1	0.3%
Medical	1	0.3%
Electrical	1	0.3%
Unknown	1	0.3%
Fires	**66**	**18.1%**
Camp or Bon Fires	28	7.7%
Camp Fire	*12*	*3.3%*
Gasoline	*7*	*1.9%*
Embers	*3*	*0.8%*
Bon Fire	*2*	*0.5%*
Clothes	*2*	*0.5%*
Ignitable Liquids	*2*	*0.5%*
House Fires	27	7.4%
Unspecified	*15*	*4.1%*
Firefighter	*5*	*1.4%*
Cooking Liquids	*1*	*0.3%*
Electrical (Unspec.)	*1*	*0.3%*
Ignitable Liquids	*1*	*0.3%*
Machine	*1*	*0.3%*
Smoking	*1*	*0.3%*
Smoking on Oxygen	*1*	*0.3%*
Motor Vehicle Fires	6	1.6%
Boat Fire	*2*	*0.5%*
Cigarette	*1*	*0.3%*
Gasoline	*1*	*0.3%*
MV Accident	*1*	*0.3%*
Self-immolation	*1*	*0.3%*
Brush Fires	2	0.5%
Unspecified	*2*	*0.5%*
Structure Fires	2	0.5%
Arson	*1*	*0.3%*
Child w/Matches	*1*	*0.3%*

Cause	# of Burns	% of Burns
Fires (con't)		
Fire, Not Reported	1	0.3%
Unknown	*1*	*0.3%*
Explosions	**25**	**6.9%**
Ignitable Gases	8	2.2%
Ignitable Gases	*3*	*0.8%*
Propane	*3*	*0.8%*
Natural Gas	*2*	*0.5%*
Chemical	4	1.1%
Explosives	3	0.8%
Fireworks	*2*	*0.5%*
Unspecified	*1*	*3.3%*
Aerosol	2	0.5%
Ignitable Liquids	2	0.5%
Gasoline	*1*	*0.3%*
Ignitable Liquids	*1*	*0.3%*
Car Part	1	0.3%
Car Radiator	1	0.3%
Electrical	1	0.3%
Laser	1	0.3%
Motor	1	0.3%
Pressure Cooker	1	0.3%
Contact Burns	**22**	**6.0%**
Cooking	10	2.7%
Stove	*4*	*1.1%*
Oven	*3*	*0.8%*
Cooking (Unspec.)	*2*	*0.5%*
Hot Plate	*1*	*0.3%*

Cause	# of Burns	% of Burns
Contact Burns (con't)		
Heating Equipment	6	1.4%
Heater	*3*	*0.8%*
Radiator	*2*	*0.5%*
Woodstove	*1*	*0.3%*
Clothes Iron	2	0.5%
Metal	1	0.3%
Other Burn Injuries	**12**	**3.3%**
Chemical	5	1.4%
Sunburn	5	1.4%
Candle	1	0.3%
Inhalant Abuse	1	0.3%
Electrical	**2**	**0.5%**
Electrocution	1	0.3%
Electrical (Unspec.)	1	0.3%
Domestic Violence	**1**	**0.3%**
Cooking Liquids	1	0.3%

Causes of Burn Injuries by Age

UNDER 5	**103**	**28.3%**
Cause	**# of Burns**	**% By Age**
Scalds	**81**	**78.6%**
Beverages	32	31.1%
Cooking	31	30.1%
Cooking Liquids	*16*	*15.5%*
Food	*13*	*12.6%*
Cooking (Unspec.)	*2*	*1.9%*
Hot Tap Water	15	12.6%
Chemical	1	1.0%
Steam	1	1.0%
Contact	**12**	**11.7%**
Cooking	6	5.8%
Stove	*3*	*2.9%*
Cooking (Unspec.)	*1*	*1.0%*
Hot Plate	*1*	*1.0%*
Oven	*1*	*1.0%*
Clothes Iron	2	1.9%
Heating Equipment	2	1.9%
Heater	*1*	*1.0%*
Radiator	*1*	*1.0%*
Metal	1	1.0%
Wax	1	1.0%
Fire	**7**	**6.8%**
Camp or Bon Fires	4	3.9%
Embers	*2*	*1.9%*
Camp Fire	*1*	*1.0%*
Clothes	*1*	*1.0%*
House Fires	3	2.9%
Unspecified	*2*	*1.9%*
Electrical	*1*	*1.0%*
Flame	**2**	**1.9%**
Candle	1	1.0%
Child w/Lighter	1	1.0%
Other	**1**	**1.0%**
Chemical	1	1.0%

AGES 5 TO 9	**28**	**7.7%**
Cause	**# of Burns**	**% By Age**
Scalds	**18**	**64.3%**
Cooking	10	35.7%
Cooking Liquids	*5*	*17.9%*
Food	*5*	*17.9%*
Hot Beverages	6	21.4%
Hot Tap Water	1	3.6%
Steam	1	3.6%
Fires	**4**	**14.3%**
Camp or Bon Fires	3	10.7%
Camp Fire	*2*	*7.1%*
Clothes	*1*	*3.6%*
Structure Fires	1	3.6%
Child w/Matches	*1*	*3.6%*
Flame	**4**	**14.3%**
Child w/Lighter	2	7.1%
Candle/Clothes	1	3.6%
Ignitable Liquids	1	3.6%
Contact	**1**	**3.6%**
Oven	1	3.6%
Other	**1**	**3.6%**
Sunburn	1	3.6%

AGES 10 TO 14	**14**	**3.9%**
Cause	**# of Burns**	**% By Age**
Flame	**5**	**35.7%**
Child w/Lighter	3	21.4%
Fireworks	1	7.1%
Gasoline	1	7.1%
Fire	**4**	**28.6%**
Camp or Bon Fires	3	21.4%
Gasoline	*2*	*14.3%*
Camp Fire	*1*	*7.1%*
Motor Vehicle Fires	1	7.1%
Boat Fire	*1*	*7.1%*
Scalds	**4**	**28.6%**
Cooking Liquids	2	14.3%
Hot Beverages	1	7.1%
Hot Tap Water	1	7.1%
Explosion	**1**	**7.1%**
Ignitable Liquids	1	7.1%

AGES 15 TO 24	**36**	**9.9%**
Cause	**# of Burns**	**% By Age**
Scalds	**11**	**30.6%**
Cooking	7	19.4%
Cooking Liquids	*5*	*13.9%*
Hot Food	*2*	*5.6%*
Hot Beverages	3	8.3%
Assault	1	2.8%
Flame	**8**	**22.2%**
Cooking	3	8.3%
Cooking Liquids	*2*	*5.6%*
Barbeque (gas)	*1*	*2.8%*
Ignitable Liquids	2	5.6%
Gasoline	*1*	*2.8%*
Ignitable Liquids	*1*	*2.8%*
Alcohol	1	2.8%
Clothes	1	2.8%
Self-immolation	1	2.8%
Explosion	**6**	**16.7%**
Ignitable Gases	4	11.8%
Ignitable Gases	*3*	*8.3%*
Propane	*1*	*2.8%*
Chemical	1	2.8%
Gasoline	1	2.8%
Fire	**6**	**16.7%**
Camp or Bon Fires	5	13.9%
Camp Fires	*2*	*5.6%*
Gasoline	*2*	*5.6%*
Bon Fires	*1*	*2.8%*
House Fires	1	2.8%
Unspecified	*1*	*2.8%*
Other	**4**	**11.1%**
Sunburn	3	8.3%
Inhalant Abuse	1	2.8%
Contact	**1**	**2.8%**
Wax	1	2.8%

AGES 25 TO 34	**30**	**8.3%**
Cause	**# of Burns**	**% By Age**
Scalds	**11**	**36.7%**
Cooking	9	30.0%
Cooking Liquids	*7*	*23.3%*
Food	*2*	*6.7%*
Steam	1	3.3%
Hot Tap Water	1	3.3%
Flame	**8**	**26.7%**
Cooking	2	6.7%
Barbeque (gas)	*1*	*3.3%*
Cook/Clothes	*1*	*3.3%*
Ignitable Liquids	2	6.7%
Gasoline	*1*	*3.3%*
Ignitable Liquids	*1*	*3.3%*
Smoking	2	6.7%
Cigarette	*1*	*3.3%*
Smoking/Clothes	*1*	*3.3%*
Clothes	1	3.3%
Fireworks	1	3.3%
Fire	**6**	**20.0%**
House Fires	3	10.0%
Firefighter	*2*	*6.7%*
Unspecified	*1*	*3.3%*
Camp or Bon Fires	2	6.7%
Gasoline	*1*	*3.3%*
Ignitable Liquids	*1*	*3.3%*
Motor Vehicle Fires	1	3.3%
Boat Fire	*1*	*3.3%*
Contact	**2**	**6.7%**
Wax	1	3.3%
Woodstove	1	3.3%
Electrical	**1**	**3.3%**
Electrical (Unspec.)	1	3.3%
Explosions	**1**	**3.3%**
Aerosol	1	3.3%
Other	**1**	**3.3%**
Candle	1	3.3%

AGES 35 TO 44	**29**	**8.0%**
Cause	**# of Burns**	**% By Age**
Fire	**9**	**31.0%**
House Fires	5	17.2%
Firefighter	*3*	*10.3%*
Ignitable Liquids	*1*	*3.4%*
Unspecified	*1*	*3.4%*
Motor Vehicle Fires	4	6.9%
MVC	*1*	*3.4%*
Self-immolation	*1*	*3.4%*
Structure Fires	1	3.4%
Arson	*1*	*3.4%*
Fire, Not Reported	1	3.4%
Unknown	*1*	*3.4%*
Explosions	**7**	**24.4%**
Chemical	3	10.3%
Ignitable Gases	2	6.9%
Propane	*1*	*3.4%*
Natural Gas	*1*	*3.4%*
Fireworks	1	3.4%
Pressure Cooker	1	3.4%
Scalds	**6**	**20.7%**
Cooking Liquids	3	10.3%
Car Radiator	1	3.4%
Hot Beverages	1	3.4%
Unknown	1	3.4%
Flame	**4**	**13.8%**
Ignitable Liquids	2	6.9%
Gasoline	*1*	*3.4%*
Ignitable Liquids	*1*	*3.4%*
Chemical	1	3.4%
Self-immolation	1	3.4%
Contact	**2**	**6.9%**
Heater	2	6.9%
Other	**1**	**3.4%**
Chemical	1	3.4%

AGES 45 TO 54	**48**	**13.2%**
Cause	**# of Burns**	**% By Age**
Flame	**16**	**33.3%**
Cooking	6	12.5%
Cooling Liquids	*4*	*8.3%*
Barbeque	*2*	*4.2%*
Gasoline	3	6.3%
Assault	1	2.1%
Car Part	1	2.1%
Cigarette	1	2.1%
Electrical	1	2.1%
Medical	1	2.1%
Self-immolation	1	2.1%
Unknown	1	2.1%
Fires	**12**	**25.0%**
Camp or Bon Fires	6	12.5%
Camp Fires	*5*	*10.4%*
Bonfire	*1*	*2.1%*
House Fires	5	10.4%
Unspecified	*3*	*6.3%*
Cooking Liquids	*1*	*2.1%*
Smoking	*1*	*2.1&*
Motor Vehicle Fires	1	2.1%
Cigarette	*1*	*2.1%*
Scalds	**11**	**22.9%**
Cooking Liquids	5	10.4%
Car Radiator	2	4.2%
Hot Tap Water	2	4.2%
Assault	1	2.1%
Hot Beverages	1	2.1%
Explosions	**5**	**10.4%**
Aerosol	1	2.1%
Car Radiator	1	2.1%
Electrical	1	2.1%
Fireworks	1	2.1%
Natural Gas	1	2.1%

Cause	**# of Burns**	**% By Age**
Other	**2**	**4.2%**
Chemical	1	2.1%
Sunburn	1	2.1%
Contact	**1**	**2.1%**
Cooking	1	2.1%
Electrical	**1**	**2.1%**
Electrocution	1	2.1%

AGES 55 TO 64	**36**	**9.9%**
Cause	**# of Burns**	**% By Age**
Scalds	**13**	**36.1%**
Cooking	6	16.7%
Cooking Liquids	*5*	*13.9%*
Pressure Cooker	*1*	*2.8%*
Car Radiator	3	8.3%
Hot Tap Water	2	5.6%
Assault	1	2.8%
Hot Beverages	1	2.8%
Fire	**9**	**25.0%**
House Fires	5	13.9%
Unspecified	*3*	*8.3%*
Fireplace	*1*	*2.8%*
Smoking on Oxygen	*1*	*2.8%*
Camp or Bon Fires	2	5.6%
Embers	*1*	*2.8%*
Gasoline	*1*	*2.8%*
Brush Fires	1	2.8%
Unspecified	*1*	*2.8%*
Motor Vehicle Fires	1	2.8%
Gasoline	*1*	*2.8%*
Flame	**9**	**25.0%**
Cooking	4	11.1%
Stove	*2*	*5.6%*
Cooking Liquids	*1*	*2.8%*
Stove (gas)	*1*	*2.8%*
Smoking	3	8.3%
Smoking (unspec.)	*2*	*5.6%*
Cigarette	*1*	*2.8%*
Gasoline	1	2.8%
Heater	1	2.8%
Explosion	**4**	**11.1%**
Car Part	1	2.8%
Explosives	1	2.8%
Laser	1	2.8%
Motor	1	2.8%
Other	**1**	**2.8%**
Chemical	1	2.8%

AGES 65+	**39**	**10.7%**
Cause	**# of Burns**	**% By Age**
Flame	**13**	**33.3%**
Cooking	4	10.3%
Cooking (Unspec.)	*1*	*2.6%*
Cook/Clothes	*1*	*2.6%*
Oven	*1*	*2.6%*
Stove (gas)	*1*	*2.6%*
Heating Equipment	3	7.7%
Fireplace	*1*	*2.6%*
Portable Heater	*1*	*2.6%*
Woodstove	*1*	*2.6%*
Gasoline	2	5.1%
Smoking on Oxygen	2	5.1%
Lighter	1	2.6%
Scalds	**12**	**30.8%**
Cooking	7	17.9%
Cooking Liquids	*6*	*15.4%*
Food	*1*	*2.6%*
Hot Tap Water	2	5.1%
Hot Beverages	1	2.6%
Heater	1	2.6%
Steam	1	2.6%
Fire	**9**	**23.1%**
House Fires	5	12.8%
Unspecified	*4*	*10.3%*
Machine	*1*	*2.6%*
Camp or Bon Fires	3	7.7%
Camp Fire	*1*	*2.6%*
Gasoline	*1*	*2.6%*
Ignitable Liquids	*1*	*2.6%*
Brush Fires	1	2.6%
Clothes	*1*	*2.6%*
Contact	**2**	**5.1%**
Radiator	1	2.6%
Stove	1	2.6%
Domestic Violence	**1**	**2.6%**
Cooking Liquids	1	2.6%
Explosion	**1**	**2.6%**
Propane	1	2.6%
Other	**1**	**2.6%**
Chemical	1	2.6%

Causes of Work-Related Burns

Cause	# of Burns	% of Total
Scalds	**17**	**40%**
Cooking	11	26%
Cooking Liquids	*10*	*24%*
Hot Food	*1*	*32%*
Car Radiator	3	7%
Hot Tap Water	2	5%
Hot Beverage	1	2%
Explosions	**10**	**24%**
Chemical	4	10%
Aerosol	2	5%
Electrical	1	2%
Natural Gas	1	2%
Laser	1	2%
Motor	2	2%
Fire	**5**	**12%**
House Fires	5	12%
Firefighters	*5*	*12%*

Cause	# of Burns	% of Total
Flame	**5**	**12%**
Ignitable Liquids	2	5%
Gasoline	*1*	*2%*
Ignitable Liquids	*1*	*2%*
Alcohol	1	2%
Chemical	1	2%
Stove	1	2%
Other	**3**	**7%**
Chemical	3	7%
Contact	**1**	**2%**
Heater	1	2%
Electrical	**1**	**2%**
Electrocution	1	2%
Total	**42**	**100%**

Number of Reported Burns Per Hospital

Addison Gilbert Hospital	2
Anna Jacques Hospital	1
Baystate Medical Center	27
Beth Israel Deaconess – Milton	1
Beth Israel Deaconess – Plymouth	1
Brockton Hospital	6
Brigham & Women's Hospital	39
Cape Cod Hospital	3
Children's Hospital	19
East Boston Health Center	2
Emerson Hospital	1
Good Samaritan Medical Center	4
Harrington Memorial Hospital	4
Holy Family Hospital	2
Holyoke Hospital	2
Jordan Hospital	1
Lawrence General Hospital	9
Lowell General Hospital	7
Massachusetts General Hospital	135
Mercy Hospital	1
Metro West Medical Center	1
Milton Whitinsville Hospital	2
Morton Hospital	2
Nantucket Hospital	1
Nashoba Valley Medical Center	3
Newton Wellesley Hospital	1
Norwood Hospital	3
St. Elizabeth's Medical Center	1
St. Luke's Hospital	5
Shriners Hospital for Children	87
Sturdy Memorial Medical Center	3
Tobey Hospital	3
Tufts Medical Center	1
UMass Med. Ctr., Clinton Hospital	2
UMass Med. Ctr., Univ. Campus	7
Whidden Hospital	1
Winchester Hospital	1
Wing Memorial Hospital	1

Causes of Burn Injuries by Month

JANUARY	24	6.6%
Cause	**# of Burns**	**% By Month**
Scalds	**12**	**50.0%**
Cooking	7	29.2%
Cooking Liquids	*5*	*20.8%*
Hot Food	*2*	*8.3%*
Hot Beverages	3	12.5%
Hot Tap Water	2	8.3%
Flame	**7**	**29.2%**
Child w/Lighter	2	8.3%
Ignitable Liquids	2	8.3%
Gasoline	*1*	*4.2%*
Ignitable Liquids	*1*	*4.2%*
Cooking	2	8.3%
Cooking Liquids	*1*	*4.2%*
Stove	*1*	*4.2%*
Heater	1	4.2%
Fire	**4**	**16.7%**
House Fires	2	8.3%
Ignitable Liquids	*1*	*4.2%*
Smoking on Oxygen	*1*	*4.2%*
Camp or Bon Fires	2	8.3%
Bon Fire	*1*	*4.2%*
Clothes	*1*	*4.2%*
Contact	**1**	**4.2%**
Stove	1	4.2%

0 Deaths

FEBRUARY	32	8.8%
Cause	**# of Burns**	**% By Month**
Scalds	**18**	**56.3%**
Cooking	14	43.8%
Hot Food	*8*	*25.0%*
Cooking Liquids	*6*	*18.8%*
Hot Beverages	3	9.4%
Hot Tap Water	1	3.1%
Flame	**8**	**25.0%**
Cooking	3	9.4%
Cooking/Clothes	*2*	*6.3%*
Cooking Liquids	*1*	*3.1%*
Candle	2	6.3%
Candle/Clothes	*1*	*3.1%*
Candle	*1*	*3.1%*
Child w/Lighter	1	3.1%
Cigarette	1	3.1%
Ignitable Liquids	1	3.1%
Explosions	**3**	**9.4%**
Chemical	2	6.3%
Laser	1	3.1%
Contact	**2**	**9.4%**
Heater	1	3.1%
Stove	1	3.1%

0 Deaths

MARCH	**34**	**9.3%**
Cause	**# of Burns**	**% By Month**
Scalds	**15**	**44.1%**
Cooking	6	17.6%
Cooking Liquids	*4*	*11.8%*
Cooking (Unspec.)	*2*	*5.9%*
Hot Tap Water	3	8.8%
Hot Beverages	2	5.9%
Heating Equipment	2	5.9%
Heater	*1*	*2.9%*
Radiator	*1*	*2.9%*
Assault	1	2.9%
Steam	1	2.9%
Fire	**7**	**20.6%**
House Fires	7	20.6%
Firefighter	*5*	*14.7%*
Unspecified	*1*	*5.9%*
Explosion	**6**	**17.6%**
Ignitable Gas	3	8.8%
Chemical	1	2.9%
Motor	1	2.9%
Pressure Cooker	1	2.9%
Flame	**5**	**14.7%**
Smoking	2	5.9%
Cigarette	*1*	*2.9%*
Smoking (Unspec.)	*1*	*2.9%*
Candle/Clothes	1	2.9%
Cooking Liquids	1	2.9%
Gasoline	1	2.9%
Other	**1**	**2.9%**
Candle	1	2.9%

1 Death

APRIL	**34**	**9.3%**
Cause	**# of Burns**	**% By Month**
Scalds	**15**	**44.1%**
Cooking	9	26.5%
Cooking Liquids	*6*	*17.6%*
Food	*3*	*8.8%*
Hot Beverages	2	5.9%
Hot Tap Water	2	5.9%
Steam	2	5.9%
Flame	**9**	**26.5%**
Cooking Liquids	3	8.8%
Chemical	1	2.9%
Clothes	1	2.9%
Gasoline	1	2.9%
Medical	1	2.9%
Smoking (Unspec.)	1	2.9%
Woodstove	1	2.9%
Fire	**6**	**17.6%**
Structure Fires	2	5.9%
Gasoline	*2*	*5.9%*
Camp or Bon Fires	2	5.9%
Electrical	*1*	*2.9%*
Ignitable Liquids	*1*	*2.9%*
House Fires	1	5.9%
Arson	*1*	*2.9%*
Smoking	*1*	*2.9%*
Contact	**2**	**5.9%**
Cooking	2	5.9%
Hot Plate	*1*	*2.9%*
Oven	*1*	*2.9%*
Explosion	**1**	**2.9%**
Natural Gas	1	2.9%
Other	**1**	**2.9%**
Sunburn	1	2.9%

1 Death

MAY	**29**	**8.0%**
Cause	**# of Burns**	**% By Month**
Scalds	**11**	**37.9%**
Cooking	5	17.2%
Cooking Liquids	*3*	*10.3%*
Hot Food	*1*	*3.4%*
Pressure Cooker	*1*	*3.4%*
Hot Beverages	4	13.8%
Car Radiator	1	3.4%
Hot Tap Water	1	3.4%
Fire	**8**	**27.6%**
Camp or Bon Fires	4	13.8%
Camp Fires	*2*	*6.9%*
Clothes	*1*	*3.4%*
Embers	*1*	*3.4%*
House Fires	2	6.9%
Machine	*1*	*3.4%*
Unspecified	*1*	*3.4%*
Brush Fires	1	3.4%
Unspecified	*1*	*3.4%*
Motor Vehicle Fires	1	3.4%
Gasoline	*1*	*3.4%*
Flame	**6**	**20.7%**
Stove (gas)	2	6.9%
Lighter	2	6.9%
Child w/Lighter	*1*	*3.4%*
Lighter	*1*	*3.4%*
Assault	1	3.4%
Smoking/Clothes	1	3.4%
Other	**2**	**6.9%**
Chemical	1	3.4%
Sunburn	1	3.4%
Contact	**1**	**3.4%**
Cooking (Unspec.)	1	3.4%
Explosion	**1**	**3.4%**
Natural Gas	1	3.4%

0 Deaths

JUNE	**33**	**9.1%**
Cause	**# of Burns**	**% By Month**
Scalds	**13**	**39.4%**
Cooking Liquids	5	15.2%
Hot Beverages	5	15.2%
Hot Tap Water	2	6.1%
Car Radiator	1	3.0%
Fire	**5**	**15.2%**
House Fires	2	6.1%
Unspecified	*2*	*6.1%*
Brush Fires	1	3.0%
Brush Fire	*1*	*3.0%*
Camp or Bon Fires	1	3.0%
Embers	*1*	*3.0%*
Structure Fires	1	3.0%
Child w/Matches	*1*	*3.0%*
Explosion	**5**	**15.2%**
Car Part	1	3.0%
Car Radiator	1	3.0%
Electrical	1	3.0%
Ignitable Liquids	1	3.0%
Propane	1	3.0%
Other	**5**	**15.2%**
Sunburn	3	9.1%
Chemical	2	6.1%
Flame	**4**	**12.1%**
Barbeque (gas)	2	6.1%
Alcohol	1	3.0%
Child w/Lighter	1	3.0%
Contact	**1**	**3.0%**
Barbeque	1	3.0%

0 Deaths

JULY	**29**	**8.0%**
Cause	**# of Burns**	**% By Month**
Scalds	**13**	**44.8%**
Cooking	5	17.2%
Cooking Liquids	*2*	*13.8%*
Hot Food	*1*	*3.4%*
Hot Beverages	2	6.9%
Hot Tap Water	2	6.9%
Assault	1	3.4%
Car Radiator	1	3.4%
Chemical	1	3.4%
Steam	1	3.4%
Fire	**6**	**20.7%**
Camp or Bon Fires	4	13.8%
Camp Fires	*2*	*6.9%*
Embers	*1*	*3.4%*
Gasoline	*1*	*3.4%*
House Fires	1	3.4%
Unspecified	*1*	*3.4%*
Motor Vehicle Fires	1	3.4%
MV Accident	*1*	*3.4%*
Flame	**6**	**20.7%**
Fireworks	2	6.9%
Barbeque	1	3.4%
Gasoline	1	3.4%
Self-immolation	1	3.4%
Unknown	1	3.4%
Explosion	**3**	**10.3%**
Fireworks	2	6.9%
Propane	1	3.4%
Contact	**1**	**3.4%**
Clothes Iron	1	3.4%

0 Deaths

AUGUST	**35**	**9.6%**
Cause	**# of Burns**	**% By Month**
Scalds	**22**	**62.9%**
Cooking	8	36.4%
Cooking Liquids	*7*	*20.0%*
Hot Food	*1*	*2.9%*
Hot Tap Water	6	17.1%
Hot Beverages	5	14.3**%**
Car Radiator	3	8.6%
Fire	**6**	**17.1%**
Camp or Bonfires	5	14.3%
Camp Fires	*5*	*14.3%*
Motor Vehicle Fires	1	2.9%
Boat Fire	*1*	*2.9%*
Contact	**2**	**5.7%**
Clothes Iron	1	2.9%
Stove	1	2.9%
Flame	**2**	**5.7%**
Cooking Liquids	1	2.9%
Electrical	1	2.9%
Electrical	**1**	**2.9%**
Electrocution	1	2.9%
Explosion	**1**	**2.9%**
Propane	1	2.9%
Other	**1**	**2.9%**
Inhalant Abuse	1	2.9%

0 Deaths

SEPTEMBER	**31**	**8.5%**
Cause	**# of Burns**	**% By Month**
Scalds	**12**	**38.7%**
Hot Beverages	5	16.1%
Cooking Liquids	4	12.9%
Hot Tap Water	2	6.5%
Unknown	1	3.2%
Flame	**10**	**32.3%**
Gasoline	3	9.7%
Self-immolation	2	6.5%
Cooking	2	6.5%
Oven	*1*	*3.2%*
Stove	*1*	*3.2%*
Smoking	2	6.5%
Cigarette	*1*	*3.2%*
Smoking on Oxygen	*1*	*3.2%*
Child w/Lighter	1	3.2%
Fire	**4**	**12.9%**
Camp or Bon Fires	2	6.5%
Camp Fire	*1*	*3.2%*
Ignitable Liquids	*1*	*3.2%*
Motor Vehicle Fires	1	3.2%
Boat Fire	*1*	*3.2%*
House Fires	1	3.2%
Unspecified	*1*	*3.2%*
Explosion	**3**	**9.7%**
Aerosol	2	6.5%
Ignitable Gases	1	3.2%
Contact	**2**	**6.5%**
Heater	1	3.2%
Oven	1	3.2%

1 Death

OCTOBER	**24**	**6.6%**
Cause	**# of Burns**	**% By Month**
Scalds	**10**	**41.7%**
Cooking	7	29.2%
Cooking Liquids	*5*	*20.8%*
Hot Food	*2*	*4.2%*
Hot Beverages	3	12.5%
Fire	**5**	**20.0%**
Camp or Bon Fires	4	16.7%
Camp Fires	*2*	*8.3%*
Bon Fires	*1*	*4.2%*
Gasoline	*1*	*4.2%*
Fires, Unknown	1	4.2%
Unknown	*1*	*4.2%*
Contact	**4**	**16.7%**
Cooking	2	8.3%
Oven	*1*	*4.2%*
Cooking (Unspec.)	*1*	*4.2%*
Radiator	1	4.2%
Wax	1	4.2%
Flame	**3**	**12.5%**
Gasoline	2	8.3%
Barbeque	1	4.2%
Electrical	**1**	**4.2%**
Unspecified	1	4.2%

0 Deaths

NOVEMBER	**32**	**8.8%**
Cause	**# of Burns**	**% By Month**
Scalds	**14**	**43.8%**
Cooking	7	21.9%
Hot Food	*4*	*12.5%*
Cooking Liquids	*3*	*9.4%*
Hot Beverages	6	18.8%
Assault	1	3.1%
Fire	**8**	**25.0%**
House Fires	4	12.5%
Unspecified	*2*	*6.3%*
Cooking Liquids	*1*	*3.1%*
Fireplace	*1*	*3.1%*
Camp or Bon Fires	3	9.4%
Gasoline	*3*	*9.4%*
Motor Vehicle Fires	1	3.1%
Self-immolation	*1*	*3.1%*
Contact	**4**	**12.5%**
Wax	2	6.3%
Heating Equipment	2	6.3%
Heater	*1*	*3.1%*
Radiator	*1*	*3.1%*
Flame		**12.5%**
Car Part	1	3.1%
Cooking (Unspec.)	1	3.1%
Fireplace	1	3.1%
Ignitable Liquids	1	3.1%
Explosion	**1**	**3.1%**
Gasoline	1	3.1%

1 Death

DECEMBER	**27**	**7.4%**
Cause	**# of Burns**	**% By Month**
Scalds	**17**	**65.4%**
Hot Beverages	6	22.2%
Hot Tap Water	3	11.1%
Cooking	3	11.1%
Cooking Liquids	*2*	*7.4%*
Cooking Liquids	*1*	*3.7%*
Fire	**7**	**25.9%**
House Fires	6	22.2%
Unspecified	*6*	*22.2%*
Motor Vehicle Fires	1	3.7%
Cigarette	*1*	*3.7%*
Flame	**4**	**15.4%**
Ignitable Liquids	2	7.4%
Gasoline	*1*	*3.7%*
Ignitable Liquids	*1*	*3.7%*
Clothes	1	3.7%
Portable Heater	1	3.7%
Smoking on Oxygen	1	3.7%
Contact	**2**	**7.4%**
Stove	1	3.7%
Woodstove	1	3.7%
Explosions	**1**	**3.7%**
Explosives	1	3.7%

2 Deaths

Burn Injuries by Victim's Community

County	# of Burns
Barnstable	**8**
Barnstable	3
Bourne	1
Chatham	1
Mashpee	1
Sandwich	1
Yarmouth	2
Berkshire	**4**
Hinsdale	1
Pittsfield	2
West Stockbridge	1
Bristol	**14**
Attleboro	2
Dartmouth	1
Easton	1
Mansfield	1
New Bedford	5
Raynham	1
Rehoboth	2
Taunton	1
Dukes	**0**
Essex	**30**
Andover	2
Beverly	1
Boxford	1
Gloucester	1
Groveland	1
Hamilton	1
Haverhill	2
Lawrence	5
Lynn	6
Merrimac	1
Methuen	3
Middleton	2
Peabody	1
Rowley	1
Salem	2
Franklin	**1**
Greenfield	1

County	# of Burns
Hampden	**29**
Chicopee	7
Holyoke	4
Ludlow	1
Southwick	1
Springfield	12
West Springfield	2
Westfield	2
Hampshire	**3**
Northampton	1
South Hadley	2
Middlesex	**59**
Arlington	2
Ashby	1
Belmont	1
Cambridge	5
Chelmsford	1
Dracut	1
Everett	4
Framingham	2
Lexington	1
Lowell	9
Malden	3
Marlborough	1
Maynard	1
Medford	5
Melrose	2
Newton	2
Pepperell	1
Somerville	1
Stoneham	2
Sudbury	1
Tewksbury	3
Townsend	1
Waltham	1
Watertown	2
Wayland	2
Westford	1
Winchester	2
Woburn	1

County	# of Burns
Nantucket	**1**
Nantucket	1
Norfolk	**29**
Brookline	2
Canton	2
Dedham	1
Foxborough	1
Franklin	1
Holbrook	5
Milton	2
Quincy	4
Randolph	3
Stoughton	2
Weymouth	6
Plymouth	**33**
Abington	1
Bridgewater	2
Brockton	9
Carver	2
Hanover	1
Hanson	2
Hull	4
Lakeville	1
Marshfield	1

County	# of Burns
Plymouth (con't)	
Middleborough	2
Pembroke	1
Plymouth	1
Rockland	1
Scituate	1
Wareham	1
West Bridgewater	1
Whitman	1
Suffolk	**58**
Boston	51
Chelsea	2
Revere	4
Winthrop	1
Worcester	**13**
Bolton	1
Fitchburg	2
Harvard	1
Leominster	1
Northbridge	1
Southbridge	3
Upton	1
Worcester	3
Out of State	**82**

FP-84F
(Rev. 04-2010)

The Commonwealth of Massachusetts
Department of Fire Services
Division of Fire Safety

Post Office Box 1025 – Stow, Massachusetts 01775

TO: Massachusetts Burn Injury Reporting System

FROM: _____

Name of Hospital and Attending Physician

RE: Burn Injury Extending to 5% or More of Body Surface Area

To fax burn injury reports, dial (978) 567-3199.

When you fax the burn report, you satisfy both the telephone and written reporting notification requirements for the State Fire Marshal. You still need to notify the police chief in the community where the burn occurred.

-OR-

Call 1-800-475-3443 anytime to report burns over the phone AND mail this sheet to the above address.

Victim's Name _____
Last *First* *M.*

Victim's Home Address _____
Street Address (No PO Boxes) **City / Town** **State** **Zip**

Victim's Age _____ Gender _____ Local Police Department Notified? ❑ Yes ❑ No

Was the Victim at Work When Burned? ❑ Yes ❑ No

Date of Burn _____ If Yes: Employer _____

Address Where Burn Occurred _____
Street Address (No PO Boxes) **City / Town** **State** **Zip**

Part of Body Injured or %BSA: _____

Cause of Burn (e.g. spilled coffee, tap water, clothing ignited while cooking): _____

_____

Type of Burn: *(check one)*

☐ Flame ☐ Scald ☐ Domestic Violence

☐ Fire ☐ Electrical ☐ Other
☐ Sunburn
☐ Chemical

☐ Explosion ☐ Contact

Severity: *(check one)*

☐ Minor ☐ Life-threatening

☐ Moderate ☐ Dead

☐ Severe

If you have any questions about the Massachusetts Burn Injury Reporting System, call the Fire Data and Public Education Unit at (978) 567-3380 or leave a message at 1-800-475-3443.

NEW
Burn Hotline
1-800-475-3443

FAX Reporting Number
1-978-567-3199

Massachusetts General Law Chapter 112, Section 12A, Amended by the Acts of 1986 and 1996 (Excerpted)

"Every physician ... examining or treating a person with a burn injury affecting five per cent or more of the surface area of his body, or, whenever any such case is treated in a hospital, sanitarium or other institution, the manager, superintendent or other person in charge thereof, shall report such case... at once to the state fire marhsal and to the police in the community where the burn occurred...Whoever violates any provision of this section shall be punished by a fine of not less than fifty nor more than one hundred dollars."