

# Massachusetts Burn Injury Reporting System

# 2015 Annual Report

**Department of Fire Services**Division of Fire Safety

# Massachusetts Burn Injury Reporting System

# **2015 Annual Report**

30 YEARS

Helping Prevent Burn Injuries

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# **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 2015, the thirtieth full year of the Massachusetts Burn Injury Reporting System (M-BIRS), 36 acute care hospitals and other health care facilities reported 378 victims of burns. Forty-four (44) of these 378 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 nightclub fire at The Station 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. In 2015, 18 burn injuries were referred to OSHA and four cases to the Department of Labor for public sector cases that met their criteria.

#### Scalds Caused 48% of Reported Burn Injuries

Scalds have been the leading cause of burn injuries for the past 30 years. In 2015, scalds caused 183, or 48%, of the burn injuries reported to M-BIRS. Hot beverages caused the majority of scald burns. Cooking liquids, hot tap water, and hot foods also caused significant numbers of scald burns.

#### **Keep Hot Liquids Away from Babies and Preschoolers**

In 2015, young children were the most frequent victims of scald burns. Fifty percent (50%) of the 183 scald victims were under five years old, and most were less than one year. Children under five years of age were 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*.

# Burns from Fires Cause the $2^{nd}$ Most Burn Injuries

Burn injuries from fires were the second highest cause of burn injuries in 2015, accounting for 19% of these burn injuries. Camp or bonfires caused 59% of these burns in 2015. Flame burns caused 17% of the 2015 burn injuries. Cooking caused 32% of these burn injuries.

#### 71% of Burns Occurred in the Victim's Home

Of the 378 burn injuries reported to M-BIRS in 2015, 268, or 71%, occurred in the victim's home or surrounding yard. Over half, or 56% of these burn injuries were scalds. Seven (7), or 3%, of the home-related burn injuries resulted in the victim succumbing to his or her injuries.

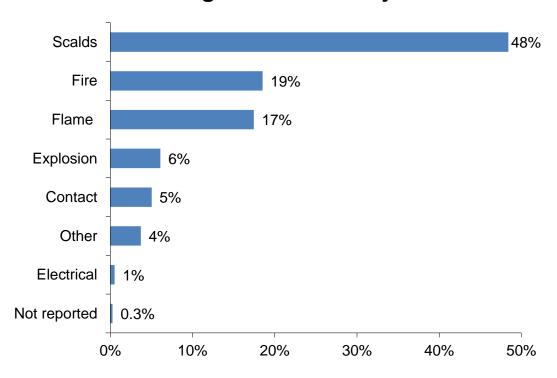
# Causes of Burn Injuries

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<sup>1</sup>, 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, hot liquids, tap water, food and steam caused 48% of the 378 burn injuries reported in 2015. Nineteen percent (19%) were caused by fires. Flames from burning clothing, bedding or similar objects caused 17% of the burns.

# **Categories of Burn Injuries**



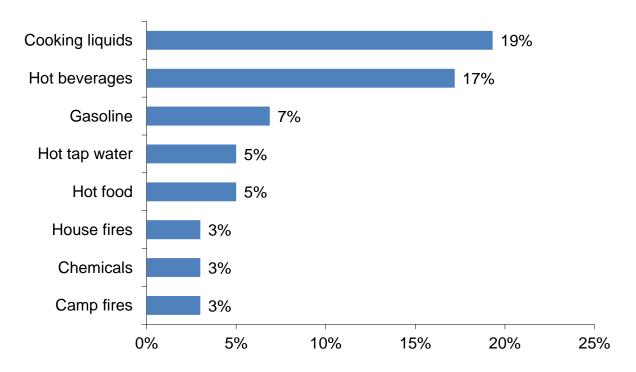
<sup>&</sup>lt;sup>1</sup> A burn is said to result from a flame when the fire is confined to the victim or the victim's clothing. When a wider area burns, the injury is considered to result from fire.

# **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. Nineteen percent (19%) of the 378 burn injuries reported in 2015 were scalds from cooking liquids. Seventeen percent (17%) of the burns were caused by hot beverages. Gasoline caused 7% of total burns. For more information, please refer to the table *Specific Causes of Burn Injuries* in the Appendix.

# **Leading Causes of Burn Injuries**



# **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 48% this year and in 1998 to a low of 35% in 2005. The 10-year average from 2006 through 2015 is 43% of total annual reported burns.

#### Scalds Caused 48% of All Burns

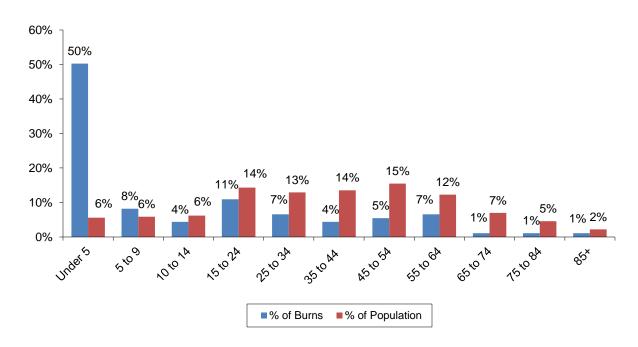
One hundred and eighty-three (183), or 48%, of the 378 reported burns were scalds. Seventeen (17), or 9%, of the 167 scalds occurred while the victim was working. Ninety-seven (97), or 53%, of the 183 scald victims were male and 86, or 47%, were female.

Gender	# of Burns	% of Scalds
Female	86	47%
Male	97	53%
Total	183	100%

#### 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 half, or 50%, of all scald burns in 2015. Sixty-four (64), or 35%, were infants one year old or younger. Children aged five to nine accounted for 8% of scald burn injuries.

## **Scalds by Age Group**



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 of this type of injury exists. Pre-schoolers were scalded at a disproportionate rate; they were nine times more likely to suffer a scald burn and children five to nine were almost 1.5 times as likely to suffer from a scald burn.

#### Hot Beverages Caused 36% of All Scald Burns

Scald burns from hot beverages were the leading cause of scald burns, accounting for 36% of all scald burns in 2015. Cooking liquids were the second leading cause of scald burns, causing 34% of the 183 scald burns.

			% of
	# of	% of	All
Description	Burns	Scalds	Burns
Hot Beverages	65	36%	17.2%
Cooking Liquids	63	34%	16.7%
Hot Tap Water	20	14%	5.3%
Hot Food	18	14%	4.8%
Car Radiator	4	2%	1.1%
Steam	4	2%	1.1%
Pressure Cooker	3	2%	0.8%
Hot Water Bottle	2	1%	0.5%
Assault	1	1%	0.3%
Clothes Iron	1	1%	0.3%
Cooking/Clothes	1	1%	0.3%
Unknown	1	1%	0.3%
Total	183	100%	48.4%

From the beginning of M-BIRS in 1984, hot beverages has been the leading cause of scalds. However, this was not the case in 1999 or from 2005 through 2008<sup>2</sup>. Between 2010 and 2014 cooking liquids has been the leading cause of scalds.

#### 2-Month Old Boy Scalded by Tap Water

On September 22, 2015, a 2-month old boy received burns to his leg when he was scalded by hot tap water.

#### 94-Year Old Man Receives Scald from Cooking Liquids

On June 30, 2015, a 94-year old man received burns to 31% of his body surface area when he spilled boiling cooking liquids on himself.

## **Hot Beverages**

**Hot Beverages Caused 36% of All Scalds** 

Sixty-five (65), or 36%, of the 183 scald burns were caused by hot beverages. They accounted for 17% of the 378 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-five percent (55%) of the hot beverage scald victims were male and 45% were female. In 2015, two women were reported to have received a hot beverage scald while working.

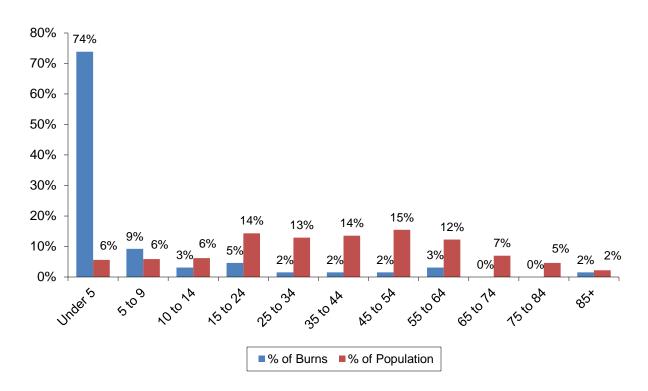
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 $<sup>^3</sup>$ In 1999, and from 2005 – 2008 and 2010 - 2015, cooking liquids were the leading cause of scald burns. From 1984 - 1998, 2000 - 2004 and in 2009, hot beverage scalds were the leading cause.

#### 74% of the Hot Beverage Scald Victims Were Under 5

Forty-eight (48), or 74%, of all hot beverage scald victims were under five years old.

## **Hot Beverage Scalds by Age Group**



#### 1-Year Old Scalded by Beverage

On September 21, 2015, a 1-year old boy spilled a mug of hot coffee on himself. He received scald burns to 20% of his body surface area.

#### 2-Year Old Boy Scalded by Beverage

On February 7, 2015, a 2-year old boy pulled a cup of hot coffee onto himself. He received scald burns to his trunk, face and groin.

## **Hot Cooking Liquids**

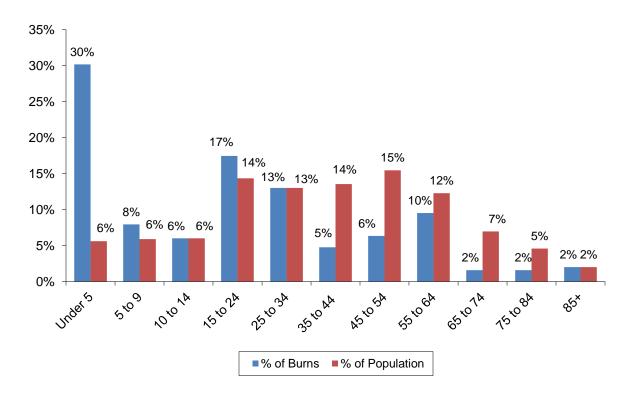
#### Hot Cooking Liquids Caused 34% of Scalds, 17% of All Burns

Scald burns from hot cooking liquids were the second leading cause of all burn injuries. Hot cooking liquids, which includes boiling water, grease and oil, caused 63, or 34%, of the 183 scald burns and 17% of the 378 total burn injuries reported in 2015. Fifty-four percent (54%) of the victims were female and 46% were male. Hot cooking liquids scalded 10 people while they were at work, eight victims were men and two were women.

#### 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 2015, 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.

#### **Hot Cooking Liquid Scalds by Age Group**



#### 94-Year Old Woman Scalded by Cooking Liquids at Home

On July 6, 2015, a 94-year old woman was scalded by boiling water. She received burns to approximately 31% of her body surface area.

#### 44-Year Old Woman Scalded by Cooking Liquids at Work

On May 4, 2015, a 44-year old woman was scalded at home when she spilled boiling water onto herself. She received burns to approximately 18% of her body surface area.

# **Hot Tap Water**

#### Hot Tap Water Caused 11% of All Scalds & 5% of All Burns

Excessively hot tap water caused 20, or 11%, of the 183 scald burns and 5% of the 378 total burn injuries reported to M-BIRS in 2015. Hot water heaters should be set to temperatures of 125°

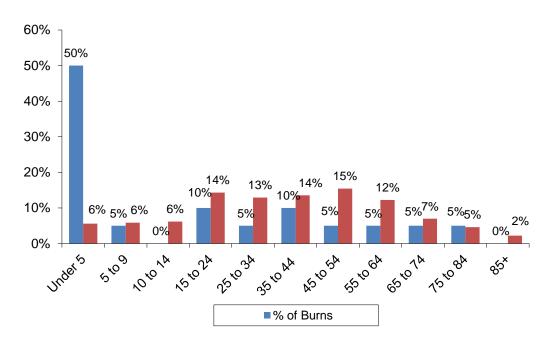
Fahrenheit or less. Massachusetts law states that the temperature must be set between 110° and 130° F and most dishwashers have coils to boost their internal water temperature. It is important for homeowners to make sure their own water heaters are set in the appropriate range. At 155° F it takes only one second to sustain a third degree burn. At 130° F it takes thirty seconds. At 120° F it can take a full five minutes to sustain a third degree burn. 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 2015, 55% of the victims were male and 45% were female. There were no work-related hot tap water scald burns in 2015.

#### 1/2 of Tap Water Scald Victims Were Under the Age of 5

Fifty percent (50%), or 10 of the 20 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.

## **Hot Tap Water Scalds by Age Group**



#### 2-Year Old Scalded by Tap Water

On November 20, 2015, a 2-year old boy was scalded over 20% of his body surface area by hot tap water.

#### **56-Year Old Scalded in Bath**

On June 12, 2015, a 56-year old man fell into a bathtub filled with scalding hot water. He was burned over 20% of his body surface area.

<sup>&</sup>lt;sup>3</sup> Source: Knapp Burn Foundation

## **Hot Food**

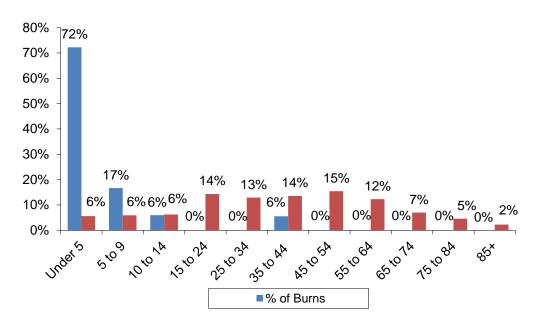
#### Hot Food Caused 10% of Scalds, 5% of All Burns

Hot food caused 18, or 10%, of the 183 scald burns and 5% of the 378 total burn injuries reported in 2015. Sixty-one percent (61%) of the victims were male and 39% were female. There were no work-related hot food scalds reported in 2015.

#### 89% of Hot Food Scald Victims Were Under 10

Of the 18 reported scald victims from hot food in 2015, 16, or 89%, were under the age of ten. Thirteen (13), or 72%, were under five years old and three victims, or 17%, were between five and nine.

## Hot Food Scalds by Age Group



The youngest hot food scald burn victim was a seven-month old girl, while the oldest person to have one of these burns was a 37-year old woman.

#### 2-Year Old Girl Receives Scald Burns from Food

On April 24, 2015, a 2-year old girl received scald burns to 18% of her body surface area when hot soup was accidentally spilled on her.

# **Burn Injuries Caused by Fires**

#### Fires Caused 19% of All Burn Injuries

Seventy (70), or 19% of the 378 burn injuries reported in 2015 were caused by fires. This is a 6% increase from the 66 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 fire at The Station nightclub who were treated in Massachusetts.

Seventy-four percent (74%) of the 70 victims were male and 26% 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<sup>4</sup>.

#### 59% of Fire Burn Injuries Occurred at Camp or Bonfires

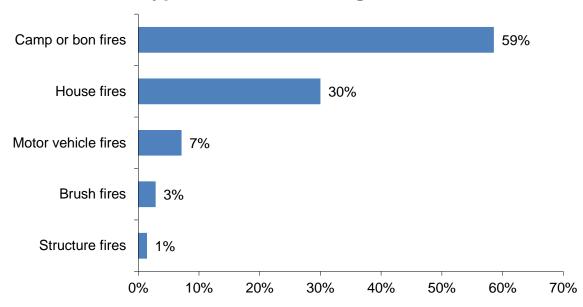
Camp or bonfires caused 41, or 59% of the 70 fire burn injuries reported in 2015. House fires caused 21, or 30%.

	Description of	# of	% of
Fire Type	Burn	Burns	Total
House fire	Cooking Liquids	2	3%
House fire	Domestic Violence	1	1%
House fire	Electrical	1	1%
House fire	House Fire	13	19%
House fire	Machine	1	1%
House fire	Smoking	2	3%
House fire	Stove	1	1%
House fire		21	30%
Structure fire	Self-Immolation	1	1%
Structure fire		1	1%
MV fire	Airplane Crash	1	1%
MV fire	Boat Fire	2	3%
MV fire	Clothes	1	1%
MV fire	MVA	1	1%
MV fire		5	7%

Fire Type	Description of Burn	# of Burns	% of Total
Brush fire	Gasoline	2	3%
Brush fire		2	3%
Camp or bonfire	Aerosol	1	1%
Camp or bonfire	Bonfire	5	7%
Camp or bonfire	Brush fire	2	3%
Camp or bonfire	Camp fire	11	16%
Camp or bonfire	Embers	4	6%
Camp or bonfire	Fireworks	1	1%
Camp or bonfire	Flammables	2	3%
Camp or bonfire	Gasoline	12	17%
Camp or bonfire	Ignitable Liquids	2	3%
Camp or bonfire	Steam	1	1%
Camp or bonfire		41	59%
Total Fires		70	100%

<sup>&</sup>lt;sup>4</sup> 2014 Annual Report of the Massachusetts Fire Incident Reporting System, MA Dept. of Fire Services, pg. 111.

# **Types of Fires Causing Burns**



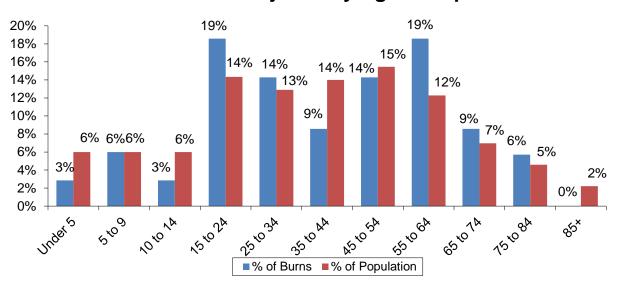
#### Young Adults and Those Between 55 & 64 Most Likely to Be Burned in Fires

Young adults between the ages of 15 and 24 years old and adults between the ages of 55 and 64-years old had the most reported burns from fires. Each of these age groups had 13 burn injuries from fires.

Both of these age groups were almost twice (1.8) as likely to be burned in fires. Older adults between 65 and 74 were more likely (1.3 and 1.5 times) to be burned in a fire.

	# of		% of
Age	Burns	% of Burns	Population
Under 5	2	3%	6%
5 to 9	4	6%	6%
10 to 14	2	3%	6%
15 to 24	13	19%	14%
25 to 34	10	14%	13%
35 to 44	6	9%	14%
45 to 54	10	14%	15%
55 to 64	13	19%	12%
65 to 74	6	9%	7%
75 to 84	4	6%	5%
85+	0	0%	2%
Total Known	70	100%	100%

## Fire Burn Injuries by Age Group



#### 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. Four (4) of the victims were Massachusetts residents. Of these MA victims, three died in residential fires and the other death was a self-immolation in a shed. One (1) victim died in a motor vehicle fire that was self-immolation.

#### 65-Year Old Man Killed in House Fire

On March 24, 2015, a 65-year old Marblehead man received life-threatening burns to approximately 90% of his body surface area when he was trapped in a house fire. He was transported to the hospital where he succumbed to his injuries.

#### 64-Year Old Man Killed in House Fire

On July 22, 2015, a 64-year old Westfield man was involved in a smoking fire. He had burns to approximately half his body surface area. He was transported to a local hospital where he succumbed to his injuries.

#### 77-Year Old Woman Dies in House Fire

On March 10, 2015, a 77-year old Boston woman died in a house fire that was started by overloaded wires in the home. She had burns to 5% of her body surface area. She was rescued by firefighters and transported to a local hospital where she succumbed to her injuries.

#### 58-Year Old Man Dies by Self-Immolation in Outside Fire

On May 13, 2015, a 58-year old Dracut man sustained life-threatening burn injuries to over 80% of his body when he poured gasoline inside a shed and ignited it. He was transported to a local hospital and then transferred to a hospital in Boston where he succumbed to his injuries.

#### **30-Year Old Man Injured in Car Fire**

On May 17, 2015, a 30-year old man was burned over 80% of his body surface area when he crashed his motorcycle into a car and was trapped underneath the car as it caught fire.

#### **30-Year Old Man Injured in House Fire**

On June 6, 2015, a 30-year old man received severe burns to 60% of his body when a fire started inside his home.

#### 44-Year Old Man Injured in Outside Fire

On Halloween, October 31, 2015, a 44-year old man was injured when he added gasoline to a fire in his backyard. He received severe burns to 80% of his body surface area.

#### 77-Year Old Man Injured in Lawnmower Fire

On September 17, 2015, a 77-year old man was injured when the riding lawnmower he was on caught fire and ignited his clothes. He received life-threatening burns to over 40% of his body surface area.

# Flame Burn Injuries

#### Flames Caused 17% of Reported Burn Injuries

There were 66 reported flame burn injuries. These 66 injuries accounted for 17% of the 378 burn injuries reported in 2015. 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-five percent (65%) of the flame burn casualties were male and 35% were female. Five (5), or 8%, of the flame burns occurred during work-related activities; four victims were women and one was a man.

#### **Cooking Was the Leading Cause of Flame Burns**

Cooking was the leading cause of flame burn injuries in 2015. Twenty-one (21), or 32%, of all flame burn victims received their injuries while cooking. Smoking was the second leading cause of flame burns causing 11, or 17%, of these burn injuries.

	# of	% of Flame	
Description	Burns	Burns	
Cooking	21	32%	Н
Cooking Liquids	8	12%	
Stove	3	5%	
BBQ	3	5%	C
BBQ/Gas	2	3%	C
Cook/Clothes	2	3%	C
Cook	1	2%	F
Cooking	1	2%	Ις
Oven	1	2%	
Smoking	11	17%	
Cigarette	4	6%	В
Smoking	4	6%	C
Smoke Oxygen	3	5%	C
Ignitable Liquids	10	16%	C
Gasoline	7	11%	Н
Ignitable Liquids	3	5%	M
			т

Description	# of Burns	% of Flame Burns
Heating	3	5%
Heater	2	3%
Woodstove	1	2%
Candle	2	3%
Child w/matches	2	3%
Clothes	2	3%
Flammables	2	3%
Ignitable Gases	2	3%
Propane	1	2%
Ignitable Gas	1	2%
Battery	1	2%
Candle/clothes	1	2%
Child w/lighter	1	2%
Child w/lighter/clothes	1	2%
Hair Dryer	1	2%
Model Rocket	1	2%
Torch	1	2%
Total	66	100%

#### Adults 45 to 64 Had Most Flame Burns

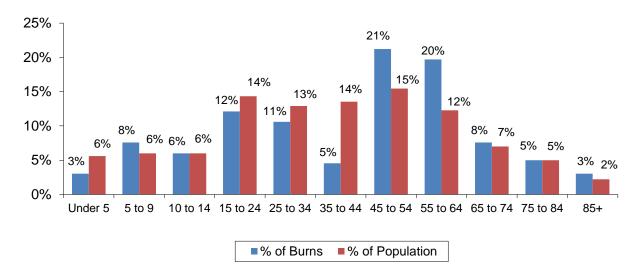
Adults between the ages of 45 to 54 had 14 reported flame burn injuries and adults between 55 and 64 had 13 reported flame burn injuries.

Age	# of Burns	% of Burns	% of Population
Under 5	2	3%	6%
5 to 9	5	8%	6%
10 to 14	4	6%	6%
15 to 24	8	12%	14%
25 to 34	7	11%	13%
35 to 44	3	5%	14%
45 to 54	14	21%	15%
55 to 64	13	20%	12%
65 to 74	5	8%	7%
75 to 84	3	5%	5%
85+	2	3%	2%
Total	66	100%	100%

#### Adults 45 to 64 Faced Higher Risk of Flame Burns

Six (6) groups were at a higher risk for burns from flames. Children between five and nine (1.3 times); adults between the ages of 45 to 54 (1.4 times); people between 55 and 64 (1.6 times); older adults between the ages of 65 to 74 (1.1 times); and older adults over the age of 85 (1.4 times) were all more likely to receive a flame burn injury.

## Flame Burn Injuries by Age Group



#### 17-Year Old Man Burned in Self-Immolation

On June 23, 2015, a 17-year old male teenager committed suicide by lighting himself on fire. The fire caused burns to approximately 95% of his body surface area. He was transported to a local hospital where he succumbed to his injuries.

#### 82-Year Old Man Killed in Suicide

On July 16, 2015, an 82-year old man committed suicide by throwing burning gasoline over himself. He was left with burns to entire body. He was transported to a local hospital where he succumbed to his injuries.

# **Clothing Ignitions**

#### Clothing Ignitions Account for 24% of Flame Burn Injuries

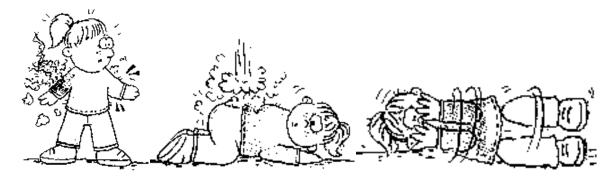
There were 16 clothing ignitions resulting in flame burn injuries that accounted for 24% of all flame burn injuries. Clothing was the primary cause of the injury in seven of these injuries.

Clothing Ignitions	# of Flame Burns	% of All Flame Burns
Smoking	5	8%
Cooking	4	6%
Child w/matches	2	3%
Heater	2	3%
Candle	1	2%
Child w/lighter	1	2%
Clothes	1	2%
Total	16	24%

#### 25-Year Old Woman Severely Burned by Cigarette Igniting Clothing

On July 1, 2015, a 25-year old woman was burned when the cigarette she was smoking ignited her clothes. She received severe burns to approximately 30% of her body surface area.

# ALWAYS REMEMBER TO: STOP DROP COVER & ROLL



# **Burn Injuries Caused by Explosions**

#### **Explosions Caused 6% of Reported Burn Injuries**

Twenty-three (23), or 6%, of the 378 burn injuries reported in 2015 were caused by explosions. Eighty-seven percent (87%) of the explosion burn victims were male and 13% were female. Two (2) of the explosion burn injuries involved fireworks.

Six (6) burns, or 26%, occurred during work-related activities. All six of these work-related victims were men.

#### Gasoline and Explosives Were the Leading Cause of Explosion Burn Injuries

Gasoline and explosives each accounted for five, or 22% of the explosion-related burn injuries in 2015.

	# of	% of
Description	Burns	Explosion
Gasoline	5	22%
Cooking	3	13%
BBQ	1	4%
BBQ/Gas	1	4%
Microwave	1	4%
Aerosol	2	9%
Explosion	2	9%
Explosives	2	9%

Description	# of Burns	% of Explosion
Fireworks	2	9%
Propane	2	9%
Bomb Making	1	4%
E-Cigarette	1	4%
Electrical	1	4%
Motor	1	4%
Oxygen	1	4%
Total	23	100%

#### Young Adults & Adults Have Most Explosion Burns

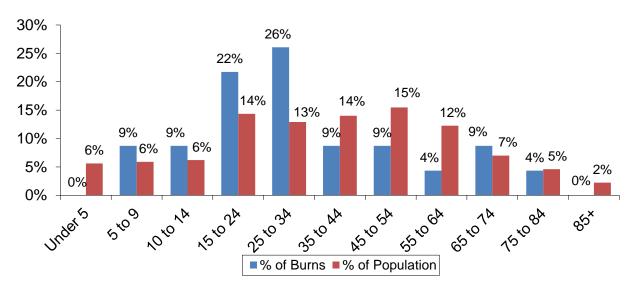
Adults between the ages of 25 and 34 had the most explosion-related burn injuries with six and accounted for 26%. Young adults between the ages of 15 and 24 had the second most burn injuries from explosions with five, accounting for 22%.

Age	# of Burns	% of Burns	% of Population
Under 5	0	0%	6%
5 to 9	2	9%	6%
10 to 14	2	9%	6%
15 to 24	5	22%	14%
25 to 34	6	26%	13%
35 to 44	2	9%	14%
45 to 54	2	9%	15%
55 to 64	1	4%	12%
65 to 74	2	9%	7%
75 to 84	1	4%	5%
85+	0	0%	2%
Total	23	100%	100%

#### Children & Young Adults Face Greatest Risk of Explosion Burns

Children between five and nine (1.5 times) and between 10 and 14 (1.4 times); young adults between the ages of 15 and 24 (1.5 times) and adults between the ages of 25 and 34 (2 times) were more likely to be burned in an explosion in 2015.

# **Explosion Burn Injuries by Age Group**



#### 68-Year Old Man Killed in a Propane Explosion

On August 19, 2015, a 68-year old man was burned in a propane explosion as he attempted to install a new furnace. He received burns to approximately 90% of his body surface area. He was transferred to a Boston hospital where he succombed to his injuries a week later.

#### 15-Year Old Teenager Injured by Explosives

On July 23, 2015, a 15-year old boy received severe burns to 15% of his body surface area, when the home made airsoft grenades he was building accidently exploded too close to him.

#### **36-Year Old Man Injured by Explosives**

On April 12, 2015, a 36-year old man received burns to 15% of his face and hands. He was driving in a car with gunpowder and lit a cigarette causing an explosion that also blew out some of the car windows. Local and state police discovered other bomb making components in both the car and his home.

#### 9-Year Old Boy Injured by Fireworks Explosion

On July 5, 2015, a 9-year old boy lost his hand and received severe burns to 15% of his body surface area when the firework he was playing with exploded in his hand.

# **Contact Burn Injuries**

#### Contact with Hot Objects Caused 5% of Reported Burn Injuries

Nineteen (19), or 5%, of the 378 burn injuries reported in 2015 were caused by contact with hot objects. Fifty-three percent (53%) of the burn victims were male and 47% were female. There was one report of a contact burn that occurred at work in 2015. The victim was male.

#### **Heating Was the Leading Cause of Contact Burns**

Contact with heating equipment caused seven, or 37%, of the contact burns in 2015. Car parts and cooking equipment tied as the second leading cause of contact burn injuries with two apiece.

Description	# of Burns	% of Contact burns	Description	# of Burns	% of Contact burns
Heating	7	37%	Asphalt	1	5%
Heater	2	11%	Clothes Iron	1	5%
Radiator	2	11%	Curling Iron	1	5%
Woodstove	2	11%	Heating Pad	1	5%
Fireplace	1	5%	Metal	1	5%
Car Part	2	11%	Other	1	5%
Cooking	2	11%	Playground Equipment	1	5%
BBQ	1	5%	Wax	1	5%
Oven	1	5%	Total	19	100%

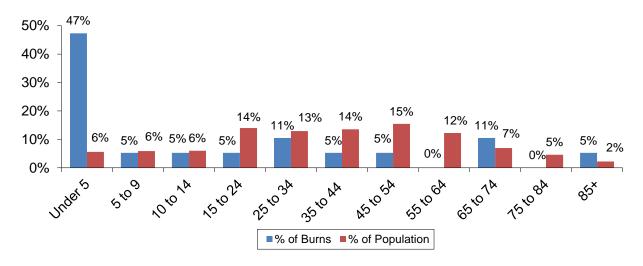
#### 47% of Contact Burns Were to Children Under 5

Children under the age of five accounted for nine, or 47%, of all contact burns.

	# of	% of	% of
Age	Burns	Burns	Population
Under 5	9	47%	6%
5 to 9	1	5%	6%
10 to 14	1	5%	6%
15 to 24	1	5%	14%
25 to 34	2	11%	13%
35 to 44	1	5%	14%
45 to 54	1	5%	15%
55 to 64	0	0%	12%
65 to 74	2	11%	7%
75 to 84	0	0%	5%
85+	1	5%	2%
Total	19	100%	100%

Pre-schoolers faced 8.4 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.

## **Contact Burn Injuries by Age Group**



#### 92-Year Old Burned by Radiator

On January 17, 2015, a 92-year old woman received burns to her abdomen and thigh when she became wedged next to a radiator.

#### 11-Year Old Boy Burned Moped Tail Pipe

On June 13, 2015, an 11-year old boy was burned when he fell off the moped he was riding and the exhaust (tail pipe) fell onto his leg. He received burns to his right leg.

# Other Types of Burn Injuries

#### Other Type Burns Cause 14 Injuries

In 2015, there were 14 burn injuries that were characterized as *Other*. These 14 injuries caused 4% of all 2015 burn injuries. Twelve (12) *Other* burns, or 86%, were attributed to exposure to chemicals. Sunburns caused the other two, or 14%, of *Other* burns.

	Total #	% of Other
Description	Burns	Burns
Chemical	12	86%
Sunburn	2	14%
Total Other Burns	14	100%

Eighty-six percent (86%) of the 14 victims were male and 14% 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 male.

#### All of Other Burn Victims Were Between 17 & 61 Years Old

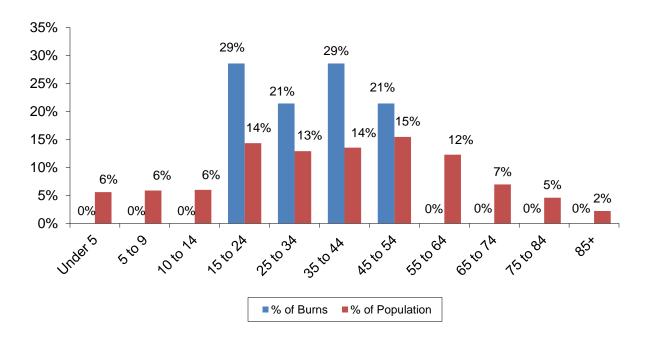
In 2015 all of the *Other* burn victims were between 17 and 61 years old.

	# of	% of	% of
Age	Burns	Burns	Population
Under 5	0	0%	6%
5 to 9	0	0%	7%
10 to 14	0	0%	7%
15 to 24	2	17%	13%
25 to 34	3	25%	15%
35 to 44	0	0%	17%
45 to 54	4	33%	14%
55 to 64	3	25%	9%
65 to 74	0	0%	7%
75 to 84	0	0%	5%
85+	0	0%	2%
Total	12	100%	100%

#### Young to Middle Aged Adults at Higher Risk

In 2015 there were only four age groups that reported an *Other* type burn injury. All four age groups were at a higher risk for these types of burns: 15 to 24 (2 times), 25 to 34 (1.7 times), 35 to 44 (2.1 times) and 45 to 54 (1.4 times).

## Other Burn Injuries by Age Group



#### 58-Year Old Man Burned by a Chemical

On February 4, 2015 a 58-year old man received chemical burns to approximately 15% of his body surface area when the spray bottle holding the industrial strength bleach he was using to clean broke, and the bleach splashed all over him.

# **Electrical Burn Injuries**

#### **Only 2 Electrical Incidents**

Two (2), or less than 1%, of the 378 burn injuries reported in 2015 were caused by electrical accidents. One (1) of the electrical burn victim was a man and the other was a woman. The woman's burn occurred during work-related activities.

#### 1 of 2 Electrical Burns Was an Electrocution

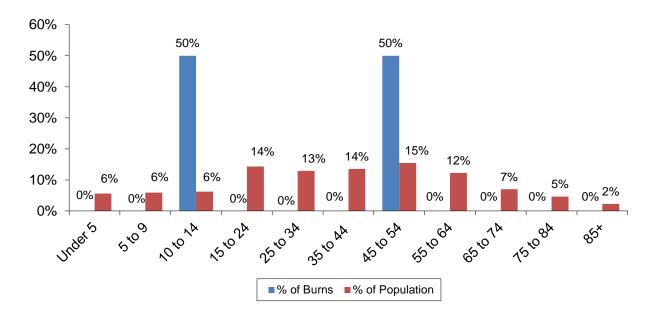
One (1) of the two 2015 electrical burns were caused by electrocution. The other one was caused by a machine.

	# of	% of Electrical
Description	Burns	Burns
Electrocution	1	50%
Machine	1	50%
Total Electrical Burns	2	100%

#### Only 2 Age Groups Had Electrical Burn Victims

In 2015 there were no electrical burn victims under 14-years old. One (1) victim, or 50%, was between 10 and 14; and the other victim, or 50%, was between 45 and 54 years old.

# **Electrical Burn Injuries by Age Group**



#### 45-Year Old Woman Electrocuted at Work

On August 24, 2015, a 45-year old woman received electrical burns to both her arms when she was electrocuted while she worked for a landscaping company.

# Gasoline Related Burn Injuries

#### Gasoline Involved in 8% of Reported Burn Injuries

Gasoline was involved in 30, or 8%, of the 378 burns reported to M-BIRS in 2015. Gasoline was the primary cause of the injury in 26, or 87%, of these injuries. Because of more detailed descriptions as to how burn injuries occurred, it was determined that gasoline was also involved in four additional, or 13%, of burn injuries that were coded with a different primary description, such as using it to start a barbeque or self-immolation.

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 was caused by an explosion. Twenty-three (23), or 92%, of the 25 gasoline related burn victims in 2015 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 2015 were to children; 19, or 76% of these injuries occurred to adults.

	# of	% of Gasoline
Burn Type	Burns	Burns
Fires	15	50%
Flame	9	30%
Explosion	6	20%
Total Gasoline	30	100%

#### 43% of Gasoline-Related Burn Victims Were Between the Ages of 15 & 34

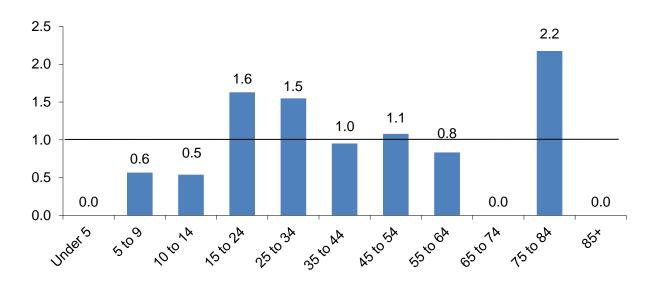
No one under the age of nine in 2015 was the victim of a burn injury involving gasoline. Seven (7), or 23%, of the victims were between 15 and 24, and six, or 20%, were between 25 and 34. The youngest victim was a nine-year old boy and the oldest victim was an 82-year old man.

	# of	% of	% of	Risk
Age	Burns	Burns	Population	Factor
Under 5	0	0%	6%	0.0
5 to 9	1	3%	6%	0.6
10 to 14	1	3%	6%	0.5
15 to 24	7	23%	14%	1.6
25 to 34	6	20%	13%	1.5
35 to 44	4	13%	14%	1.0
45 to 54	5	17%	15%	1.1
55 to 64	3	10%	12%	8.0
65 to 74	0	0%	7%	0.0
75 to 84	3	10%	5%	2.2
85+	0	0%	2%	0.0
Total	30	100%	100%	

#### Older Adults 75 to 84 Have Highest Risk for Gasoline Burns

The following graph 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. Members of the age group 75 to 84 had the second highest risk of getting a gasoline burn. In 2015, young adults between the ages of 15 to 24 had the second highest risk of getting a burn involving gasoline.

#### **Risk Factors for Gasoline Burns**



#### 76-Year Old Man Burned by Gasoline While Burning Leaves

On May 2, 2015, a 76-year old man received burns to approximately 21% of his body surface area. The victim was burning leaves and used gasoline as an accelerant.

#### 46-Year Old Man Burned Using Gasoline

On September 8, 2015, a 46-year old man was burned when he was working on a car at a relative's house. He was pouring gasoline into the carburetor when the fumes ignited burning his face and catching his shirt on fire. This resulted in burns to 15% of his body surface area.

#### **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 117, or 31% of the 378 total burn injuries reported to the Massachusetts Burn Injury Reporting System in 2015. Cooking activities were the primary cause of the injury in 114, 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 three, or 3% of other burn injuries that were coded with a different primary description such as 'natural gas.'

Sixty (60), or 51%, of the 117 victims were male and 57, or 49%, were female. Thirteen (13), or 11%, of the people burned by cooking activities were working when injured. Nine (9) were men and four were woman.

#### Scalds Cause 74% of Cooking-Related Burn Injuries

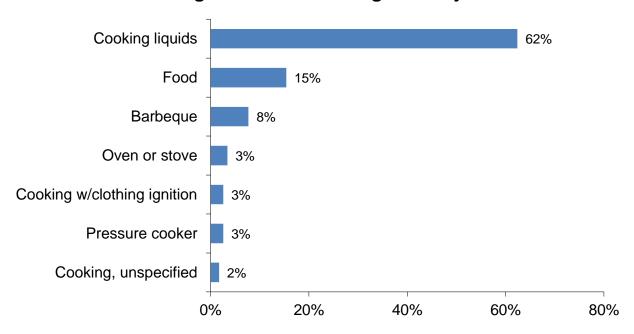
Eighty-six (86), or 74%, of the 117 burn injuries caused by cooking were scalds. Twenty-two (22), or 19%, were flame burn injuries.

Burn Type	# of Burns	% of Cooking Burns
Contact	2	2%
Explosion	3	3%
Fire	4	3%
Flame	22	19%
Scalds	86	74%
Total	117	100%

#### 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 2015. These burns accounted for 73, or 62% of all cooking-related burn injuries.

## **Leading Causes of Cooking Burn Injuries**



Children Under 5 More Than 5 Times as Likely to be Burned by Cooking Activities Thirty-four (34), or 29%, of the cooking-related burn victims were under age five. This age group was 5.2 times more likely to be burned by cooking related activities.

	# of	% of	% of	
Age	Burns	Burns	Population	Risk
Under 5	34	29%	6%	5.2
5 to 9	9	8%	6%	1.3
10 to 14	6	5%	6%	8.0
15 to 24	16	14%	14%	1.0
25 to 34	14	12%	13%	0.9
35 to 44	5	4%	14%	0.3
45 to 54	13	11%	15%	0.7
55 to 64	14	12%	12%	1.0
65 to 74	2	2%	7%	0.2
75 to 84	2	2%	5%	0.4
85+	2	2%	2%	8.0
Total	117	100%	100%	

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.

#### **5 Clothing Ignitions while Cooking**

Loose-fitting sleeves can easily come into contact with burners and catch fire. In 2015 there were five reported clothing ignitions while cooking, ranging in age from 22 to 96-years old. In 2014 there where there were four reported clothing ignitions while cooking.

According to data collected by the Massachusetts Fire Incident Reporting System (MFIRS), unattended and other unsafe cooking practices caused 10,346 fires in 2015. These fires caused four civilian deaths, 84 civilian injuries, 30 fire service injuries along with \$10.1 million in losses. Many of these people also suffered from smoke inhalation<sup>5</sup>.

#### **Serious Burns from Cooking**

- ➤ On September 14, 2015, a 58-year old man received life-threatening flame burns to 40% of his body surface area when he was cooking dinner.
- ➤ On March 13, 2015, a 76-year old woman received scald burns to 36% of her body surface area when hot oil from the frying pan splashed on her.
- ➤ On April 5, 2015, a 20-year old man was at work where he received scald burn injuries to 20% of his body surface area. Someone spilled hot cooking grease on him.
- ➤ On September 16, 2015, a 1-year old boy received severe scald burns to 20% of his body surface area when hot cooking liquids were spilled on him.

#### **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.

PUT A LID ON IT

<sup>&</sup>lt;sup>5</sup> 2015 Annual Report of the Massachusetts Fire Incident Reporting System; MA Dept. of Fire Services; pg. 130.

# **Burn Injuries by Age Group**

Two (2) age groups of our population were at a greater than average risk of a burn injury in 2015. Although burn injuries were reported in all age groups, very young children suffer more than their share and are five times more likely to be burned. Children under the age of five were five times more likely to suffer a burn injury in Massachusetts. Children aged five to nine were at a slightly higher risk, at 1.3 times more likely to receive a burn injury in 2015.

Twenty-eight percent (28%) of all burn victims were children under the age of five. One hundred and five (105) children under age five were seriously burned in 2015.

	# of	% of	% of	
Age	Burns	Burns	Population	Risk
Under 5	105	28%	6%	5.0
5 to 9	28	7%	6%	1.3
10 to 14	18	5%	6%	0.8
15 to 24	51	13%	14%	0.9
25 to 34	40	11%	13%	0.8
35 to 44	20	5%	14%	0.4
45 to 54	42	11%	15%	0.7
55 to 64	42	11%	12%	0.9
65 to 74	17	4%	7%	0.6
75 to 84	10	3%	5%	0.6
85+	5	1%	2%	0.6
Total	378	100%	100%	

#### 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 people between 0 and 44, and tied as the leading cause of burns to older adults over the age of 85. Burns from fires were the leading cause of injuries to older adults between 65 and 74 and 75 and 84, and tied as the leading cause of burns for the age group between 55 and 64. Flame burns were the leading cause of burns to the age group between 45 and 54 and tied as the leading cause to the age groups 55 and 64 and greater than 85.

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. Forty-six percent (46%) of the burns incurred by these young children were scalds caused by hot beverages, 18% were caused by cooking liquids, and

12% were caused by scalds from hot food. Cooking liquids, gasoline and other ignitable liquids were frequent causes of burn injuries to older teens and young adults.

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

Age	Males	Females	Total
Under 5	66	39	105
5 to 9	7	21	28
10 to 14	13	5	18
15 to 24	33	18	51
25 to 34	31	9	40
35 to 44	12	8	20
45 to 54	26	16	42
55 to 64	32	10	42
65 to 74	10	7	17
75 to 84	5	5	10
85+	1	4	5
Total	236	142	378

Except for the age groups of children between the ages of five and nine and older adults over the age of 85, males were burned more frequently than females. In 2015, 236, or 62% of the 378 burn victims were male, and 142, or 38%, were female.

## **Children Under 5**

#### 28% of Reported Burns Incurred by Children Under 5

One hundred and five (105), or 28%, of the burn injuries reported to M-BIRS in 2015 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 five times more likely to be burned than were members of the general population. No other age group faced a risk this high. Sixty-three percent (63%) of burned pre-schoolers were boys and 37% were girls.

#### Scalds Caused 88% of Burns to Pre-Schoolers

Scalds caused 92, or 88%, of the burn injuries incurred by children under five. Nine (9) burns to children under five were contact burns. Flame burns and burns from fires each caused two burns to children under five in 2015.

## Children Ages 5 to 9

#### 7% of Reported Burn Injuries Incurred by Children 5-9 Years of Age

Twenty-eight (28), or 7%, of the burn injuries reported in 2015 were incurred by children between five and nine years of age. Twenty-one (21), or 75%, of the burn victims were boys, and

seven, or 25%, were girls. Children in this age bracket accounted for 6% of the population of Massachusetts and 7% of the burn injuries in 2015.

#### 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 15, or 54%, of the burn injuries incurred by children aged five to nine in 2015. Flame burns caused five and burns from fires caused four of these injuries. Explosions caused two of these injuries, and contact with a hot object caused one burn injury to this age group. The type of one burn injury was not reported.

# Children Ages 10 to 14

#### 5% of Reported Burns Incurred by Children 10-14 Years of Age

Children between the ages of 10 and 14 suffered 18, or 5% of the burn injuries reported in 2015. Thirteen (13), or 72%, were boys and five, or 28%, were girls. Children in this age bracket accounted for 6% of the population in the Commonwealth of Massachusetts and 5% 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.

#### Scalds Were the Leading Cause of Burns to Children 10-14

Scalds caused eight, or 44% of the burns incurred by children aged 10 to 14. Flame burns caused four of these injuries. Burns from fires and explosions each caused 2 burn injuries to this age group. Burns from contact with hot objects and an electrical burn each caused one of these burns.

## **Ages 15 to 24**

#### 13% of Reported Burn Victims Between 15-24 Years of Age

Teens and young adults between the ages of 15 and 24 incurred 51, or 13% of the burn injuries reported in 2015. Thirty-three (33), or 65%, were male and 18, or 35%, were female. Young adults aged 15 to 24 accounted for 14% of the population of Massachusetts and 15% of the burn injuries in 2015. Nine (9), or 18%, of the burn injuries incurred by this age group were work-related: six were male and three were female.

#### 39% of Burns Were From Scalds

Twenty (20), or 39%, of the burn injuries to people 15 to 24 years of age were caused by scalds. Burns from fires caused 12 injuries. Flame burns caused eight injuries. Explosions caused five injuries and *Other* types of burn injuries caused four injuries to this age group. One (1) burn injury was caused by contact with a hot object.

## Ages 25 to 34

#### 11% of Burns Were to Adults 25-34 Years of Age

Forty (40), or 11% of the burn injuries reported in 2015 were incurred by people between 25 and 34 years of age. Thirty-one (31), or 78% of the victims were men and nine, or 23% were women. Nine (9), or 23% of the burn injuries suffered by this age group were work-related; all nine were

men. People between the ages of 25 and 34 accounted for 13% of the population of Massachusetts while accounting for 11% of the total number of burn injuries reported in 2015.

#### Scald Burns Caused 30% of Burn Injuries

Scalds accounted for 12 burns, or 30% of the burn injuries for this age group. Fires caused 10 burns and seven more injuries came from flame burns. Explosions caused six of these injuries. Three (3) of the burn injuries to this age group were caused by *Other* burns, in this case all three were chemical burns.

## Ages 35 to 44

#### 5% of Reported Burn Victims Were Between 35-44 Years of Age

Twenty (20), or 5%, of the burn injuries reported in 2015 occurred to people between the ages of 35 and 44. Twelve (12), or 60% of the victims were men and eight, or 40% of the victims were women. Adults between the ages of 35 and 44 accounted for 14% of the Massachusetts population but only 5% of the reported burns in 2015. Four (4), or 20%, of the burn injuries incurred by this age group were work-related. Two (2) of these work-related burn victims were women, and two were men.

#### Burns from Scalds Were the Leading Cause of Injuries to 35-44 Years of Age

Scalds accounted for eight, or 40%, of the burn injuries to this age group. Fires caused six burns and flame burns caused three of these injuries. Explosions caused two injuries to this age group and contact with hot asphalt caused one burn injury.

## Ages 45 to 54

#### 11% of Reported Burn Injuries Were Between 45-54 Years of Age

People between the ages of 45 and 54 incurred 42, or 13%, of the reported burns in 2015. Twenty-six (26) or 62% of the victims were male, and 16, or 38%, were female. Five (5) of the 42 burn victims aged 45 to 54, or 12%, were burned while at work; three of them were men and two were women. This age group represents 15% of the population of Massachusetts but only 11% of the burn injuries in 2015.

#### Flame Burns Were the Leading Cause of Burns

Flame burns were incurred by 14, or 33% of the burn victims between the ages of 45 and 54. Ten (10) of these burns were caused by scalds and another 10 by fires. *Other* burns, all chemical, caused four burn injuries to this age group, and explosions caused two injuries. Contact with a hot object and an electrical burn each caused one of the burn injuries to this age group.

## Ages 55 to 64

#### 11% of Burn Victims Were Between 55-64 Years Old

Forty-two (42), or 11% of the burns reported in 2015 were incurred by people between the ages of 55 and 64. Thirty-two (32), or 76% of the victims were men, and 10, or 24% were women. Three (3), or 7%, of the 42 burn injuries incurred by people between 55 and 64 years old were

work-related; all three were men. People of this age group represent 12% of the total population of Massachusetts but only received 11% of the burns in 2015.

#### Flame Burns & Burns from Fires Were the Leading Causes of Burns

Burns from fires and flame burns each caused 13 injuries to people between the ages of 55 and 64 years of age in 2015, accounting for 31% of these injuries. Scalds caused 12 of these injuries. *Other* burns, all chemical, caused three injuries and an explosion caused one burn injury to members of this age group.

## Over 65 – Older Adults

#### 32 Burn Victims Over 65 Years Old

Thirty-two (32), or 8%, of the burn victims in 2015 were over 65 years old. Seventeen (17) were between 65 and 74; 10 were between 75 and 84; and five were 85 years old or older. Sixteen (16), or 50% of the victims were men, and 16, or 50%, were women. Older adults represent 14% of the total Massachusetts population but only 8% of the burn injuries in 2015, which means that in 2015 they were proportionately less likely to receive a burn injury. Three (3) of these burns were work-related, two were men and one was a woman.

#### Burns from Fire & Flame Burns Leading Cause of Burns to Older Adults

Burns from fires and flame burns each caused 10, or 31%, of the burn injuries to people over the age of 65. Scalds caused six of these injuries. Contact with hot objects and explosions each caused three burn injuries to this older adults.

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.

#### **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, Cover & 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 alarms in the immediate vicinity.



## **Work-Related Burn Injuries**

#### 9% of Reported Burns Occurred at Work

Massachusetts hospitals indicated that 33, or 9%, of the 378 burn injuries reported in 2015 occurred while the victim was at work. Men were much more likely to be burned while working than women. Twenty-five (25) men, or 76%, and eight women, or 24%, were burned at work in 2015.

#### Over 1/2 of Work-Related Burns Incurred by People Between 15 and 34

No one under the age of 18 received a work-related burn in 2015. The age groups 15 to 24 and 25 to 34 years had the most work-related burns injuries with nine each. The youngest person to receive treatment for a work-related burn in Massachusetts in 2015 was an 18-year old woman who received a scald burn from a hot beverage. The oldest victim to receive a work-related burn was a 68-year old man who received a burn from a propane explosion.

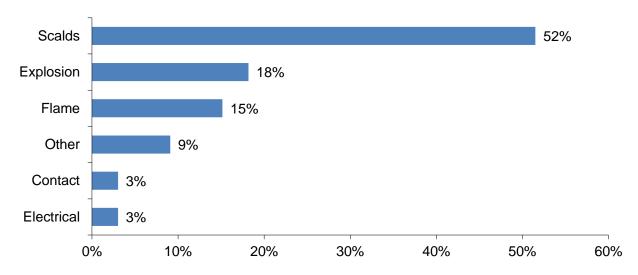
	# of	% of	% of
Age	Burns	Burns	Population
Under 5	0	0%	6%
5 to 9	0	0%	6%
10 to 14	0	0%	6%
15 to 24	9	27%	14%
25 to 34	9	27%	13%
35 to 44	4	12%	14%
45 to 54	5	15%	15%
55 to 64	3	9%	12%
65 to 74	3	9%	7%
75 to 84	0	0%	5%
85+	0	0%	2%
Total	33	100%	100%

#### Scalds Caused Over 1/2 of Work-Related Burns

Scalds were the leading cause of work-related burns in 2015. These 17 burn injuries accounted for 52% of work-related burns. Explosions caused six of these burns. Five (5) of these injuries were flame burns. *Other* burns, all chemical, caused three of these injuries. Contact with hot asphalt and an electrocution each caused one work-related burn injury.

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.

# Causes of All Work-Related Burn Injuries Reported to M-BIRS



#### 91% 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 (30), or 91%, of the 33 work-related burns reported to M-BIRS in 2015 occurred in Massachusetts. The other three work-related burns reported to M-BIRS occurred in New Hampshire.

#### **Intervention and Prevention Efforts**

The MA Department of Public Health 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. In 2015, 18 burn injuries were referred to OSHA and four cases to the Department of Labor for public sector cases that met their criteria.

#### 1 Work-related Fatality Due to Burn Injuries

In 2015 there was only one work-related injury that led to the victim's death. A 68-year contractor who was installing a new propane fueled furnace was severely burned over 90% of his body surface area in a propane explosion in New Braintree. He was med-flighted to a Boston hospital where a week later he succumbed to his injuries.

## **Burn Injuries in the Home**

#### 71% of Burn Injuries Occur in the Home

The home is the most common place for burn injuries to occur. In 2015, 268 people, or 71%, of all the reported burn injuries took place in the victim's home or surrounding yard. Men sustained the majority of burns occurring at home. One hundred and fifty-four (154) men, or 57%, and 114 women, or 43% were burned at home in 2015.

#### Over 1/2 of All Home Burns Are Scalds

One hundred and fifty (150), or 56%, of the burn injuries that occurred in the home in 2015 were scalds.

		% of
		Home
Burn Type	# of Burns	Burns
Scalds	150	56%
Fires	46	17%
Flame	45	17%
Contact	12	4%
Explosions	11	4%
Other	3	1%
Not reported	1	0.4%
Total	268	100%

#### **Cooking Caused 27% of Burn in Homes**

In 2015, cooking activities, other than hot food, caused the most overall burns regardless of burn type. Burns from cooking caused 72, or 27% of burns in Massachusetts homes.

		% of
	# of	Home
Burn	Burns	Burns
Cooking	72	27%
Hot Beverages	56	21%
Camp or Bonfires	21	8%
House Fires	21	8%
Hot Food	16	6%
Hot Tap Water	16	6%
Gasoline	14	5%

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

Thirty-three percent (33%) of the 268 victims that received their burns at home were less than five years old. These children were also six times more likely to be burned at home. This age group has the greatest risk of being burned at home.

	# of	% of		
	Home	Home	% of	
Age	Burns	Burns	Population	Risk
Under 5	88	33%	6%	5.9
5 to 9	23	9%	6%	1.4
10 to 14	14	5%	6%	0.8
15 to 24	28	10%	14%	0.7
25 to 34	19	7%	13%	0.5
35 to 44	11	4%	14%	0.3
45 to 54	31	12%	15%	0.7
55 to 64	29	11%	12%	0.9
65 to 74	10	4%	7%	0.5
75 to 84	10	4%	5%	8.0
85+	5	2%	2%	1.0
Total	268	100%	100%	

#### 7 of the Home Burns Resulted in Death

Seven (7), or 3%, of the 268 reported burn injuries that occurred in homes in 2015 resulted in death for the victim. Six (6) of these deaths were men and one was a woman. Three (3) died in house fires, one died in a structure fire, one died from burns from a camp fire, and two people died from self-immolation.

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**

Thirty-six (36) out of the 97 acute care health care facilities in Massachusetts submitted a total of 422 burn injury reports for 378 victims to the Massachusetts Burn Injury Reporting System (M-BIRS). Some individuals 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.

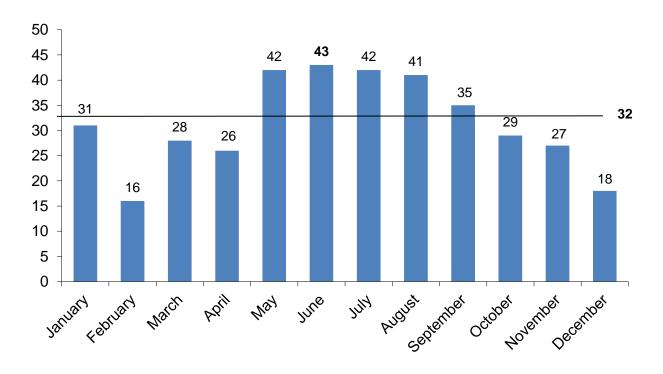
## **Burn Injuries by Month**

#### Average of 32 Burns a Month

An average of 32 burns was reported during each month of 2015, from a low of 16 in February to a high of 43 in June. It is equivalent to the 5-year (2011-2015) average of 32 burns per month and below the 10-year (2006-2015) average of 33 burns per month.

Scalds caused the most burn injuries during all 12 months of the year. In March scald burns were tied with flame burn injures for the most burns.

### **Reported Burn Injuries by Month**



#### June Was the Peak Month for Burns

June was the peak month for burns in 2015. Forty-three (43) burn injuries were reported to M-BIRS during June. Scalds accounted for 21, or 49% of these burns during this month.

Burn Type	# of Burns	% of June Burns
Scalds	21	49%
Flame	8	19%
Fire	7	16%
Contact	3	7%
Explosion	2	5%
Other	2	5%
Total	43	100%

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

## Geographical Demographics

#### **Massachusetts Burn Victims from 116 Cities and Towns**

Massachusetts medical facilities treated 291 residents of 116 Massachusetts cities and towns. Burn victims came from all 14 counties in the Commonwealth in 2015. The largest numbers of reported burn injuries were incurred by residents of Essex, Suffolk and Middlesex counties. It appears that some large Boston hospitals (Suffolk County) may have under reported the burns they treated.

Eighty-seven (87) 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 availability of specialized treatment of burn injuries.

County	# of Burns
Out of State	87
Nantucket	1
Hampshire	1
Franklin	2
Dukes	2
Berkshire	5
Barnstable	10
Worcester	16
Bristol	24
Norfolk	29
Plymouth	31
Hampden	39
Middlesex	40
Suffolk	43
Essex	48
Total	378
Total MA	291

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 38 of its residents reported having a burn injury in 2015. Springfield had the second largest number of victims with 20. Lawrence had 18 burn injuries and Brockton had 13 injury reports.

#### **Burns Per 10,000 Population**

The map on page 43, 2015 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 not shaded did not have a reported burn injury in 2015.

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.

Becket had the highest rate of burn injuries per 10,000 population at 5.62. Next highest was Oakham with 5.26 burn injuries per 10,000 population; Holland had 4.03; Hamilton had 3.86; Provincetown had 3.40; and Millville had 3.13 burn injuries per 10,000 population<sup>6</sup>.

#### Scalds Per 10,000 Population

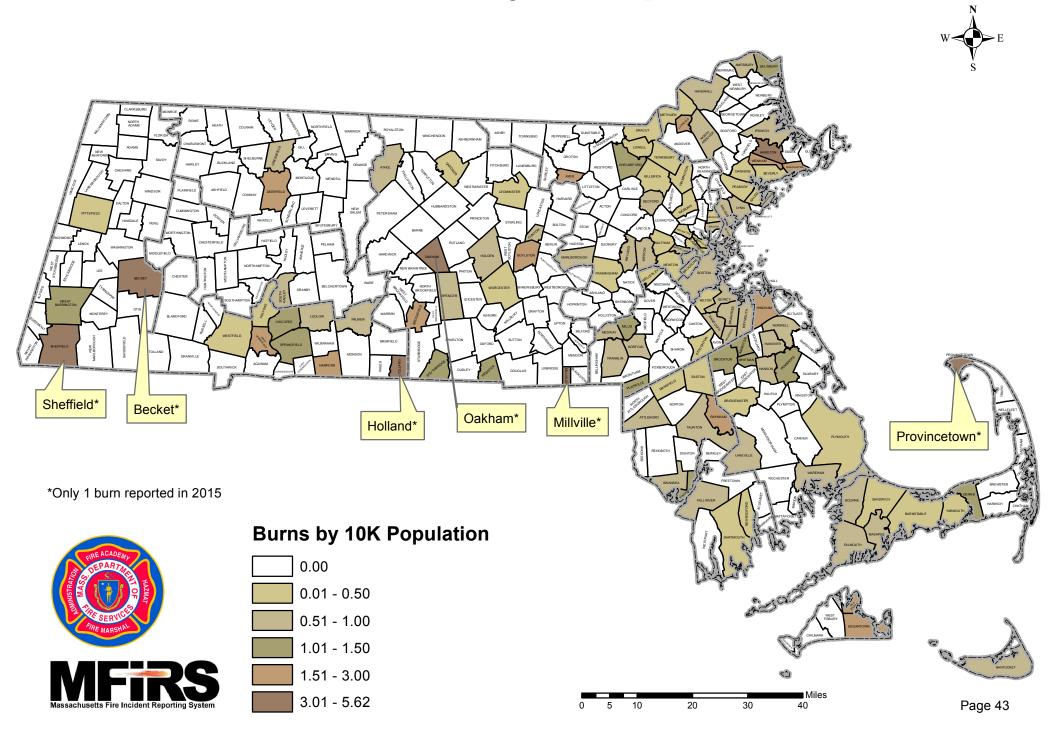
The map on page 44, 2015 Scalds per 10K Population, displays the rate of reported scald burn injuries by the victim's home community for every 10,000 of that community's population. The darker the community is shaded the more burn injuries per 10,000 people were reported from that municipality. Cities and towns that are white did not have a reported burn injury in 2015.

Peru had the highest rate of 11.81 scald burn injuries per 10,000 population. Next highest was Pelham with 7.57 scald burn injuries per 10,000 population; Oakham had 5.26; Hinsdale had 4.92; and Hamilton had 3.86 scald burn injuries per 10,000 population<sup>7</sup>.

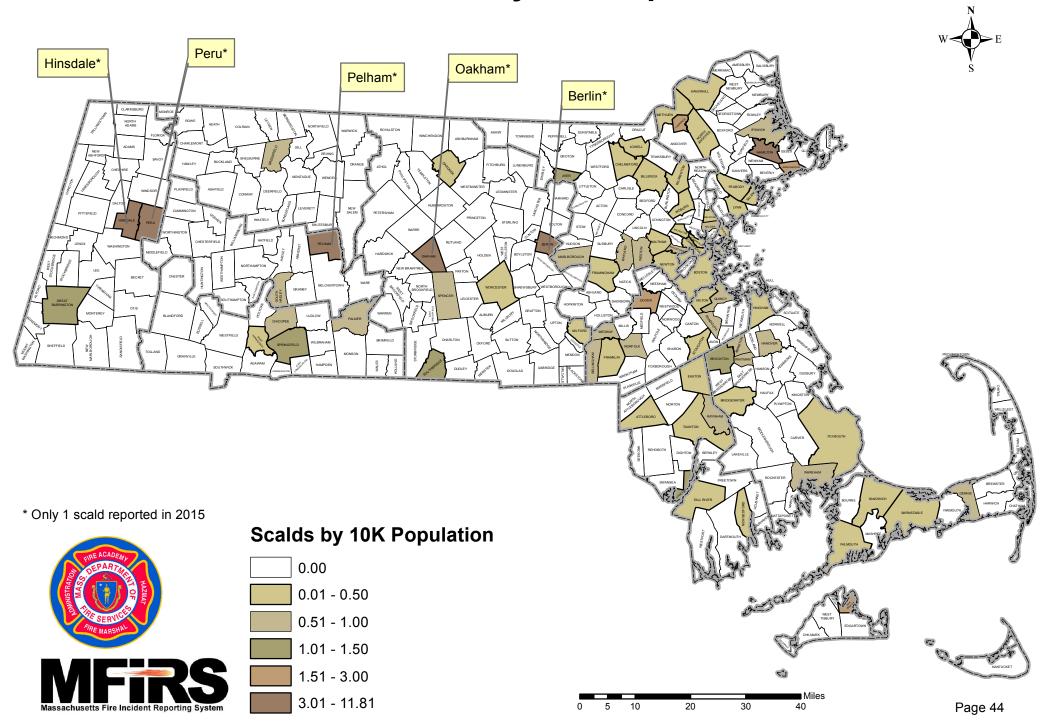
<sup>&</sup>lt;sup>6</sup> All these towns except Hamilton (3) each only had 1 reported burn injury in 2015.

<sup>&</sup>lt;sup>7</sup> All these towns except Hamilton (3) each had only 1 reported scald burn injury in 2015.

# 2015 MA Burns by 10K Population



# 2015 MA Scalds by 10K Population



# 2015 Appendix

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

# **Specific Causes of Burn Injuries**

Cause	# of Burns	% of Burns	Cause	# of Burns	% of Burns
Scalds	183	48.4%	Flame Burns	66	17.5%
Cooking	67	17.7%	Cooking	21	5.6%
Cooking Liquids	63	16.7%	Cooking Liquids	8	2.1%
Pressure Cooker	3	0.8%	Barbeque (Gas)	5	1.3%
Cook/Clothes	1	0.3%	Stove	3	0.8%
Hot Beverages	65	17.2%	Cooking	2	0.5%
Hot Tap Water	20	5.3%	Cook/Clothes	2	0.5%
Hot Food	18	4.8%	Oven	1	0.3%
Car Radiator	4	1.1%	Smoking	11	2.9%
Steam	4	1.1%	Smoking	4	1.1%
Hot Water Bottle	2	0.5%	Cigarette	4	1.1%
Assault	1	0.3%	Smoke Oxygen	3	0.8%
Clothes Iron	1	0.3%	Ignitable Liquids	10	2.6%
Unknown	1	0.3%	Gasoline	7	1.9%
			Ignitable Liquids	3	0.8%
Fires	70	18.5%	Child Playing	4	1.1%
Camp or Bonfires	41	10.8%	Child w/Matches	2	0.5%
Gasoline	12	3.2%	Child w/Lighter	1	0.3%
Camp Fire	11	2.9%	Child w/Lighter/Clothes	1	0.3%
Bonfire	5	1.3%	Self-Immolation	4	1.1%
Embers	4	1.1%	Candle	3	0.8%
Brush Fire	2	0.5%	Candle	2	0.5%
Flammables	2	0.5%	Candle/Clothes	1	0.3%
Ignitable Liquids	2	0.5%	Heating	3	0.8%
Aerosol	1	0.3%	Heater	2	0.5%
Fireworks	1	0.3%	Woodstove	1	0.3%
Steam	1	0.3%	Clothes	2	0.5%
House Fires	21	5.6%	Flammables	2	0.5%
Unspecified	13	3.4%	Ignitable Gas	2	0.5%
Cooking Liquids	2	0.5%	Ignitable Gas	1	0.3%
Smoking	2	0.5%	Propane	1	0.3%
Domestic Violence	1	0.3%	Battery	1	0.3%
Electrical	1	0.3%	Hair Dryer	1	0.3%
Machine	1	0.3%	Model Rocket	1	0.3%
Stove	1	0.3%	Torch	1	0.3%
Motor Vehicle Fires	5	1.3%			
Boat Fire	2	0.5%	<b>Explosion Burns</b>	23	6.1%
Airplane Crash	1	0.3%	Gasoline	5	1.3%
Clothes	1	0.3%	Explosives	5	1.3%
Motor Vehicle Accident	1	0.3%	Explosives	2	0.5%
Brush Fires	2	0.5%	Fireworks	2	0.5%
Gasoline	2	0.5%	Bomb Making	1	0.3%
Structure Fires	1	0.3%	Ü		
Self-Immolation	1	0.3%			

Cause	# of Burns	% of Burns	Cause	# of Burns	% of Burns
Explosions (Con't)			Contact (Con't)		
Cooking	3	0.8%	Cooking	2	0.5%
Barbeque	1	0.3%	Barbeque	1	0.3%
Barbeque (Gas)	1	0.3%	Oven	1	0.3%
Microwave	1	0.3%	Asphalt	1	0.3%
Aerosol	2	0.5%	Clothes Iron	1	0.3%
Explosion	2	0.5%	Curling Iron	1	0.3%
Propane	2	0.5%	Heating Pad	1	0.3%
E-Cigarette	1	0.3%	Metal	1	0.3%
Electrical	1	0.3%	Other	1	0.3%
Motor	1	0.3%	Playground Equipment	1	0.3%
Oxygen	1	0.3%	Wax	1	0.3%
<b>Contact Burns</b>	19	5.0%	Other Burns	14	3.7%
Heating	7	1.9%	Chemical	12	3.2%
Heater	2	0.5%	Sunburn	2	0.5%
Radiator	2	0.5%			
Woodstove	2	0.5%	Electrical	2	0.5%
Fireplace	1	0.3%	Electrocution	1	0.3%
Car Part	2	0.5%	Machine	1	0.3%

# Causes of Burn Injuries by Age

Under 5	105	27.8%	Ages 5 To 9	28	7.4%
Cause	# of	% by Age	Cause	# of Burns	% by Age
	Burns				
Scalds	92	87.6%	Scald	15	53.6%
Hot Beverages	48	45.7%	Cooking	8	28.6%
Cooking	32	30.5%	Cooking Liquids	5	17.9%
Cooking Liquids	19	18.1%	Hot Food	3	10.7%
Hot Food	13	12.4%	Hot Beverages	6	21.4%
Hot Tap Water	10	9.5%	Hot Tap Water	1	3.6%
Clothes Iron	1	1.0%	-		
Hot Water Bottle	1	1.0%	Flame	5	17.9%
			Child Playing	3	10.7%
Contact	9	8.6%	Child w/Lighter	1	3.6%
Heating	3	2.9%	Child w/Lighter/Clothes	1	3.6%
Fireplace	1	1.0%	Child w/Matches	1	3.6%
Heater	1	1.0%	Ignitable Liquids	1	3.6%
Woodstove	1	1.0%	Stove	1	3.6%
Cooking	2	1.9%			
Oven	1	1.0%	Fires	4	14.3%
Barbeque	1	1.0%	House Fires	2	7.1%
Clothes Iron	1	1.0%	Unspecified	2	7.1%
Playground Equipment	1	1.0%	Camp Or Bon Fires	2	7.1%
Other	1	1.0%	Bonfire	1	3.6%
Metal	1	1.0%	Camp Fire	1	3.6%
Fire	2	1.9%	Explosion	2	7.1%
Camp or Bonfire	2	1.9%	Fireworks	1	3.6%
Embers	1	1.0%	Gasoline	1	3.6%
Camp Fire	1	1.0%			
			Contact	1	3.6%
Flame	2	1.9%	Curling Iron	1	3.6%
Candle/Clothes	1	1.0%	Č		
Child w/Matches	1	1.0%	Not Reported	1	3.6%
			Unknown	1	3.6%

Ages 10 To 14	18	4.8%	Ages 15 To 24	51	13.5%
Cause	# of Burns	% by Age	Cause	# of Burns	% by Age
Scalds	8	44.4%	Scalds	20	39.2%
Cooking	5	27.8%	Cooking	13	25.5%
Cooking Liquids	4	22.2%	Cooking Liquids	11	21.6%
Hot Food	1	5.6%	Cook/Clothes	1	2.0%
Hot Beverages	2	11.1%	Pressure Cooker	1	2.0%
Hot Water Bottle	1	5.6%	Hot Beverages	3	5.9%
			Car Radiator	2	3.9%
Flame	4	22.2%	Hot Tap Water	2	3.9%
Battery	1	5.6%	1		
Flammables	1	5.6%	Fires	12	23.5%
Gasoline	1	5.6%	Camp Or Bonfire	11	21.6%
Model Rocket	1	5.6%	Gasoline	5	9.8%
			Bonfire	2	3.9%
Fires	2	11.1%	Camp Fire	2	3.9%
Camp Or Bonfires	2	11.1%	Embers	1	2.0%
Ignitable Liquids	1	5.6%	Ignitable Liquids	1	2.0%
Aerosol	1	5.6%	Steam	1	2.0%
			House Fires	1	2.0%
Explosions	2	11.1%	Unspecified	1	2.0%
Aerosol	1	5.6%			
Microwave	1	5.6%	Flame	8	15.7%
	_	2.2.7.5	Cooking Liquids	3	5.9%
Contact	1	5.6%	Gasoline	2	3.9%
Car Part	1	5.6%	Self-Immolation	2	3.9%
	_	2.2.7.5	Cigarette	1	2.0%
Electrical	1	5.6%	organi vii v	-	2.070
Machine	1	5.6%	Explosion	5	9.8%
1714CIIIIC	1	2.070	Explosives	3	5.9%
			Bomb Making	1	2.0%
			Explosives	1	2.0%
			Fireworks	1	2.0%
			E-Cigarette	1	2.0%
			Explosion	1	2.0%
			Explosion	1	2.070
			Other	4	7.8%
			Chemical	2	3.9%
			Sunburn	2	3.9%
			Contact	1	2.0%
			Wax	1	2.0%

Ages 25 To 34	40	10.6%	Ages 35 To 44	20	5.3%
Cause	# of Burns	% by Age	Cause	# of Burns	% by Age
Scald	12	30.0%	Scald	8	40.0%
Cooking Liquids	8	20.0%	Cooking	4	20.0%
Assault	1	2.5%	Cooking Liquids	3	15.0%
Hot Beverages	1	2.5%	Food	1	5.0%
Steam	1	2.5%	Hot Beverages	1	5.0%
Hot Tap Water	1	2.5%	Car Radiator	1	5.0%
Fires	10	25.0%	Fires	6	30.0%
Camp Or Bonfires	7	17.5%	Camp Or Bonfires		
Camp Fire	3	7.5%	Gasoline	3	15.0%
Gasoline	3	7.5%	Camp Fire	1	5.0%
Bonfire	1	2.5%	House Fires	1	5.0%
House Fires	2	5.0%	Unspecified	1	5.0%
Unspecified	1	2.5%	Motor Vehicle Fires	1	5.0%
Smoking	1	2.5%	Airplane Crash	1	5.0%
Motor Vehicle Fires	1	2.5%			
MVA	1	2.5%	Flame	3	15.0%
			Barbeque (Gas)	1	5.0%
Flame	7	17.5%	Candle	1	5.0%
Cooking Liquids	2	5.0%	Ignitable Gas	1	5.0%
Gasoline	2	5.0%			
Cigarette	1	2.5%	Explosion	2	10.0%
Flammables	1	2.5%	Explosives	1	5.0%
Torch	1	2.5%	Gasoline	1	5.0%
Explosion	6	15.0%	Contact	1	5.0%
Cooking	2	5.0%	Asphalt	1	5.0%
Barbeque (Gas)	2	5.0%			
Electrical	1	2.5%			
Explosion	1	2.5%			
Oxygen	1	2.5%			
Propane	1	2.5%			
Other	3	7.5%			
Chemical	3	7.5%			

Ages 45 To 54	42	11.1%	Ages 55 To 64	42	11.1%
Cause	# Of Burns	% By Age	Cause	# of Burns	% by Age
Flame	14	33.3%	Fires	13	31.0%
Smoking	4	9.5%	House Fires	6	14.3%
Smoke Oxygen	3	7.1%	Cooking Liquids	2	4.8%
Smoking	1	2.4%	Unspecified	2	4.8%
Cooking	4	9.5%	Machine	1	2.4%
Barbeque (Gas)	2	4.8%	Smoking	1	2.4%
Cooking	1	2.4%	Camp or Bonfires	5	11.9%
Oven	1	2.4%	Flammables	2	4.8%
Heater	2	4.8%	Brush Fire	1	2.4%
Gasoline	1	2.4%	Camp Fire	1	2.4%
Hair Dryer	1	2.4%	Gasoline	1	2.4%
Self-Immolation	1	2.4%	Motor Vehicle Fires	1	2.4%
Stove	1	2.4%	Boat Fire	1	2.4%
			Structure Fires	1	2.4%
Scalds	10	23.8%	Self-Immolation	1	2.4%
Cooking	6	14.3%			
Cooking Liquids	4	9.5%	Flame	13	31.0%
Pressure Cooker	2	4.8%	Cooking	6	14.3%
Hot Beverages	1	2.4%	Cooking Liquids	3	7.1%
Car Radiator	1	2.4%	Barbeque	1	2.4%
Steam	1	2.4%	Cook/Clothes	1	2.4%
Hot Tap Water	1	2.4%	Cooking	1	2.4%
			Ignitable Liquids	2	4.8%
Fires	10	23.8%	Gasoline	1	2.4%
Camp Or Bonfires	8	19.0%	Ignitable Liquids	1	2.4%
Camp Fire	2	4.8%	Candle	1	2.4%
Embers	2	4.8%	Cigarette	1	2.4%
Fireworks	1	2.4%	Propane	1	2.4%
Gasoline	1	2.4%	Smoking	1	2.4%
House Fires	2	4.8%	Woodstove	1	2.4%
Unspecified	2	4.8%			
Domestic Violence	1	2.4%	Scald	12	28.6%
Stove	1	2.4%	Cooking Liquids	6	14.3%
			Hot Beverages	2	4.8%
Other	4	9.5%	Steam	2	4.8%
Chemical	4	9.5%	Hot Tap Water	1	2.4%
		, , , , ,	Unknown	1	2.4%
Explosion	2	4.8%			
Gasoline	2	4.8%	Other	3	7.1%
			Chemical	3	7.1%
Contact	1	2.4%	- · · · · · · · · · · · · · · · · · · ·	2	
Woodstove	1	2.4%	Explosion	1	2.4%
			Aerosol	1	2.4%
Electrical	1	2.4%			
Electrocution	1	2.4%			

Ages 65+	32	8.5%
Cause	# Of Burns	% By Age
Fires	10	31.3%
House Fires	5	15.6%
Unspecified	4	12.5%
Electrical	1	3.1%
Camp Or Bonfires	2	6.3%
Bonfire	1	3.1%
Brush Fire	1	3.1%
Motor Vehicle Fires	2	6.3%
Boat Fire	1	3.1%
Clothes	1	3.1%
Brush Fires	1	3.1%
Gasoline	1	3.1%
Flame	10	31.3%
Smoking	3	9.4%
Smoking	2	6.3%
Cigarette	1	3.1%
Cooking	3	9.4%
Cook/Clothes	1	3.1%
Barbeque	1	3.1%
Stove	1	3.1%
Clothes	2	6.3%
Ignitable Liquids	1	3.1%
Self-Immolation	1	3.1%
Scalds	6	18.8%
Cooking Liquids	3	9.4%
Hot Tap Water	2	6.3%
Hot Beverages	1	3.1%
~	_	0.407
Contact	3	9.4%
Radiator	2	6.3%
Heating Pad	1	3.1%
Explosion	3	9.4%
Gasoline	1	3.1%
Motor	1	3.1%
Propane	1	3.1%
-		

## **Causes of Work-Related Burns**

	# of	A		# of	0/ 0777
Cause	Burns	% of Work-related	Cause	Burns	% of Work-related
Scald	17	<b>52%</b>	Flame	5	15%
Cooking Liquids	10	30%	Cooking	2	6%
Steam	3	9%	Barbeque	1	3%
Hot Beverages	2	6%	Oven	1	3%
Car Radiator	1	3%	Flammables	1	3%
Pressure Cooker	1	3%	Ignitable Liquids	1	3%
			Torch	1	3%
Explosion	6	18%			
Gasoline	2	6%	Other	3	9%
E-Cigarette	1	3%	Chemical	3	9%
Electrical	1	3%			
Oxygen	1	3%	Contact	1	3%
Propane	1	3%	Asphalt	1	3%
			Electrical	1	3%
			Electrocution	1	3%
			Total	33	100%

# **Number of Reported Burns Per Hospital**

Athol Memorial Hospital	1	Metro West Medical Center	1
Baystate Medical Center	32	Milton Whitinsville Hospital	3
Baystate Medical Center - Franklin	1	Morton Hospital	4
Beth Israel Deaconess - Plymouth	1	Nashoba Valley Hospital	1
Brigham & Women's Hospital	18	Newton Wellesley Hospital	1
Brockton Hospital	7	Noble Hospital	1
Cape Cod Hospital	2	North Shore Medical Center	1
Charlton Memorial Hospital	4	Norwood Hospital	1
Children's Hospital	14	Shriners Hospital for Children	66
Emerson Hospital	2	South Shore Medical Center	19
Fairhaven Hospital	2	St. Anne's Hospital	3
Falmouth Hospital	3	St. Elizabeth's Hospital	5
Good Samaritan Medical Center	4	St. Luke's Hospital	2
Harrington Memorial Hospital	3	Sturdy Memorial Medical Center	6
Lawrence General Hospital	24	Tobey Hospital	2
Lowell General Hospital	5	UMass Medical Center - Clinton	2
Massachusetts General Hospital	129	UMass Medical Center - University	7
Mercy Hospital	1	•	

# Causes of Burn Injuries by Month

31	8.2%	February	16	4.2%
				% by Age
				56.3%
		C		25.0% 12.5%
				6.3%
				6.3%
		•		18.8%
		Hot Tap Water	2	12.5%
1	3.2%			
		Flame	4	25.0%
4	12.9%	Cooking	3	18.8%
1	3.2%	Cooking Liquids	2	12.5%
1	3.2%	Oven	1	6.3%
1	3.2%	Clothes	1	6.3%
1	3.2%			
		Fires	1	6.3%
3	9.7%	House Fires	1	6.3%
2	6.5%	Unspecified	1	6.3%
2	6.5%			
1	3.2%	Other	2	12.5%
1	3.2%	Chemical	2	12.5%
2	6.5%	0 Deaths		
2	6.5%			
1	3.2%			
1	3.2%			
1	3.2%			
1	3.2%			
	# of Burns  20 9 7 6 1 2 1 1 1 3 2 2 1 1 1 1 1 1 1 1 1 1 1 1	# of Burns % by Age  20 64.5% 9 29.0% 7 22.6% 6 19.4% 1 3.2% 2 6.5% 1 3.2%	# of Burns  % by Age	# of Burns         % by Age         Cause         # of Burns           20         64.5%         Scalds         9           9         29.0%         Cooking         4           7         22.6%         Hot Food         2           6         19.4%         Pressure Cooker         1           1         3.2%         Cooking Liquids         1           2         6.5%         Hot Beverages         3           1         3.2%         Hot Tap Water         2           1         3.2%         Cooking         3           2         Cooking         3         3           3         2%         Cooking Liquids         2           1         3.2%         Oven         1           1         3.2%         Clothes         1           1         3.2%         Oven         1           1         3.2%         Unspecified         1           2         6.5%         Unspecified         1           1         3.2%         Other         2           2         6.5%         0 Deaths

March	28	<b>7.4%</b>	April	26	6.9%
Cause	# of Burns	% by Age	Cause	# of Burns	% by Age
Scalds	8	28.6%	Scalds	13	50.0%
Cooking	5	17.9%	Cooking	5	19.2%
Cooking Liquids	3	10.7%	Cooking Liquids	3	11.5%
Hot Food	2	7.1%	Hot Food	1	3.8%
Hot Beverages	2	7.1%	Pressure Cooker	1	3.8%
Steam	1	3.6%	Hot Tap Water	4	15.4%
			Hot Beverages	3	11.5%
Flame	8	28.6%	Steam	1	3.8%
Cooking	4	14.3%			
Stove	2	7.1%	Flame	7	26.9%
Cook/Clothes	1	3.6%	Cooking Liquids	2	7.7%
Cooking Liquids	1	3.6%	Candle	1	3.8%
Smoking	2	7.1%	Cigarette	1	3.8%
Smoke Oxygen	1	3.6%	Gasoline	1	3.8%
Smoking	1	3.6%	Hair Dryer	1	3.8%
Child w/Matches	1	3.6%	Heater	1	3.8%
Woodstove	1	3.6%			
			Fire	4	15.4%
Fire	6	21.4%	Camp or Bonfires	4	15.4%
House Fires	6	21.4%	Brush Fire	2	7.7%
Unspecified	4	14.3%	Gasoline	2	7.7%
Electrical	1	3.6%			
Smoking	1	3.6%	Explosion	2	7.7%
			Explosives	1	3.8%
Explosion	4	14.3%	Gasoline	1	3.8%
Heating	3	10.7%			
Woodstove	2	7.1%	0 Deaths		
Heater	1	3.6%			
Asphalt	1	3.6%			
Other	2	7.1%			
Chemical	2	7.1%			

May	42	11.1%	June	43	11.4%
Cause	# of Burns	% by Age	Cause	# of Burns	% by Age
Scalds	19	45.2%	Scalds	21	48.8%
Cooking	10	23.8%	Cooking	12	27.9%
Cooking Liquids	8	19.0%	Cooking Liquids	9	20.9%
Hot Food	2	4.8%	Cook/Clothes	1	2.3%
Hot Beverages	8	19.0%	Hot Food	1	2.3%
Hot Tap Water	1	2.4%	Pressure Cooker	1	2.3%
			Hot Beverages	5	11.6%
Fires	10	23.8%	Hot Tap Water	3	7.0%
Camp Or Bonfires	6	14.3%	Steam	1	2.3%
Bonfire	3	7.1%			
Camp Fire	1	2.4%	Flame	8	18.6%
Flammables	1	2.4%	Cooking	2	4.7%
Ignitable Liquids	1	2.4%	Barbeque (Gas)	1	2.3%
Brush Fires	1	2.4%	Cooking Liquids	1	2.3%
Gasoline	1	2.4%	Smoking	2	4.7%
House Fires	1	2.4%	Smoke Oxygen	1	2.3%
Unspecified	1	2.4%	Smoking	1	2.3%
Motor Vehicle Fires	1	2.4%	Child w/Lighter	1	2.3%
MVA	1	2.4%	Clothes	1	2.3%
Structure Fires	1	2.4%	Gasoline	1	2.3%
Self-Immolation	1	2.4%	Self-Immolation	1	2.3%
Flame	6	14.3%	Fire	7	16.3%
Cooking	4	9.5%	Camp or Bonfires	3	7.0%
Cook	1	2.4%	Aerosol	1	2.3%
Cook/Clothes	1	2.4%	Embers	1	2.3%
Cooking Liquids	1	2.4%	Flammables	1	2.3%
Barbeque	1	2.4%	House Fires	3	7.0%
Child w/Lighter/Clothes	1	2.4%	Unspecified	2	4.7%
Gasoline	1	2.4%	Stove	1	2.3%
	_	_,,,,	Motor Vehicle Fires	1	2.3%
Explosion	3	7.1%	Airplane Crash	1	2.3%
Aerosol	1	2.4%	-		
Gasoline	1	2.4%	Contact	3	7.0%
Microwave	1	2.4%	Car Part	1	2.3%
mero wave	•	2.170	Fireplace	1	2.3%
Contact	2	4.8%	Playground Equipment	1	2.3%
Clothes Iron	1	2.4%	r layground Equipment	1	2.370
Heating Pad	1	2.4%	Evalorion	2	4.7%
Treating Fau	1	∠ <b>.</b> 470	<b>Explosion</b> Barbeque (Gas)	<b>2</b> 1	2.3%
Othor	2	4.007	=		
Other	2	4.8%	Gasoline	1	2.3%
Chemical	2	4.8%		_	4 = 0 /
1.50 - 4			Other	2	4.7%
1 Death			Chemical	1	2.3%
			Sunburn	1	2.3%

July	42	11.1%	August	41	10.8%
Cause	# of Burns	% by Age	Cause	# of Burns	% by Age
Scalds	18	42.9%	Scalds	21	51.2%
Cooking	9	21.4%	Hot Beverages	9	22.0%
Cooking Liquids	8	19.0%	Cooking	6	14.6%
Hot Food	1	2.4%	Cooking Liquids	5	12.2%
Hot Beverages	6	14.3%	Hot Food	1	2.4%
Hot Tap Water	2	4.8%	Car Radiator	2	4.9%
Car Radiator	1	2.4%	Hot Tap Water	2	4.9%
			Clothes Iron	1	2.4%
Fires	8	19.0%	Steam	1	2.4%
Camp or Bonfires	6	14.3%			
Camp Fire	3	7.1%	Fires	8	19.5%
Bonfire	1	2.4%	Camp or Bonfires	7	17.1%
Fireworks	1	2.4%	Camp Fire	2	4.9%
Gasoline	1	2.4%	Embers	2	4.9%
House Fires	1	2.4%	Gasoline	2	4.9%
Smoking	1	2.4%	Steam	1	2.4%
Motor Vehicle Fires	1	2.4%	Brush Fires	1	2.4%
Boat Fire	1	2.4%	Gasoline	1	2.4%
Explosion	6	14.3%	Flame	6	14.6%
Explosives	3	7.1%	Gasoline	2	4.9%
Fireworks	2	4.8%	Battery	1	2.4%
Bomb Making	1	2.4%	Candle/Clothes	1	2.4%
Gasoline	2	4.8%	Cooking Liquids	1	2.4%
Oxygen	1	2.4%	Self-Immolation	1	2.4%
Flame	5	11.9%	Explosion	4	9.8%
Cooking	2	4.8%	Aerosol	1	2.4%
Barbeque (Gas)	2	4.8%	Barbeque	1	2.4%
Cigarette	1	2.4%	Motor	1	2.4%
Ignitable Liquids	1	2.4%	Propane	1	2.4%
Self-Immolation	1	2.4%			
			Electrical	1	2.4%
Contact	2	4.8%	Electrocution	1	2.4%
Car Part	1	2.4%			
Metal	1	2.4%	Other	1	2.4%
			Chemical	1	2.4%
Other	2	4.8%			
Chemical	1	2.4%	1 Death		
Sunburn	1	2.4%			
Not Reported	1	2.4%			
Unknown	1	2.4%			

September	35	9.3%	October	29	7.7%
Cause	# of Burns	% by Age	Cause	# of Burns	% by Age
Scalds	11	31.4%	Scalds	12	41.4%
Cooking	7	20.0%	Hot Beverages	6	20.7%
Cooking Liquids	5	14.3%	Cooking Liquids	5	17.2%
Hot Food	2	5.7%	Car Radiator	1	3.4%
Hot Beverages	2	5.7%			
Hot Tap Water	2	5.7%	Fires	8	27.6%
			Camp or Bonfires	4	13.8%
			Gasoline	2	6.9%
Fires	9	25.7%	Bonfire	1	3.4%
Camp or Bonfires	7	20.0%	Ignitable Liquids	1	3.4%
Camp Fire	5	14.3%	House Fires	3	10.3%
Gasoline	2	5.7%	Cooking Liquids	2	6.9%
House Fires	1	2.9%	Domestic Violence	1	3.4%
Unspecified	1	2.9%	Motor Vehicle Fires	1	3.4%
Motor Vehicle Fires	1	2.9%	Boat Fire	1	3.4%
Clothes	1	2.9%			
			Flame	4	13.8%
Flame	8	22.9%	Cooking	2	6.9%
Smoking	4	11.4%	Barbeque	1	3.4%
Cigarette	2	5.7%	Stove	1	3.4%
Smoke Oxygen	1	2.9%	Torch	1	3.4%
Smoking	1	2.9%	Propane	1	3.4%
Cooking	1	2.9%			
Flammables	1	2.9%	Explosion	4	13.8%
Gasoline	1	2.9%	Explosion	2	6.9%
Model Rocket	1	2.9%	Electrical	1	3.4%
			Explosives	1	3.4%
Contact	5	14.3%			
Cooking	2	5.7%	Contact	1	3.4%
Barbeque	1	2.9%	Other	1	3.4%
Oven	1	2.9%			
Curling-Iron	1	2.9%	0 Deaths		
Radiator	1	2.9%			
Wax	1	2.9%			
Explosion	1	2.9%			
Propane	1	2.9%			
op	•	2.770			

November	27	7.1%	December	18	4.8%
Cause	# of Burns	% by Age	Cause	# of Burns	% by Age
Scalds	20	74.1%	Scalds	11	61.1%
Hot Beverages	8	29.6%	Cooking	7	38.9%
Cooking	8	29.6%	Cooking Liquids	5	27.8%
Cooking Liquids	5	18.5%	Hot Food	2	11.1%
Hot Food	3	11.1%	Hot Beverages	4	22.2%
Hot Water Bottle	2	7.4%			
Hot Tap Water	2	7.4%	Fires	4	22.2%
-			House Fires	4	22.2%
Flame	4	14.8%	Unspecified	2	11.1%
Ignitable Liquids	2	7.4%	Embers	1	5.6%
Gasoline	1	3.7%	Gasoline	1	5.6%
Ignitable Liquids	1	3.7%			
Heater	1	3.7%	Flame	2	11.1%
Ignitable Gas	1	3.7%	Child w/Matches	1	5.6%
			Flammables	1	5.6%
Fires	2	7.4%			
Camp or Bonfires	1	3.7%	Other	1	5.6%
Gasoline	1	3.7%	Chemical	1	5.6%
House Fires	1	3.7%			
Machine	1	3.7%	0 Deaths		
Explosion	1	3.7%			
E-Cigarette	1	3.7%			

# **Burn Injuries by Victim's Community**

County	# of Burns	County	# of Burns
Barnstable	10	Essex (Con't)	
Barnstable	1	Marblehead	1
Bourne	1	Methuen	1
Dennis	2	North Andover	2
Falmouth	2	Peabody	2
Mashpee	1	Salem	1
Provincetown	1	Salisbury	1
Sandwich	1	Saugus	2
Yarmouth	1	Wenham	1
Berkshire	5	Franklin	2
Becket	1	Deerfield	1
Great Barrington	1	Greenfield	1
Pittsfield	2		
Sheffield	1	Hampden	39
		Chicopee	7
Bristol	24	Hampden	1
Attleboro	4	Holland	1
Dartmouth	1	Holyoke	1
Easton	1	Ludlow	2
Fall River	5	Palmer	1
Mansfield	1	Springfield	20
New Bedford	1	West Springfield	5
Raynham	3	Westfield	1
Somerset	2		
Swansea	1	Hampshire	1
Taunton	5	South Hadley	1
Dukes	2	Middlesex	40
Edgartown	1	Arlington	2
Oak Bluffs	1	Ayer	2
		Bedford	1
Essex	48	Billerica	2
Amesbury	1	Cambridge	3
Beverly	1	Chelmsford	5
Danvers	1	Dracut	1
Hamilton	3	Framingham	2
Haverhill	5	Lowell	2
Ipswich	1	Malden	5
Lawrence	18	Marlborough	2
Lynn	6	Melrose	1
Manchester	1	Newton	1

County	# Of Burns	County	# Of Burns
Middlesex (Con't)	_	Plymouth (Con't)	_
Somerville	1	Bridgewater	1
Tewksbury	1	Brockton	13
Waltham	3	Hanover	1
Watertown	2	Hanson	1
Wayland	1	Hingham	4
Weston	1	Lakeville	1
Wilmington	1	Norwell	1
Woburn	1	Pembroke	2
		Plymouth	1
Nantucket	1	Wareham	2
Nantucket	1	Whitman	2
	• 0	G 80 W	4.5
Norfolk	29	Suffolk	43
Braintree	3	Boston	38
Brookline	2	Revere	5
Franklin	3		
Holbrook	1	Worcester	16
Medway	1	Athol	1
Millis	1	Boylston	1
Milton	1	Brookfield	1
Norfolk	1	Clinton	1
Plainville	1	Gardner	1
Quincy	7	Holden	1
Randolph	3	Leominster	1
Stoughton	1	Millville	1
Wellesley	1	Oakham	1
Weymouth	3	Southbridge	2
•		Spencer	1
Plymouth	31	Webster	2
Abington	2	Worcester	2



# The Commonwealth of Massachusetts Department of Five Services Division of Five Safety Post Office Box 1025 - Stow, Massachusetts 01775

TO:	Massachusetts Burn Injury Reporting System					
FROM:						
		1	Name of Hospital and A	ttending Physician	n	
RE:	Burn Inju	ry Extending to	5% or More of Body	Surface Area		
		To fax b	urn injury reports, o	dial (978) 567-31	199.	
Call 1-	notify	tification required the police chi	report, you satisfy both rements for the State I ef in the community value.  OR- port burns over the plants ov	Fire Marshal. Yow where the burn of	u still need to ccurred.	J
Vio	ctim's Name	Last		First	М.	
			ldress (No PO Boxes)			Zip
			Local Polic Was the Victim a	t Work When Bu	ırned? 🗖 Yes 🗖	No
Da	te of Burn _		If Yes: Employer			
Ad	ldress Where	e Burn Occurre	Street Address (No PO Boxes)	City (T)		
Paı	rt of Body Ir	njured or %BSA	A:			Zip
			e, tap water, clothing ignit			
T	ype of Burn:	(check one)		Severity: (che	eck one)	
	] Flame	☐ Scald	☐ Domestic Violence	☐ Minor	☐ Life-threaten	ing
	] Fire	☐ Electrical	Other	☐ Moderate	□ Dead	
	Explosion	☐ Contact	□ Sunburn □ Chemical	☐ Severe		

# 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."