



# Successful Strategies for Preventing Fire and Burn-Related Injuries among Children

August 23<sup>rd</sup>, 2017

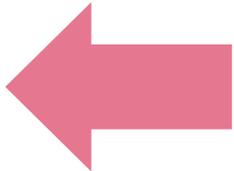
# Tech Tips



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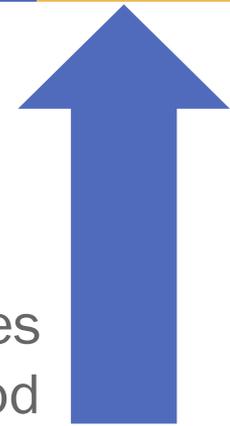


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Use the Q & A to ask questions at any time

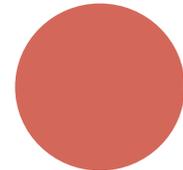
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# Presenters

Marty Ahrens



Meredith Hawes



Ernest J. Grant





**NATIONAL FIRE PROTECTION ASSOCIATION**

The leading information and knowledge resource on fire, electrical and related hazards

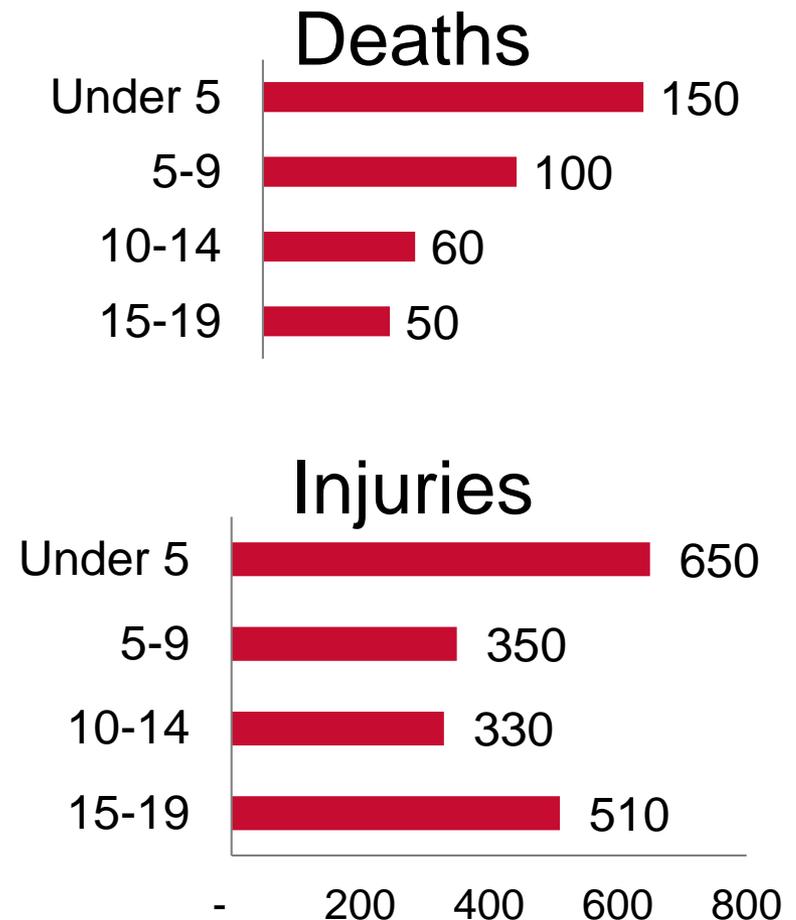
# Pediatric fire statistics

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Marty Ahrens, NFPA Data and Analytics

# Child and youth fire deaths and injuries by age: 2011-2015 annual averages

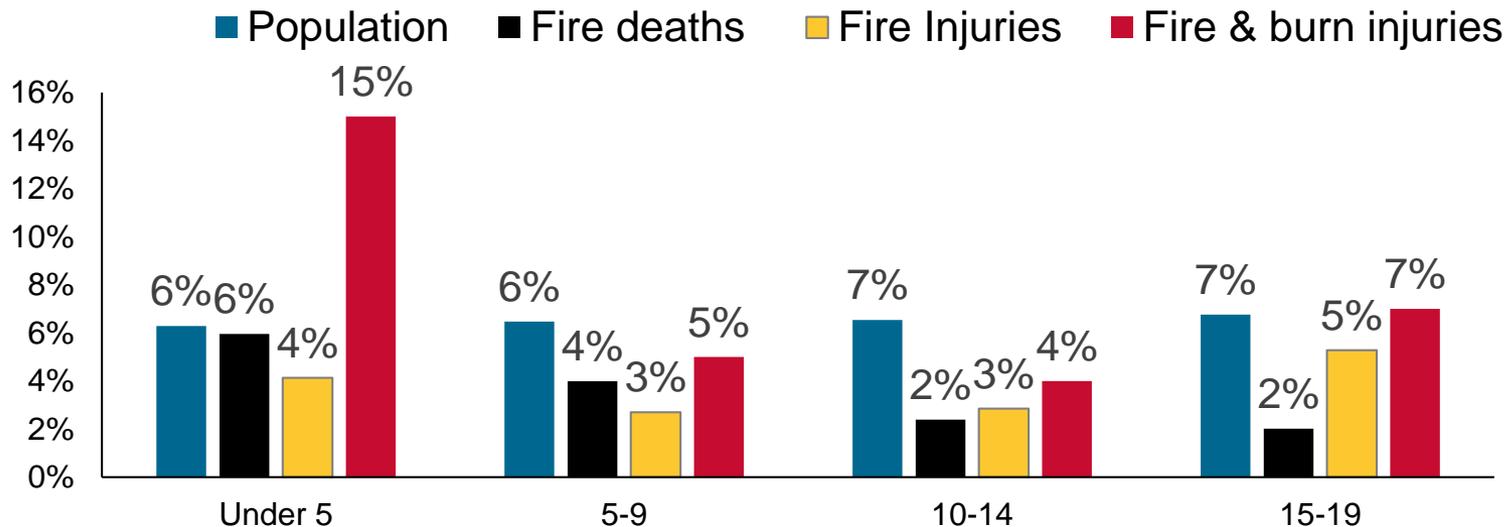
- In 2011-2015, home fires killed an average of 2,510 people per year
  - 12,300 people per year were injured
- Estimates were derived from
  - U.S. Fire Administration's National Fire Incident Reporting System and
  - NFPA's Fire Department Experience Survey



# Compared to the general population, children today are at less risk from fire

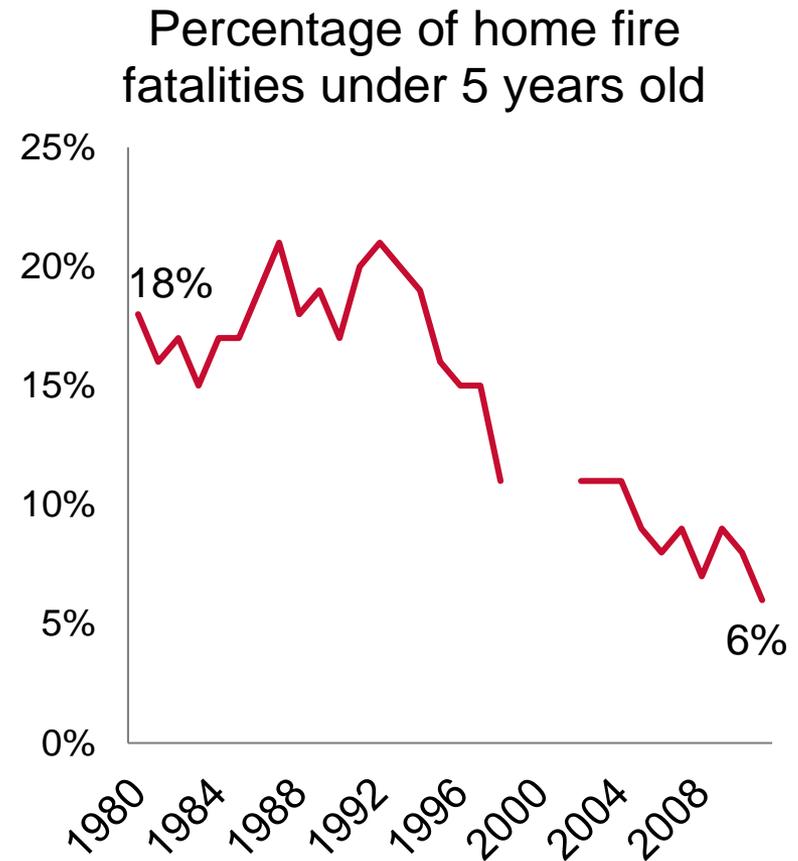
Risk of burn injury is much higher for preschoolers

Fire deaths and injuries compared to population  
2011-2015



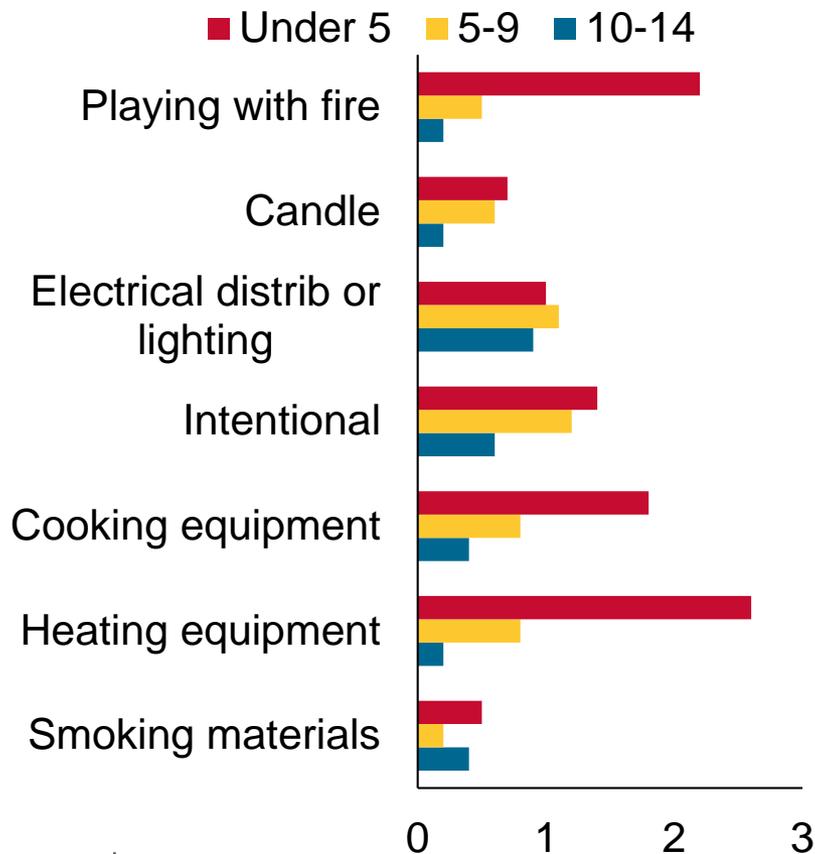
# Good news: risk of fire death to young children has fallen

- Overall, preschoolers are no longer a high-risk group
  - Black or African American children are still high-risk
    - 3 times the risk of White children

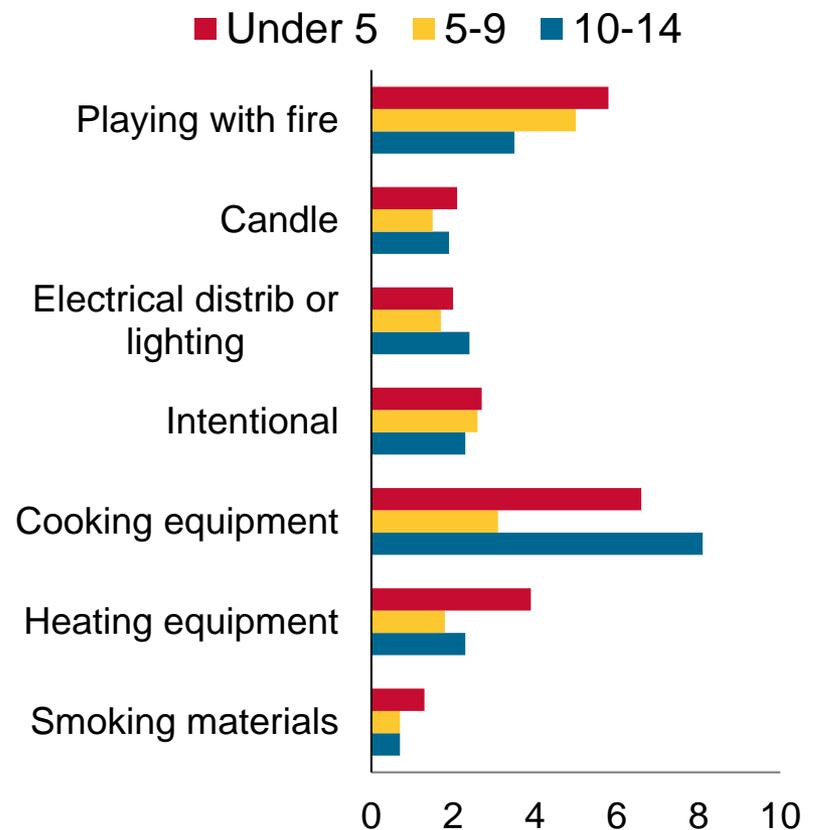


# Fire deaths and injuries per million population: 2007-2011 annual averages

## A. Fire deaths

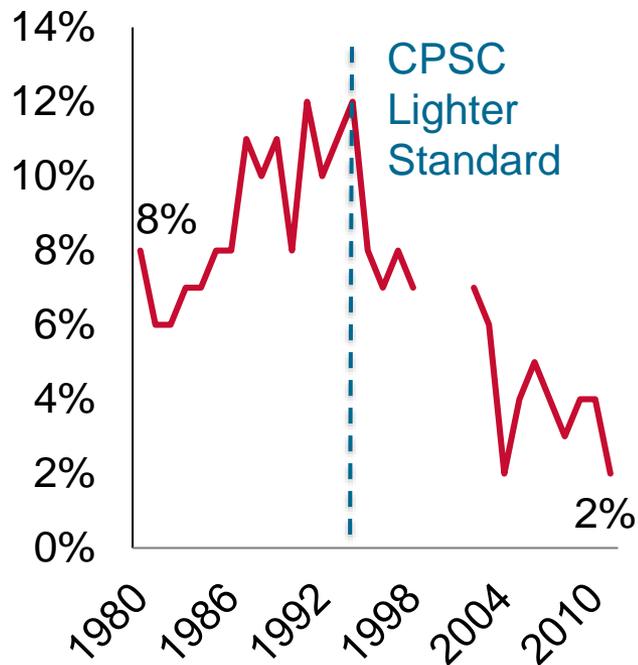


## B. Fire Injuries



# Fires and deaths from fire play both fell after CPSC's 1994 lighter safety standard

Percentage of home fire fatalities caused by playing with fire

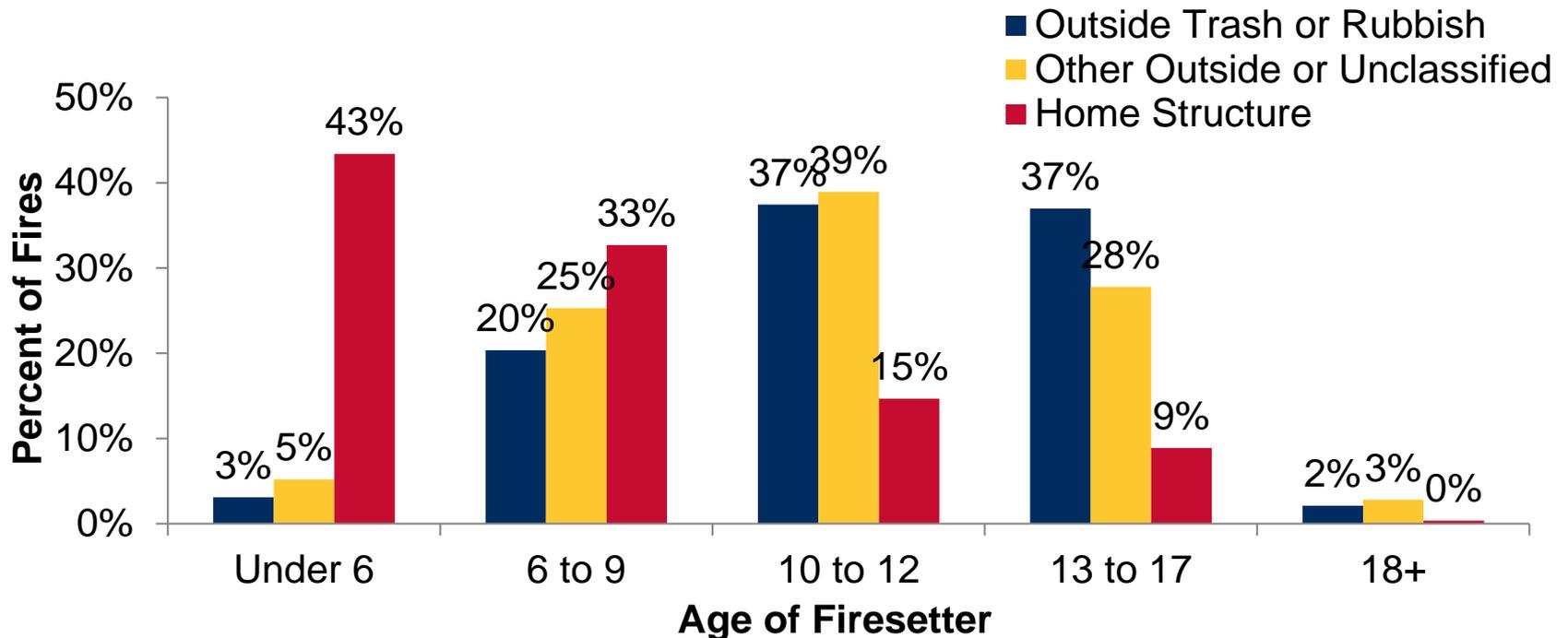


- In 2010-2015, fire play caused 6,100 home fires (2%)
  - 60 (3%) deaths and 560 (5%) injuries
- In 2007-2011,
  - Three out of five fire play deaths were children under five
    - 15% were children 5-9
  - 17% of the injured were under 5
    - 14% of the injured were 5-9
  - More than one-quarter were 20-34



# FIRES Caused by Children Playing By Age and Incident Type: 2007-2011

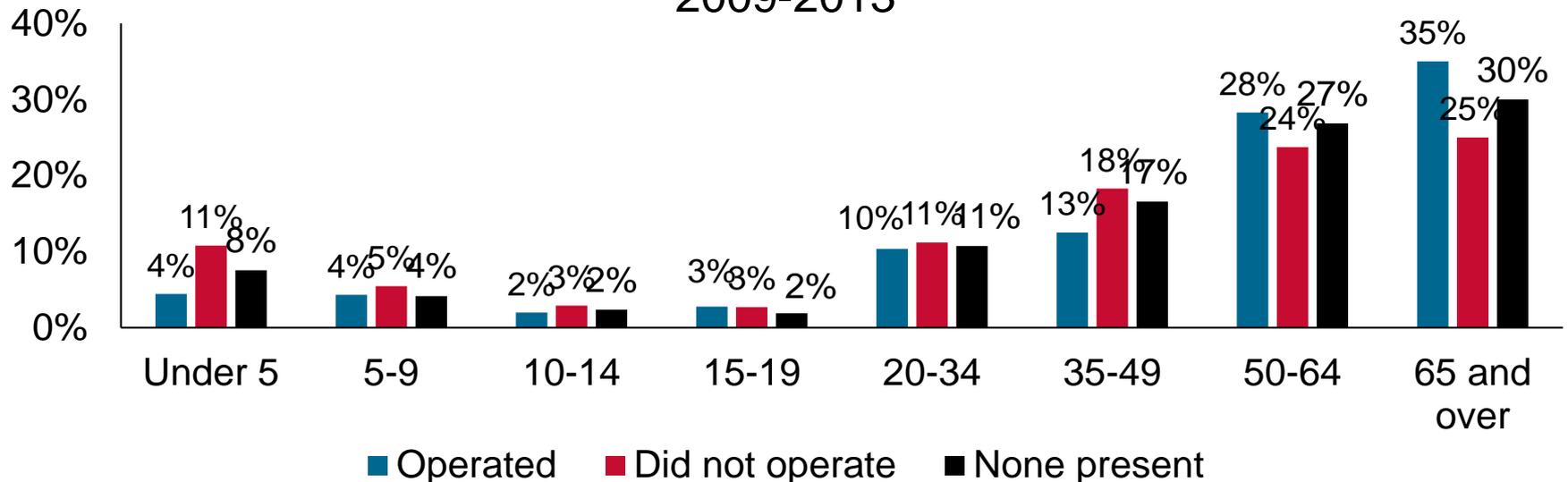
Roughly three-quarters of fires started by playing were outside or unclassified fires.



# Working smoke alarms save lives

- Roughly three out of five home fire deaths were caused by fires without working smoke alarms
  - While children often don't wake to smoke alarms, adults are generally present

Fatal Home Fire Victims by Age and Smoke Alarm Status, 2009-2013



# Sources

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- Most can be found in the following NFPA reports
  - [Smoke Alarms in U.S. Home Fires](#), by Marty Ahrens (2015)
  - [Playing With Fire](#), by Richard Campbell (2014)
  - [Characteristics of Home Fire Victims](#), by Marty Ahrens (2014)
  - Home Structure Fires draft, by Marty Ahrens
    - Watch for it at
      - <http://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/>
      - Sign up for our newsletter at <http://www.nfpa.org/news-and-research/resources/research-newsletter>
- Burn data from CPSC's NEISS All Injury Program was accessed through CDC's WISQARS





**NATIONAL FIRE PROTECTION ASSOCIATION**

The leading information and knowledge resource on fire, electrical and related hazards

# Public Education

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## Resources and materials for children

Meredith Hawes – Regional Education Specialist

# [www.nfpa.org/public-education](http://www.nfpa.org/public-education)

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Topics

Campaigns

Outreach

Resources



CODES & STANDARDS

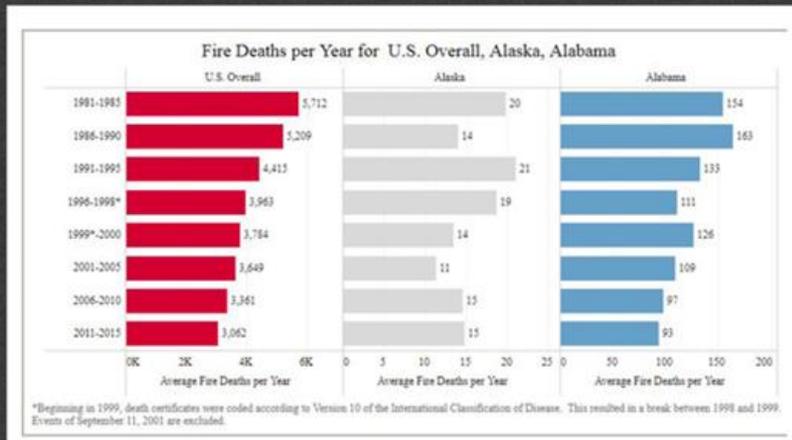
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## U.S. Fire Death Rates by State

Use our interactive tool to compare fire death data for up to three states.

[EIGHT OF THE TEN STATES WITH HIGHEST FIRE DEATHS WERE IN THE SOUTH. >](#)



## Fire Prevention Week

The 2017 campaign emphasizes the potentially life-saving importance of having a home escape plan.

[THE TOOLS, RESOURCES, AND PRODUCTS YOU NEED! >](#)




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By topic	Campaigns	Outreach	Resources
Smoke alarms	Fire Prevention Week	Blog	Educational programs
Fire and life safety equipment	Fire Sprinkler Initiative	Grants and awards	Educational messaging
People at risk	Put A Freeze on Winter Fires	Safety Source newsletter	Home fire inspections
Property type and vehicles	TakeAction (Teens for Wildfire Safe Communities)	Partners in safety	Safety tip sheets
Safety in the home	Wildfire Community Preparedness Day	Read for Fire Safety	Sparky School House (for teachers)
Seasonal fires		Regional Education Specialists	Using our content
Top causes of fire		Sparky the Fire Dog®	Video library
Wildfire			

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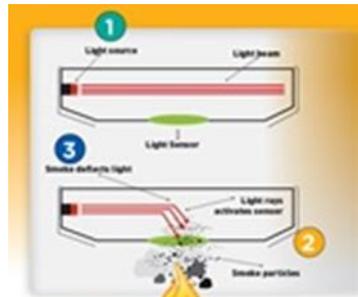
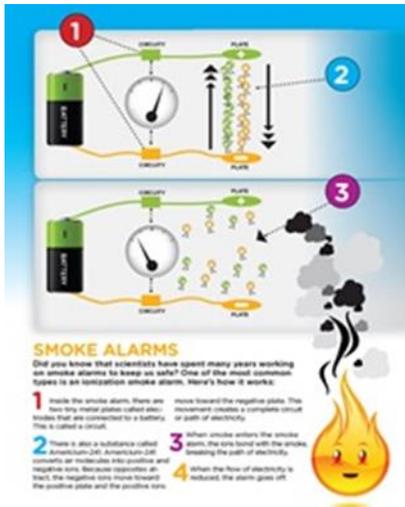
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# Topic: Smoke Alarms



## SMOKE ALARMS

Another type of detector is a photoelectric smoke alarm. Here's how it works:

- Inside the smoke alarm, there is a shield that blocks a beam of light coming from a light source. The light source is connected to a battery. The air between them is called a circuit.
- When smoke enters the smoke alarm, the smoke particles scatter the light beam, which is then detected by a light sensor.
- When the light sensor detects the light, it sends a signal to the alarm, which then sounds the alarm.

**NFPA SAFETY TIPS**

**Smoke Alarms**

- Test your smoke alarm every month.
- Change the batteries in your smoke alarm every year.
- Replace your smoke alarm every 10 years.
- Smoke alarms should be installed in every bedroom, outside each sleeping area, and in the central hallway.
- Smoke alarms should be installed in every room that has a fire escape.
- Smoke alarms should be installed in every room that has a fire escape.

- [Safety tip sheet](#)
- [Safety tips sheet in Spanish](#)
- [Picture-based tip sheet](#)
- [More safety messages](#)

## Alarmas de incendio en el hogar

LAS ALARMAS DE INCENDIO SON PARTE del plan de evacuación por incendio en cualquier hogar. En caso de incendio, el tránsito se separa rápidamente. Las alarmas de incendio que funcionan bien dan una advertencia temprana de modo de poder abandonar rápidamente el lugar.

**CONSEJOS DE SEGURIDAD**

- Instale alarmas de humo dentro y fuera de cada habitación y área para dormir. Instale alarmas en cada nivel de la vivienda. Instale alarmas en el sótano.
- Las grandes viviendas podrían requerir alarmas extra.
- Es preferible utilizar alarmas de incendio inoportunadas. Cuando se active una alarma de incendio, se activarán todas.
- Prueba todas las alarmas de incendio por lo menos una vez al mes. Presione el botón de prueba para asegurarse de que la alarma de incendio esté funcionando.
- Existen dos tipos de alarmas. Las alarmas de incendio por ionización son más rápidas en dar advertencia sobre incendios de llama. Las alarmas fotoeléctricas son más rápidas para dar advertencia sobre incendios inoportunados. Lo mejor es utilizar ambos tipos de alarmas en la vivienda.
- La alarma de incendio debe ser instalada en el techo alto o en la parte de arriba. Instale alarmas de incendio lejos de cocinas para reducir las falsas alarmas. Deben colocarse por lo menos a 10 pies (3 metros) de la hornalla.
- Las personas sordas e hipoacúsicas pueden utilizar alarmas especiales. Estas alarmas cuentan con luces intermitentes y vibradores bajo almohada.
- Reemplace todas las alarmas de incendio cada 10 años.

**Smoke Alarms for People who are Deaf or Hard of Hearing**

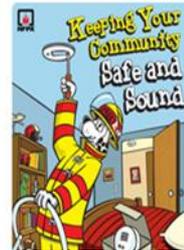
Smoke alarms save lives. However, people who are deaf or hard of hearing may not be able to hear the traditional smoke alarm. To stay safe, for a fire:

**LOOK FOR TIPS**

- Look for a smoke alarm with a vibrating base.
- Look for a smoke alarm with a flashing light.
- Look for a smoke alarm with a vibrating base and a flashing light.

**ASK FOR TIPS**

- Ask for a smoke alarm with a vibrating base.
- Ask for a smoke alarm with a flashing light.
- Ask for a smoke alarm with a vibrating base and a flashing light.



**Planning & Implementing a Successful Smoke Alarm Installation Program**



# Topic: Top Causes: Cooking



Cooking Safety  
Dan Doofus shows us how to stay safe in the kitchen [Download the video](#)



## Cooking Fire Safety

With an average of 450 daily fires, cooking is the leading cause of home fires and home fire injuries according to NFPA's Home Fires Involving Cooking Equipment Report & NFIRS Data.

**Did you know...**

- U.S. fire departments respond to an average of 156,600 home fires per year involving cooking equipment.
- Thanksgiving is the leading day for home fires involving cooking equipment, with 3 times the average number!
- 2/3 of American households cook at least one hot meal per day.

**Contributing Factors**

Ranges or cook-tops account for almost 3 of every 5 reported home fires involving cooking equipment. Over account for 14%.

**Unattended cooking** is a contributing factor in 34% of home fires related to cooking equipment, 50% of the associated deaths and 48% of the associated injuries.

**Failure to clean** was a factor contributing to ignition in 17% of reported home fires involving ovens or refrigerators.

**Trends among those injured or killed**

55% of civilians injured in home fires involving cooking equipment were hurt while attempting to fight the fire themselves.

Adults aged 75 or over had a higher risk of cooking fire deaths than other age groups.

2 of every 5 microwave oven-related ER visits were for scald burns.

Learn how to reduce the risk of a cooking fire in your home by visiting [www.nfpa.org/cooking](#)



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**By topic**

- Smoke alarms
- Fire and life safety equipment
- People at risk
- Property type and vehicles
- Safety in the home
- Seasonal fires
- Top causes of fire
- Wildfire

**Campaigns**

- Fire Prevention Week
- Fire Sprinkler Initiative
- Put A Freeze on Winter Fires
- TakeAction (Teens for Wildfire Safe Communities)
- Wildfire Community Preparedness Day

**Outreach**

- Blog
- Grants and awards
- Safety Source newsletter
- Partners in safety
- Read for Fire Safety
- Regional Education Specialists
- Sparky the Fire Dog®

**Resources**

- Educational programs
- Educational messaging
- Home fire inspections
- Safety tip sheets
- Sparky School House (for teachers)
- Using our content
- Video library

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**THE TOOLS, RESOURCES, AND PRODUCTS YOU NEED! >**



# Fire Prevention Week

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**NFPA**

**EVERY SECOND COUNTS**

**PLAN 2 WAYS OUT!**

**SPARKY**

**FIRE PREVENTION WEEK**  
OCTOBER 8-14, 2017

[firepreventionweek.org](http://firepreventionweek.org)

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# Resources and products





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# Safety Source

**SAFETY SOURCE**  
Your source for fire-safety information

Fire Service   Consumers   Parents & Educators   Sparky the Fire Dog

June 2015

**FAST** New FAST XT Increased Coverage, Better Coverage. Enter for a chance to go to the Big Game!

Hear the **BEEP** where you **SLEEP**

EVERY BEDROOM NEEDS A WORKING SMOKE ALARM.

FOR INFORMATION VISIT: [www.nfpa.org](http://www.nfpa.org)

**Fire Prevention Week 2015! Get Ready**

NFPA is excited to announce the Fire Prevention Week (FPW) theme for 2015: "Hear the Beep Where You Sleep. Every Bedroom Needs a Working Smoke Alarm." Half of home fire deaths result from fires reported between 11 p.m. and 7 a.m. when most people are asleep. We need your help during FPW, which runs from October 4 to 10, to spread the message about the importance of having working smoke alarms in every bedroom, outside each sleeping area, and on every level of the home, including the basement.

[Read More >>](#)

Share this story: [f](#) [t](#) [in](#)

American Sign Language Video for FPW

NFPA's new American Sign Language video reminds the public about the importance of having working smoke alarms in the home. The video includes a voice-over and open captioning.

[Read More >>](#)

Share this story: [f](#) [t](#) [in](#)

Remind your friends to stay safe this July 4th with an e-card!

NFPA and Domino's Partner for FPW!

NFPA and Domino's are teaming up for the seventh year in a row to deliver fire safety.

**SAFETY SOURCE**  
Your source for fire-safety information

Fire Service   Consumers   Parents & Educators   Sparky the Fire Dog

27-07-2015

**How one fire department makes Fire Prevention Week memorable**

If you live in St. Louis, Missouri, it's nearly impossible to not be aware of **Zip Fire**.

Fire Prevention Week is a month-long event there. Throughout October, firefighters spend time at the day care centers, preschools, grade schools, middle-high schools, and local businesses spreading the word about fire safety.

The campaign concludes with a weekend smoke alarm sale. Firefighters canvass neighborhoods door-to-door to install [smoke alarms](#), conduct home fire safety surveys, and assist residents with their [home fire escape plans](#).

Station Chief Dennis Phillips says central to making all of this happen is a combination of FPW items the department purchases through the NFPA Store and the free resources available at the Fire Prevention Week website.

"We purchase numerous [FPW items](#) and [FPW products](#)," he says. "The devices are shipped from 20 Replicas and our fire administrative buildings. The [products](#) are sent to every public and parochial school in our database, and are strategically placed in all of our facilities. Specifically, the posters are placed in the windows of our premises doors so citizens may view the information while passing a fire station."

Phillips says his department contacts the mayor's office to have a [postcard](#) drafted and works with the local [radio](#) on [FPW](#) promotions, and ceremonies based on the FPW theme, all designed to make sure everyone in St. Louis knows about the prevention.

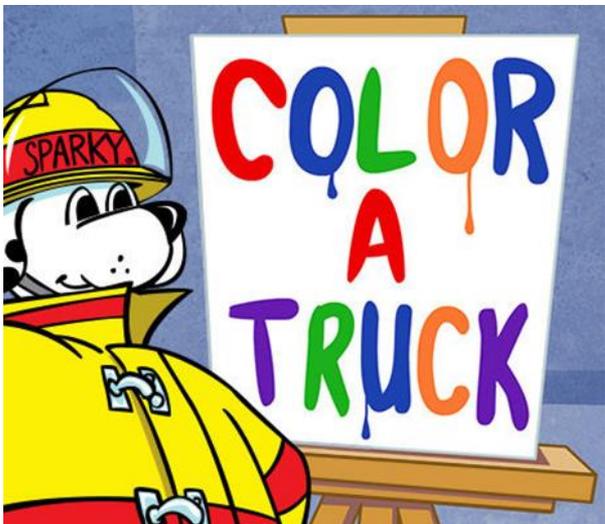
**Free Arc Flash Handbook**  
130 pages of free expert advice on Arc Flash and Arc Flash safety



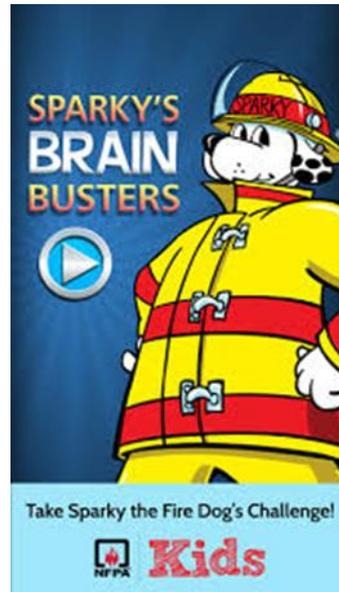
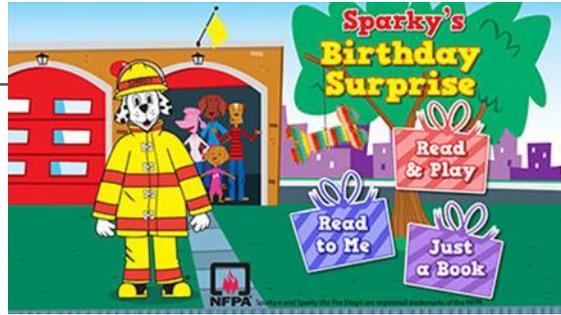
# Sparky.org



# Games



# Mobile Apps





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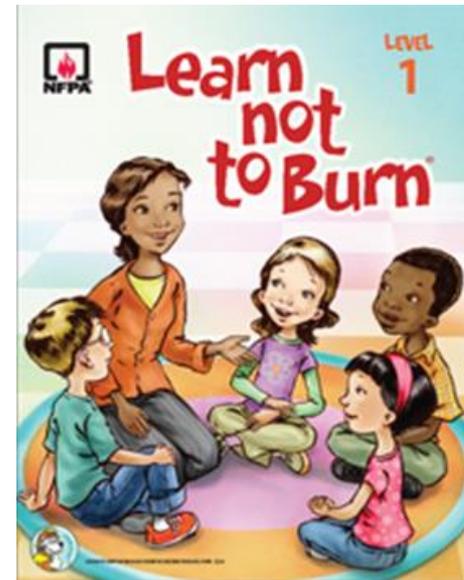
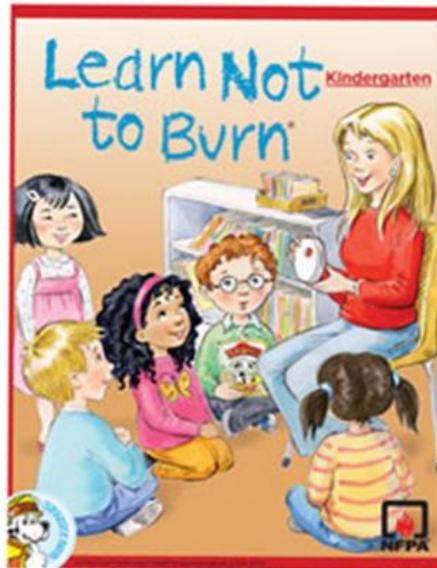
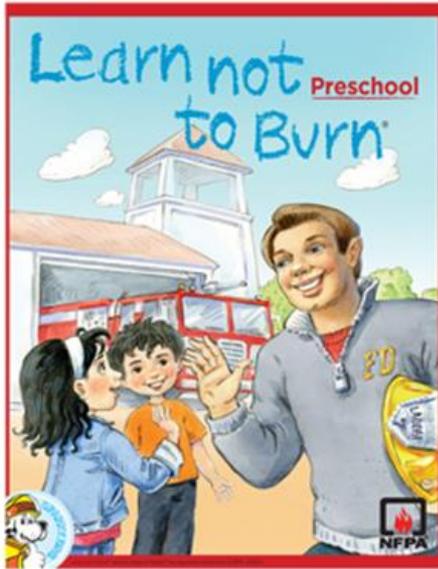
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**THE TOOLS, RESOURCES, AND PRODUCTS YOU NEED! >**



# Learn Not to Burn



# Safety Tips Sheets

## Babysitting Safety



**Having a babysitter** can give you peace of mind. It allows you to leave your child with someone you trust. Be sure your babysitter knows about fire safety. Be sure your babysitter knows what to do if there is a fire.

How can fire happen? You can have emergency plans and practice them with your babysitter.

**REMEMBER**

- Always have fire drills.
- Know how to use fire extinguishers.
- Know how to use fire extinguishers.
- Know how to use fire extinguishers.

**Babysitter Training**

- Get out of the home quickly when you hear a fire alarm.
- Use the second way out if possible.
- Use the second way out if possible.
- Use the second way out if possible.

**Your Source for SAFETY Information**

www.nfpa.org/publications

## Lithium Ion Battery Safety for Consumers



Lithium ion batteries supply power to many kinds of devices including small phones, laptops, cameras, e-cigarettes, video game systems, and more. Like most rechargeable lithium ion batteries, they can cause a fire or explosion.

**Signs of a Problem**

- Swelling
- Overheating
- Leaking
- Smoking
- Sparking
- Fire

**Battery Disposal**

- Do not put lithium ion batteries in the trash.
- Do not put lithium ion batteries in the trash.
- Do not put lithium ion batteries in the trash.

**Your Source for SAFETY Information**

www.nfpa.org/publications

## Barn Fire Safety Checklist



Mr. O'Leary's Cow may have gotten a bad rap but the **factfile** reminds us fire safety is an important part of farm life. People, animals, and property are in danger when fires break out on the farm. Budget your barn and outbuildings for fire hazards to reduce the risk of single loss.

**Required Equipment**

- ABC-type fire extinguisher
- Fire extinguisher
- Fire extinguisher

**Your Source for SAFETY Information**

www.nfpa.org/publications

## Hover Board Safety



Hover boards have quickly become the latest fad. However, many hover boards have been linked to fire. NFPA urges you to be fire safe when using these devices.

**Signs of a Problem**

- Overheating
- Smoking
- Sparking
- Fire

**Travel Notes**

- Many states have banned hoverboards.
- Many states have banned hoverboards.
- Many states have banned hoverboards.

**Your Source for SAFETY Information**

www.nfpa.org/publications

## Hoarding and Fire: Reducing the Risk



Do you have a person in your life who may be a hoarder? Hoarding is a condition where a person has persistent difficulty discarding personal possessions. The large amount of possessions fill the home and prevent the normal use of the space. Looting can become a disaster. It may be necessary. Hoarding brings distress and emotional health concerns.

**Signs of a Problem**

- Cluttering
- Overheating
- Smoking
- Sparking
- Fire

**Your Source for SAFETY Information**

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## Security System Safety



People are advised to "close your doors, lock them, and turn off the lights" when going to bed. However, many people have security systems installed in their homes. These systems can help protect your home, but they can also be a fire hazard.

**FACT**

- Security systems can be a fire hazard.
- Security systems can be a fire hazard.
- Security systems can be a fire hazard.

**Your Source for SAFETY Information**

www.nfpa.org/publications

## Car Fire Safety



Car fires are a leading cause of property loss. Many people do not know what to do if their car catches fire. NFPA provides information on how to prevent car fires and what to do if one occurs.

**What to do if your car is on fire**

- Get out of the car.
- Get out of the car.
- Get out of the car.

**Your Source for SAFETY Information**

www.nfpa.org/publications

## Clothes Dryer Safety



Doing laundry is an important part of your daily routine. But did you know how important taking care of your clothes dryer is to prevent a clothes dryer fire? With a simple safety tip you can help prevent a clothes dryer fire.

**AND DON'T FORGET**

- Check for lint.
- Check for lint.
- Check for lint.

**Your Source for SAFETY Information**

www.nfpa.org/publications



# Infographics

**SMOKE ALARMS & COOKING APPLIANCES**

Install smoke alarms at least **10 FEET** away from cooking appliances

© National Fire Protection Association | www.nfpa.org/smokealarms

**CAMPUS FIRES**

The number of reported fires on campuses and in dorms has increased since 1980.

- Fires are more common during the evening hours, between 5-11 pm, and on weekends.
- Cooking equipment is involved in 1/3 of reported dormitory fires.
- Campus fires cause an annual average of 2 civilian deaths, 30 civilian fire injuries, and 1.4 million in direct property damage.
- Only 3% of campus fires begin in the bedroom, but these fires account for more than one-quarter of injuries.

**Safety Tips**

- Keep candles 12 inches from anything that can burn.
- Do not leave the kitchen when cooking.
- Test all smoke alarms at least once per month.

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**GRILLING STATISTICS from NFPA**

- 8,800 home fires are started by grills each year, on average.
- July is the peak month for grill fires, followed by May, June and August.
- In 2012, 16,900 patients went to the ER because of injuries involving grills, including 7,400 thermal burns.
- 86% of U.S. households own at least one outdoor BBQ, grill or smoker.
- Gas grills contribute to a higher number of fires than charcoal grills.
- 59.3% of households own a gas grill.

Source: NFPA's "Home Fires Involving Cooking Equipment" 2013 report

**KEEP AN EYE ON WHAT YOU FRY!**

Cooking is the leading cause of home fires and home fire injuries.

The kitchen is the leading area of origin for home fires.

Unattended cooking is the leading cause of home cooking fires.

If you have a pan fire, slide a lid on the pan and turn off the burner.

Stay in the kitchen when frying, grilling, or broiling food. If you must leave, even for a second, turn the stove off.

Keep anything that can catch fire: oven mitts, wooden utensils, food packaging, towels or curtains, away from the stovetop.

The cooking range, or cooktop, is involved in the majority of cooking fire incidents, deaths and injuries.

Thanksgiving is the peak day for home cooking fires, followed by Christmas Day, and Christmas Eve.

Have a child-free zone of at least 3-feet around areas where hot food and drink is prepared or carried.

NFPA.ORG/EDUCATION - BURN PREVENTION

**SMOKE ALARMS SAVE LIVES.**

NFPA reminds you

Two-thirds of home fire deaths happen in homes with no smoke alarm or no working smoke alarm.

Smoke alarms should be installed on every level of the home, outside each sleeping area and inside each bedroom.

For the best protection, interconnect all the smoke alarms so when one sounds, they all sound.

Replace smoke alarms 10 years from the date of manufacture.

Test all smoke alarms at least once a month by pushing the test button.

When the smoke alarm sounds, get outside and stay outside. Go to your outside meeting place. Call the fire department from a cell or neighbor's phone. Stay outside until the fire department tells you it is safe to go back inside.

© 2012 NATIONAL FIRE PROTECTION ASSOCIATION | BATTERYPARCH.NFPA.ORG/SMOKEALARM | NFPA.ORG/SMOKEALARMS - 588MY2012

**HALLOWEEN FIRE SAFETY TIPS**

Make Halloween safe for your little monsters with a few easy safety tips...

- Use a battery-operated candle or glow stick in jack-o'-lanterns.
- When choosing costumes, stay away from long trailing fabric.
- Blow flames, candles and crepe paper catch fire easily. Keep all decorations away from open flames and other heat sources like lightbulbs and heaters.
- Teach children to stay away from open flames including jack-o'-lanterns with candles in them.
- Remember to keep exits clear of decorations on walking paths escape routes. Make sure all smoke alarms in the home are working.

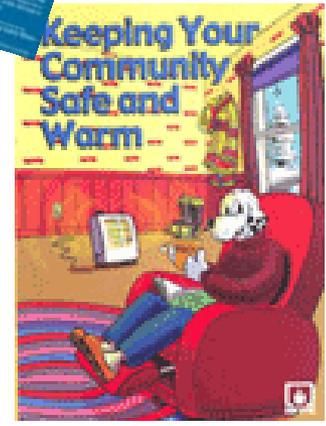
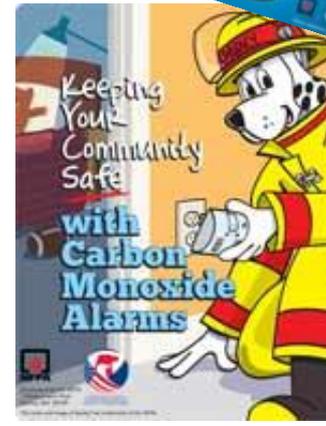
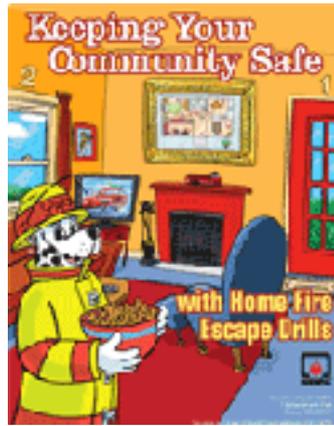
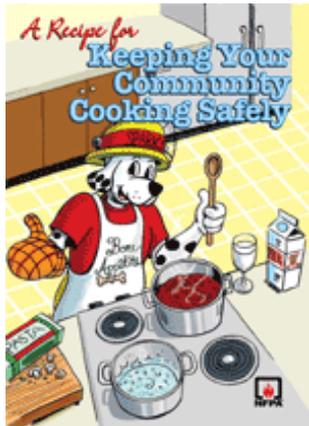
CHECK OUT SPARKY.ORG FOR MORE SPooky TIPS

NFPA



# Community Tool Kits

- Media Communication – Tool Kits



# For kids and families



**SPARKY  
SCHOOL  
HOUSE**

MUSIC &  
VIDEOS

READ  
& PLAY

LEARN NOT  
TO BURN

LESSONS

GRADES

DIGITAL  
BACKPACK

SPARKY.ORG

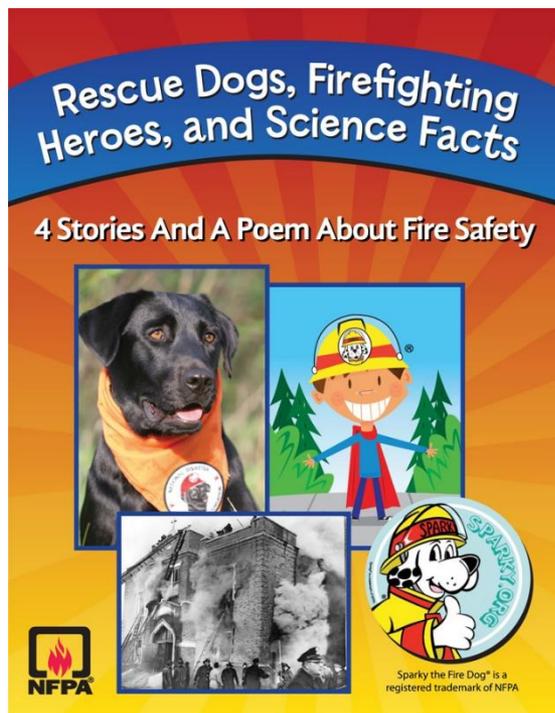
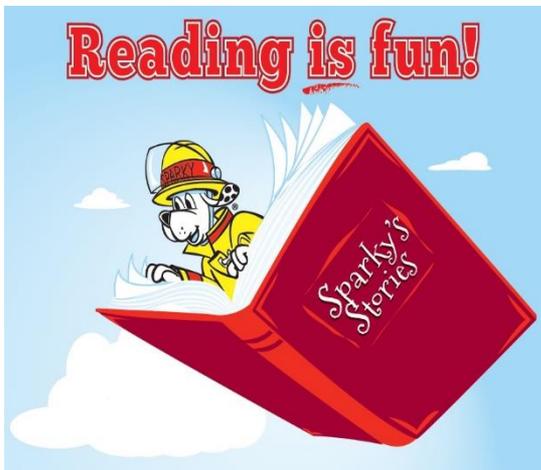
**TEACH  
FIRE  
SAFETY.  
SAVE  
LIVES.**



# Teaching fire safety through digital media



# eBooks



## Sparky's Birthday Surprise



Sparky's friends are throwing him a surprise party! Help them bake a cake, prepare his presents and even prepare the fire house for a big crowd, all while learning to stay safe in a fire.

DOWNLOAD  
IOS

DOWNLOAD  
ANDROID

### Related Lessons



#### Birthday Party Phonics

In this lesson, students will learn to navigate their way to safety, solve the clues to reveal the hidden birthday party characters, drag-and-drop the dogs at their Outside Meeting Places, and more.



#### The Science of Fire and More

Students will play on teams to answer a series of fire-safety questions and connect the dots, learn to distinguish among sentence types, discover how fires burn and how they can be extinguished, and more.



#### Fire-Safety Math

In this lesson, students will assess how many smoke alarms are needed in various homes, practice factoring through word problems, calculate averages, and more.



# Fire Safety Music Videos



## Firefighters Are On Their Way

A firefighter song we can all sing along. Check. SteveSongs and NFPA's new music video is about the job of a firefighter and the role they play as community helpers.

*Best for grades PreK-1*

[SHARE](#)



Hello music fans! We rounded up some of the hottest kids' bands, Recess Monkey and SteveSongs, to teach kids fire-safety through great beats and original moves. Watch our new fire-safety music videos with your students and spread the word!



## Little Rosalie

Sing and dance along with SteveSongs as Rosalie and her little brother learn the four key steps to follow when you hear the sound of a smoke alarm.

*Best for grades PreK-1*

[SHARE](#)



## What's That Sound?

Can Recess Monkey and their gang of pals brave Sparky's flying smoke alarm to learn what it takes to stay fire safe?

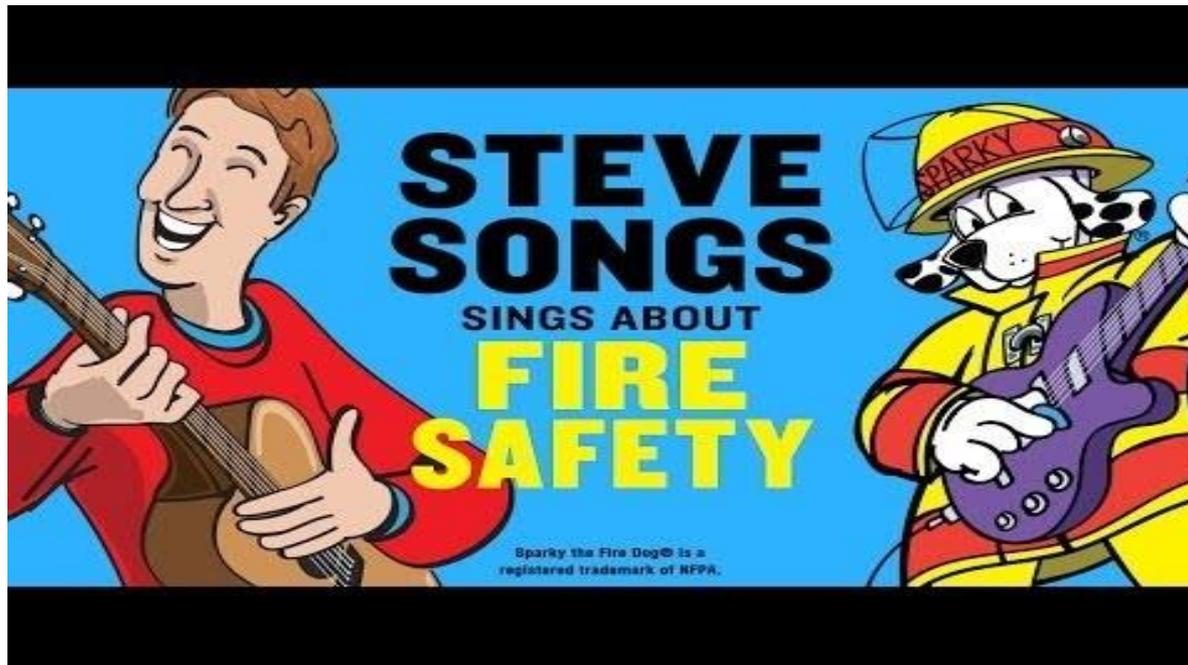
*Best for grades 2-3*

[SHARE](#)



# Firefighters are on Their Way

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# Video Library

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# Educational Messaging - EMAC



NFPA EDUCATIONAL MESSAGES  
2016 EDITION  
DESK REFERENCE





## **NATIONAL FIRE PROTECTION ASSOCIATION**

The leading information and knowledge resource on fire, electrical and related hazards

# Thank You

**Meredith Hawes**  
**[mhawes@nfpa.org](mailto:mhawes@nfpa.org)**  
**617-984-7237**



# **Pediatric Burn Prevention**

**Presented By:**

**Ernest J. Grant, PhD, RN, FAAN**

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# Objectives:

- Pediatric Burn Facts and Statistics
- Characteristics of the Pediatric Burn Prone patient
- Pediatric Skin Anatomy & Physiology Differences
- Common Pediatric Burns
- Initial Burn Care
- Prevention Campaign Initiatives

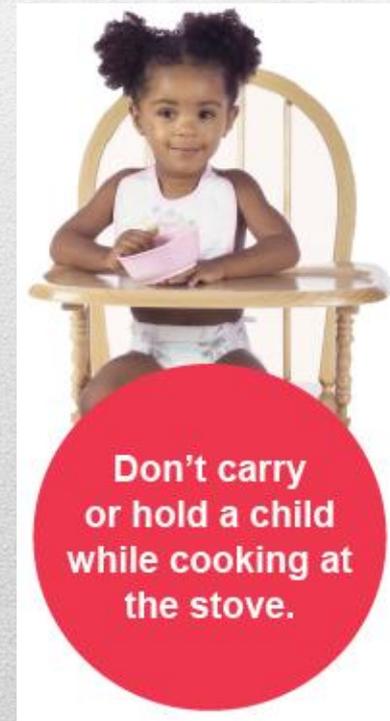
## **Pediatric Burn Prevention**

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- In 2013 more than 126,000 children across the country, including more than 67,000 children under the age of 4 were injured due to a fire or burn and treated in the ED.

Source: Safe kids Worldwide, 2014

- An untold number may receive treatment at urgent care clinics or personal care providers.



# Pediatric Burn Statistics

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Don't carry  
or hold a child  
while cooking at  
the stove.

## According to the American Burn Association's 2016 NBR Report...

- Pediatrics ages 1-15 comprised 30% of total US burn admissions
- Scalds were most prevalent in children under age 5
- Fire/flame injuries dominates the remaining age categories
- The overall burn cases increased slightly for the 10 year period, however a decrease of approximately 4,000 burn cases in the 0-0.9year group.

Source: American Burn Association National Burn Repository Data, 2016., version 12.0

# Pediatric Burn Statistics

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## Age Group by White versus Non-White

- Patients age less than 16 years of age showed greater prevalence for burn in the non-white category.
- This is more specifically noted in children less than age 5 which show a prominence for scald burns as the most common etiology.
- In all age categories, greater than 16 years, there are more whites than non-whites that sustained burns.

Source: American Burn Association's National Burn Repository Data, 2016, Version 12.0

# Pediatric Burn Statistics

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## **Pediatric Burn Injury summary**

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- 1. One of two very high-risk groups for fire/burn related injuries and deaths.**
- 2. Injuries span the racial spectrum...**
- 3. Economic/physical and mental challenges.**
- 4. Children younger than 15 years account for one third of all admissions to burn care facilities and 1/3 of all deaths from burns and burn-related injuries.**



**Source:** American Burn Association – ABLS course Materials, 2016

# **Pediatric Burn Epidemiology**

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- Thin Skin
- Curiosity
- Spontaneous
- Immature Nervous System
- Imitate actions of adults
- Match/Lighter Play
- Abuse
- Limited movement



# Characteristic of the Pediatric Burn Prone Patient

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## Body Surface Area

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- Children have greater BSA/KG of body weight

Example: 7 kg Child

Wt. = 10% of average 70 KG adult

BSA = 33% of the adult BSA

- Larger BSA = Greater environmental contact
- Relatively greater fluid needs and evaporative water loss/kg body weight
- Adult BSA/wt. ratio set by age 15

## Children are Not Little Adults

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## Anatomy & Physiology Differences

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# Body Surface Area

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- ❖ **Children < 2 years of age have disproportionately thin skin.**
  - **Responsible for occurrence of full-thickness burns following heat exposure that would produce partial -thickness burns in older patients**
  - **Burns that appear partial-thickness may actually be full thickness**



# Anatomy & Physiology Differences

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# Temperature Regulation

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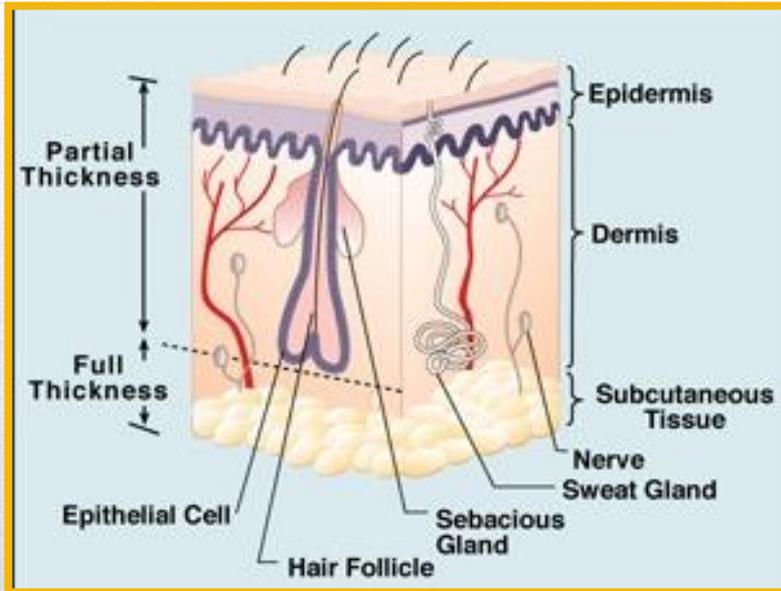
- **BSA—Weight ratio compromises body heat conservation**
- **Small muscle mass hampers shivering to generate heat**  
**Infants < 6 months of age rely on metabolic temp controls & Environment**
- **Older children can produce heat by shivering**
- **Highly susceptible to development of hypothermia**



# Anatomy & Physiology Differences

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## Skin A & P



## Degrees of Burns

1st Degree – Epidermis

2<sup>nd</sup> degree – Epidermis/Dermis

3<sup>rd</sup> Degree – Epidermis

Dermis

Subcutaneous tissue

## Anatomy & Physiology Differences

# Pathophysiology

**Injury Depth/Exposure Time  
Temperature of burning agent**

**Child**

**Adult**

**Almost instantaneous  
Full Thickness Burn**

**160°F**

**Almost instantaneous  
Full Thickness Burn**

**Tissue Destruction:  
5 Sec.**

**140°F**

**Severe Damage: 10 Sec.**

**130°F**

**Severe Damage: 30 Sec.**

**Tolerated for Time**

**111°F**

**Tolerated for Time**

## Scalds

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- Most common thermal injuries in children less than 3 years of age
- Prevalent in Child abuse
- Average cost: 44 million

## Flame

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- Most common thermal injuries in children over 3 years of age.



## Common Pediatric Burns

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## If a Burn Injury occurs

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- Cool the burn with **COOL** (not cold) water to stop the burning process
- Remove all clothing and/or diapers from the injured area
- Cover the area with a clean dry sheet or bandages

## Don't Apply

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### Home Remedies

- Ice
- Butter
- Aloe
- Tooth Paste
- Mustard
- Vitamin E

# Initial Burn treatment

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- **Hot tap water**



- **Hot beverages**



- **Hot food**

- **Steam**

## **Frequent Scald Burn Sources**

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## In the Kitchen

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- Cook on back burners
- Turn pot handles
- Create a “no-Kid Zone”
- Use safe microwave oven practices



# Home Safety Initiatives

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## In the Kitchen

- Set water heater temperature to 120°F/48° C
- Keep hot drinks away from the edge of the counter
- Use travel mugs with tight fitting lids
- Never hold a child while holding a hot beverage.



Don't carry or hold a child while cooking at the stove.

# Home Safety Initiatives

## In the Bathroom

- Don't leave child unattended in the bathtub
- Don't allow children to adjust the water temperature or sit near the faucet handles
- Install tempering valves
- Check water temperature before putting child in the tub



# Home safety initiatives

# Bathroom Scald Prevention - Precautions



- For single control faucet, always turn on and off in the “cold” position
  - For dual control faucet, always turn “cold” faucet on first, and off last
  - Make sure all household members and caregivers understand these controls
-

*American Burn Association* – Burn Prevention Committee  
<https://www.Ameriburn.org>.

*Centers for Disease Control & Prevention* – Child Safety and Injury Prevention  
<https://www.cdc.gov/safechild/burns/index.html>.

*Consumer Products Safety Commission* - <https://www.cpsc.gov/Safety-Education/Safety-Guides>.

*National Fire Protection Association (NFPA)* <https://www.NFPA.org/>  
Safe kids Worldwide – <https://www.safekids.org/safetytips>

United States Fire Administration (USFA) -  
[https://www.usfa.fema.gov/prevention/outreach/burn\\_prevention.html](https://www.usfa.fema.gov/prevention/outreach/burn_prevention.html).

# Scald/Burn Prevention Resources

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***American Burn Association*** – Burn Prevention Committee

<https://www.Ameriburn.org>.

**Campaigns:**

Flash Campaign (National Scald Prevention Campaign)

Scald Injury Prevention Campaign

National Burn Awareness Week

*Each program includes:*

*General background information*

*Fact sheets/newsletter*

*PowerPoint presentations and presenter scripts*

*An introduction and overview of burn injury*

*Guidelines for working with the public and the media*

# **Scald/Burn Prevention Resources**

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*Centers for Disease Control & Prevention* – Child Safety and Injury Prevention

<https://www.cdc.gov/safechild/burns/index.html>.

**Campaign(s):**

*A National Action Plan for Child Injury Prevention Reducing Fire and Burn Injuries*

Six identified domains that include goals and actions based on what is known about ways to reduce fire-related injuries among children. Domains are:

Data and Surveillance

Research

Communication

Education and Training

Health Systems and health care

Policy

*Protect the Ones You Love: Child Injuries are Preventable*

Key prevention safety tips to keep children safe

Fact sheets

# **Scald/Burn Prevention Resources**

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*Consumer Products Safety Commission* - <https://www.cpsc.gov/Safety-Education/Safety-Guides>.

**Campaign(s):**

CPSC Safety Alerts – Safety tips to keep children safe and updated unsafe products

- Avoiding tap water scalds
- Preventing in-home drowning deaths
- Fire prevention tips
- Carbon monoxide alarms

# **Scald/Burn Prevention Resources**

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**National Fire Protection Association (NFPA)** <https://www.NFPA.org/>

**Campaign(s):**

- National Fire Prevention Week
- Learn-Not-To-Burn Pre-School
- Safety Tip Sheets
- Search by specific topics (smoke alarms, fire escape plans, etc.)

***Each program includes:***

General background information/blogs/newsletters

Fact sheets/brochures

Safety Tip Sheets (co-brand)

Guidelines for working with the public and the media

# **Scald/Burn Prevention Resources**

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*Safe kids Worldwide* – <https://www.safekids.org/safetytips>

**Fire and Burn Prevention Campaign(s):**

Safety Tips

Activities for kids

Fact sheets

Videos

Research reports

# **Scald/Burn Prevention Resources**

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*United States Fire Administration (USFA) -*

[https://www.usfa.fema.gov/prevention/outreach/burn\\_prevention.html](https://www.usfa.fema.gov/prevention/outreach/burn_prevention.html).

**Campaign(s):**

- Keeping kids safe from fire
- Burn and scald prevention outreach materials
- 2013 February Focus on Fire Safety: Burn and Scald Prevention
- U.S. fire statistics
- Outreach materials and educational programs
- Prevent Youth Firesetting - National Arson Awareness Week Media Kit

# **Scald/Burn Prevention Resources**

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## *Local initiatives*

- Local Fire/EMS Departments
- Burn Centers/units
- Fire and life safety educators groups
- Safe Kids Coalition
- Local Public Health Departments
- Pediatrician's offices

# **Scald/Burn Prevention Resources**

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## **National**

CPSC – May set standards and levy fines

- Product recalls

- Safety Labels for clothing/appliances

- Children's sleepwear

Underwriter's Laboratory

- Tested and approved products

NFPA – codes/standards

## **State/Local**

Laws/regulations

- Hot water heater temperature settings (residential/public structures)

- Inspections at daycares/schools

State Department of Education –

- Mandatory fire and life safety instruction (public/charter schools)

- Private schools (?)

# **Policy Initiatives**

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American Burn Association (2016). Advanced Burn Life Support Course, Chicago, IL

American Burn Association – Burn Prevention Committee <https://www.Ameriburn.org>.

American Burn Association. (2015). National Burn Repository 2016 Report version 12. Retrieved from <http://ameriburn.org/2016 NBRAnnualReport.pdf>.

American Burn Association. (2012). Burn Prevention Fact Sheet/Educator’s guide. Retrieved from <http://ameriburn.org/preventionEdRes.php>.

Safe Kids Worldwide. (2014). <https://www.safekids.org/safetytips>.

Centers for Disease Control & Prevention – Child Safety and Injury Prevention <https://www.cdc.gov/safekids/burns/index.html>.

Consumer Products Safety Commission - <https://www.cpsc.gov/Safety-Education/Safety-Guides>.

National Fire Protection Association (NFPA) <https://www.NFPA.org/>

United States Fire Administration (USFA) - [https://www.usfa.fema.gov/prevention/outreach/burn\\_prevention.html](https://www.usfa.fema.gov/prevention/outreach/burn_prevention.html).

# References

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# Questions



Please enter your questions in the Q & A box

# Thank you!

Please fill out our short evaluation:

<https://www.surveymonkey.com/r/LV3DK3F>