



## **Texas State Child Fatality Review Team Committee Position Statement: Fire and Burn Safety for Children**

The State Child Fatality Review Team Committee (SCFRT) works closely with local Child Fatality Review Teams (CFRT) to promote public awareness to reduce the number of preventable child deaths. Fire- and burn-related injuries are a cause of much physical suffering and pain as well as a cost of \$7.5 billion each year to care for injured individuals in the U.S. According to the Centers for Disease Control and Prevention (CDC), fire and burn injuries were the third leading cause of unintentional injury death for children one to nine years of age in 2006. In Texas, fire and burn injuries were the third and fourth cause of unintentional injury death respectively for children one to four and five to nine years of age in 2007. Each year in Texas, approximately thirty children and adolescents die due to fire and burn injuries.

Research studies have demonstrated that the groups at most risk for fire related injuries and deaths are children who are:

- Younger than five years of age
- Living in poverty
- Living in substandard housing
- Living in homes without smoke alarms or carbon monoxide detectors
- African American and Native American

The majority of fire and burn injuries occur in homes and most fatalities from house fires are related to inhaling smoke or toxic gases.

Another danger related to home fires, heating of homes and exposure to toxic gases is carbon monoxide poisoning. Carbon monoxide is an odorless, colorless toxic gas that is produced by common household and environmental exposures such as natural gas, propane or other fuel-burning furnaces and heaters, motor vehicle or other gasoline powered engines and generators, fire places and charcoal grills.

Breathing in carbon monoxide displaces oxygen carried by hemoglobin, impeding the delivery of oxygen to vital organs and all body tissues. Even small amounts of carbon monoxide can be dangerous because hemoglobin will preferentially bind to carbon monoxide instead of oxygen. This leads to a lack of oxygen or hypoxia that can range from minor and reversible effects to serious brain and heart damage leading to death. Common early signs of carbon monoxide poisoning are headache, nausea, weakness, rapid breathing, and dizziness.

The most common burn-related injury in young children presenting to an emergency room for care is scald burns. One study documented the extent and mechanism of unintentional scald burn injuries of children less than five years old. The majority of the unintentional burns (88 percent) were attributed to non-tap water scald injuries. Unintentional non-tap water scald burns in the study most often occurred in the kitchen or dining area and involved hot liquids during cooking, eating and drinking. An important observation noted for prevention was that young children in the study were burned after they opened the microwave door and removed a container with a hot liquid.

Children are exposed to multiple mechanisms where they can suffer injuries from fire- and burn-related injuries and death such as fire- and smoke-related injuries, scald and appliance burns, electrical burns and injuries related to fireworks.

## RECOMMENDATIONS TO THE STATE OF TEXAS, THE TEXAS LEGISLATURE, PARENTS, HEALTHCARE PROVIDERS AND CHILD FATALITY REVIEW TEAMS

The SCFRT, along with other leaders in injury prevention such as the CDC, American Academy of Pediatrics, Safe Kids Worldwide, U.S. Consumer Product Safety Commission, FireSafety.gov, and municipal and volunteer fire departments, makes the following recommendations to prevent fire- and burn-related injuries. Above all else, prevention of burns and all other injuries to children start with age-appropriate supervision of children. Children should not be left unattended or unsupervised in situations where a burn injury can occur.

### PREVENTING FIRE AND SMOKE-RELATED INJURIES

- Smoke Alarms:
  - Install smoke alarms on every floor of the house including the basement. Smoke alarms hardwired into the residence power supply are preferred.
  - It is recommended to have smoke alarms outside every bedroom or area where people sleep as well as where a furnace is located.
  - Use smoke alarms with a flashing light and an alarm for children and adults who are deaf.
  - To avoid false alarms, keep smoke alarms away from the kitchen and bathroom areas.
  - Keep smoke alarms in working order.
    - Test and clean smoke alarms once per month.
    - Use long-life batteries, and change batteries at least once per year (coincide with Fall Daylight Savings time change).
    - Replace smoke alarms every 10 years.
    - Never paint a smoke alarm.
  
- Fire Drills:
  - Develop a fire escape plan for your family.
    - Draw a floor plan of your home.
    - Discuss at least two ways to escape from a room.
    - Insure windows can be opened easily and have room to escape a fire.
    - Children younger than five years old or with special healthcare needs will need to have a plan for adult assistance in the fire escape plan.
    - Discuss and practice the fire escape plan every six months.
    - Have a safe place to meet outside of the home.
    - During a fire always use the stairs, not an elevator.
    - Discuss fire escape plan with all who watch your children: relatives, neighbors, sitters.
    - Do not open any door if you feel heat on the door or see smoke around or under the door.
    - Crawl low to the floor in a smoke-filled room.
    - Do not stop until you have reached safety outside your home.
    - Do not go back into the burning home.
  
- If Clothes Catch on Fire:
  - **Stop** and do not run.
  - **Drop** to the ground.
  - **Roll** over to put out the fire.
  - **Cool** burned areas with water.
  - **Call** for help.
  
- House Fires Prevention:
  - Never leave lit cigarettes unattended.
  - Never smoke in bed.
  - Do not place ashes in trash cans.

- Keep ashtrays away from upholstery and curtains.
- Never leave food unattended on the lit stove.
- Keep flammable objects such as towels and potholders away from cooking areas.
- Do not wear clothes with long and loose fitting sleeves while cooking.
- Never place space heaters or candles near upholstery or drapes.
- Store matches and lighters out of reach of children.
- Adults in the home should learn how and when to use fire extinguishers from manufacturers and their local fire department

### **PREVENTING CARBON MONOXIDE POISONING**

The following precautions are advised for preventing carbon monoxide poisoning:

- If you suspect carbon monoxide poisoning, immediately get fresh air, call 911 and seek prompt medical attention.
- Install battery operated carbon monoxide detectors in the home. Replace batteries at Daylight Savings time change each spring and fall.
- Have annual fuel-burning home heating systems checked by qualified service technicians.
- Never use your gas stove or oven to heat your home.
- Never use fuel-burning engines or generators inside your home or near a home window.
- Never use fuel- or charcoal-burning grills or camping stoves inside your home or near a home window.
- Insure your fireplace flue or vent is open and your chimney is clean before lighting a fire.
- Never run your motor vehicle inside your garage.

### **PREVENTING SCALD BURNS**

The following precautions are advised for preventing scald burns:

- Tap water burns:
  - Set hot water heaters to 120° Fahrenheit.
  - Always test the water before young children are allowed in the bathtub or shower.
  - Consider installing anti-scald devices on faucet handles. Anti-scald devices shut off the water if it is too hot.
  - Avoid bathing children in the kitchen sink. Faucet handles on kitchen sinks can be accidentally shifted allowing hot water to flow from the faucet. Sink basins with attached garbage disposal can allow very hot water from a draining dishwasher to flow up into the sink.
- Hot liquid burns:
  - Keep young children out of the kitchen or cooking areas.
  - Use rear burners to cook and turn cookware handles away from the front of the stove.
  - Keep containers with hot liquids or food toward the center or the rear of counter tops and tables.
  - Remove tablecloths from tables that have hot liquids or food on them.
  - Install an anti-tip bracket to stoves.
  - Never carry infants or young children at the same time you are holding containers with hot liquids.
  - Do not allow young children to use a microwave oven.
  - Do not use a microwave oven to heat infant bottles. (Liquids can be hotter than the containers.) Heat infant bottles with warm water.
  - Test cooked food or heated liquids to ensure they are not too hot for infants and children.

### **PREVENTING APPLIANCE AND ELECTRICAL BURNS**

The following precautions are advised for preventing appliance and electrical burns:

- Keep children safe and away from hot appliances and tools. Unplug appliances not in use.
- Heaters and Fireplaces:
  - Keep children away from all space or wall heaters.
  - Use protective coverings for heaters and fireplace.

- Ensure heaters are level, stable and cannot be tripped over easily.
- Turn off space heaters when leaving a room or going to bed.
- Never leave a heater or fireplace on when you sleep or leave the house.
- Never place heaters within three feet of flammable material such as drapes, furniture or paper.
- Electrical Burns:
  - Supervise young children around electrical appliances and outlets in use.
  - Store unused electrical appliances out of reach of young children.
  - Unused electrical outlets should be covered with safety devices that do not pose a choking hazard.
  - Keep electrical cords out of the reach of young children.

### **PREVENTING FIREWORKS–RELATED INJURIES**

Although fireworks-related injuries do not directly account for many deaths in the U.S., they do directly account for significant injuries and can cause fatal residential and motor vehicle fires. A study conducted by the U.S. Consumer Product Safety Commission in 2009 reported two deaths and almost 9,000 emergency room visits due to injuries from fireworks. Most of the injuries occurred to individuals younger than 20 years of age. Other studies also show that young children and adolescents suffer the majority of fireworks-related injuries. Common injuries related to fireworks are burns and lacerations to the hands and fingers, face and head. Most of the injuries are caused by firecrackers, bottle rockets and sparklers. Sparklers are a common type of fireworks that are used by young children and are often felt to be safe. However, sparklers can achieve temperatures of nearly 2000°F and can cause severe injuries directly to body parts or ignite clothing and start residential fires.

State and municipal laws vary and it is recommended that responsible adult caregivers always supervise children and adolescents when using fireworks and that all federal, state and municipal laws be followed.

The Federal Hazardous Substance Act and the U.S. Consumer Product Safety Commission ban the manufacture, sale and acquisition of dangerous fireworks which include:

- M-80's, quarter sticks, half sticks, and other similar large firecrackers.
- All firecrackers with >50 milligrams of explosive powder.
- All aerial fireworks with >130 milligrams of flash powder.
- Mail-order kits and components for fireworks listed above.

In order to prevent most fireworks-related injuries, it is recommended to view fireworks displays performed by trained professionals. If individuals choose to use legal fireworks, these safety precautions are encouraged:

- Always supervise children around fireworks.
- Young children should not ignite, hold or play with fireworks.
- Do not have any part of your body over ignited fireworks; move to a safe distance once fireworks are ignited.
- Do not attempt to re-use or re-ignite fireworks that do not function.
- Do not throw or point fireworks at anyone.
- Do not ignite fireworks in any container.
- Do not carry fireworks in your pockets or anywhere close to you.
- Have a bucket of water or water hose ready to use in case of a fire.
- Wet used fireworks before disposing of them in the trash.
- Do not alter or combine fireworks.
- Do not make your own fireworks or use illegal explosives.

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The SCFRT makes the above recommendations to educate the public in our collaborative effort with local CFRT across the state to promote injury prevention and eliminate all preventable deaths to children and adolescents in Texas. The SCFRT Position Statement on Fire and Burn Safety for Children is a product of the research of Dr. Juan Parra, reviewed and approved by the SCFRT membership. This Position Statement will be reviewed annually and updated as new validated information indicates. November 2010

## RESOURCES:

- [Centers for Disease Control and Prevention, National Center for Injury Prevention and Control](#)
- [National Maternal Child Health Center for Child Death Review, Child Injury Prevention Tool: Selecting Best Practices](#)
- [National Fire Protection Agency: Safety Information](#)
- [Safe Kids USA, Safety Basics](#)
- [United States Fire Administration](#)
- [US Consumer Product Safety Commission, Safety Tips](#)
- [Home Safety Council: All-ways Fire Safe at Home Toolbox](#)
- [National Council on Fireworks Safety](#)
- [American Academy of Pediatrics: Healthy Children, Safety and Prevention](#)

## REFERENCES:

Centers for Disease Control and Prevention (CDC), Fire Deaths and Injuries: Fact Sheet  
<http://www.cdc.gov/homeandrecreationalafety/fire-prevention/fires-factsheet.html>

CDC Fire Deaths and Injuries: Prevention Tips <http://www.cdc.gov/homeandrecreationalafety/fire-prevention/fireprevention.htm>

CDC: Protect the Ones You Love: Burns [www.cdc.gov/safechild](http://www.cdc.gov/safechild)

CDC: Leading Causes of Injury Death by Age Group: Unintentional Injury Deaths, U.S. 2006. National Center for Health Statistics

CDC: 10 Leading Causes of Unintentional Injury Deaths, Texas 2007. National Center for Health Statistics. CDC: Fireworks-Related Injuries.  
<http://www.cdc.gov/homeandrecreationalafety/fireworks/index.html>

CDC: Carbon Monoxide. NIOSH Workplace Safety and Health Topic.  
<http://www.cdc.gov/niosh/topics/co-comp/>

CDC: Carbon Monoxide Poisoning, You Can Prevent carbon Monoxide Exposure.  
<http://www.cdc.gov/co/guidelines.htm>

CDC: Preventing Carbon Monoxide Poisoning After an Emergency.  
<http://www.bt.cdc.gov/disasters/cofacts.asp>

U.S. Consumer Product Safety Commission and U.S. Fire Administration News: Sound Carbon Monoxide Alarm as Temperatures Drop, Potential for Carbon Monoxide Poisonings and Deaths Rise. Release # 07-075 January 5, 2007.  
<http://www.cpsc.gov/CPSCPUB/PREREL/prhtml07/07075.html>

American Academy of Pediatrics (AAP), Committee on Injury and Poison Prevention: Reducing the Number of Deaths and Injuries from Residential Fires. *Pediatrics* 105(6):1355-1357, June 2000.

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AAP Clinical Report: Office-Based Counseling for Unintentional Injury Prevention. *Pediatrics* 119(1): 202-206, January 2007.

Souza AL, Nelson NG, McKenzie LB. Pediatric Burn Injuries Treated in US Emergency Departments Between 1990 and 2006. *Pediatrics* 124(5): 1424-1430, November 2009.

Johnston BD, Rivara FP. Injury Control: New Challenges. *Pediatrics in Review* 24(4):111-118, April 2003.

Klein GL, Herndon DN. Burns. *Pediatrics in Review* 25(12): 411-417, December 2004.

Lowell G, Quinlan K, Gottlieb LJ. Preventing Unintentional Scald Burns: Moving Beyond Tap Water. *Pediatrics* 122(4): 799-804, October 2008.

Landen MG, Bauer U, Kohn M. Inadequate Supervision as a Cause of Injury Deaths among Young Children in Alaska and Louisiana. *Pediatrics* 111(2): 328-331, February 2003.

Children and Burns, World Health Organization. World Report on Child Injury Prevention. [http://www.who.int/violence\\_injury\\_prevention/child/injury/world\\_report/en/index.html](http://www.who.int/violence_injury_prevention/child/injury/world_report/en/index.html)

AAP HealthyChildren.org, Safety and Prevention All Around:

- Fire Safety
- Fire Safety: Planning Saves Lives
- Keeping Safe from Burns

<http://www.healthychildren.org/English/Safety-prevention/all-around/Pages/default.aspx>

Safe Kids USA Position Statement: The Safest Setting for Home Hot Water Heaters

<http://www.safekids.org/safety-professionals/position-statements/home-hot-water-heaters.html>

Safe Kids USA, Safety Basics:

- Burn prevention for little kids at home
- Burn and scald prevention tips

<http://www.safekids.org/safety-basics/>

U.S. Consumer Product Safety Commission: Thousands of Injuries with Sparklers, Firecrackers and Aerials; CPSC Urges Consumers to Put Safety in Play during the Fourth of July. News from CPSC Release #10-282, June 29, 2010

<http://www.cpsc.gov/cpscpub/prerel/prhtml10/10282.html>

Kids Health: Fireworks Safety

[http://kidshealth.org/parent/firstaid\\_safe/outdoor/fireworks.html](http://kidshealth.org/parent/firstaid_safe/outdoor/fireworks.html)