Burns

Facts

According to the latest data available from the National SAFE KIDS Campaign and the Centers for Disease Control and Prevention (CDC), consider the following statistics:

- Accidental, or unintentional, injury is a leading cause of death among children ages 14 and younger.
- Leading causes of accidental injury at home are:
  - Burns
  - Drowning
  - Suffocation
  - Choking
  - Poisonings
  - Falls
  - Fire arms
- Burns and fires are the fifth most common cause of accidental death in children and adults, and account for estimated 4,000 adult and child deaths per year.
- Nearly 75 percent of all scald (hot liquid) burns in children are preventable.
- Toddlers and children are more often burned by scalding or flames.

During the last 30 years, burn injuries have decreased for the following reasons:

- Increased use of smoke detectors.
- The flammability of consumer products, such as toys and pajamas, is federally regulated.
- The US government monitors safety in the workplace.
- A greater national emphasis is placed on burn injury prevention and fire safety.
- A decrease in smoking helps prevent burn injuries.
- New water heaters in homes and in public areas are now preset at lower temperatures to reduce scald injuries.
- There are fewer open fires.

Identifying High-Risk Situations

Children are at increased risk for serious fire and burn injuries and death because they have thinner skin than adults, resulting in more serious burns at lower temperatures. Most burns and fire injuries and deaths occur in the home. By taking steps to make your home safer, you can help protect your child from fire and burn injuries or death.

To make your home safer:

- **DO** install and maintain working smoke alarms.
- **DO** keep matches, gasoline, lighters, or other flammable products out of the reach of children
- **DO** establish a home escape plan.

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• **DO** check the temperature of tap water and lower the water heater thermostat to 120° F or below.
• **DO** check electrical outlets and cords for fraying.
• **DO NOT** leave children unattended in the home, especially in the kitchen or bathroom.
• **DO NOT** work with hot foods or liquids around toddlers and infants.
• **DO NOT** allow children to handle fireworks.
• **DO NOT** allow children near kerosene lamps, space heaters, or outside grills.
• **DO NOT** leave supplemental heating equipment on while adults and children are asleep.

<table>
<thead>
<tr>
<th>Age</th>
<th>Most Common Injury Type</th>
<th>Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5 Years</td>
<td>Flame</td>
<td>Playing with matches, cigarette lighters, fires in fireplaces, barbecue pits, and trash fires.</td>
</tr>
<tr>
<td></td>
<td>Scald</td>
<td>Kitchen injury from spilling hot liquids. Bathtub scalds are often associated with lack of supervision or child abuse. The greatest number of pediatric burn patients is infants and toddlers younger than 3 years of age burned by scalding liquids.</td>
</tr>
<tr>
<td>5 to 10 Years</td>
<td>Flame</td>
<td>Male children are at an increased risk for flame burns due to fire play and risk-taking behaviors.</td>
</tr>
<tr>
<td></td>
<td>Scald</td>
<td>Female children are at increased risk, with most burns occurring in the kitchen or bathroom.</td>
</tr>
<tr>
<td>Adolescent</td>
<td>Flame</td>
<td>Injury associated with male peer-group activities involving gasoline or other flammable products, such as fireworks.</td>
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<tr>
<td></td>
<td>Electrical</td>
<td>Occurs most often in male adolescents involved in dare-type behaviors, such as climbing utility poles or antennas. In rural areas, burns may be caused by moving irrigation pipes that touch an electrical source.</td>
</tr>
</tbody>
</table>

**Prevention**

**Tips for preventing burn injuries:**

During the last 20 years, fatalities and injuries from burns and fires have decreased significantly. This decrease can be attributed to heightened public awareness of fire prevention, as well as safer manufacturing of many consumer products.

The following tips can increase burn awareness and promote fire safety:
- Periodically, check electrical plugs and cords for dirt or fraying.
- Keep appliances unplugged when not in use.
- When working with a hot liquid, keep your child safely away from the source.
• If you have a toddler or small child at home, avoid using a tablecloth. The child may pull on the corner of the tablecloth causing potentially hot objects to fall on them.
• Teach your child what to do in case of a house fire. Practice your exit strategy and teach them how to put out a fire.
• When cooking with hot oil or a deep fryer, keep your child a safe distance from the source.
• When cooking, keep pot handles turned inward on the stove top and away from the edge of the stove.
• If you use a microwave to heat your child's food, test the temperature before giving it to your child.
• Heating formula or milk in a microwave can be dangerous, as the liquid does not heat uniformly. Some portions may be hotter than others. Use a bottle warmer as a safer means to warm infant formula and milk.
• If you are cooking on the stove or in the microwave, do not hold your child as you remove items from these appliances.
• Teach your child to stay away from lighters and matches. Keep these items out of a child’s reach.
• Before placing a child or infant in a bathtub, check the water temperature with your hand.
• Train your children to identify exits in public places, theatres, concert halls, and hotels.
• Turn down your water heater to 120° F.
• Check alternative heating devices for safe operation (electric space heaters or kerosene heaters).
• Check smoke detector batteries and clean your smoke detector often.
• Smoke detector batteries should be changed twice a year. Choose two dates that are easy to remember such as when you change your clocks, or on a summer or winter holiday.
• Before using barbecues or grills, clean them of grease buildup and use lighter fluid sparingly.
• Make sure your child uses a sunblock whenever he/she is in the sun.
• Supervise children near fireworks.
• Encourage children to wear shoes in the summer and avoid walking on hot asphalt or hot sand.
• When traveling, know hotel and motel exits in case of a fire.
• Store harmful chemicals and cleaners in an area that children do not have access to.
• Clean your chimney or fireplace before using during the winter months.
• Always discard smoking materials in a deep or wet receptacle.
• Do not overload electrical outlets.
• During a power outage, use flashlights instead of candles.
• During Halloween, assure that your child is wearing a flame-retardant costume.
• Use the following tips for Christmas tree safety:
  o Check tree lights and decorations.
  o Keep trees well-watered.
  o Unplug all lights when leaving home for any length of time.
  o Do not block an exit with Christmas decorations.
**Burn Classification & Care**

**First-Degree Burns**

**What is a first-degree burn?**
First-degree burns affect only the epidermis, or outer layer of skin. The burn site is red, painful, dry, and with no blisters. Mild sunburn is an example. Long-term tissue damage is rare and usually consists of a change in the skin color.

**What causes a first-degree burn?**
In most cases, first-degree burns are caused by the following:
- mild sunburn
- flash burn - a sudden, brief burst of heat

**What are the symptoms of a first-degree burn?**
The following are the most common signs and symptoms of a first-degree burn. However, each child may experience symptoms differently. Symptoms may include:
- redness
- dry skin
- skin that is painful to touch
- pain usually lasts 48 to 72 hours and then subsides
- peeling skin

The symptoms of a first-degree burn may resemble other conditions or medical problems. Consult your child's physician for a diagnosis.

**Treatment for first-degree burns:**
Specific treatment for a first-degree burn will be determined by your child's physician, based on the following:
- your child's age, overall health, and medical history
- extent of the burn
- location of the burn
- cause of the burn
- your child's tolerance for specific medications, procedures, or therapies
- your opinion or preference

First-degree burns usually heal on their own within a week. Treatment may depend on the severity of the burn and may include the following:
- cold compresses
- lotion or ointments
- acetaminophen or ibuprofen

First-degree burns are usually not bandaged. Consult your child's physician for additional treatment for first-degree burns.
Second-Degree Burns

What is a second-degree burn?
Second-degree burns involve the epidermis and part of the dermis layer of skin. The burn site appears red, blistered, and may be swollen and painful.

What causes a second-degree burn?
In most cases, second-degree burns are caused by the following:
- scald injuries
- flames
- skin that briefly comes in contact with a hot object

What are the symptoms of a second-degree burn?
The following are the most common signs and symptoms of a second-degree burn. However, each child may experience symptoms differently. Symptoms may include:
- blisters
- deep redness
- burned area may appear wet and shiny
- skin that is painful to the touch
- burn may be white or discolored in an irregular pattern

The symptoms of a second-degree burn may resemble other conditions or medical problems. Consult your child's physician for a diagnosis.

Treatment for second-degree burns:
Superficial second-degree burns usually heal in about three weeks, as long as the wound is kept clean and protected. Deep second-degree burns may take longer than three weeks to heal. Specific treatment for a second-degree burn will be determined by your child's physician, based on the following:
- your child's age, overall health, and medical history
- extent of the burn
- location of the burn
- cause of the burn
- your child's tolerance for specific medications, procedures, or therapies
- your opinion or preference

A second-degree burn that does not cover more than 10 percent of the skin's surface can usually be treated in an outpatient setting. Treatment depends on the severity of the burn and may include the following:
- antibiotic ointments
- dressing changes one or two times a day depending on the severity of the burn
- daily cleaning of the wound to remove dead skin or ointment
- possibly systemic antibiotics

Wound cleaning and dressing changes may be painful. In these cases, an analgesic (pain reliever) may need to be given.
Third-Degree Burns

What is a third-degree burn?
A third-degree burn is referred to as a full thickness burn. This type of burn destroys the outer layer of skin (epidermis) and the entire layer beneath (or dermis).

What causes a third-degree burn?
In most cases, third-degree burns are caused by the following:
- a scalding liquid
- contact with a hot object for an extended period of time
- flames from a fire
- an electrical source
- a chemical source

What are the symptoms of a third-degree burn?
The following are the most common symptoms of a third-degree burn. However, each child may experience symptoms differently. Symptoms may include:
- dry and leathery skin
- black, white, brown, or yellow skin
- swelling
- lack of pain because nerve endings have been destroyed

Large third-degree burns heal slowly and poorly without medical attention. Because the epidermis and hair follicles are destroyed, new skin will not grow.

The symptoms of a third-degree burn may resemble other conditions or medical problems. Consult your child's physician for a diagnosis.

Treatment for third-degree burns:
Specific treatment for a third-degree burn will be determined by your child's physician, based on the following:
- your child's age, overall health, and medical history
- extent of the burn
- location of the burn
- cause of the burn
- your child's tolerance for specific medications, procedures, or therapies
- your opinion or preference

Treatment for third-degree burns will depend on the severity of the burn. Burn severity is determined by the amount of body surface area that has been affected. The burn severity will be determined by your child's physician. Treatment for third-degree burns may include the following:
- early cleaning and debriding (removing dead skin and tissue from the burned area). This procedure can be done in a special bathtub in the hospital or as a surgical procedure.
- intravenous (IV) fluids containing electrolytes
- antibiotics by intravenous (IV) or by mouth
- antibiotic ointments or creams

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- nutritional supplements and a high-protein diet
- pain medications
- skin grafting (may be required to achieve closure of the wounded area)
- functional and cosmetic reconstruction

**What is a skin graft?**
A skin graft is a piece of the child's unburned skin which is surgically removed to cover a burned area. Skin grafts can be thin or thick. Skin grafts are performed in the operating room. The burn that is covered with a skin graft is called a graft site.

**What is a donor site?**
The area where the piece of unburned skin was taken to be donated to a burned area is called a donor site. After a skin graft procedure the donor sites look like a scraped or a skinned knee. Your child's physician will decide if a skin graft is needed. A skin graft is often performed after debridement or removal of the dead skin and tissue.

Available online at www.musckids.com

This handout was developed to help patients understand more about their condition, treatment, or procedure. It is meant to be used as a guide to supplement your healthcare provider’s instructions. Please consult your physician if you have any questions.