Burn Injuries in Children: Most Are Preventable

Dr. Todd Huffman, for the Eugene *Register-Guard*, February 2010

In the next 5 minutes, another child will be on his or her way to the hospital to be treated for serious burns. It happens more than 300 times a day in this country. Each year over 23,000 children are hospitalized, and over 1500 die from burn injuries.

Fire is fascinating to young children, but with this fascination comes a high risk of burn injuries. Burns are among the most disfiguring and potentially serious bodily injuries. Childhood burns can cause long-term suffering and result in permanent physical and mental scars, as well as lead to years of rehabilitation.

Pediatric burn injuries typically result from hot water, flames, hot surfaces, chemicals, and electrical appliances. A recent study conducted by the Center for Injury Research and Policy at Nationwide Children's Hospital, where I trained, found that from 1990 to 2006 more than 2 million children younger than 21 were treated in hospital emergency departments for burn-related injuries.

The good news is that researchers saw a 31 percent decrease in the overall burn-related injuries. Parents are clearly becoming wiser to the dangers of heat and fire. The bad news is that about 120,000 children each year are still being injured from burns.

Researchers also found that thermal burns caused by heat and fire account for 60 percent of all child injuries. Such burns typically occur on the head, hands, fingers, arms and legs, most often due to kitchen-related items. And they typically occur to children younger than 6 years, who accounted for more than half of all burn-related injuries.

Among young children, more than 90 percent of injuries occur in the home. Young children suffer a majority of burn-related injuries likely because parents underestimate the mobility and reach of toddlers and pre-school aged children. Also, young children have thinner skin; therefore the severity of a burn can be greater for them even at a reduced exposure time.

Parents should be aware of the capability of reach that their young child may have. Many hazards are at eye-level for this age group. Parents should sit on the floor in danger zones in the house, like the kitchen, to see the home from the child's perspective.

Parents can also protect their children by setting the water heater thermostat to no higher than 120 degrees Farenheit to prevent scald burns from faucet water, by keeping all stovetop pots on the back burner and keeping kids away from the stove, by locking up chemicals, and by covering unused electrical outlets.

Parents should prohibit young children from operating microwaves or other electrical appliances, preparing hot food or drinks, and playing in the kitchen during food preparation. Parents should also take great care to keep mugs of hot coffee or tea well beyond the reach of small children, such as at the back of the counter.

Researchers at Nationwide Children's found that scald burns, and burns resulting from fuels and fuel-burning equipment, were the most likely to cause hospitalization in children.

Tap water burns are the most common source of scald injuries in young children, usually in homes in which the water heater is set to >120 degrees. At such temperatures, full-thickness burns to the skin can occur in less than 30 seconds in young children. In such homes, allowing young children access to hot tap water, or allowing them to draw their own bath, increases the risk of a scald burn.

The most common burn in older children is sunburn, and burns resulting from prolonged use of a tanning bed. While most parents are diligent about applying sunscreen to young children, many struggle to enforce sunscreen use in older children and adolescents, accounting for that sunburns requiring medical attention occur ten times more often in teenagers than in any other age group.

First-degree burns include most sunburns, and brief scald burns. The skin is pink or red, dry and mildly painful. The pain of first-degree burns usually resolves within 1 to 2 days, and the skin heals within 3 to 5 days. Peeling may begin within one week.

Second-degree burns include severe sunburns, and most scald burns. The skin is deep pink or red with blisters, and very painful. Second-degree burns need medical attention, and require medication to alleviate the pain. Blisters burst within 2 to 3 days, and the burn takes 2 to 4 weeks to heal completely.

Third-degree burns are usually caused by flames, fuel burns, electricity, irons, wood stoves, and space heaters. The skin is white, charred, leathery, and often painless. Third-degree burns can be disfiguring, and require immediate medical care, hospitalization and surgical treatment.

When a child is burned at home, parents should first run cold water or place a cool water-soaked clean washrag over the burn. If the burn is first-degree, without blisters, the child should be given ibuprofen three times daily for the next few days.

Do not place any gels or creams on the wound until the pain is gone. It is not necessary to use topical antibiotics on first-degree burns. Do not use milk, butter, or lard on a burn, for they may introduce bacteria to the wound. Once the pain is resolved, aloe vera cream or even a hemorrhoid cream can be used to soothe and relieve the itch of healing skin.

Second-degree burns, with blisters, usually require medical attention, especially in young children. Again, apply a cold compress and give ibuprofen until medical attention is received. The physician will likely recommend twice daily dressing changes, with application of an anti-bacterial ointment such as Silvadene™ or Bactroban™, for the first five days. Ibuprofen is essential thrice daily, and the burn should be kept elevated as much as possible.

Parents must remember that burns account for the majority of childhood injuries, and most all are preventable. By taking just a few minutes to turn down your thermostat, cover your outlets, cover your front stovetop burners, remove any kitchen stepstools, and lock away all chemicals, matches, and lighters, you can significantly reduce your child’s risk of burn injury.