

INJURY UPDATE

*A Report to Oklahoma Injury Surveillance Participants**

February 26, 2010

Scalds and Other Hot Liquid Burns among Children 0-4 Years of Age, Oklahoma, 1990-2007

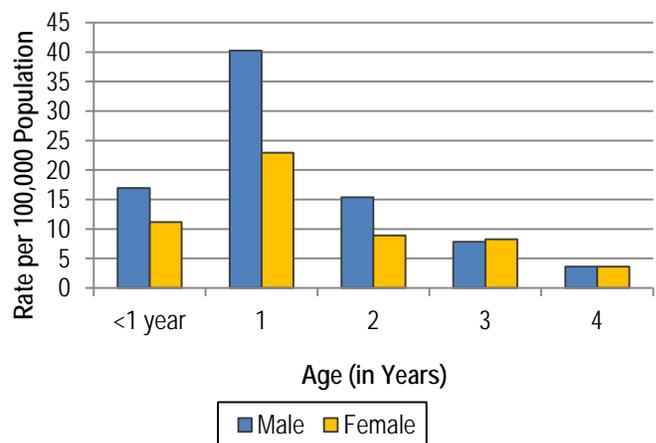
From 2004-2006, fire and burn-related injuries were the seventh leading cause of nonfatal injury for children under five years of age in the United States and the fourth leading cause of unintentional injury death. Burns and smoke inhalation injuries that result in hospitalization or death are a reportable condition in Oklahoma, and the Injury Prevention Service has been collecting burn and smoke inhalation data since the end of 1987.

During the 18-year period 1990-2007, 8,071 Oklahomans died or were hospitalized in a burn center as a result of a burn or smoke inhalation injury. Fifteen percent (1,209) of these injuries were to children under the age of five. Fifty-one percent (598, including four deaths) of burn injuries to children under the age of five were due to scalds, but scalds accounted for only 15% of burn injuries to individuals five years of age and older. Scalds were caused by tap water, heated water, hot drinks, sauces, soups, grease, and other non-food liquids such as potpourri oil and radiator fluid.

Males were 1.5 times more likely than females to suffer a scald that resulted in a burn center admittance or death (16.8 and 11.0 scalds per 100,000, respectively) (Figure 1). The highest rate of scalds occurred in children one year old (31.8 per 100,000) and decreased as children got older. The rate of scalds for children one year old was nearly nine times that of children four years old (3.6 per 100,000). Hispanic children had a 33% higher rate of scalds than non-Hispanic children (18.6 and 13.6 per 100,000, respectively). African American children had the highest rate of scalds, more than twice that of whites and nearly three times that of Native Americans (27.3, 12.7, and 9.4 per 100,000, respectively).

Heated water (such as from pans on a stove, tea kettles, vaporizers, etc.) accounted for 27% (159) of scald injuries, tap water 22% (134) of injuries, and other hot liquids 51% (305) of injuries. Of other hot liquids, the most common were hot drinks such as tea, coffee, and hot cocoa which made up 41% (125) of other hot liquid scalds. Hot greases and oils made up 29% (89) of other hot liquid scalds. Only eight scalds were not related to food or water, and included potpourri, wax, and radiator fluid burns. Children injured by hot tap water suffered similar size burn injuries to children injured by heated water (mean total body surface area burned 15% and 14%, respectively), but had longer hospital stays (mean stay of 10.2

Figure 1. Scald Injury Rates by Gender and Age among Children 0-4 Years, Oklahoma, 1990-2007



*The INJURY UPDATE is a publication of the Injury Prevention Service, Oklahoma State Department of Health. This and other IPS information may be obtained from the Injury Prevention Service, Oklahoma State Department of Health, 1000 N.E. 10th Street, Oklahoma City, OK 73117, 405-271-3430 or 1-800-522-0204 (in Oklahoma). IPS publications are also available at <http://ips.health.ok.gov>

days and 7.5 days, respectively). Scalds due to tap and heated water resulted in more severe burns and longer hospital stays compared to other hot liquid scalds.

The vast majority of injuries occurred either at the patient's home (85%) or at someone else's home (11%). Scald injuries were spread fairly evenly throughout the year, with a slightly higher percentage in January and November (10% and 11%, respectively) compared to the lowest percentage that occurred in September (6%). Scald injuries were evenly spread throughout the week. Scald injuries were most common between 4:00 PM and 7:59 PM (36% of scalds) and from noon to 3:59 PM (22%). Only 4% of scalds occurred between midnight and 7:59 AM. The incidence of scalds decreased from 1990-2007. Thirty percent of scalds occurred from 1990-1992 and 12% from 2005-2007 (Figure 2).

Nine percent (51) of scalds were intentional in nature. Two intentional scalds were fatal. Intentional scalds had different demographics compared to unintentional scalds. Thirty-five

percent of intentional scald victims were two years of age and nearly another one-third (32%) were one year of age. Forty-three percent of patients were African American, compared to 11% of the population. Intentional scalds were not evenly distributed throughout the year by month, with 32% of intentional scalds occurring in August and none occurring in July. Seventy-five percent of intentional scalds were a result of hot tap water and 23% were a result of heated water. Only 2% were a result of any other hot liquid. Seventy-three percent of intentional scalds occurred from 1990-1997, and 27% occurred the following decade, with no intentional scalds in 2007. Intentional scalds resulted in hospital stays more than twice as long as unintentional scalds (mean stays of 15.3 days and 7.2 days, respectively). Intentional scalds also resulted in burns that covered 1.5 times as much total body surface area as unintentional scalds (Table 1).

CASE BRIEFS

- A mother was curling her hair with steam rollers while her 19-month-old daughter crawled around her on the floor. The daughter became entangled in the hot rollers' cord, pulling them off the counter and spilling the hot water inside onto her back. She suffered 6% burns and spent one day in the hospital.
- A mother and another child were in the bathroom while her 9-month-old daughter was in the kitchen. The daughter climbed on her walker and pulled the cord of an electric skillet, causing it and the hot oil it contained to fall on her head. The hot oil burned 20% of her body and resulted in a 20-day hospital stay.
- A father and his 21-month-old daughter were standing in front of a car when someone unscrewed the radiator cap, spraying the daughter with hot radiator fluid and causing 9% burns and a 6-day hospital stay.

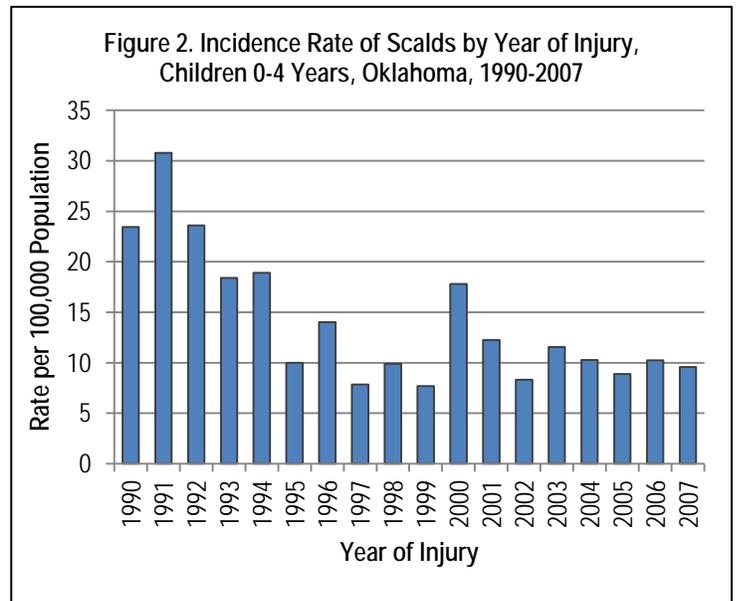


Table 1. Mean Days of Hospitalization and Mean Percentage Total Body Surface Area Burned by Intention of Burn

	Number of Days Hospitalized	Degree of Burn		
		First/Second	Third	Total
Intentional	15.3	17%	3%	19%
Unintentional	7.2	11%	3%	13%

- A mother poured her and her mother cups of coffee and sat them on the edge of the table. Her 11-month-old son reached for the cups and spilled the hot coffee on him. He sustained 10% partial burns which resulted in a 9-day hospital stay.
- A 13-month-old male pulled up on a tablecloth, causing a cup of hot tea to fall on him. He was burned over 6% of his body and stayed one day in the hospital.
- A mother was bathing her daughter and 2-year-old son in the bathtub but left to start a load of laundry. When she returned, she found her daughter had drained the bathtub and turned on the hot water to refill it, burning her 2-year-old son over 15% of his body which resulted in a 2-day hospital stay.
- A father was bathing his 9-month-old daughter in the kitchen sink when the dishwasher backed up into the sink, scalding the daughter with hot water. She was burned over 5% of her body and stayed three days in the hospital.
- A mother placed her 4-year-old son's hands under scalding water to "teach him a lesson" for breaking a mirror. He was burned over 4% of his body and stayed nine days in the hospital.

PREVENTION

- Unintentional tap water scalds can be prevented by following these tips:
 - Lower the temperature of the water heater to no more than 120° F.
 - Always check the temperature of the water before placing a child in a bath.
 - Do not leave a child unattended in the bathtub or sink.
 - When giving children a bath, do not allow them to be supervised by anyone other than an adult.
 - When soaking materials in a sink or a bathtub or when running bath water, shut or lock the door to keep children from contact with hot water.
- Other scalds can be prevented by:
 - Providing constant supervision for children.
 - Caregivers not drinking hot beverages like coffee, tea, or eating hot foods while holding an infant or young child.
 - Allowing food or drink to cool out of reach of young children.
 - Keeping the kitchen off limits to children while food is being prepared.
 - Placing pan and pot handles towards the back of the stove where little hands cannot reach them.
 - Not allowing the cord to any household appliances to hang free and in the reach of children.
 - Not holding a child while cooking food or preparing bottles.
 - Finding a safe place for hot grease to cool.
- If a scald occurs, actions that may lessen the severity of a burn include:
 - Removing clothing to stop on-going heat injury.
 - Slowly cooling the injury with tap water for 30 minutes. Cooling decreases the depth of burning and is the appropriate first aid for all thermal burns.
 - Ice should NOT be used because of the risk of producing hypothermia. Ice may also shut down circulation to the damaged skin and increase the death of tissue.
 - Butter and other types of salves should NOT be used on scald injuries.

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