HAZARD

BURN INJURY FACTS

-Scald Burns in Restaurant Workers -

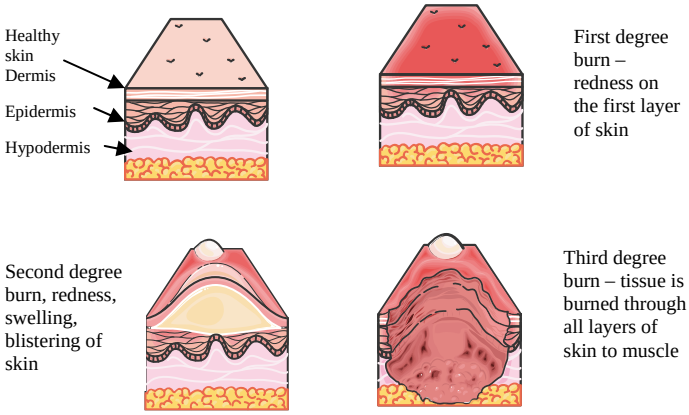
PREVENTION

April 2009
Report # 86-7-2009

Burns are injuries to tissues caused by heat, friction, electricity, radiation, or chemicals. Scalds are a type of burn caused by a hot liquid or steam.

Burns are classified according to how seriously tissue has been damaged.

- A **first degree burn** causes redness and swelling in the outermost layers of the skin.
- A **second degree burn** involves redness, swelling, and blistering. The damage may extend to deeper layers of the skin.
- A **third degree burn** destroys the entire depth of the skin. It can also damage fat, muscle, organs, or bone beneath the skin. Significant scarring is common, and death can occur in the most severe cases.



Scald burns are one the the most common causes of burns in restaurants. They occur when skin comes into contact with hot liquids or steam. Scalds with hot oil are generally more severe than those from hot water because oil heats to higher temperatures than water and oil is thicker so it may remain on the skin for a longer period of time. Scalds from water are very frequent in the restaurant industry and can cause third degree burns almost instantaneously if the water is boiling or simmering.

Water temperature		Time for a **third degree burn** to occur*
155° F	68° C	1 second
148° F	64° C	2 seconds
140° F	60° C	5 seconds
133° F	56° C	15 seconds
127° F	52° C	1 minute
124° F	51° C	3 minutes
120° F	48° C	5 minutes

*Source: American Burn Association

- **Boiling** water occurs at 212° F.
- **Simmering** water occurs between 185° to 200° F.
- **Hot beverages** served in restaurants are between 160° to 180° F

Job Site Hazards

- **Slip or trip** hazards can cause workers to stumble or fall. Slips, trips and falls are common events leading to restaurant worker burns. Many serious burns occur when employees slip and reach to steady themselves. This action often knocks hot liquids off of counters/stovetops on to the worker.
- **Carrying full containers** of hot liquids is very dangerous, to the employee carrying the container and to those working around them.
- **Cooking** with boiling water, hot oil or other hot liquids puts you at risk of being burned from splashes or spills. Follow all safety procedures when cooking with hot liquids.

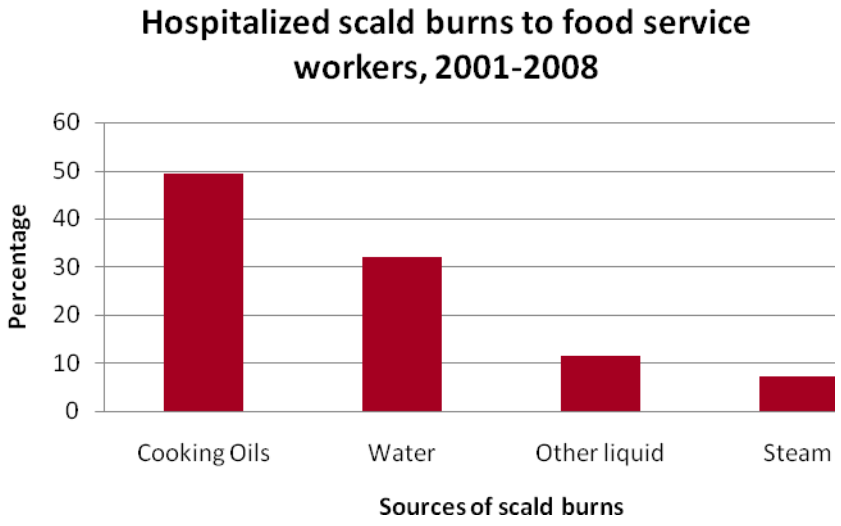
- Working with or around **pressurized cooking equipment** is also dangerous. If pressurized equipment is not properly maintained or used, it can explode causing serious steam injuries.
- **Steam from microwaves** can reach temperatures greater than 200 degrees rapidly in covered containers. Puncture plastic wrap or use vented containers to allow steam to escape while cooking in the microwave, or wait at least one minute before removing the cover. When removing covers, lift the corner farthest from you and away from your face or hands.
- **Cleaning deep fryers or around deep fryers** are common tasks associated with burn injuries in Washington restaurants. Extreme caution should be used when cleaning the deep fryer and surrounding kitchen area.

Consequences of Scald Burns

- When hot liquid makes contact with the skin, cells are killed by the heat. In many cases, contact with very hot liquid can damage tissue extensively, the contact may only last a second or so, but damage can still occur.
- Eye contact with hot liquids, even a small amount, can be very damaging and an ophthalmologist (eye doctor) should always be consulted.
- Physically, victims may suffer from chronic pain and scarring. Socially, workers may have difficulty re-integrating into the community, and may experience anxiety, depression, or other psychological symptoms.
- The economic costs may also be high. Workers' compensation pays only a portion of lost wages. Some workers may not be able to return to their pre-injury job. Employers bear the costs associated with lost productivity, reduced competitiveness, employee rehiring and retraining, as well being subject to increases in workers' compensation premiums.

Washington State Workers and Scald Burns

To date we have identified forty-nine restaurant food workers who from January 1, 2000 through December 1, 2008 received work-related scald burn injuries that were serious enough to require a hospital admission. Most were burned by cooking oils (49%), followed by water (32%), other sources (12%), and steam (7%).



Over 30% of these hospitalized burns were associated with a slip, trip or fall. Slip, trip or fall related burns had higher average medical costs and time loss days than non-slip, trip or fall scald burns.

Just a Few Workers' Stories…

Worker 1: A 24 year old male was working at a quick service restaurant, when a pot of hot water spilled on him. He received 2nd degree burns on over 25% of his body. He was hospitalized and was out of work for over 5 weeks.

Worker 2: A 24 year old male cook was moving a vat of hot oil when he slipped and spilled the oil on himself. The oil splattered his face, chest, both arms and right flank. He had 2nd degree burns to 18% of his body. He required skin grafts to his arm, and was in the hospital for more than 2 weeks and out of work for over 11 weeks.

Worker 3: An 18 year old male cook was trying to remove the lid from a pressure cooker. The steam caused burns to his face, arm and chest. He received 1st degree burns on 9% of his body. He was hospitalized for three days and out of work for 7 weeks.

Scald Burns are Preventable

Following are recommendations you can take to reduce worker exposures and prevent burn injuries from hot liquids/steam:

What EMPLOYERS can do to reduce the risk of a scald burn injury

- **Place microwaves at a safe height** within easy reach for all users to avoid spills. The face of the person using the microwave should always be higher than the front of the door.
- Provide **splash screens** for frying foods.
- **Maintain equipment** to ensure that lids are tight fitting; handles are securely attached on vessels that contain hot liquids.
- **Ensure workers are trained** on the hazards of hot liquids and safe work practices. Supervisors should encourage, and when necessary, enforce safety rules and best practices.
- **Designate someone** each shift to be responsible for immediately cleaning up spills.
- **Ensure someone** on each shift knows and can use first aid procedures for managing burns.
- **Always practice good housekeeping**, keep floors clean of liquids and other debris. Slips, trips and falls are responsible for almost a third of all restaurant scald burns.
- **Use non-slip matting**, no-skid waxes and coat floors with grit, especially in areas where cooking oils and other liquids may spill.

Recommendations specifically for Deep Fryers

- **Install a gravity feed chute** on deep fryers to an external receptacle so that workers do not have to handle hot waste cooking oil.
- Install **automatic food lowering** devices for fryers.
- **Provide and use splash guards** on fryers.
- **Keep a clear area around and above deep fryers** to keep things from falling into a deep fryer.
- **Train and enforce proper cleaning procedures** for ventilation components or filters. Do not allow anyone to stand on the hot fryer or a nearby uneven surface, for any reason. Have workers use a ladder or stepstool to reach any equipment, and ONLY when the oil is cool and securely covered.

What EMPLOYEES can do to reduce the risk of a scald burn injury

The most important things you can do is to make sure you are aware of how to assess burn hazards in your workplace and how you can reduce your risk of being burned or burning one of your co-workers. Good communication between co-workers, understanding and following all of the safety procedures at your workplace can help to reduce your risk of a serious, potentially life altering injury from a scald burn.

- If **manually transferring** hot liquids ensure the liquid is at a safe level for carrying (1/2 full), use splash guards, or secure lids for all vessels containing hot liquids.

- If transferring hot liquids using a **rolling cart**, ensure the vessel is secure on the cart so that sudden stops or jarring will not allow the container to tip or fall.

- **Carefully handle micro waved liquids**, assume they are hot. Micro waved foods and liquids can reach temperatures greater than boiling without the appearance of bubbling.

- **Always practice good housekeeping**, keep floors clean of liquids and other debris. Slips, trips and falls are responsible for one in three restaurant scald burns.

- **Use hot pads**, potholders, or appropriate size gloves or mitts when appropriate.

- **Wear protective shoes**; open toed shoes, sandals or boots, where hot oil can pool, are not appropriate. Also where shoes with **slip-resistant soles** to avoid slipping or falling.

Recommendations specifically for Deep Fryers

- Use **splash guards** when cooking with deep fryers.

- Keep a **clear area around and above deep fryers** to ensure things do not fall into a deep fryer.

- **Don't** stand on the hot fryer or nearby uneven surface, for any reason. Use a ladder or stepstool to reach filters or ventilation equipment above the fryer, but ONLY when the oil is cool and securely covered.

- If adding **solid grease** to a deep fryer, place the grease in the basket then lower into the hot oil, do not put directly into fryer.

FIRST AID FOR SCALD BURNS

FOR ALL BURNS

- **FIRST - put out any flames**, remove any restrictive jewelry or clothing.
- **Check** that the **Airway** is open, the person is **Breathing** and that there are signs of **Circulation**.
- **Don't use ice.** Putting ice directly on a burn can cause even more damage.
- **Don't apply butter, burn gels, creams or lotions.** These can prevent proper healing.
- **Don't break blisters.** Broken blisters can increase chances of infection.
- **If the person has slipped, tripped or fallen** be aware that they may have injuries in addition to the burn, try to keep them in one place to prevent worsening other possible injuries.

MINOR BURNS

These are first or second degree burns that cover only a small part of the body.

TREATMENT:

Remove any clothing where hot liquid has spilled.

Cool the burn. Hold the burned area under cool running water for at least five minutes, or until the pain subsides. If this is impractical, submerge the burn in cool water. Cooling the burn reduces swelling by conducting heat away from the skin.

Cover the burn with a dry sterile gauze bandage. Wrap the bandage loosely to avoid putting pressure on burned skin. Bandaging keeps air off the burned skin reduces pain and protects blistered skin.

Call your physician immediately if any sign of infection occurs, such as increased pain, redness or fever.

MAJOR BURNS

These are second or third degree burns over large surfaces of the body or face, hands, feet or genital area.

TREATMENT:

CALL 911 for emergency medical assistance. Until an emergency unit arrives, follow these steps:

IF burns cover an area equal to an arm or leg, keep the victim lying down.

DON'T immerse large severe burns in cold water. Doing so could cause shock.

Watch the person carefully for difficulty with breathing

DON'T allow the victim to drink anything

Elevate the burned body part or parts. Raise burned body part(s) above heart level, when possible.

Cover with a clean sheet or blanket, keep the victim warm

For More Information

For Consultation Services:

Division of Occupational Safety and Health Services Consultation Program
Washington State Department of Labor and Industries
www.Lni.wa.gov/Safety/KeepSafe/Assistance/Consultation

Region 1 – (Northwest Washington) Everett, 425-290-1300
Region 2 – (King County) Seattle, 206-515-22837
Region 3 – (Pierce, Kitsap, Clallam, and Jefferson Counties) Tacoma, 253-596-3917
Region 4 – (Southwest Washington) Olympia, 360-902-5472
Region 5 – (Central and Southeastern Washington) East Wenatchee, 509-886-6570
Region 6 – (Eastern Washington) Spokane, 509-324-2543

For More Information on Burn Injuries in Washington State:

Curwick CC. (2006). Hospitalized Work-Related Burns in Washington State. Technical Report 86-2-2006. Safety & Health Assessment & Research for Prevention (SHARP) Program, Washington State Department of Labor and Industries, Olympia, Washington
www.Lni.wa.gov/Safety/Research/Files/Burns2006.pdf
Or contact the SHARP Program for a copy of the report: 1-888-66-SHARP
Harborview Burn Center
uwmedicine.washington.edu/Facilities/Harborview/CentersOfEmphasis/Burn/

For Information on Restaurant Burns:

The Burn Foundation www.burnfoundation.org/programs/resource.cfm?c=1&a=10
The American Burn Association: www.burncareresearch.com
Washington State Department of Labor & Industries has additional information about burns at the following websites:
www.Lni.wa.gov/Safety/Research/Pubs/Default.asp#WorkBurns and
www.Lni.wa.gov/WorkplaceRights/TeenWorkers/JobSafety/RestaurantProgram/Resources/

Please consider the above information as you make safety decisions or recommendations for your company or constituency. The information in this narrative is based on preliminary data only and does not represent final determinations regarding the nature of the incident or conclusions regarding the cause of the injury.

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SHARP Safety & Health Assessment & Research for Prevention 1-888-66-SHARP
Washington State Department of Labor & Industries