



# TDCJ Risk Management's Training Circular

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Risk Management Issues

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## September Burn Prevention



The Texas Department of Criminal Justice (TDCJ) is committed to providing an environment free of known hazards. Agency injury trends indicate a significant number of injuries associated with contact with temperature extremes. Contact with Temperature Extremes includes possible thermal burns due to contact with hot equipment, hot liquids, or exposure to high temperatures.



### About Burns

A burn involves the destruction of skin cells, and sometimes the underlying structures of muscle, fascia and bone. It occurs when these structures absorb more heat than they can dissipate.

Children and older adults, because they have thinner skin, get severe burns at

lower temperatures and in less time than an adult. Exposure to just three seconds to water, which is 140 degrees Fahrenheit, can result in a full thickness or third degree burn on a child or an older adult. This type of burn would require hospitalization and skin grafts.

People with minor to moderate injury according to depth and percentage can be treated in a specialty burn center or unit, a local community hospital with a surgeon who knows state-of-the-art burn care, or on an outpatient basis.

Burns are considered minor, moderate or major according to the depth and percentage of burn, but also the area of the body burned. Burns covering more body surface area than an arm of the victim, or if burns are on the face, hands, neck, perineum or feet are considered major and should be cared for in a special burn unit or center.

### Types of burns

When most people are burned, they are unaware of the severity of their burn. There are three types of burns, all with different appearances and pain levels. You must know when to call for medical help.

### When to call for medical help

Staff and offenders should report all injuries to their supervisor immediately. The following injuries may require medical attention:

- If the burn is on the head, hands, or feet.
- If the victim is an infant, child, elderly, or is suffering from an illness.
- If swelling or infection develops.
- If there is marked discomfort or the burn is painless.
- If a third degree burn is suspected.



- If there is any doubt about how serious the burn is. Burns are often more serious than they first appear.

- For burn emergencies, call the UCSD regional burn center 24 hours a day at (619) 543-6502, or call 9-1-1.

### Burn depth categories:

#### First:

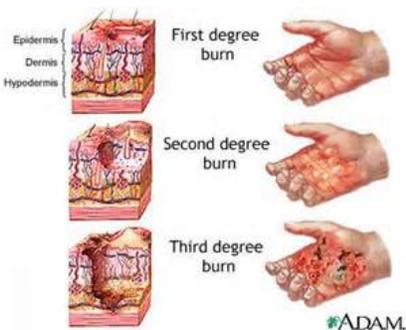
- appearance: pink/red
- pain level: uncomfortable

#### Second:

- appearance: pink-pale, may blister, moist
- pain level: marked discomfort

#### Third:

- appearance: pale-white, charred, dry
- pain level: painless, some pain



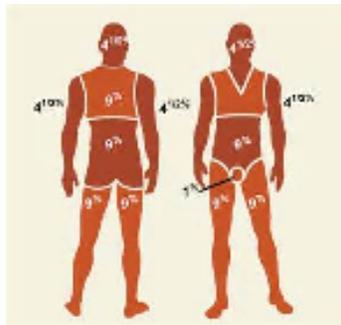
### “Rule of Nines” Burn Size

Burns are judged by the size of the burn in relation to the whole body and by the depth of the burn injury. Different methods exist to calculate the extent or size of a burn injury.

The most common method, which provides a quick estimate of burn size, uses the “rule of nines,” where the body is divided into areas equaling

multiples of nine percent of the total body surface area.

The palm of your hand, for example, is equal to about one percent of your body’s surface area. The head and arms are each equal to nine percent of the body surface. The chest and back are each 18 percent (two nine percent). Each leg is 18 percent (two x nine percent). This totals 11 nine, or 99 percent.



The total body surface area of a burn is referred to as TBSA. A patient might have the diagnosis of a 45 percent TBSA thermal burn, for example. The TBSA and burn depth analysis are recorded on a hospital chart known as a “Burn Diagram.” Determining the percent of body surface area burned is important for correct fluid replacement.

### First aid for burns

A burn involves the destruction of skin cells, and sometimes the underlying structures of muscle, fascia and bone.



It occurs when these structures absorb more heat than they can dissipate. What you do for a burn in the first few minutes after it occurs can make a difference in the severity of the injury!

### Safety tips:

- Stop the burning process. Remove the source of heat. If clothing catches fire, “Stop, Drop and Roll” to smother the flames.

- Remove all burned clothing. Clothing may keep in the heat and cause a deeper injury. If clothing sticks to the skin, cool the material or cut or tear around the area to preserve good skin tissue.

- Pour cool water over the burned area. Keep pouring the cool water for at least 3-5 minutes. Never put ice or cold water on a burn as it lowers body temperature and can make the burn worse.



- Remove all jewelry, belts, tight clothing, metal, etc. Remove from burned areas and around the victim’s neck – swelling of burned areas occurs immediately.

- Do not apply ointments, creams or salves to wounds. These things may cause infection due to their oil base and can convert wounds to deeper injury; hold in heat and worsen the burn, and have to be washed off by a physician causing the patient additional discomfort.

- Cover burns with a soft, clean, dry dressing, bandage or sheet.
- Cover victim to keep him/her warm. Seek medical attention as soon as possible.

### Special Considerations

For minor burn injury: keep clean, gently wash with a mild soap. Use an antiseptic spray or cream to help relieve pain and prevent infection before covering with a clean dry dressing. If wounds are not healing, appear weepy, or smell bad, seek medical help.

Electrical injuries: do not touch the person who is in contact with electricity. You will be injured. Disconnect the source of power or call for assistance for the power company. Then begin first aid. Primary concerns are clear airways, breathing, circulation and cervical spine immobilization... then look for other injuries.

Chemical injuries: protect yourself from contact with the chemical. Read the container label information or consult with a poison control center before administering first aid

for specific chemical reactions.



Dry chemicals: brush as much a of the dry chemical off as possible and remove it from the affected area from a minimum of 20-30 minutes or until a medical professional tells you to stop. Remove patient's clothing, including shoes, before flushing with water. If chemical is near or is in the patient's eye, check for contact lenses, which should be removed before irrigation of the eye. Don't flush parts of body that are not contaminated.

### Scald Burns

Thousands of scald burns occur annually, and ALL are preventable! The two high-risk populations are children under the age of 5 and adults over 65. Continuous supervision of young children is the single most important factor in preventing scald burns. Increased awareness is the key to scald prevention!

### Facts and Figures:

- Scalds are the leading cause of burn injuries, particularly to young children and senior adults.
- Hot liquids can cause first, second and third degree burns

depending on temperature and length of exposure.

- At 155 degrees, a third degree burn can occur within 1 second.

The risk of a scald injury could be greatly reduced by turning your water heater to a low or warm setting (120-130).

### Kitchen Safety Tips

Kitchens are areas prone to burn related injuries due to the basic nature of cooking food. Individuals are constantly subject to possible temperature extreme exposures..

- Always lift covers and lids away from you so that steam and heat escapes to the rear.
- Be careful when working with or carrying hot liquids and grease.
- Heated equipment needs to be allowed to cool before cleaning.
- Hot pads and mitts need to be used when handling hot objects.



- Cook on rear burners and turn pot handles to the back of the stove.
- Avoid wearing loose clothing around open flames and roll up your sleeves.
- Never leave cooking food unattended.

- Open the microwave equipment. Never alter electrical equipment.
- Wipe up spills and clean your oven regularly. Built up grease can catch fire.
- Do not use water on grease fires.
- Keep all cooking areas free from clutter.
- Never place hot liquids in plastic containers.

### Standards Regarding Scald Prevention

There are several industry standard practices and requirements that pertain to injury preventing associated with contact with temperature extremes and burns. Below is just a sample that may apply to TDCJ.

### Electrical Burn

An electrical burn may appear minor or not show on the skin at all, but the damage can extend deep into the tissues beneath your skin. If a strong electrical current passes through your body, internal damage, such as a heart rhythm disturbance or cardiac arrest, can occur. Sometimes the jolt associated with the electrical burn can cause you to be thrown or to fall, resulting in fractures or other associated injuries.



Prevention of electrical burns includes identifying electrical hazards, proper use of electrical powered equipment, and having trained maintenance personnel using lockout/tagout when working on electrical

American Correctional Association (ACA) Offender Housing standards require water for showers to be thermostatically controlled to temperatures ranging from 100 degrees Fahrenheit to 120 degrees Fahrenheit to ensure the safety of inmates and to promote hygienic practices.

The Uniform Plumbing code requires that public hand washing facilities limit the temperature of water to 110 degrees Fahrenheit using a temperature control device complying with ASSE 1070.

Texas Accessibility Standards (TAS) requires that all hot water and drain pipes under lavatories shall be insulated or otherwise configured to protect against contact.

### References

- American Correctional Association (ACA) <http://aca.org/>
- The Burn Institute – Fact Sheets and Information. <http://www.burninstitute.org/fire-and-burn-prevention/fact-sheets-and-information>.



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