

ANZCOR Guideline 9.1.3 – Burns

Guideline

Who does this guideline apply to?

This guideline applies to adult, child and infant victims.

Who is the audience for this guideline?

This guideline is for use by bystanders, first aiders and first aid providers.

1 Definition

A burn is an injury caused by heat, cold, electricity, chemicals, gases, friction and radiation (including sunlight). A significant burn for the purpose of this document includes:

- burns greater than 10% of total body surface area (TBSA)
- burns of special areas—face, hands, feet, genitalia, perineum, and major joints
- full-thickness burns greater than 5% of TBSA
- electrical burns
- chemical burns
- burns with an associated inhalation injury
- circumferential burns of the limbs or chest
- burns in the very young or very old
- burns in people with pre-existing medical disorders that could complicate management, prolong recovery, or increase mortality
- burns with associated trauma.

All infants and children with burns should be medically assessed.

2 Initial Approach

- Ensure safety for rescuers, bystanders and the victim.
- Do not enter a burning or toxic atmosphere without appropriate protection.
- Stop the burning process:
 - Stop, Drop, Cover and Roll
 - Smother any flames with a blanket.
- Move away from the burn source to a safe environment as soon as possible.
- Assess the adequacy of airway and breathing.
- Check for other injuries.
- If safe, and if trained to do so, give oxygen to all victims with smoke inhalation or facial injury, following The Use of Oxygen in Emergencies (ANZCOR Guideline10.4).
- Call for an ambulance.

The aims of first aid treatment of burns should be to stop the burning process, cool the burn and cover the burn. This will provide pain relief and minimize tissue loss.

3 Heat/Thermal/Contact Burns

- These include flame, scald, blast (hot gas), inhalation injury and direct heat contact.
- IMMEDIATELY cool burns with cool running water (CoSTR 2015: strong recommendation/low quality evidence)¹. ANZCOR recommends cooling for 20 minutes².
- If possible, remove all rings, watches, jewellery or other constricting items from the affected area without causing further tissue damage.
- Remove wet, non-adherent clothing as clothing soaked with hot liquids retains heat.
- Cover the burnt area with a loose and light non-stick dressing, preferably clean, dry, lint free (non-fluffy) material e.g. plastic cling film.
- Cover unburnt areas and keep the rest of the victim warm to reduce the risk of hypothermia.
- Where feasible elevate burnt limbs to minimise swelling.

DO NOT peel off adherent clothing or burning substances.

DO NOT use ice or ice water to cool the burn as further tissue damage may result.

DO NOT break blisters.

DO NOT apply lotions, ointments, creams or powders other than hydrogel.

3.1 Inhalation Burn

Always assume inhalation injury if there are burns to the face, nasal hairs, eyebrows or eyelashes, or if there is evidence of carbon deposits in the nose or mouth. Coughing of black particles in sputum, hoarse voice and/or breathing difficulties may indicate damage to the airway.

An inhalation burn should be suspected when an individual is trapped in an enclosed space for some time with hot or toxic gas, steam or fumes produced by a fire, chemicals etc. An inhalation injury may result from irritant gases such as ammonia, formaldehyde, chloramines, chlorine, nitrogen dioxide and phosgene. These agents produce a chemical burn and an inflammatory response.

Do not assume the burn victim is stable following an inhalation injury simply because the victim is breathing, talking and able to get up. Some agents produce delayed pulmonary inflammation which may develop up to 24 hours later.

- Remove to fresh air.
- Assess and manage the airway (ANZCOR Guideline 4).
- Give oxygen if available and trained to do so, following The Use of Oxygen in Emergencies (ANZCOR Guideline 10.4).
- Call for an ambulance.

3.2 Electrical Burns

Electrical burns, including lightning strike, are often associated with other injuries including involvement of the cardiac and respiratory systems, loss of consciousness and trauma.

The priorities in the management of the electric shock victim are to:

- Isolate/turn off the power supply without touching the victim
- Commence cardiopulmonary resuscitation if required following the Basic Life Support Flow Chart (ANZCOR Guideline 8)

- Cool burns if safe to do so, with cool running water for 20 minutes
- Give oxygen if available and trained to do so, following The Use of Oxygen in Emergencies (ANZCOR Guideline 10.4)
- Call an ambulance.

Lightning may cause cardiac arrest.

- Commence cardiopulmonary resuscitation if required following the Basic Life Support Flow Chart. (ANZCOR Guideline 8).

3.3 Radiation Burns

Radiation burns may be caused by solar ultraviolet radiation (sunburn), welder's arc, lasers, industrial microwave equipment and nuclear radiation.

- Cover radiation burns with a clean, dry dressing to prevent infection.

3.4 Chemical Burns

Government regulations on hazardous substances and work, health and safety require the manufacturer or importer of a hazardous chemical to prepare a safety data sheet (SDS) for the chemical^{3,4}. A supplier must provide a SDS to a workplace at the time of first supply or upon request. These SDS's provide first aid information specific to each chemical and include information relevant to eye contact, skin contact, inhalation and ingestion.

The aim of first aid for chemical burns is not to cool the burn but to dilute the chemical.

- Avoid contact with any chemical or contaminated material, using appropriate personal protection equipment.
- Remove the victim to a safe area.
- Remove the chemical and any contaminated clothing and jewellery as soon as practical.
- Brush powdered chemicals from the skin.
- Without spreading the chemical to unaffected areas, IMMEDIATELY run cool running water directly onto the area for one hour or until the stinging stops.
- Apply a non-adherent dressing even if no burn mark is obvious.
- If chemical enters the eye, open and flush the effected eye(s) thoroughly with water (CoSTR 2015: weak recommendation/very low quality evidence)¹ for as long as tolerated and refer the victim for urgent medical attention. If only one eye is affected then flush with the head positioned so as the affected eye is down to avoid spread of the chemical to the unaffected eye. The flushing of the eye is more important than immediate transfer for medical care.
- Refer to instructions on the container for further specific treatment.
- If available, in hard copy or on the internet, refer to Safety Data Sheets (SDS) for specific treatment.
- Call the Poisons Information Centre^{5,6} for further advice.

DO NOT attempt to neutralise either acid or alkali burns, because this will increase heat generation which may cause more damage.

DO NOT apply cling wrap or hydrogel dressings to chemical burns.

Acknowledgements

Australian and New Zealand Burns Association (ANZBA) <http://anzba.org.au/> Accessed 20/11/2015

References

1. Zideman, D. A., Singletary, E. M., De Buck, E., et al. (2015). Part 9: First aid: 2015 International Consensus on First Aid Science with Treatment Recommendations. *Resuscitation*, 95, e225. [http://www.cprguidelines.eu/assets/downloads/costr/S0300-9572\(15\)00368-8_main.pdf](http://www.cprguidelines.eu/assets/downloads/costr/S0300-9572(15)00368-8_main.pdf) Accessed 19/11/2015
2. <http://anzba.org.au/care/first-aid/> Accessed 19/11/2015
3. <http://www.safeworkaustralia.gov.au/sites/swa/whs-information/hazardous-chemicals/sds/pages/sds> Accessed 19/11/2015
4. <http://www.epa.govt.nz/hazardous-substances/using-storing/pages/safety-data-sheets.aspx> Accessed 19/11/2015
5. New Zealand Poison Information phone: 0800 POISON (0800 764 766)
6. Australian Poisons Information Centres phone: 13 11 26

Further Reading

ANZCOR Guideline 2 Managing an Emergency

ANZCOR Guideline 8 Cardiopulmonary Resuscitation

ANZCOR Guideline 9.2.3 Shock

ANZCOR Guideline 9.3.3 Hypothermia: First Aid and Management

ANZCOR Guideline 9.5.1 Emergency Management of a Victim who has Been Poisoned

ANZCOR Guideline 10.4 The Use of Oxygen in Emergencies