



Queensland
Trauma Education

BURNS TRAUMA

Thermal burns

Case discussion

Facilitator resource kit

CSDS



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The resources developed for Queensland Trauma Education are designed for use in any Queensland Health facility that cares for patients who have been injured as a result of trauma. Each resource can be modified by the facilitator and scaled to the learners needs as well as the environment in which the education is being delivered, from tertiary to rural and remote facilities.

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Burns Trauma – Thermal burns: Case discussion – Facilitator resource kit

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Cover image source: www.vicburns.org.au The Victorian Adult Burns Service, Alfred Health, Melbourne, Australia

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About this training resource kit

This resource kit provides healthcare workers with knowledge on how to recognise and effectively manage a patient with thermal burns to special areas.

National Safety and Quality Health Service (NSQHS) Standards



Target audience

Emergency department medical and nursing clinicians, allied health clinicians.

Duration

30 - 45 minutes.

Group size

Small group participation.

Learning objectives

By the end of this session the participant will be able to:

- demonstrate an understanding of burns size estimation
- discuss the clinical features to suggest burn depth estimation
- recognise 'special areas' in burns management and burns referral criteria
- recognise differences between hot liquids for burn management.

Facilitation guide

1. Facilitator to provide cases and photographs to participants and use the question-and-answer guide to facilitate case discussion.
2. Utilise supporting documents and resources to support discussion.

Supporting documents (in printable resources)

The following supporting documents are provided for this case discussion:

1. ANZBA Burn First Aid
2. ANZBA Initial Management of Minor Burns
3. ACI - Burns Size Assessment - Rule of Nines
4. ACI - Recognising burn depths chart
5. Lund and Browder chart for calculating the percentage of total body surface area burnt
6. AAPA Bitumen Burn First Aid card
7. ANZBA Referral Criteria

Case discussion

Case study 1

28yo female making a cup of tea at home. Accidentally knocked the kettle of boiling water over and spilt it, splashing her L leg. Immediate pain, patient rang '000' who advised cool water in the shower for 20 minutes which she has done.



Case study 2

56yo male working in a fish and chip shop. Accidentally dropped the chip basket into the hot oil with a resultant splash up his R upper limb. Burn to R hand over radial aspect and along radial border of forearm. Blistering and patchy burn, not circumferential.



Case study 3

A 32yo male construction worker presents with bitumen stuck to his hair and posterior neck after accidentally getting it under his protective gear whilst at work. He has presented directly to the Emergency Department.



Image source: www.vicburns.org.au The Victorian Adult Burns Service, Alfred Health, Melbourne, Australia

Question and answer guide

8. What first aid should thermal burns receive?

- a) Cool running water for 20 minutes unless risk to patient (immediate life threats necessitating further management).
- b) Avoid ice as may deepen the burn by constricting blood vessels and reducing blood supply to injured tissue.⁷

9. How long is cool water effective for?

- a) Up to three hours post burn.¹
- b) One study suggested until burning pain stops.
- c) Should be considered in the Emergency Department (if suitable) if not performed pre-hospital.
- d) Consider use of spray bottle to apply water or cooling with 0.9% sodium chloride fluid bags delivered slowly via a giving set to the area.

10. What dressing should be applied in the first aid phase of assessment?

- a) Clear cling-film applied without creating a compressive or circumferential dressing will aid analgesia due to reducing air flow over the skin.
- b) It protects against colonisation, excess fluid and heat losses.⁷

11. What is the role of hydrogel dressings, 'Burn AID' and other products?

- a) Not useful in larger/deeper burns.
- b) Can be used to provide analgesia as a temporary dressing.
- c) Only useful to cool the wound if NO water is available.^{1,7}
- d) Must be left exposed to air to aid evaporative heat loss.

12. How do you assess the size of a burn in adults?

- a) Total Body Surface Area %.
- b) Rule of Nines (see supporting documents).
- c) Lund and Browder Chart (see supporting documents).
- d) Partial/dermal and full thickness only: does not include erythema/superficial burn area.

13. How do you assess the depth of a burn and what is Nikolsky's sign?

- a) Burn Depth Characteristics (see supporting documents).
- b) Early burns can be difficult to determine depth due to the misleading appearance of intact epithelium. Nikolsky's sign is where the superficial epithelial layers separate from

the basal layers: assess this by applying digital pressure and sliding a gloved finger over the affected area of skin.

14. Are there any 'special' burns?

- a) Special areas include: face, hands, feet, genitalia, perineum and circumferential limb/chest burn.
- b) Special types: chemical, electrical, inhalational injury.
- c) Associations: pre-existing illness, major trauma, extremes of age (elderly/children), pregnant women/people, non-accidental injury.

15. What burn estimation size requires referral to a specialist burns centre?

- a) Any burn (Dermal/Partial Thickness) >10%TBSA in adult (>5% in children).
- b) Any burn (Full thickness) >5% TBSA.
- c) See ANZBA referral criteria (in printable resources).

16. What is the burn depth for each case based on the images provided?

Utilise Burn Depth Characteristics (see supporting documents) to determine likely burn depth and discuss the differences with the group.

Case 1: mid dermal thickness (partial thickness).

Case 2: areas of mid to deep dermal (partial thickness) but need to consider full thickness due to white appearance to some areas.

Case 3: unable to accurately assess until bitumen is cooled and removed with appropriate solution.

17. Discuss the potential risks associated with each case and burn type?

Case 1:

- Lower limb – potentially circumferential – assess for perfusion to distal limb (cap refill, pulses, colour, temperature). If circumferential – for burns centre referral and management.
- Foot – special area – for burns centre referral and management.

Case 2:

- Upper limb – potentially circumferential – assess for perfusion to distal limb (cap refill, pulses, colour, temperature). If circumferential – for burns centre referral and management.
- Hand – special area - for burns centre referral and management.

Case 3:

- Face/head/neck – clinical priorities are primary survey airway, breathing, circulation, disability, exposure.
- Exposure to manage life threats.
- Face, head, neck – special area – for burns centre referral and management.
- Bitumen – management as per question 11.

18. For Case 3, should bitumen be removed initially on scene?

- a) No. Trying to pry the bitumen off will injure the underlying skin. The bitumen needs to be thoroughly cooled and allowed to harden. A lubricating paraffin-based cream can then be applied to help loosen and soften the bitumen enabling it to be removed a few days later.
- De-solvit or orange oil (frequently used by RBWH Burns Unit) may be used to soak the affected areas for 4 hours with gauze, this should then be changed every 4 hours for 24 hours until the bitumen can be fully removed.
 - Flamazine, paraffin-based cream/ointment, or Vaseline.
 - Olive oil (new bottle) as above.
- b) If bitumen is creating a circumferential injury, the cooled and hardened bitumen may create a tourniquet effect. If this occurs, the bitumen must be softened as soon as able and split to prevent an ischaemic injury to the limb.

19. What dressings should be used for the case images provided?

- a) Small/superficial burn – non-stick, protective dressing, paraffin.
- b) Dermal burn - flamazine/mepelex Ag or equivalent.
- c) If deemed full thickness – antimicrobial dressing and burns referral. If partial thickness - as above.

20. When should small burns be reviewed?

Within 48 hours to reassess burn depth and dressing regime.

21. What other medications should be administered?

- a) Analgesia – IV/oral analgesia titrated to desired effect.
- b) Tetanus prophylaxis - tetanus prone wound.
- c) No indication for routine administration of antibiotics unless trauma complications.

Acronyms and abbreviations

Term	Definition
ANZBA	Australian and New Zealand Burn Association
TBSA	Total burn surface area
IV	Intravenous

References

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