



Queensland
Trauma Education

BURNS TRAUMA

Facial burns management

Immersive scenario

Participant 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 – Facial burns management: Immersive scenario – Participant resource kit Version 1.0

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About this training resource kit

This resource kit provides healthcare workers with knowledge and skills to effectively manage a patient with thermal facial burns.

National Safety and Quality Health Service (NSQHS) Standards



Learning objectives

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

- perform a structured assessment of a patient presenting with thermal burns
- understand the clinical features and risks associated with airway and inhalational injury secondary to thermal burns
- demonstrate the decision-making to effectively initiate management of a patient with thermal facial burns and associated inhalational injury.

Supporting resources

- Structured assessment: ANZBA: Initial Management of Severe Burns
- Specific management

Overview of facial burns

Injury following a burn can be complex, with significant variation in both the aetiology and severity requiring prompt clinical assessment and management. As per any trauma presentation, patients who have sustained a burn injury are best managed systematically, with a thorough primary and secondary survey, including a focus on burn injury patterns, characteristics and mechanisms to ensure optimal patient management.

Facial burns pose a significant risk of airway and inhalational injury which carries higher rates of patient morbidity and mortality. In particular, the treatment of facial burns often requires specialist care.

Knowledge of the initial management strategies for large and severe burns (>20% total body surface area and full thickness burns) and using a consistent, standardised approach in determining burns severity and depth assessment and recognising potential complications is critical for patient survival.

Further reading

The airway in inhalational injury: diagnosis and management	
Publication	Annals of Burns and Fire Disasters
Link	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5446904/

Inhalation injury from heat, smoke, or chemical irritants	
Organisation	UpToDate
Link	https://www.uptodate.com/contents/inhalation-injury-from-heat-smoke-or-chemical-irritants

Australian and New Zealand Burn Association	
Link	https://anzba.org.au/

Victorian Adult Burns Service at the Alfred	
Link	https://www.vicburns.org.au/

QLD Statewide Burns Referrals

RBWH Burns Referral and Transfer Form	
Link	https://metronorth.health.qld.gov.au/rbwh/wp-content/uploads/sites/2/2017/06/burns-patient-referral-transfer.pdf

Online RBWH Burns Referral Form

Link	https://metronorth.health.qld.gov.au/rbwh/healthcare-services/burns/new-burns-referral-form
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RBWH Burns Referral Criteria

Link	https://metronorth.health.qld.gov.au/specialist_service/refer-your-patient/burns
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QLD Statewide Patient Fact Sheet**Department of Health Emergency Department fact sheet: Burns (15yrs and above only)**

Link	https://www.health.qld.gov.au/_data/assets/pdf_file/0010/621001/ed-burns.pdf
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Structured assessment

ANZBA: Initial management of severe burns

Initial Management of Severe Burns

For burn injuries in adults >20% TBSA and children >10% TBSA or who meet the ANZBA transfer criteria, consider early consultation with retrieval service and burn centre



Specific points to note in the primary survey with respect to burn injury:

PRIMARY SURVEY

AIRWAY



Assess for history of burn in enclosed space, signs of upper airway oedema, sooty sputum, facial burns, respiratory distress (dyspnoea, stridor, wheeze, hoarse voice).
If any of the above present, airway is at risk. Consider need for intubation and secure airway as required. Maintain spinal precautions as required especially with explosion or electrical burns.

BREATHING



Assess breathing and support as required.
Assess adequacy of breathing where circumferential burns on chest wall -consider escharotomy.
Administer humidified 100%FiO2.
Establish baseline ABGs and SaO2 (goal: >95%).

CIRCULATION



Assess circulation: colour, refill, HR, BP.
Insert 2 large bore peripheral IV lines. If unable consider central or intraosseous access.

Specific points to note in the secondary survey and initial management of burn injury:

FLUID RESUSCITATION

Guide fluid resuscitation with Parkland formula/Ambulance protocol
Insert urinary catheter. Titrate fluid resuscitation to urine output goals:
Adults: 0.5- 1.0 ml/kg/hr (30-50 mls/hr)
Paediatrics <30kgs: 1ml/kg/hr
Maintain accurate fluid balance chart

ANALGESIA

Assess pain score to determine analgesic requirements
Adults: 2-5mg Morphine IV repeat every 5 minute
Paediatrics: IV Morphine 0.1mg/kg repeat every 5 minutes. Maximum 0.3mg/kg
Re-assess pain score (goal: Adult VAS pain score <4) and adjust analgesia accordingly.
Consider Morphine Infusion for ongoing pain relief

MANAGING WOUND

Assess extent of burn using Rule of Nines
Clean then cover the wound (see below)

CIRCUMFERENTIAL BURNS

Elevate limbs where circumferential burns present.
Assess perfusion distal to burn: capillary refill, pulse, warmth, colour.
Liaise with burn service if escharotomy required (cool to touch, weak or no pulse distally).

OTHER

Cover the patient to prevent heat loss.
Insert nasogastric tube for burns >20% TBSA adults and 10%TBSA paediatrics. Keep nil orally.
Administer tetanus immunoglobulin if required.
Investigative tests as indicated.

Wound care for transit

First aid: cool running H2O ->20 mins
Clean the wound: Normal saline or 0.1% Chlorhexidine
Remove small loose dermis or blisters
Assess: Extent and depth of burn injury and for circumferential injury
Cover: Cling wrap longitudinally if immediate transfer (<8hrs). Paraffin gauze or silver dressing if T/F delayed

Fluid resuscitation

Parkland formula:
3-4mls IV fluid X %TBSA X kg/24hrs
½ fluid in 8/24 post injury
½ fluid in 16/24 post injury
Hartmann's solution
Paediatric maintenance fluids:
5% Dextrose in ½ Normal Saline
Up to 10kgs: 100mls/kg/day
10-20kgs: 1000mls + 50mls/kg>10kgs/day
20-30kgs: 1500mls +20mls/kg >20kgs/day

Adapted from the Victorian Burn Service

Transfer checklist

- ✓ Airway secure
- ✓ O2 insitu
- ✓ IV access established & secure
- ✓ Fluid resuscitation commenced
- ✓ Urinary catheter inserted & secure
- ✓ Pain controlled
- ✓ Wounds are covered & Patient is warm
- ✓ Elevate burnt area as appropriate
- ✓ Tetoxid if indicated
- ✓ Nasogastric insitu as necessary
- ✓ Retrieval Services aware
- ✓ N.O.K. aware
- ✓ History & relevant documentation copied

Source: <http://anzba.org.au/assets/Initial-Management-of-Severe-Burns-2014.pdf>

Specific management

1. Assessment of facial burns: risk of airway and inhalational injury.
2. Management of airway burns.
3. Use of specific burns resuscitation fluid management.

Acronyms and abbreviations

Term	Definition
TBSA	total body surface area
PT	partial thickness
FT	full thickness
ANZBA	Australia and New Zealand Burns Association

References

1. Australian and New Zealand Burn Association. 2020. *Initial Management of Small Burns*. <https://anzba.org.au/assets/ANZBA-Initial-Management-of-Small-Burns.pdf>
2. Australian and New Zealand Burn Association. 2020. ANZBA referral criteria. <https://anzba.org.au/resources/anzba-referral-criteria/>
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5. Sabri A, Dabbous H, Dowli A, & Barazi R. The airway in inhalational injury: diagnosis and management. *Annals of Burns and Fire Disasters*. 2017; 30(1):24–29. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5446904/>
6. RBWH Professor Stuart Pegg Adult Burns Centre <https://metronorth.health.qld.gov.au/rbwh/healthcare-services/burns>
7. Victorian Adult Burns Service at the Alfred. <https://www.vicburns.org.au/>

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