



Queensland  
Trauma Education

**BURNS TRAUMA**

# Facial burns management

## Immersive scenario

Facilitator resource kit

**CSDS**



Clinical Skills Development Service



Queensland  
Government

## Queensland Trauma Education

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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Queensland

## Queensland Trauma Education

### Burns Trauma – Facial burns management: Immersive scenario – Facilitator 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



### Target audience

Emergency department medical and nursing clinicians.

### Duration

60 minutes (setup, scenario, debrief).

### Group size

4-6 participants (or team composition applicable to local area).

### 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.

### Facilitation guide

1. Facilitator to provide participant resource kit to the participants.
2. Facilitator to discuss the pre-simulation briefing and deliver the immersive scenario on thermal facial burns.
3. Utilise the supporting documents to maximise the learning throughout immersive scenario.
4. Utilise the debriefing guide to evaluate participant performance and provide feedback.

### 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	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5446904/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5446904/</a>

Inhalation injury from heat, smoke, or chemical irritants	
Organisation	UpToDate
Link	<a href="https://www.uptodate.com/contents/inhalation-injury-from-heat-smoke-or-chemical-irritants">https://www.uptodate.com/contents/inhalation-injury-from-heat-smoke-or-chemical-irritants</a>

Australian and New Zealand Burn Association	
Link	<a href="https://anzba.org.au/">https://anzba.org.au/</a>

Victorian Adult Burns Service at the Alfred	
Link	<a href="https://www.vicburns.org.au/">https://www.vicburns.org.au/</a>

### QLD Statewide Burns Referrals

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

**Online RBWH Burns Referral Form**

Link	<a href="https://metronorth.health.qld.gov.au/rbwh/healthcare-services/burns/new-burns-referral-form">https://metronorth.health.qld.gov.au/rbwh/healthcare-services/burns/new-burns-referral-form</a>
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**RBWH Burns Referral Criteria**

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

Link	<a href="https://www.health.qld.gov.au/_data/assets/pdf_file/0010/621001/ed-burns.pdf">https://www.health.qld.gov.au/_data/assets/pdf_file/0010/621001/ed-burns.pdf</a>
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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.

## Simulation event

### **This section contains the following:**

1. Pre-simulation briefing poster
2. Immersive scenario
3. Resource requirements
4. Handover card
5. Scenario progression
  - a. State 1: Initial assessment
  - b. State 2: Ongoing management / secondary survey
  - c. State 3: Further deterioration / intubation
6. Supporting documents
7. Debriefing guide



# Pre-simulation briefing

Establishing a safe container for learning in simulation



1

## Clarify objectives, roles and expectations

- Introductions
- Learning objectives
- Assessment (formative vs summative)
- Facilitators and learners' roles
- Active participants vs observers

2

## Maintain confidentiality and respect

- Transparency on who will observe
- Individual performances
- Maintain curiosity

3

## Establish a fiction contract

Seek a voluntary commitment between the learner and facilitator:

- Ask for buy-in
- Acknowledge limitations

4

## Conduct a familiarisation

- Manikin/simulated patient
- Simulated environment
- Calling for help

5

## Address simulation safety

Identify risks:

- Medications and equipment
- Electrical or physical hazards
- Simulated and real patients



Note: Adjust the pre-simulation briefing to match the demands of the simulation event, contexts or the changing of participant composition.

## Immersive scenario

<b>Type</b>	Immersive scenario
<b>Target audience</b>	Emergency department medical and nursing clinicians
<b>Overview</b>	Martin is a 57-year-old male, BIBA suffering thermal burns whilst trapped in an enclosed space during a house fire. He is at risk of airway and inhalational burns injury and deteriorates soon after arrival to ED. Prompt recognition of airway risk and decision-making is required to effectively manage the patient.
<b>Learning objectives</b>	<p>By the end of this session the participant will be able to:</p> <ul style="list-style-type: none"><li>• perform a structured assessment of a patient presenting with thermal burns</li><li>• understand the clinical features and risks associated with airway and inhalational injury secondary to thermal burns</li><li>• demonstrate the decision-making to effectively initiate management of a patient with thermal facial burns and associated inhalational injury.</li></ul>
<b>Duration</b>	45 minutes, including debrief.

## Resource requirements

### Physical resources

<b>Room setup</b>	Resus bay in emergency
<b>Simulator/s</b>	Simman 3G, Simman ALS, ALS Advanced
<b>Simulator set up</b>	<ul style="list-style-type: none"> <li>• All clothing was removed pre-hospital, patient covered with a sheet.</li> <li>• Moulage: normal patient               <ul style="list-style-type: none"> <li>○ Facial burns - singed facial hairs, soot around nose and mouth.</li> <li>○ Truncal - burn moulage to anterior chest and abdomen.</li> <li>○ Limb burns - anterior surfaces of upper limbs (non-circumferential)</li> </ul> </li> <li>• High flow O2 applied (15L NRB mask)</li> </ul>
<b>Clinical equipment</b>	<ul style="list-style-type: none"> <li>• Intubation medication and equipment</li> <li>• Intubation checklist</li> <li>• Rule of Nine burns size assessment tool</li> <li>• ANZBA Initial Management of Severe Burns infographic</li> </ul>
<b>Access</b>	1 x IVC setup in R ACF
<b>Other</b>	ED chart and relevant paperwork (optional)

### Human resources

<b>Faculty</b>	2 facilitators (doctor/nurse with debriefing experience) to take on roles of scenario commander and primary debrief
<b>Simulation coordinators</b>	1 simulation coordinator for manikin set up and control
<b>Confederates</b>	Ambulance officer (if available)
<b>Other</b>	1 nurse and 1 doctor in room to receive handover

## Handover card

Handover from ambulance officer

This is Martin, he is a 57-year-old man.

He was involved in a house fire tonight. He was pulled from the building by the Fire Service and was reportedly unconscious initially. We do not think he was thrown or sustained a blast injury but was trapped in the building for at least 15 minutes prior to the Fire Service getting him out. This was approximately 1.5 hours ago.

On our arrival he was awake and talking, with mild stridor and finding it hard to breathe, his respiratory rate was 28. We applied oxygen via a NRB and his saturations are now 96%. We did not check his saturations prior to applying oxygen. Other vitals ok - HR 120, BP 100/80mmHg, afebrile. As you can see, he has sustained burns to his face, anterior chest/abdomen and both upper limbs, these are not circumferential.

Martin is otherwise well. He is a smoker, and we think that is how the fire started. He has no regular medications, and no allergies.

We were worried about him so came straight here. He had limited cooling performed en route to hospital and has not had 20 minutes in a shower yet.

He has received 100mcg IV fentanyl. He has an 18G cannula in his R ACF.

## Scenario progression

STATE 1: INITIAL ASSESSMENT				
Vital signs		Script	Details	Expected actions
ECG	ST	<b>Martin</b>  "I am in pain" <i>*moaning*</i> . Obvious distress, sitting forward.	<b>Manikin: bilateral lung sounds – crackles (quiet)</b>  <b>Primary survey results</b> <b>A:</b> Speaking in short sentences, soot around nares, singed facial hair, unable to phonate 'E', hoarse voice <b>B:</b> crepitations to both lung fields <b>C:</b> well perfused <b>D:</b> anxious and alert, no neurological deficits <b>E:</b> PT burns to face, anterior chest/abdomen and upper limbs	<b>Commence primary survey</b> <input type="checkbox"/> Recognise airway involvement <ul style="list-style-type: none"> <li>Upper: facial burns, soot in nares and inability to phonate</li> <li>Lower: crepitations and hypoxia</li> </ul> <input type="checkbox"/> Recognise need for large bore IV access  <b>Decision making</b> <input type="checkbox"/> Call for help early given respiratory compromise <input type="checkbox"/> Recognise risk to airway and discuss management options with team
HR	120			
SpO <sub>2</sub>	96% 15L NRB			
BP/ART	110/80			
RR	28			
Temp	37.4			
BGL	5			
GCS	15			

STATE 2: ONGOING MANAGEMENT / SECONDARY SURVEY				
Vital signs		Script	Details	Expected actions
ECG	ST	<b>Martin</b> "It's..... so..... painful...." One word responses. <i>*Breathlessness, stridor*</i>	<b>Manikin: bilateral lung sounds – stridor</b>  <b>Secondary survey results</b> <b>Head:</b> No signs of TBI/traumatic injuries <b>Abdo:</b> soft, non-tender, burn area non-circumferential. <b>Long bones:</b> NAD <b>Back:</b> no areas of burn <b>Eyes:</b> nil fluorescein uptake  <b>Results</b> <b>CXR:</b> bilateral patchy infiltrates <b>VBG:</b> respiratory acidosis, hypoxic	<b>Secondary survey</b> <input type="checkbox"/> Estimate burn size (TBSA) = use of attached Rule of Nines chart (moulage to approx. 20%)  <b>Investigations</b> <input type="checkbox"/> Arrange CXR, VBG and other bloods (other bloods can be taken but results will not be available)  <b>Management</b> <input type="checkbox"/> Continue high flow O2 therapy <input type="checkbox"/> Provide further analgesia  <b>Decision making</b> <input type="checkbox"/> Liaise with team regarding plan for management
HR	120			
SpO <sub>2</sub>	94% 15L NRB			
BP/ART	110/80			
RR	32			
Temp	37.4			
BGL	5			
GCS	14 (eyes closed)			
<b>Other:</b> stridor present but minimal				

STATE 3: FURTHER DETERIORATION / INTUBATION				
Vital signs		Script	Details	Expected actions
ECG	ST	<b>Martin</b>  Able to interact but breathlessness worsening.  Ongoing complaints of pain.	<b>Further deterioration if failure to initiate intubation (SpO<sub>2</sub> decrease to 88%, HR increase to 130, BP decrease to 95 systolic).</b>  <b>Results</b> CXR: post intubation	<b>Assessment</b>  <input type="checkbox"/> Recognition of potential inhalational injury <ul style="list-style-type: none"> <li>Progressive worsening of saturations</li> </ul> <b>Decision making</b> <input type="checkbox"/> Discuss need to progress to intubation <input type="checkbox"/> Discuss plan for intubation (role allocation, plan A & B) <input type="checkbox"/> Ensure adequate personnel resources available for intubation <input type="checkbox"/> Escalate care if junior participants and require help with patient management  <b>Management</b> <input type="checkbox"/> Can trial NIV with nil improvement. <input type="checkbox"/> Plan for and progress to successful intubation (airway is secured with plan A) <input type="checkbox"/> Discuss burns referral/RSQ notification. <input type="checkbox"/> Commence fluid resuscitation based on Parklands formula.
HR	120			
SpO <sub>2</sub>	90% 15L NRB			
BP/ART	110/80			
RR	32			
Temp	37.4			
BGL	5			
GCS	13 (eyes closed, opening to pain)			

## Supporting documents

The following supporting documents are provided for this case discussion:

1. Radiology: CXR: Pre-intubation
2. Radiology: CXR: Post-intubation and OGT insertion
3. Pathology: Venous Blood Gas (pre-intubation)
4. ANZBA Referral Criteria
5. VIC Burns Rule of Nine
6. ANZBA: Initial Management of Severe Burns



## Radiology: CXR: Pre-intubation



## Radiology: CXR: Post-intubation and OGT insertion



**Pathology: Venous Blood Gas (pre-intubation)**

<b>RADIOMETER ABL800 FLEX</b>			
ABL837 RH~RB PATIENT REPORT	Syringe – S 250uL		Sample # 16538
<b>Identifications</b>			
Patient ID	959612		
Patient Last Name	McPherson		
Patient First Name	Martin		
Sample type	Venous		
T	36.7		
FO2(l)	1.0		
Operator	C. Brown		
<b>Blood Gas Values</b>			
pH	7.16		[ 7.350 – 7.450 ]
pCO2	53	mmHg	[ 35.0 – 45.0 ]
pO2	41	mmHg	[ 75.0 – 100 ]
cHCO3~(P)c	22	mmol/L	[ 21.0 – 27.0 ]
cBase(B)c	-2.6	mmol/L	[ -3.0 – 3.0 ]
P50c		mmHg	
Baro.		mmHg	
<b>Oximetry Values</b>			
aO2		%	
ctHb	141	g/L	[ 105 – 135 ]
Hct		%	
FO2Hb		%	[ 94.0 – 98.0 ]
FCOHb		%	[ 0.0 – 1.5 ]
FMetHb		%	
FHHb		%	[ – ]
<b>Electrolyte Values</b>			
cNa+	136	mmol/L	[ 135 – 145 ]
cK+	4.6	mmol/L	[ 3.2 – 4.5 ]
cCl-		mmol/L	[ 100 – 110 ]
cCa2+		mmol/L	[ 1.15 – 1.35 ]
AnionGap,K+c		mmol/L	[ – ]
<b>Metabolite Values</b>			
cGlu	5.0	µmol/L	[ 3.0 – 7.8 ]
cLac	2.5	µmol/L	[ 0.7 – 2.5 ]
cCrea	75	µmol/L	[ 36 – 62 ]
ctBll		µmol/L	[ – ]
<b>Temperature Corrected Values</b>			
pH(T)	7.16		
pCO2(T)	53	mmHg	
pO2(T)		mmHg	
<b>Notes</b>			

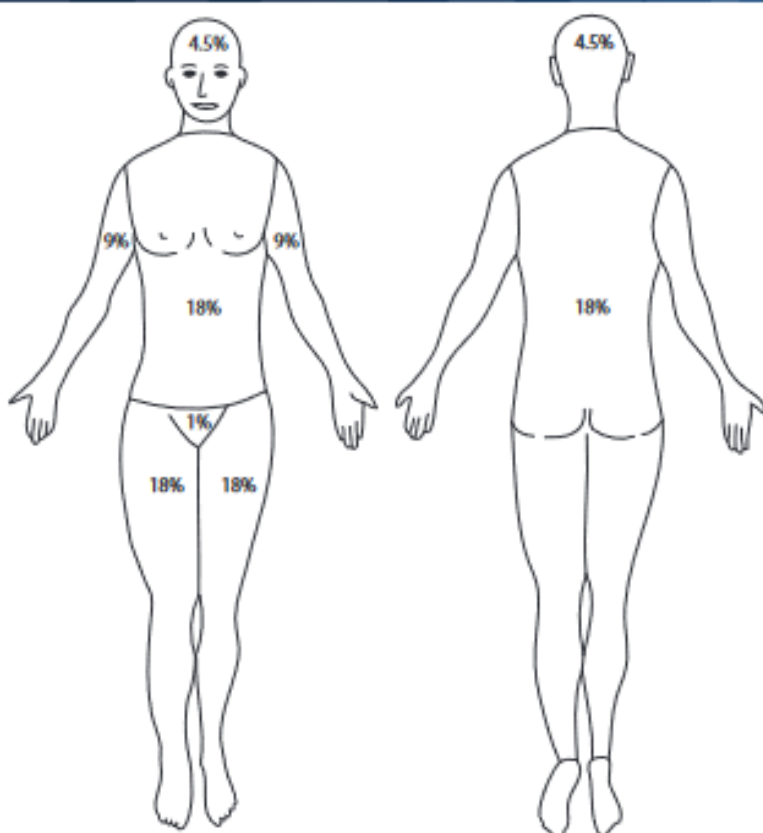
## ANZBA Referral Criteria

- Burns greater than 10% Total Body Surface Area (TBSA)
- Burns greater than 5% TBSA in children
- Full Thickness burns greater than 5% TBSA
- Burns of Special Areas – Face, Hands, Feet, Genitalia, Perineum, Major Joints and circumferential limb or chest burns
- Burns with inhalation injury
- Electrical burns
- Chemical burns
- Burns with pre-existing illness
- Burns associated with major trauma
- Burns at the extremes of age – young children and the elderly.
- Burn injury in pregnant women
- Non-accidental burns


## VIC Burns Rule of Nine

# Rule of Nine

## For Adults Only.



CONTACT DETAILS



**Alfred Hospital**  
**1800 ALFRED**

Estimated fluid (Parkland)

$4\text{mls} \times \text{TBSA}\% \times \text{Kg} = \text{mls}/24\text{hrs}$   
 1/2 total in 8 hours post injury  
 1/2 total in 16 hours post injury

Time of injury: \_\_\_\_\_ Time elapsed since burn: \_\_\_\_\_

Estimated fluid required: \_\_\_\_\_ mls    Total fluid since burn: \_\_\_\_\_ mls

Use as a guide to estimate fluid requirements. Titrate fluid administration to achieve desired urine output

TBSA %	
	%
Head	
Right arm	
Left arm	
Chest	
Back	
Right Leg	
Left Leg	
Genitalia	
<b>TOTAL TBSA</b>	

DEPTH LEGEND:

Full Thickness

Deep Dermal

Mid Dermal

Superficial Dermal

X

Circumferential

Last Updated: 05 May 2017

Source: <https://www.vicburns.org.au/wp-content/uploads/2016/06/poster3-wallace-rule-of-nine-adults-only.pdf>




## 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	
<b>AIRWAY</b>	 <p>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.</p>
<b>BREATHING</b>	 <p>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: &gt;95%).</p>
<b>CIRCULATION</b>	 <p>Assess circulation: colour, refill, HR, BP. Insert 2 large bore peripheral IV lines. If unable consider central or intraosseous access.</p>

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

<b>FLUID RESUSCITATION</b>	<p>Guide fluid resuscitation with Parkland formula/Ambulance protocol Insert urinary catheter. Titrate fluid resuscitation to urine output goals: <b>Adults:</b> 0.5- 1.0 ml/kg/hr (30-50 mls/hr) <b>Paediatrics &lt;30kgs:</b> 1ml/kg/hr Maintain accurate fluid balance chart</p>
<b>ANALGESIA</b>	<p>Assess pain score to determine analgesic requirements <b>Adults:</b> 2-5mg Morphine IV repeat every 5 minute <b>Paediatrics:</b> IV Morphine 0.1mg/kg repeat every 5 minutes. Maximum 0.3mg/kg Re-assess pain score (goal: Adult VAS pain score &lt;4) and adjust analgesia accordingly. Consider Morphine Infusion for ongoing pain relief</p>
<b>MANAGING WOUND</b>	<p>Assess extent of burn using Rule of Nines Clean then cover the wound (see below)</p>
<b>CIRCUMFERENTIAL BURNS</b>	<p>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).</p>
<b>OTHER</b>	<p>Cover the patient to prevent heat loss. Insert nasogastric tube for burns &gt;20% TBSA adults and 10%TBSA paediatrics. Keep nil orally. Administer tetanus immunoglobulin if required. Investigative tests as indicated.</p>

Wound care for transit	Fluid resuscitation	Transfer checklist
<p><b>First aid:</b> cool running H2O &gt;20 mins <b>Clean the wound:</b> Normal saline or 0.1% Chlorhexidine Remove small loose dermis or blisters <b>Assess:</b> Extent and depth of burn injury and for circumferential injury <b>Cover:</b> Cling wrap longitudinally if immediate transfer (&lt;8hrs). Paraffin gauze or silver dressing if T/F delayed</p>	<p><b>Parkland formula:</b> <b>3-4mls IV fluid X %TBSA X kg/24hrs</b> 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&gt;10kgs/day 20-30kgs: 1500mls +20mls/kg &gt;20kgs/day</p> <p>Adapted from the Victorian Burn Service</p>	<ul style="list-style-type: none"> <li>✓ Airway secure</li> <li>✓ O2 insitu</li> <li>✓ IV access established &amp; secure</li> <li>✓ Fluid resuscitation commenced</li> <li>✓ Urinary catheter inserted &amp; secure</li> <li>✓ Pain controlled</li> <li>✓ Wounds are covered &amp; Patient is warm</li> <li>✓ Elevate burnt area as appropriate</li> <li>✓ Tetoxid if indicated</li> <li>✓ Nasogastric insitu as necessary</li> <li>✓ Retrieval Services aware</li> <li>✓ N.O.K. aware</li> <li>✓ History &amp; relevant documentation copied</li> </ul>

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

## Debriefing guide

### Scenario objectives

- Perform a structured assessment of a patient presenting with thermal burns.
- Understand the clinical features and risks associated with airway and inhalational injury with thermal facial burns.
- Demonstrate the decision-making to effectively initiate management of a patient with thermal burns and associated inhalational injury.

### Example questions

#### Exploring diagnosis

- How do you differentiate between upper airway and an inhalational burn injury?
- What history is important when considering the risk for inhalational burns?
- What other clinical assessment features would make you worried about blast injury/chemical exposure (cyanide or other toxins)?
- What options for burns size estimation can you use?
- Does the presence of inhalational burn change the TBSA%?
- How do you differentiate between superficial, partial thickness and full thickness burn depth?

#### Discussing management

- What other resources are available for a high-risk intubation scenario in your centre?
- How do you prioritise the airway management with burn first aid (cooling)?
- In which patients does fluid resuscitation need to be mitigated against inhalational injury?

#### Discussing teamwork / crisis resource management

- How do you allocate roles for the intubation in your facility?  
→ Who can you call to help (local vs RSQ resources)?
- Where should this patient be managed?
- How do you contact/make referrals to the burns service?

### Key moments

- Early recognition of significant burn with airway and inhalational involvement.
- Use of structured assessment tool for the estimation of burn size.
- Appropriate fluid resuscitation calculations and ongoing management.
- Referral pathways and burns resources.

## Acronyms and abbreviations

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



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