

Differences in Adult Thermal Burns Treatment

Paramedic

Intensive Care

Extended Care

Specialist

Method

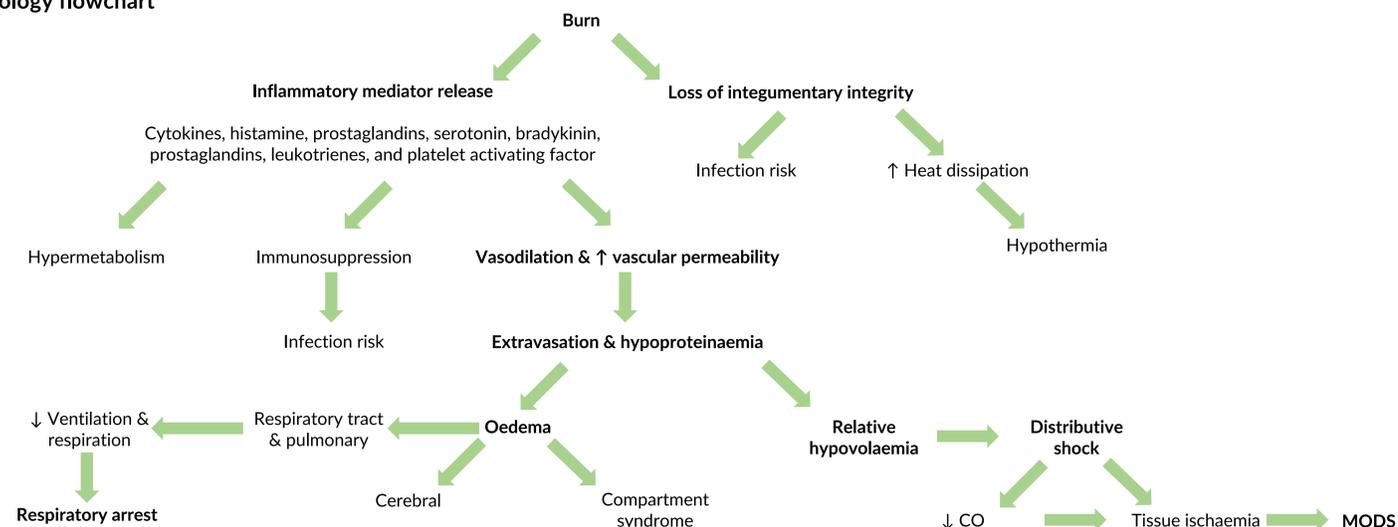
Produced October 2022. This poster is a descriptive analysis and comparison of a specific and discrete cluster of primary sources. All of the ten jurisdictional services have open access Clinical Practice Guidelines (CPGs). Content was extracted by two paramedics, with oversight from two senior lecturers in paramedicine. Scope of practice was classified as 'Paramedic' (undergraduate degree, represented by a ✓), 'Intensive Care Paramedic' (intensive care postgraduate degree), 'Extended Care Paramedic' (primary care postgraduate degree), or 'Specialist' (all other advanced roles, e.g. Retrievalist). Standard, routine cares such as oxygenation were omitted for brevity, as were other complaints and/or conditions covered under their own, separate CPG (such as analgesia, eye injuries, or distributive shock). This comparison does not review the peer-reviewed, published literature to determine current best practice in treatment. Consequently, no CPG is inferred to be superior or inferior to any other, nor that the most common treatment is necessarily optimal. This resources is created purely to assist making paramedics aware of current Australasian treatment options across JASs.

Jurisdiction (Service)	Assessment	Pharmacology					Intervention										
	TBSA	Fluids	Nebulised water	Bronchodilators	Nebulised adrenaline	Burn gel	Remove clothing / jewellery	Elevate limb	Cling wrap	Protect against hypothermia	Cool running water	Debridement & blister aspiration	Escharotomy	Unassisted (arrest)	Intubation (KOB & IFS)	RSI & DSI	PEEP
Aus. Capital Territory (ACTAS)	Rule of 9s	✓ SBP >90 mmHg			(a)	✓	✓	✓	✓ (b)	✓	✓ 20 mins (c)			ICP	ICP	ICP	✓
New South Wales (NSWA)	Palm Rule of 9s	✓ 10 mL/kg bolus, then 10 mL/kg/hr		(d)		✓ (e)	✓	✓ (f)			✓ Minimum 20 mins (g, h)	(i)	Physician	ICP			ICP
New Zealand (SJNZ)	Palm	✓ 1L, repeat PRN (j)		✓ (k)	✓ (l)	✓ (m)	✓	✓	✓	✓ Minimum 20 mins		ECP		ICP		ICP	✓
New Zealand (WFA)	Palm	✓ 1L, repeat PRN (j)		✓ (k)	✓ (l)	✓ (m)	✓	✓	✓	✓ Minimum 20 mins		ECP		ICP		ICP	✓
Northern Territory (SJNT)	Palm Rule of 9s	✓ 2 mL/kg x TBSA (n)	✓	✓ (k)	(o)	✓ (p)		✓ (f)	✓	✓ 20 mins			(q)	ICP		ICP	ICP
Queensland (QAS)	Palm Rule of 9s Lund Browder	✓ 15 mL/kg x TBSA every hour (r)		(d)	(d)	✓ (s)		✓	✓	✓ 20-60 mins			(q)	ICP		Specialist (t)	✓
South Australia (SAAS)	Rule of 9s	✓ 20 mL/kg maximum				✓ (p)		✓ (f)	✓	✓ 20 mins		ECP	Specialist (u)	ICP		Specialist (u, v)	
Tasmania (AT)	Rule of 9s	✓ 2 mL/kg x TBSA over 8 hours		(w)				✓ (f)	✓	✓ Maximum 20 mins (g)				ICP			
Victoria (AV)	Rule of 9s	✓ Weight x TBSA over 2 hours		(w)			✓	✓	✓ (f)	✓ 20 mins (g, h)			(i)	ICP		ICP	✓
Western Australia (SJWA)	Rule of 9s	✓ 2 mL/kg x TBSA 50% over 8 hours		✓ (k)		✓ (m, p)	✓		(b)	✓	✓ Minimum 20 mins	✓		✓		ICP	

CO = Cardiac output ECP = Extended care paramedic ETT = Endotracheal intubation ICP = Intensive care paramedic MODS = Multiple organ dysfunction syndrome PEEP = Positive end expiratory pressure TBSA = Total body surface area

(a) Not explicitly mentioned in Burns CPG; however, is indicated for upper airway swelling specifically (b) Dressing rather than cling wrap (c) Cold water recommended rather than cool (d) Not explicitly mentioned in Burns CPG; however, is indicated for bronchospasm generally (e) Only if no running water and TBSA < 20%, and not to be applied after cooling (f) Apply longitudinally and allow for swelling (g) Avoid ice (h) Alternative is to submerge the burn in cool water, with the water changed every 2-3 minutes, or to apply saline (i) Clean with normal saline; not formal debridement (j) Only if hypovolaemic, malperfused, or TBSA >20% (k) If bronchospasm present (l) If stridor present (m) Can be applied after cooling (n) If TBSA >20%, to be administered over 8 hours (o) Not explicitly mentioned in Burns CPG; however, is indicated for stridor (p) Only if no clean cool water, and to be removed at 20 minutes (q) CPG states this may be necessary in the pre-hospital environment; no further information provided on who is authorised to perform the procedure or which regions it is available in (r) If weight >100 kg, additional 200 mL/hr (s) Only if <10% TBSA and not circumferential (t) ICP - "High Acuity Response Unit" Paramedic only (u) ICP - "Retrieval Paramedic" only (v) Medical consult required (w) Not explicitly mentioned in Burns CPG; however, is indicated for smoke inhalation specifically

Pathology flowchart



Treatment rationale

Fluid resuscitation

- Fluid resuscitation can reduce distributive shock and offset myocardial depression, although excess fluid can result in fluid creep.

Burn gel

- Hydrogels are both hydrophilic and water insoluble, providing a moist environment while cooling the wound, and may facilitate autolytic debridement.

Cling wrap

- Cling wrap is non-adherent, provides a basic level of protection against infection, and reduces air circulation over the wound that stimulates pain.

Cool running water

- Cool running water is correlated with reduced burn depth, time to re-epithelialisation, mortality, and duration of hospitalisation.

Debridement

- Debridement is the removal of non-viable tissue to facilitate re-epithelialisation.

Escharotomy

- An incision through the eschar – either prophylactic or reactive – to reduce compartment syndrome or ventilatory compromise (from impaired chest wall expansion) due to burn-induced swelling and loss of elasticity.