

## EVIDENCE WORKSHEET

### Guideline 9.1.3

**ARC Subcommittee: First Aid**

**Guideline author: Finlay Macneil**

**Clinical (PICO) question:**

**PICO #1:**

**Population:** Adults and children in first aid settings with a thermal burn.

*Intervention:* Active cooling using water as an immediate first aid intervention for 20 minutes or more duration.

**Comparators:** Active cooling using water as an immediate first aid intervention for any other duration.

**Outcomes:**

Primary outcomes:

Size (critical) – defined as percentage of total body surface area (TBSA) at any reported time point (continuous).

Depth (critical) – as reported in articles by authors in three or four categories and analyzed from the negative dichotomous outcome of full thickness depth (including deep dermal partial thickness).

Secondary outcomes:

Pain (important) - defined as any measurement of pain or administration of pain medications (continuous and/or categorized outcome).

Adverse outcomes (important) – defined as any reported adverse outcome and *a priori* identified hypothermia (dichotomous outcome; yes/no).

Wound healing (important) – defined as time to re-epithelization in days (continuous outcome).

Complications within 24 hours (important) - defined as organ dysfunction, ICU-care, infections (within seven days), bleeding, rhabdomyolysis as well as surgical procedures such as fasciotomy and escharotomy

**PICO #2:**

**P:** burn

**I:** First aid, out of hospital, immediate care, urgent care AND (review or meta-analysis or guideline)

**C:** No care

**O:** All outcomes

	Searches
	Original searches, see McLure et al, 2021 as cited in guideline and
	Search in Medline used in Evidence Update Feb 23:
1	Burn/
2	(burn* or scald* or brand* or singe*).mp.
3	((heat* or burn* or thermal or flame* or combust* or incinerat* or cook* or fire*) adj injur*).mp.
4	Emergency Medicine/ or Emergency Treatment/ or Emergency Medical Services/

5	(Prehospital or pre-hospital or prehospital care or first aid or first-aid or first responder or first response or emergency first assistance or first medical aid or initial care or initial treatment or first help or urgent care or emergency aid)
6	1 or 2 or 3
7	4 or 5
8	6 and 7
9	Limit 8 to ((meta analysis or "systematic review") and last 3 years
	Search in Embase for Evidence Update Feb 23
1	Burn/ or scald/ or heat injury/ or thermal injury/
2	(burn* or scald* or brand* or singe*).mp.
3	((heat* or burn* or thermal or flame* or combust* or incinerat* or cook* or fire*) adj injur*).mp.
4	Emergency Medicine/ or Emergency Treatment/ or Emergency Health Service/ or Burn dressing/ or first aid/ or
5	(Prehospital or pre-hospital or prehospital care or first aid or first-aid or first responder or first response or emergency first assistance or first medical aid or initial care or initial treatment or first help or urgent care or emergency aid)
6	1 or 2 or 3
7	4 or 5
8	6 and 7
9	Limit 8 to ((meta analysis or "systematic review") and last 3 years

**Treatment recommendation:** Cool burns with cool running water for 20 min (Good practice statement)

**Class:** N/A

**Summary of science**

All papers identify cooling of burns with cool running water as having a beneficial effect. The length of cooling was moot in the original research and reviews but a definite benefit of 20 mins cooling identified in recent research. The benefit of cooling with running water is apparent for thermal burns if applied within 3 hours of the injury. The benefit for chemical burns was apparent for immediate application of running water

**Reviewer's final comments:**

**Evidence gaps and research priorities:**

The effect of commercial cooling methods is more controversial and carries resource implications for first aid particularly in low resource settings

**Citation List:**

See attached Excel spreadsheet for evidence update and original papers for ILCOR CoSTR and McClure et al Rapid review.