

# Burns

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The major problems with burn patients in remote areas remain fluid resuscitation, airway management and dressings.

Fluid resuscitation volumes should still be calculated using the same formula (Modified Parkland's) as before i.e. 3–4 ml/kg/% body surface area burnt. Evidence has shown no preference for one crystalloid over another (other than not Dextrose). Therefore use either Hartmann's or normal saline, i.e. as long as it is warm and salty and wet. In children, if transfer is delayed past 12 hours from time of burn, use 5% dextrose in half saline (add 25mls of 50% dextrose to a 500ml bag of 2.5% dextrose and N/2 saline) Emergency Management of Severe Burns (EMSB) Course Manual.

The best indication of adequacy of fluid resuscitation remains urine output. For consistency and better outcome in adults this should be increased to 0.5 ml/kg/hour. Paediatric recommendations are unchanged. If urine output is not adequate, give boluses of 5–10 ml/kg and/or increase the next hour's fluids to 150% of the planned volume (EMSB Course).

Airway burns and inhalation burns injury are a major concern for management at the clinic, the RFDS plane and emergency department (ED). The problems occur in the first 12–36 hours and are mainly due to massive airway oedema, causing airway obstruction. Maximal oedema occurs in about 8–12 hours following small burns and 12–24 hours in major burns as part of the physiological response to the burn injury above the larynx itself. This can occur much earlier and relatively suddenly as IV fluids are poured in.

The problem that presents out bush is: How much fluid to give out bush before the RFDS arrive? Any person with facial burns, singeing of nasal hair, eyebrows, eyelashes, black sooty sputum, oro-pharyngeal burns, hoarseness, tracheal tug, stridor, wheeze, a burn in a confined space or explosion should be assumed to have suffered an airway burn and /or inhalational injury and fluids withheld until after urgent DMO/ED consultation. Also, persons with lower-facial and/or neck burns are at risk of airway obstruction. These people should receive Code 1 Priority for evacuation and a doctor who has experience in managing the airway should attend. If in doubt fluids should be withheld or given at a slower rate. Remember:

A policy that results in intubation of all patients at potential risk for airway compromise can be both foolish and dangerous. At the same time, it is recognised that intubation of patients who are likely to develop unstable airways is necessary if transport times are long and if IV resuscitation is initiated during transport. (Yowler & Fratianne, 2000)

Cooling remains an important first aid measure for up to three hours post burn, but should be applied for 20 minutes — not 10 mins as in third edition (EMSB Course). For transport there is no benefit from transporting with wet dressings, and may indeed be harmful, especially in children. A dry dressing or 'Gladwrap' is appropriate for most burns patients who are being sent to hospital. The advantages of 'Gladwrap' are that it is transparent, easy to apply, non-scary for children, helps prevent hypothermia, and is easy to remove in ED. It helps relieve pain by occluding the air. Obviously old, infected burns should be swabbed, cleaned with warm soapy water and have either Duoderm or SSD applied. Clean superficial burns or dry partial thickness burns not requiring

hospital assessment should be covered with Fixomull or Hypofix. People with more than 5% burns with significant blistering should be sent to hospital for debridement. SSD should not be applied to the face. In general do not apply SSD to burns less than 24 hours old without consulting ED or burns unit directly.

## **Bibliography**

**Medline search keywords:** burns; fluid resuscitation; resuscitation; burns dressings; airway problems and burns

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