PAEDIATRIC: BURNS—GENERAL MANAGEMENT

INVOLVE FACEM EARLY

Always consider possibility of non-accidental injuries

EVALUATE AIRWAY PATENCY

Inhalation injury usually appears within 2-48 hours post burn and is secondary to inhalation of combustion product. Symptoms include rales, rhonchi, stridor, hacking cough and laboured or rapid breathing.

Give 100% oxygen (preferably humidified) to all patients except those with minor burns. Until assessed, oxygen should be given to every patient retrieved from a fire even if cutaneous burns are not present.

REFERRAL CRITERIA

The following patients should always be referred to the Burns Unit:-

1. Full or partial thickness burns over 5%.
2. Burns to specialised areas e.g. hands, feet, face, genitalia.
3. Electrical burns especially high tension burns and burns which may required the use of flaps to repair the area.
4. Patients with inhalation injuries.
5. Patients with other injuries such as fractures.
6. Patients in poor physical condition prior to the burn.

Obviously burns with lessor areas may need to be referred depending on the circumstances.

The Burns Unit at the Royal Children's Hospital has a consultant always on call to discuss problems and to discuss whether the patient needs to be referred or just to give advice even with patients who do not need to be referred.

When considering referring a patient, contact should be made with the consultant on call. On occasions this can be done through the Registrar in the Burns Unit.

The hospital switchboard at Royal Children's Hospital has details of who is on call. The contact number is (07) 3636 8111.

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GENERAL MANAGEMENT

1. COOLING

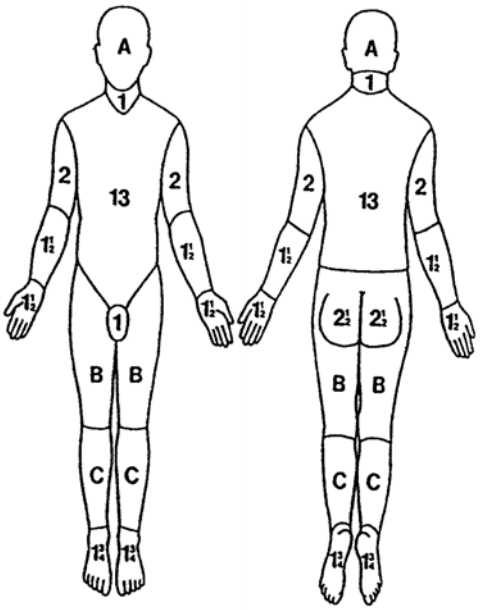
Burns can be cooled with cold running water between 8° and 25°C. Running water is applied for at least 20 minutes. There is no benefit in cooling if not undertaken within 3 hours post burn. An alternative to cold running water is combines soaked in cold water. Ice should never be used.

2. PREVENT HYPOTHERMIA (Often forgotten)

Patients can lose body heat quickly. After initial cooling remove all wet packs/clothes. Cover patient with a clean sheet or wrap burns in cling film (glad wrap) and apply space blankets or Bair Hugger). Monitor temperature.

3. ASSESS BODY SURFACE AREA INVOLVED

Apply rule of nines. Ignore simple erythema.



SKIN BSA PERCENTAGES AT DIFFERENT AGES:-					
	AGE				
	0	1 year	5 years	10 years	15 years
A=Half Head	9.5	8.5	6.5	5.5	4.5
B=Half Thigh	2.75	2.25	4.0	4.5	4.5
C=Half Leg	2.5	2.5	2.75	3.0	3.25

4. FLUID RESUSCITATION

- Fluid resuscitation is vital.
- Fluid resuscitation should be commenced in all patients with burns > 5%.
- Fluid resuscitation requirements are calculated from the time of burn injury. Remember that children will also need additional maintenance fluid.

Utilise the Modified Parkland Formula:

Resuscitation fluids required 1st 24 hours = 4 ml Hartmanns x body weight (kgs) x % body surface area burnt.

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EXAMPLE:

25 kg child with 20% burns

FLUID REQUIREMENTS		
Resuscitation (Hartmann's)	**plus**	**Maintenance (Saline 0.45% Dextrose 2.5 %)**
= 4 X 25 X 20% = 2000 ml in 24 hrs Half calculated value given in first 8 hours. Remaining half given in next 16 hours. Therefore first 8 hours give 1000 ml. Next 16 hours give 1000 ml.		1st 10 kg: 100 ml x 10 kg = 1000 ml 2nd 10 kg: 50 ml x 10 kg = 500 ml Next 5 kg: 20 ml x 5 kg = 100 ml Total 1600 ml / 24 hrs = 67 ml/hr

If patient clinically shocked then initially give 20 ml/kg fluid bolus. The shocked state must be treated prior to commencement of this fluid resuscitation protocol. The choice of fluid for shock is not important—is the volume given that matters.

If fluid resuscitation required patients ideally need 2 IV lines

Monitor urine output. Aim for target UOP of >0.5 ml/kg/hr.
Increase target UOP to 1-2ml/kg/hr if patient has:-

- Haematuria
- Haemoglobinuria
- Myoglobinuria
- Evidence of rhabdomyolysis
- Electrical burns

If UOP not adequate give additional bolus of 5 ml/kg until established.

Insert IDC if:-
Burn area > 20% **Burn area > 10% with other problems**

ALWAYS BE GUIDED BY CLINICAL STATUS AND UOP

References:

1. **Royal Brisbane Burn's Unit Guidelines**
2. **NSW Health—NSW Severe Burn Injury Service: Burn Transfer Guidelines 2004**