

## VAQ 2008.2.4

A 65 year old man is brought to your emergency department. He was starting a fire in his fireplace when his clothes caught on fire.



- Describe and interpret his photograph (50%)
- Outline the principles of his fluid management (50%)

Clinical photograph showing extensive burns of variable thickness to the anterior neck, chest and abdomen plus face in a middle aged male receiving oxygen and non-invasive monitoring.

This man has sustained severe burns to at least 20-25% TBSA of varying depths. Immediate concerns are airway involvement, circumferential limb burns, and constricting burns to the neck and chest preventing ventilation. He will require analgesia, fluid resuscitation based initially on burn area/weight as per Parkland's formula, and later adjusted to ventilation and fluid status monitoring, and supportive care.

### Photograph

anterior view of patient on hospital bed  
chest, abdomen exposed  
arms almost entirely covered by dressings  
limited view of face and neck

### Patient

eyes closed, **not intubated** – oxygen by hudson mask  
unable to estimate pain or conscious level

### Injuries

#### burns

**to almost entirety of visible skin**  
**mixed depths**  
**likely partial thickness to most of visible area except**  
**likely full thickness with eschar chest/upper abdomen**  
periumbilical sparing  
**face and neck involved**  
likely partial thickness  
arms – limited views  
likely partial thickness comparing to pale spared periumbilical skin

## TBSA

at least 4.5% anterior head  
approx 16% anterior torso  
burns dressings over arms and visible burn imply involvement bilaterally  
anterior neck involved  
**minimum 20-25% TBSA**

## Concerns

**severe burns requiring emergent treatment and likely ICU care**  
**airway involvement**

need for early intubation based on clinical assessment

torso involvement

may require escharotomy if causing respiratory compromise

neck burns

constricting oedema and circulatory or respiratory embarrassment

may require escharotomy

arm burns

+/- circumferential burns requiring escharotomy

analgesia

extremely painful injury requiring titrated parenteral narcotic analgesia

morphine 2.5mg aliquots q5min, expect 20-30mg

fluid loss

adequate fluid resuscitation as detailed below

antimicrobial

tetanus prophylaxis

antibacterial burn dressings

temperature control

## Surrounds

dressings

ECG monitoring

plastic wrap to scalp

## Fluid resuscitation

**Based on Parkland's formula**

**4ml/kg/%TBSA (not erythema) over first 24h of Ringer's lactate solution (or sensible isotonic crystalloid – no good evidence of superiority)**

**from time of burn, not presentation**

**half given in first 8h**

i.e. in this case, assuming 20% TBSA and 100kg (**need sensible %TBSA and weight and do calculation**)

$4 \times 20 \times 100 = 8000\text{ml} / 24\text{h}$

4000ml given by 8h post injury

4000ml given over subsequent 16h

If airway involvement, consider 3ml/kg/%TBSA to avoid pulmonary oedema

'Fine-tuning' of fluid resuscitation based on

markers or perfusion

urine output  $>0.5\text{ml/kg/hr}$

pulse  $<120-130$  (typically raised in burns)

blood pressure  $> 90$  systolic

CVP/JVP

serial blood lactate (static or reducing)

respiratory status (hypoxaemia/pulmonary oedema imply overresuscitation)