Initial Major Burn Management

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Skin Anatomy


Oil gland
Epidermis
Dermis
Sweat gland
Follicle
Nerve
Fatty tissue
NORMAL SKIN

Skin What does it do?

- S – Sensory
- K – Keeps fluids in
- I – Infection control
- N – Normothermic

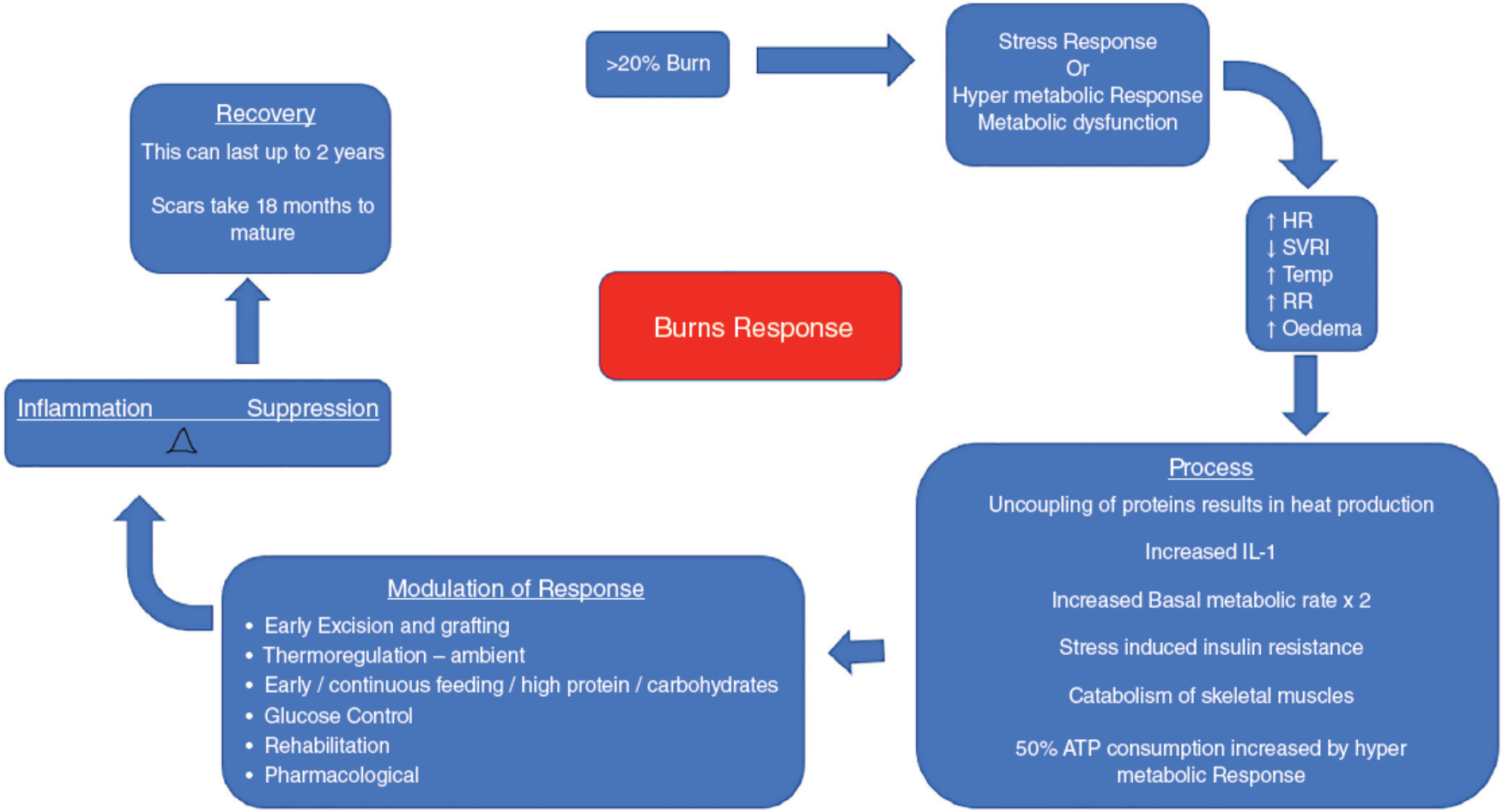
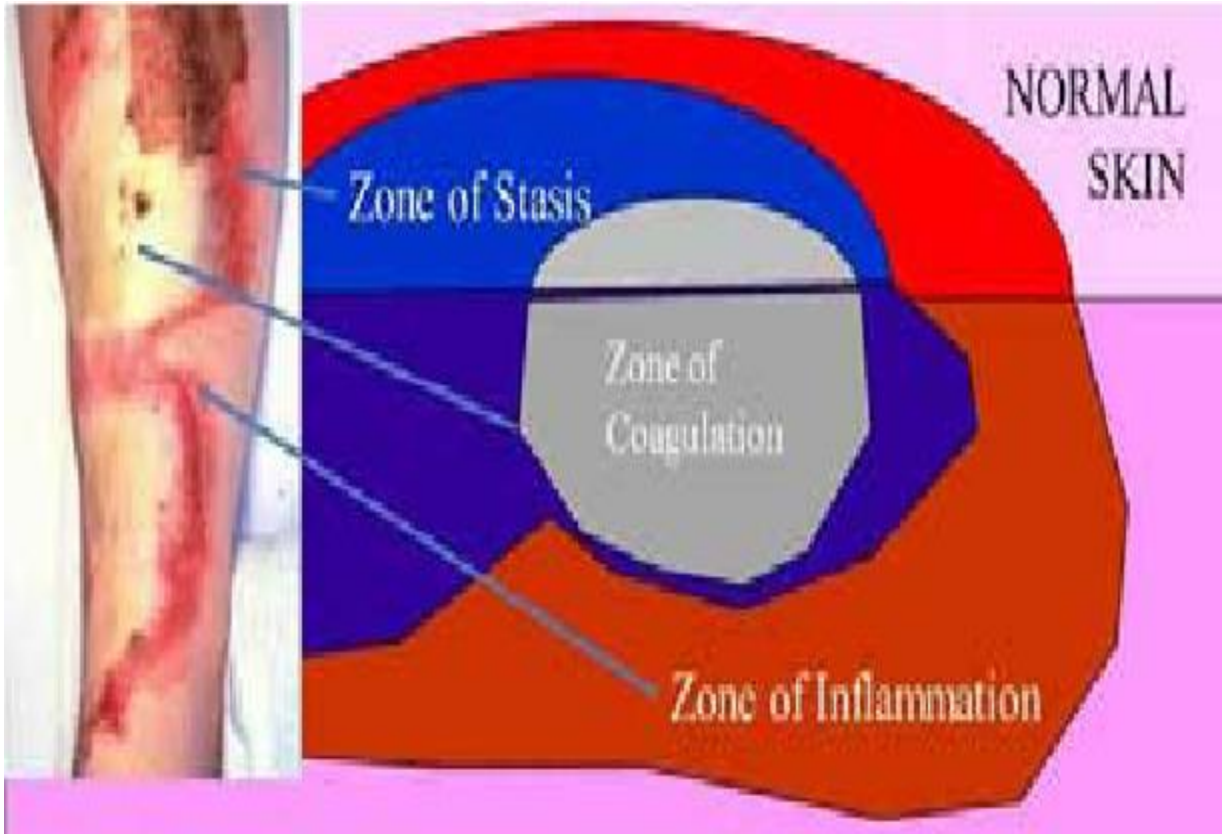


Figure 28.5 Burns response (Lee, 2021).

Burn Wound Assessment


NORMAL
SKIN
Zone of Stasis
Zone of
Coagulation
Zone of Inflammation

Burns First Aid Guideline

London and South East of England Burn Network

CONTACT DETAILS

www.trips.nhs.uk

St Andrews Burns Service
Broomfield Hospital (Chelmsford)
Adults/Children **01245 516037**

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Adults **02033152500**
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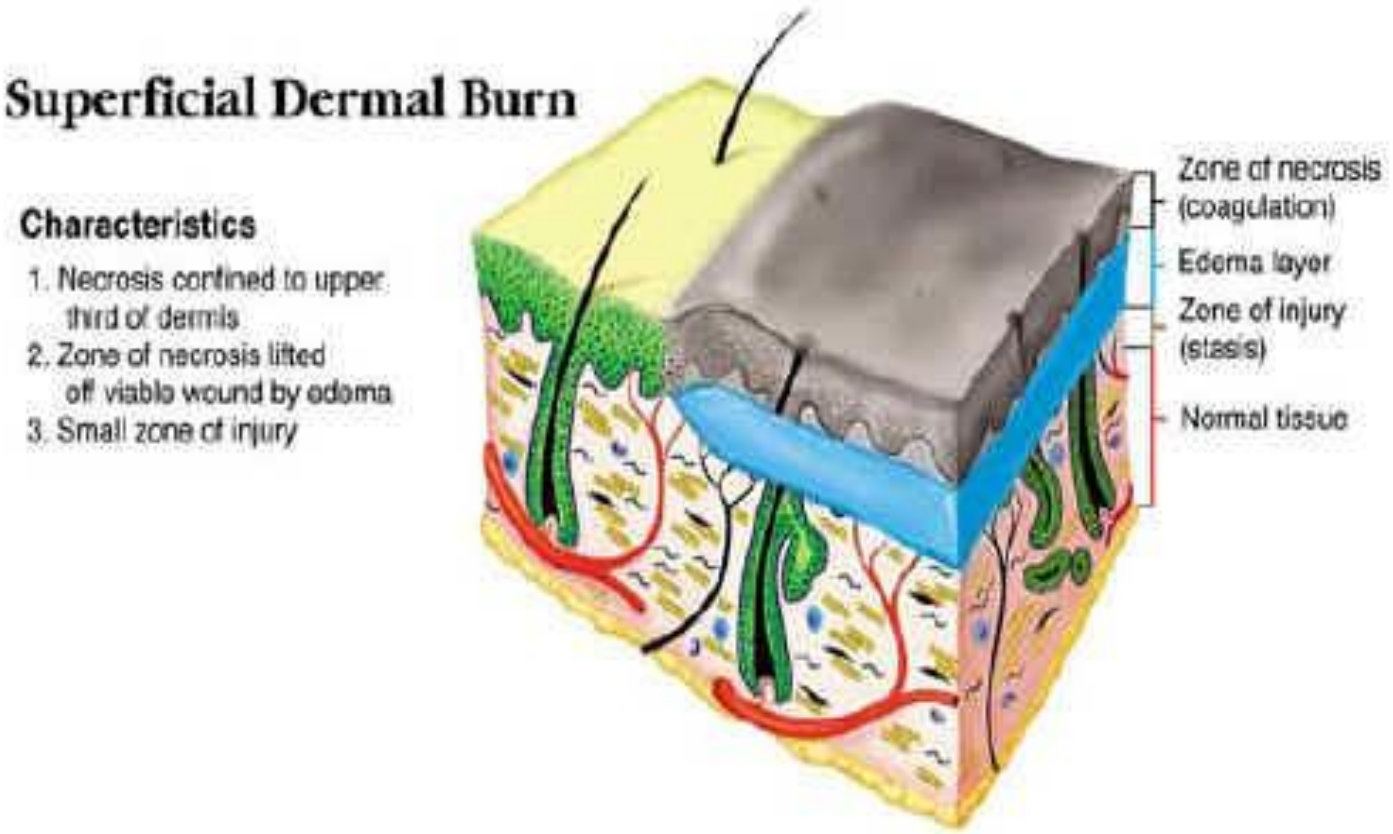
STOP	Maintain personal safety If clothes catch fire, extinguish Isolate electrical source Avoid chemical cross-contamination Stop the burning process
REMOVE	Remove any burnt/contaminated clothing Leave any melted/adherent clothing Remove all nappies, jewellery and contact lenses near burned area, if able
COOL THE BURN **WARM THE PATIENT**	**Best Practice** **THERMAL BURN** Commence cooling/irrigation of burns as early as possible Do not apply ice/iced water/ice packs Irrigate with cool running tap water for 20 minutes Cooling beneficial up to 3 hours post burn injury **CHEMICAL INJURY** Do not delay immediate irrigation for detailed assessment of patient or acquiring a particular irrigation fluid, regardless of delay in presentation. Commence urgent irrigation with a sterile isotonic solution (e.g. Hartmann's or Normal Saline), an amphoteric solution (Diphoterine®), or water. Keep patient warm to prevent hypothermia (children and elderly are most susceptible) **If water supply is limited** Use a cool water compress Change compress frequently over 20 minute period **Hydrogel burn dressings** LSEBN does not support the use of hydrogel burn dressings Least effective method of removing heat from the wound
COVER	Fully irrigated chemical injuries with a wet compress Fully cooled thermal burn wound with loose longitudinal strips of cling film Do not apply cling film to face Do not wrap cling film circumferentially
CALL	Seek early advice from **local Burn Service** All burn injuries that fall within the **Burn Referral Criteria** should be discussed with the **local Burn Service** Telephone support and advice on initial care of any patient with a burn injury is available at all times

Adapted with permission from ANZBA and Victorian Burn Service

Approved by LSEBN CGG on April 2018

Erythema

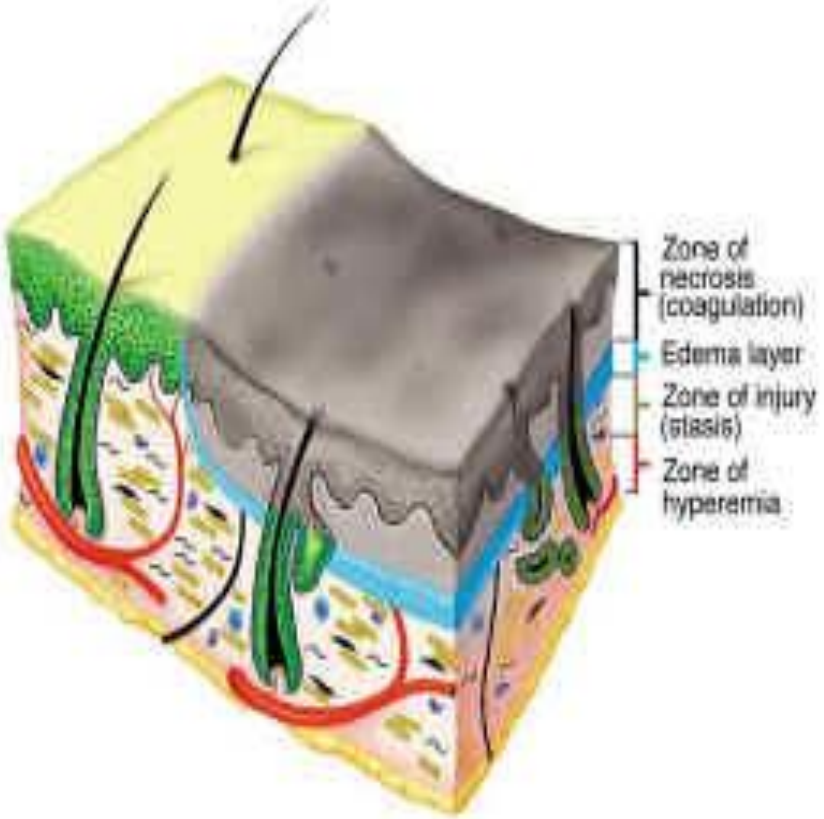

Superficial Dermal Burn
Characteristics
1. Necrosis confined to upper third of dermis
2. Zone of necrosis lifted off viable wound by edema
3. Small zone of injury
Zone of necrosis (coagulation)
Edema layer
Zone of injury (stasis)
Normal tissue

Partial thickness injury

Mid-Dermal Burn

Characteristics

1. Necrosis to mid-dermis
2. Large zone of injury (potential conversion)
3. Eschar separated from viable tissue by edema layer

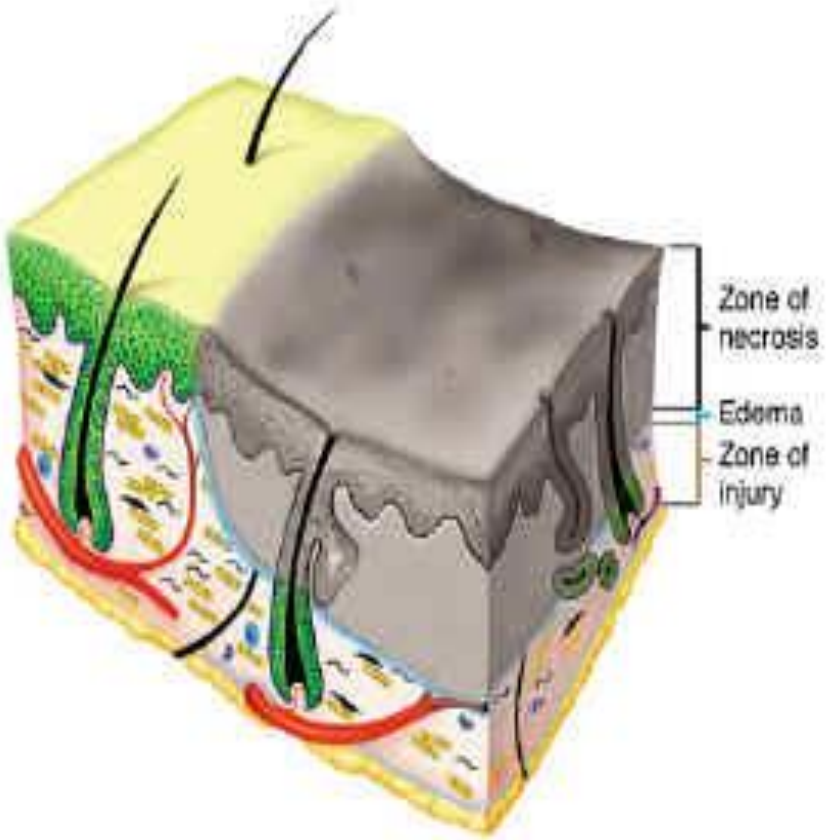


Deep Dermal Injury

Deep Dermal Burn

Characteristics

1. Necrosis involving majority of skin layers
2. Zone of necrosis adherent to zone of injury
3. Smaller edema layer



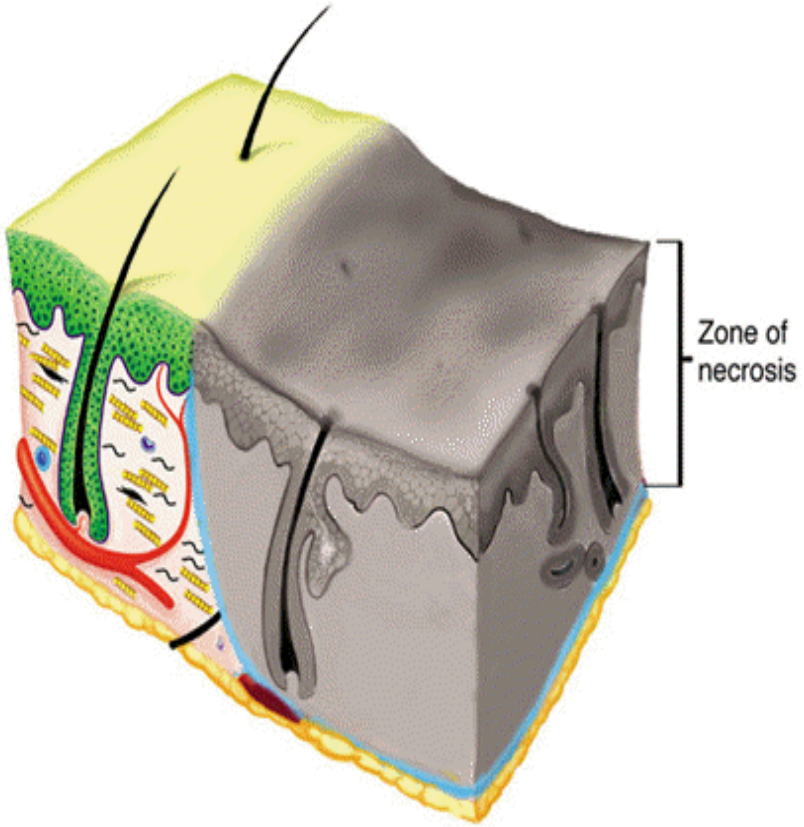
Mixed Depth Injury

Full Thickness Burn

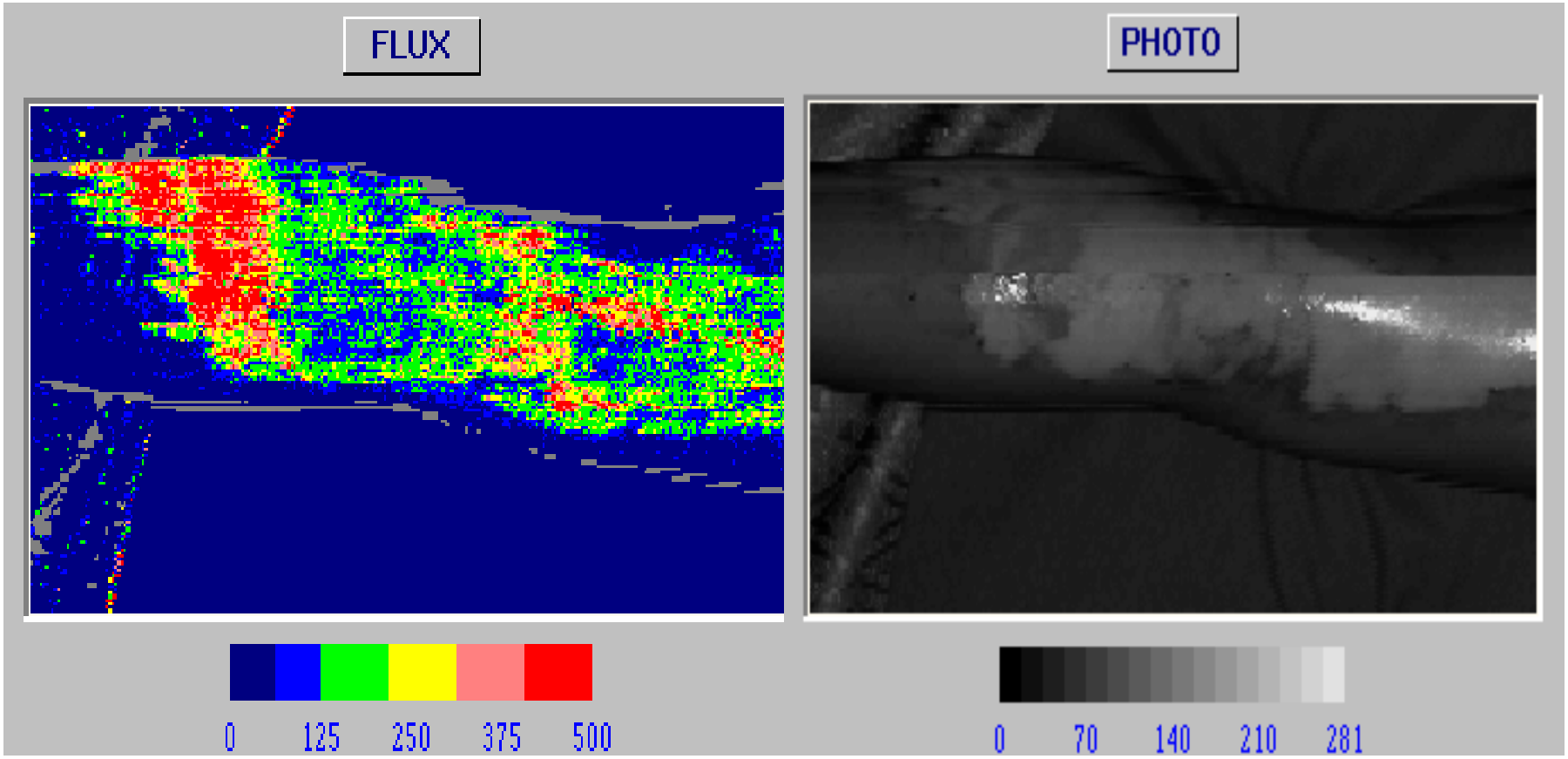
Full Thickness Burn

Characteristic

No remaining viable dermis



Laser Doppler imaging scanner (LDI)



Specialist Considerations

Circumferential burns

- Circumferential burns are where a deep burn ‘circles’ a limb such as the wrist.

- The skin changes, becoming tough and inelastic (eschar).

May Need Escharotomy’s

Eyes

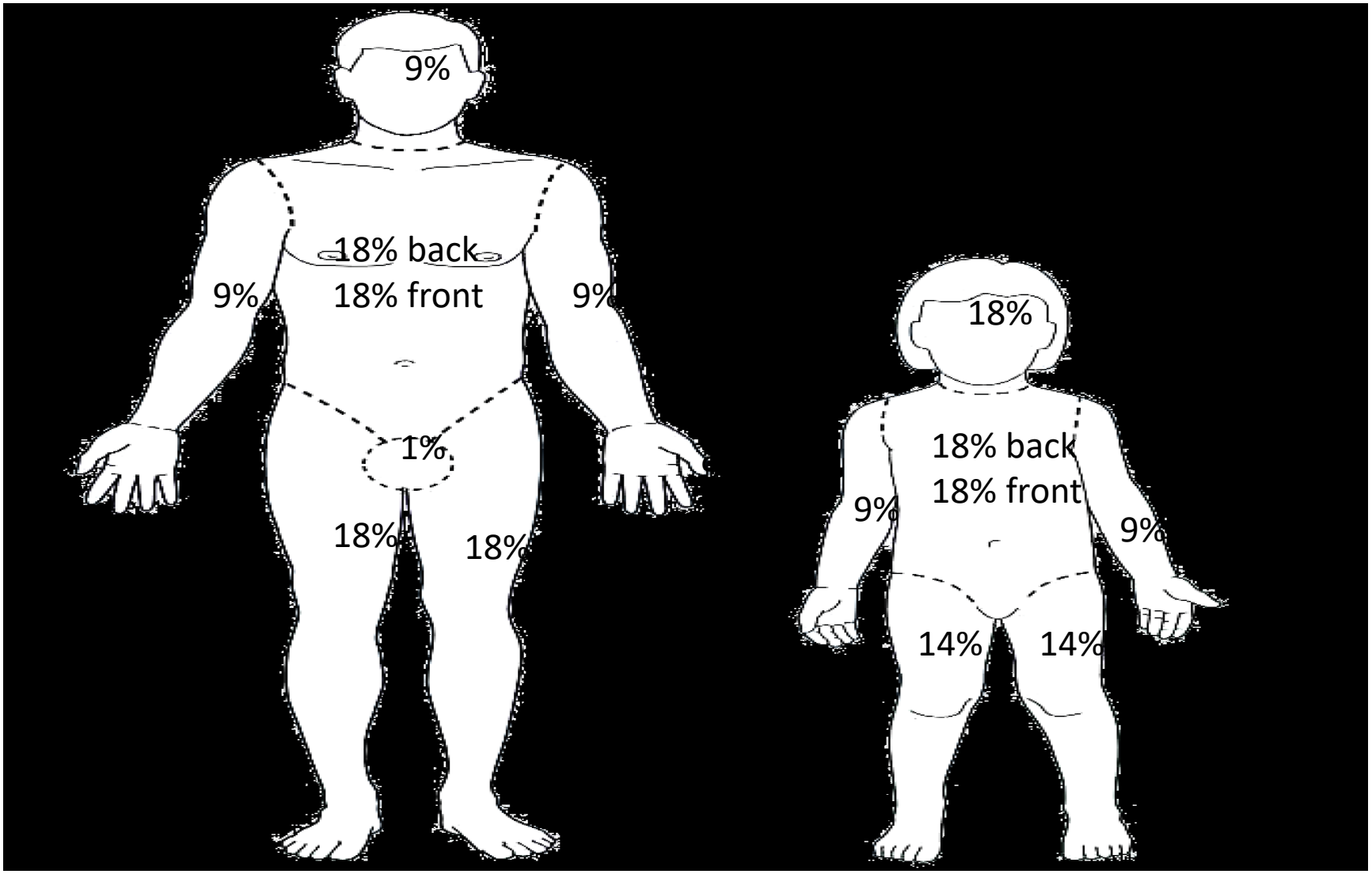
- Burns that include the eyes will require specialist assessment
- Prolonged irrigation with saline (or water if saline is not available) is the mainstay of immediate treatment of eye chemical burns.

Facial Burns

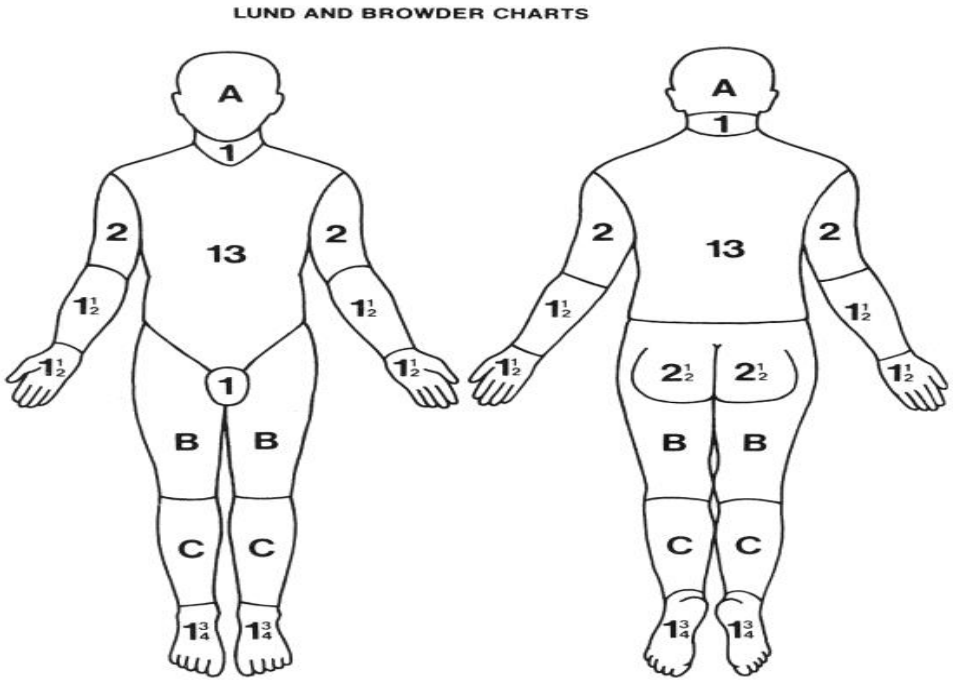
- Superficial dermal facial burns are commonly associated with injuries caused by flash flame burns in adults, scolding with children.
- Swelling
- Scalp check all including ears

Chemical Injuries

% Area of Burn


9%
18% back
18% front
9%
9%
1%
18%
18%
18%
18% back
18% front
9%
9%
14%
14%

LUND AND BROWDER



REGION	%
HEAD	
NECK	
ANT. TRUNK	
POST. TRUNK	
RIGHT ARM	
LEFT ARM	
BUTTOCKS	
GENITALIA	
RIGHT LEG	
LEFT LEG	
TOTAL BURN	

RELATIVE PERCENTAGE OF BODY SURFACE AREA AFFECTED BY GROWTH

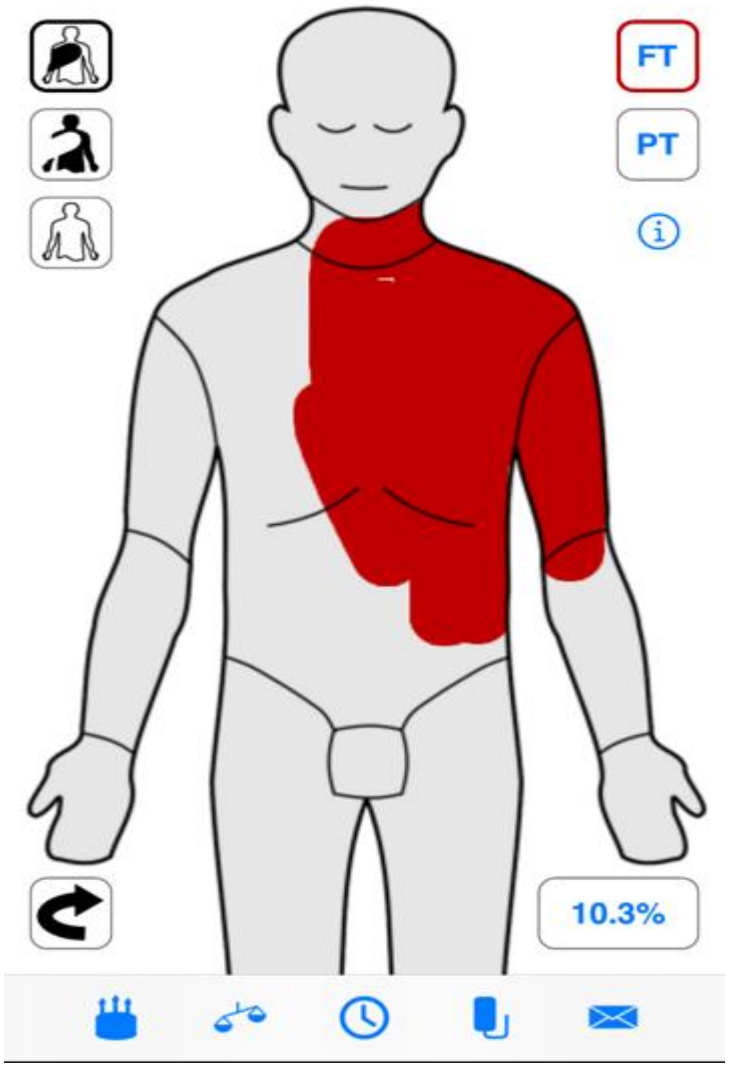
AREA	AGE 0	1	5	10	15	ADULT
A = ½ OF HEAD	9½	8½	6½	5½	4½	3½
B = ½ OF ONE THIGH	2¾	3¼	4	4½	4½	4¾
C = ½ OF ONE LEG	2½	2½	2¾	3	3¼	3½

Patients hand = 1% TBSA

- Smaller burns can be assessed by using the patients hand including fingers and palm.

Others

- Mersey burn app
- E-burn



Fluid Resuscitation

- Children with >15% TBSA
- Adults with > 20% TBSA
- All patients requiring fluid resus should be catheterised for accurate fluid balance.

Parklands formula

- MUST BE CALCULATED FROM TIME OF INJURY
- 4 mls Hartman's Solution / kg/ % burn
- Half given in the first 8 hours, half given over the remaining 16 hours
- Children receive maintenance fluid alongside their resus fluids

Fluids

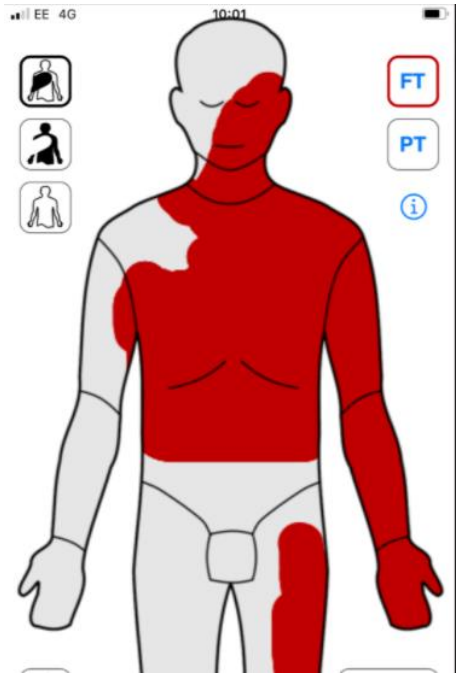
4mls x 75 kg x 50 % burn

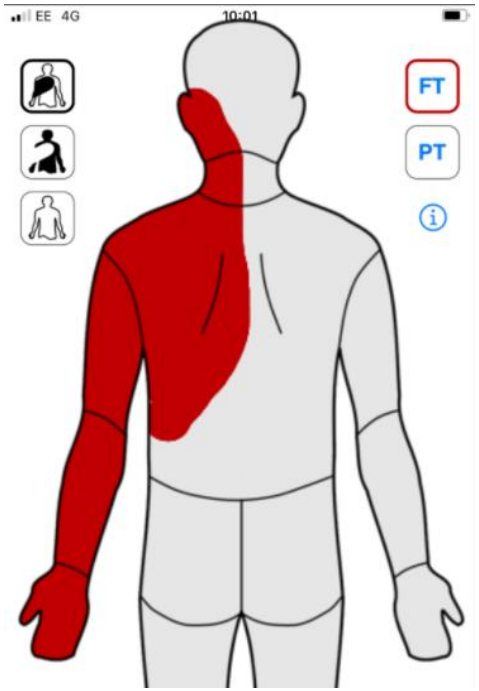
4 x 75 x 50

15000mls

1/2 first 8 hours 7500ml = 938 ml/hr

Next 16 hours = 469 ml/hr





Guide
End Organ perfusion

4 x 75 x 31 = 9300

9300 / 2 = 4650

1st 8 hours = 4650 / 8 = 581 ml / hr

2nd 16 hours = 4650 / 16 = 290 ml / hr

Burn Referral Guidelines: Criteria for Referral

NHS
London and South East of England Burn Network

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Adults and children with the following injuries should be discussed with the local Burn Service

Cause	• Inhalation injury • Deep dermal and full thickness • Electrical • Chemical • Burns with trauma
Affected Area	• Face, hands, genitals, feet, joints, scalp, ears • Circumferential
Size	• >1% Total Body Surface Area [TBSA] in children • >3% TBSA in adults
Age	• Neonates (<28 days old)
Wound	• Not healed within 2 weeks • Infected
DISCUSS	• Suspected non accidental injury, mental health history or self-harm • Progressive non burn skin loss conditions (TENS, SSSS, Necrotising Fasciitis) • Significant co-morbidity (eg diabetes) or immunocompromised patients • Friction burns with full thickness skin loss • Cold burns with full thickness skin loss • Older people (60+) • Children "unwell" with a burn (see below) * • Any other case that causes concern

* Toxic Shock Syndrome /Burns Sepsis Syndrome

Seek early advice from local Burn Service
Consider treating with fluid resuscitation, IV antibiotics +/- FFP

MEDICAL EMERGENCY

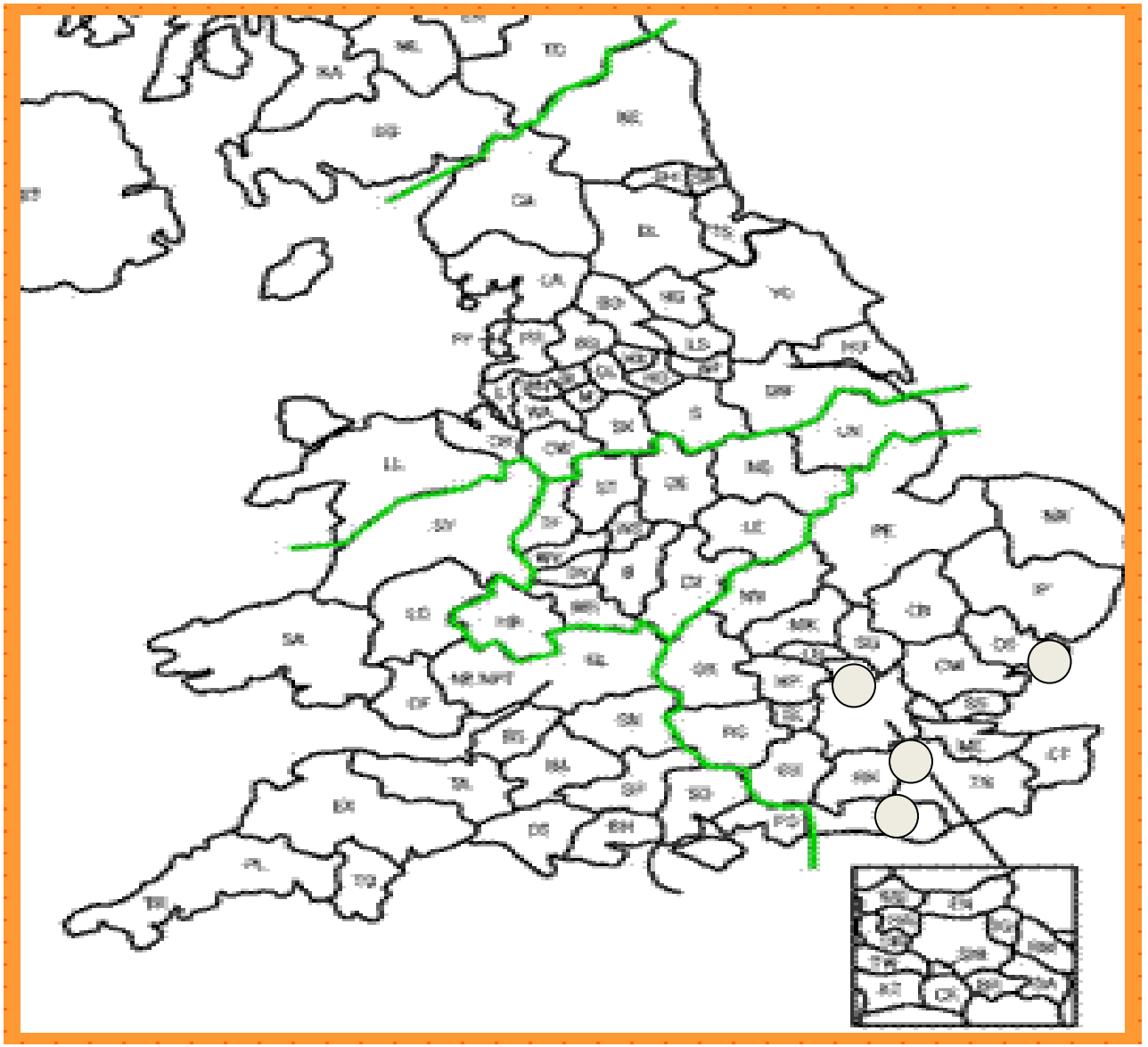
Any patient
Any size burn
Any of these symptoms
=
Risk of Toxic Shock Syndrome

- Temperature > 38°C
- Rash
- Diarrhoea and vomiting
- General malaise
- Not eating or drinking
- Tachycardia/tachypnoea
- Hypotension
- Reduced urine output

If in doubt, seek early advice from local Burn Service
Telephone support and advice on initial care of any patient with a burn injury is available at all times

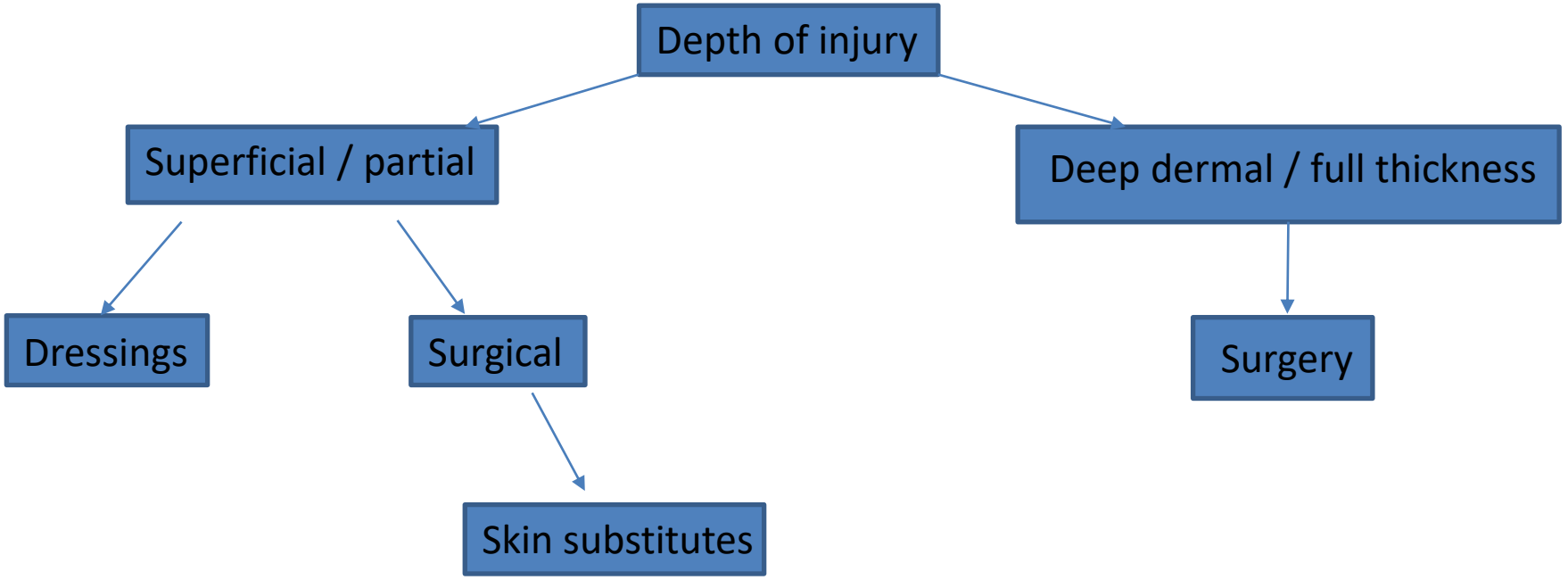
Approved by LSEBN CGG on December 2015

LSEBN
Designated
Burn Facility
2019




115
35.4
93
4.3
18

Admission room



Wound swabs / photos / dressings

Recap what does the skin do?

Holds temperature

Stops fluid loss

Covers nerve endings

Protects from infection

Antimicrobial

Pressure relief

Cost

Patient Comfort

What Type of dressing do we need?

Absorb extreme exudate
++++++++++++++++++++

Non stick

Warmth

Large Size

Following resuscitation period?

What next

Surgery within the first 48 hours

critical care support and wound management

Following surgery

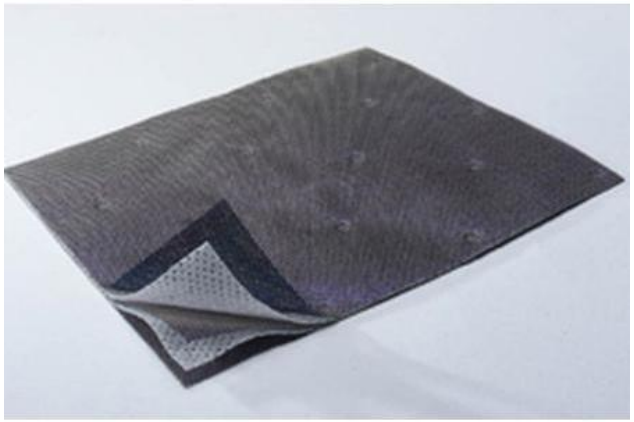
Over the next few months there it is a supportive flow of critical care. Which will enable the patient's to heel their wounds.

- This starts with every other day dressing changes for 7 days
- There after every other day showers to reduce bacterial loads to the wounds

During showers/ dressing changes

- Patients become hypothermic
- Loss of fluids causing hypovolaemia
- Have massive pain issues requiring sometimes a full general anaesthetic. Due to this an anaesthetist will deliver what pain relief is necessary usual remifentanil and propofol if they have a secure airway. If not ketamine and midazolam orally
- Risk infection

Different dressings we use



Following Risks

- Airway
- Hypothermia – reperfusion injurys
- Hypovolemic
- Sepsis

95% burns can survive


Questions
?
?
Answers
?