Professor John Pearn

Paediatrician

Royal Children's Hospital

Brisbane

Former Surgeon General

Friday, June 9, 2017

(Room 1)

16:30 - 17:25 WS #68: Update on Burns

17:35 - 18:30 WS #80: Update on Burns (Repeated)

Update on Burns

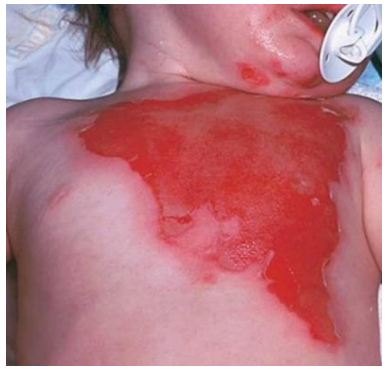
John Pearn
Paediatrician to the Burns Centre

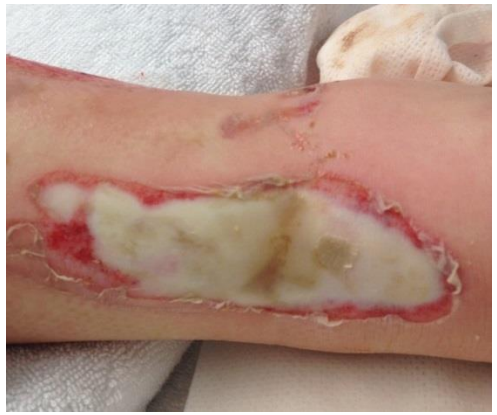
NZMA Rotorua GP CME Conference
9 June 2017

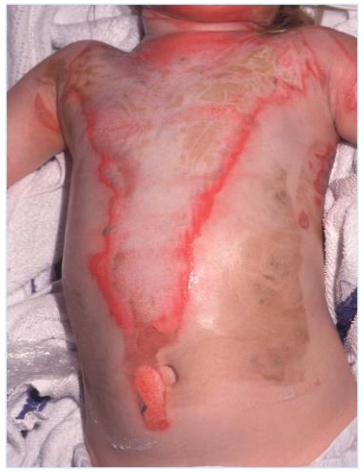
The University Of Queensland
AUSTRALIA

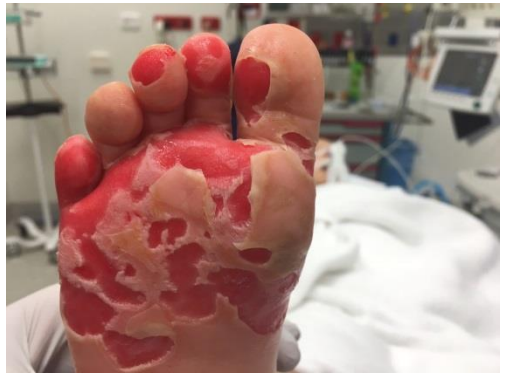
Centre For Children's
Burns & Trauma Research

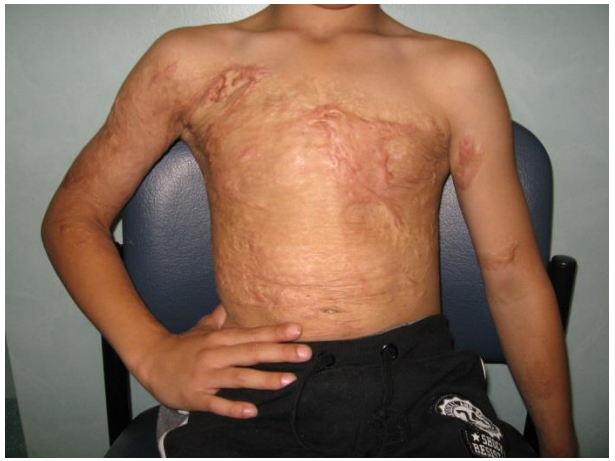
The Spectrum of Thermal Injury

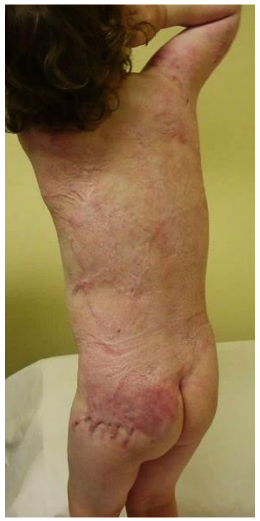


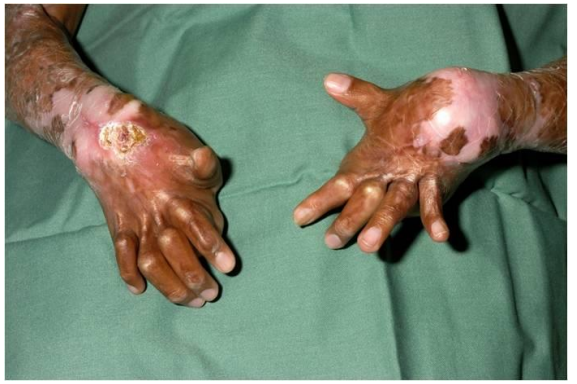




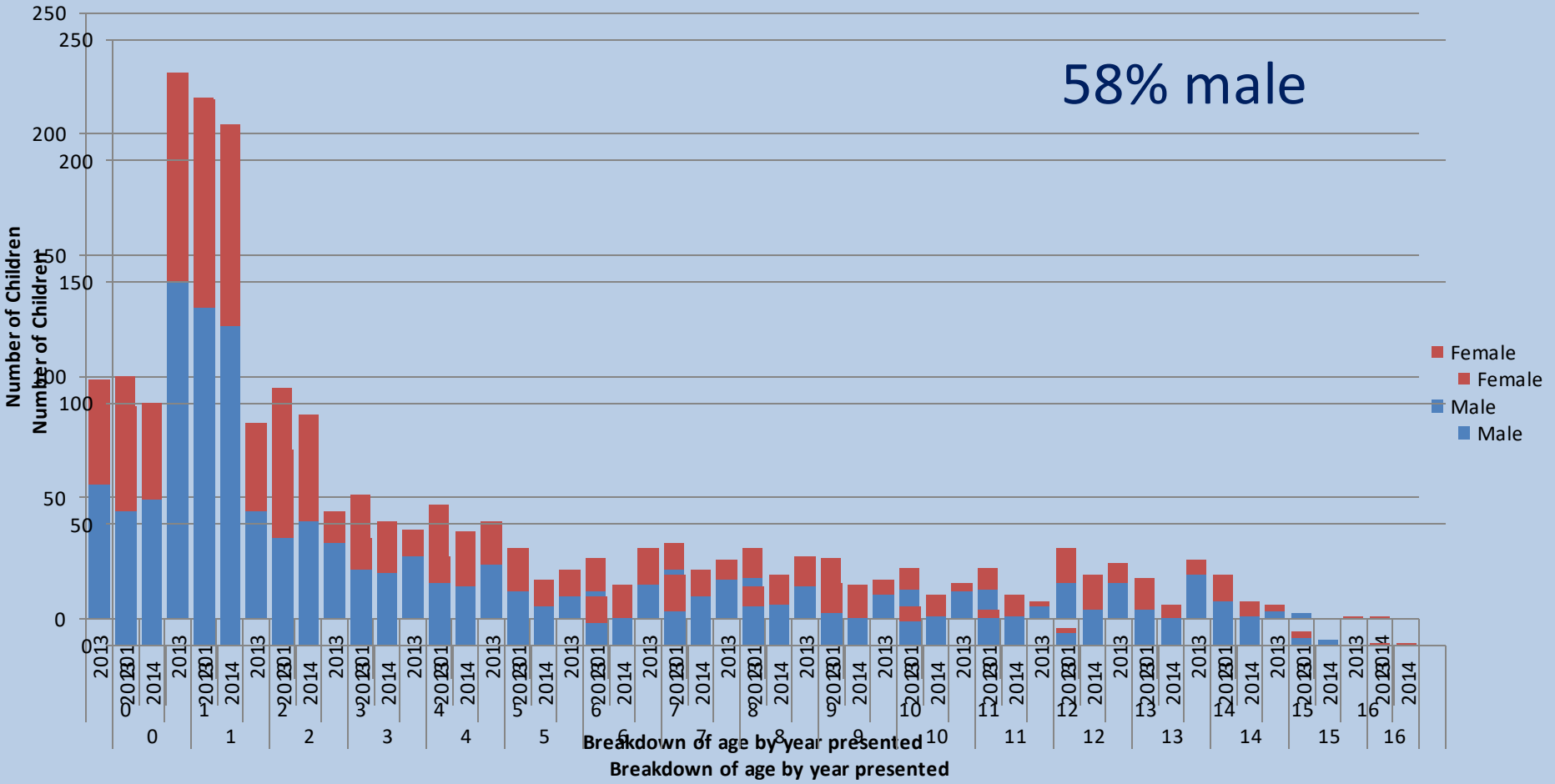








Age of children attending



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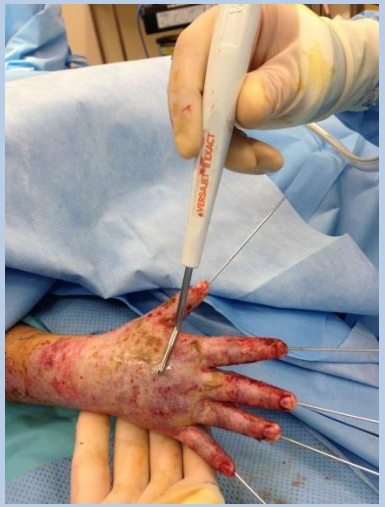
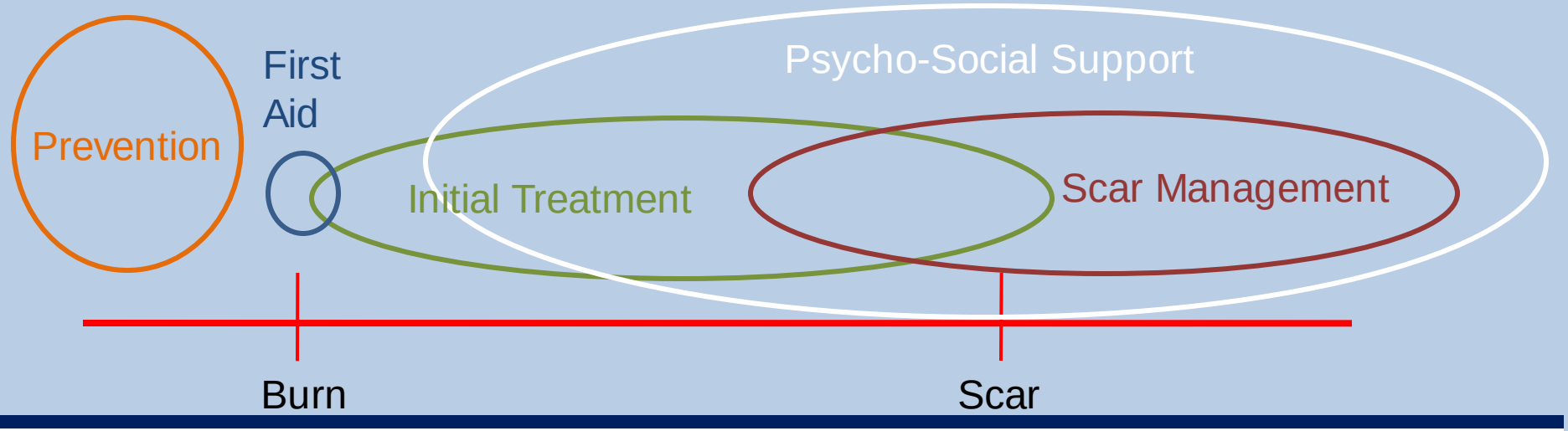




Centre for Burns & Research

Principles of management

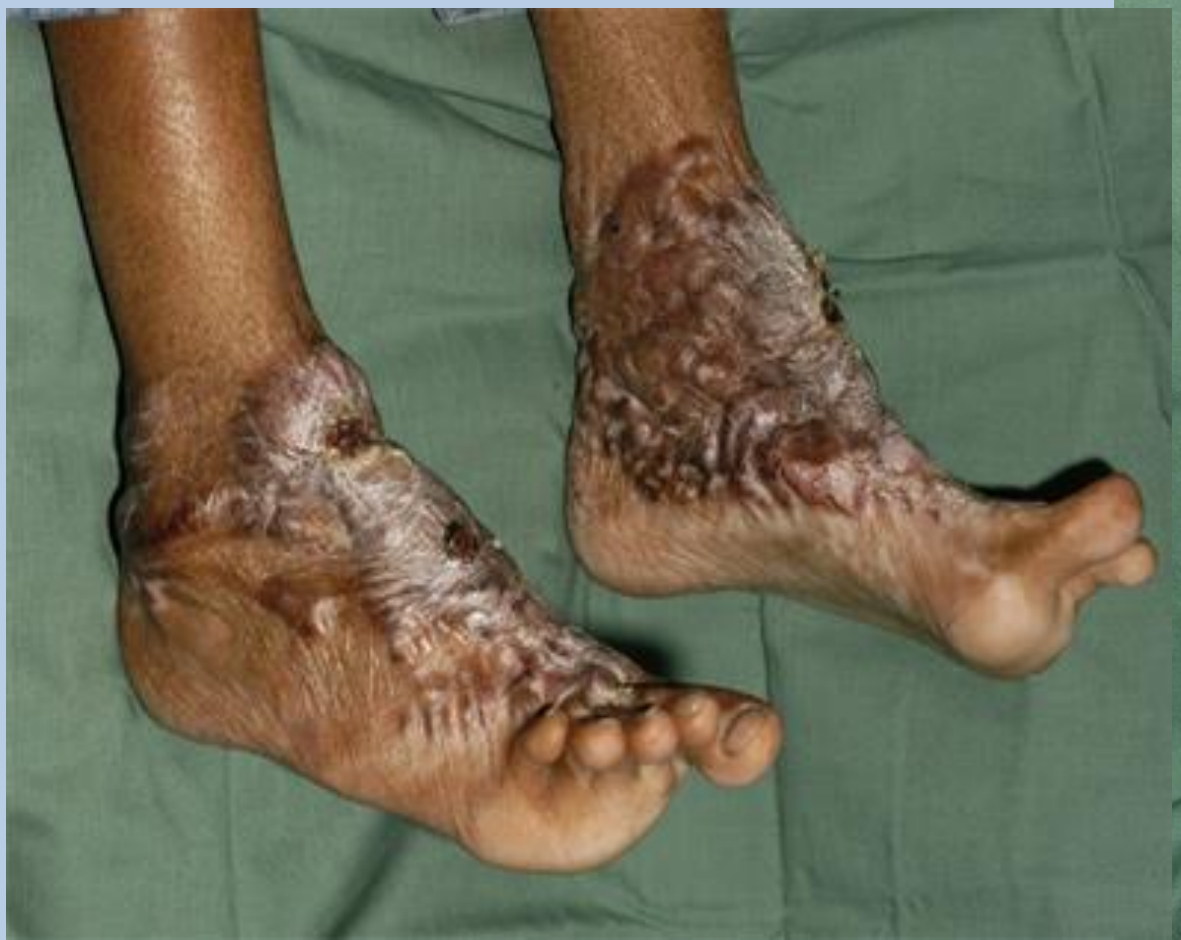
Staying Ahead of the Game

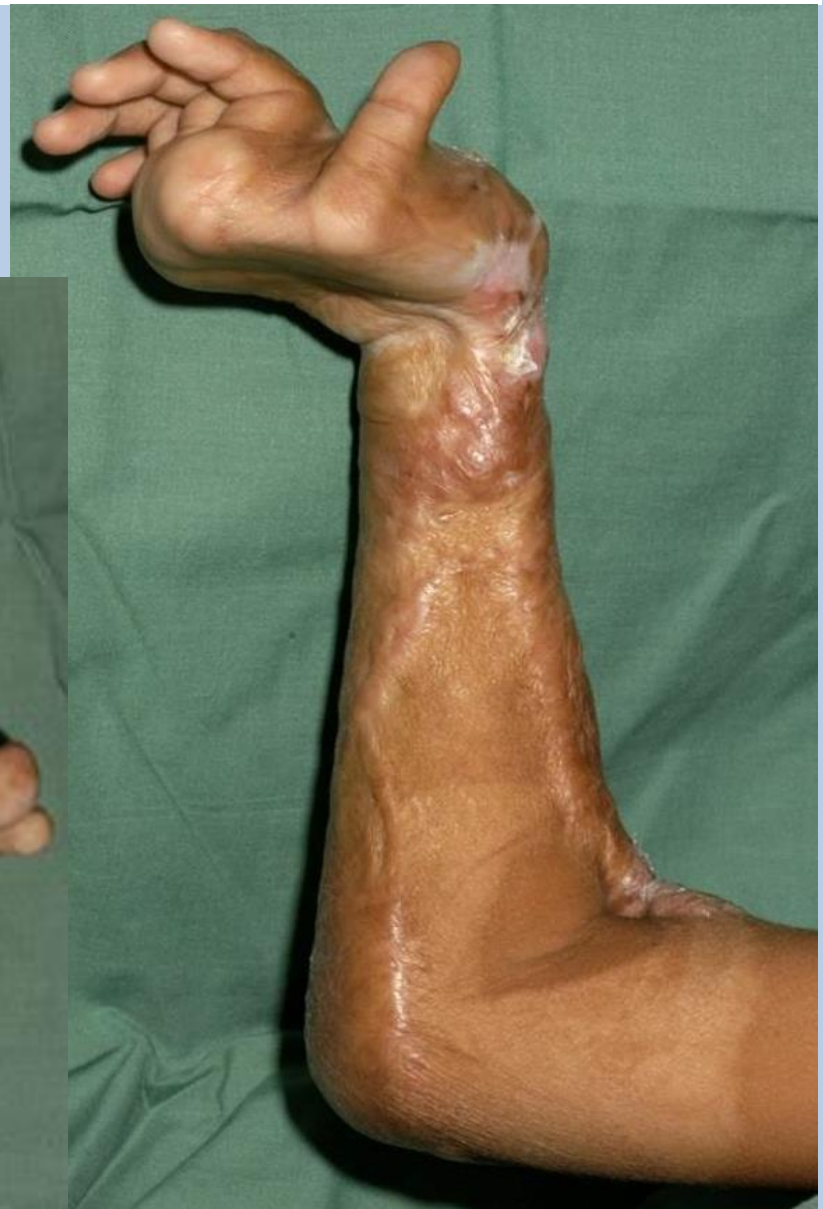
Preventing or reducing Scarring

Managing the whole family-social unit

Hypertrophic Scarring

Know Your Enemy





Relationship between Re-epithelisation Time & Scarring

ELSEVIER

Burns 32 (2006) 992–999

BURNS

www.elsevier.com/locate/burns

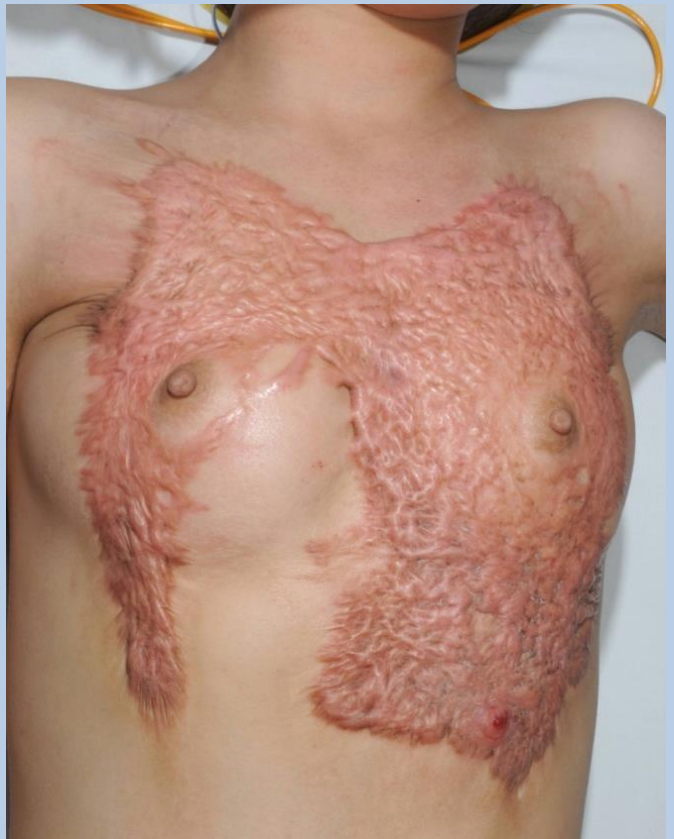
Evidence for the link between healing time and the development of hypertrophic scars (HTS) in paediatric burns due to scald

Tania C.S. Cubison [a,*], Sarah A. Pape [b], Nicholas Parkhouse [c]

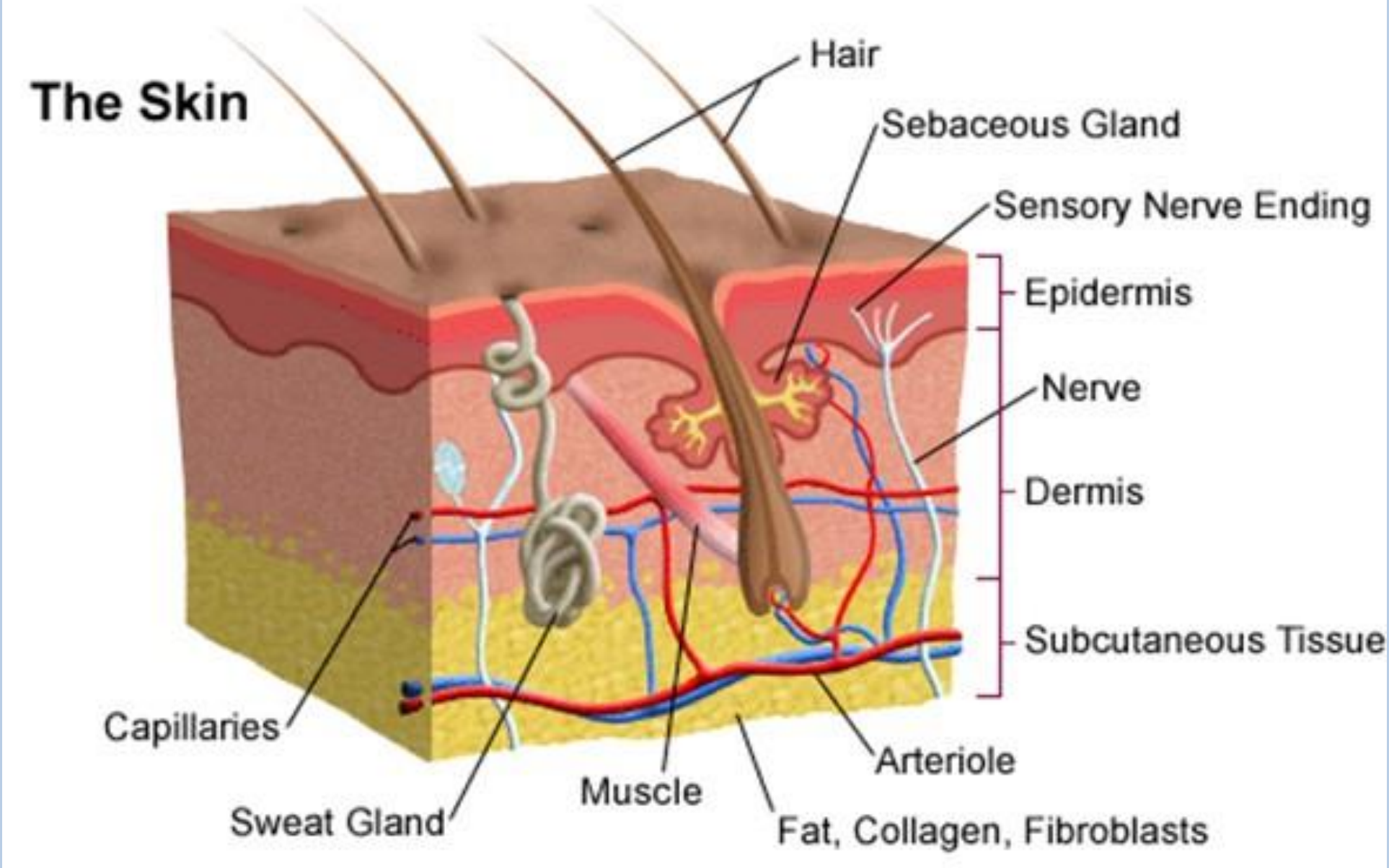
[a] *Plastic Surgery, Northern Regional Burn Centre, Royal Victoria Infirmary, Newcastle Upon Tyne, NE1 4LP, UK*
[b] *Northern Regional Burn Network, Northern Regional Burn Centre, Royal Victoria Infirmary, Newcastle Upon Tyne, NE1 4LP, UK*
[c] *Queen Victoria Hospital, East Grinstead, RH19 3DZ, UK*

Accepted 13 February 2006

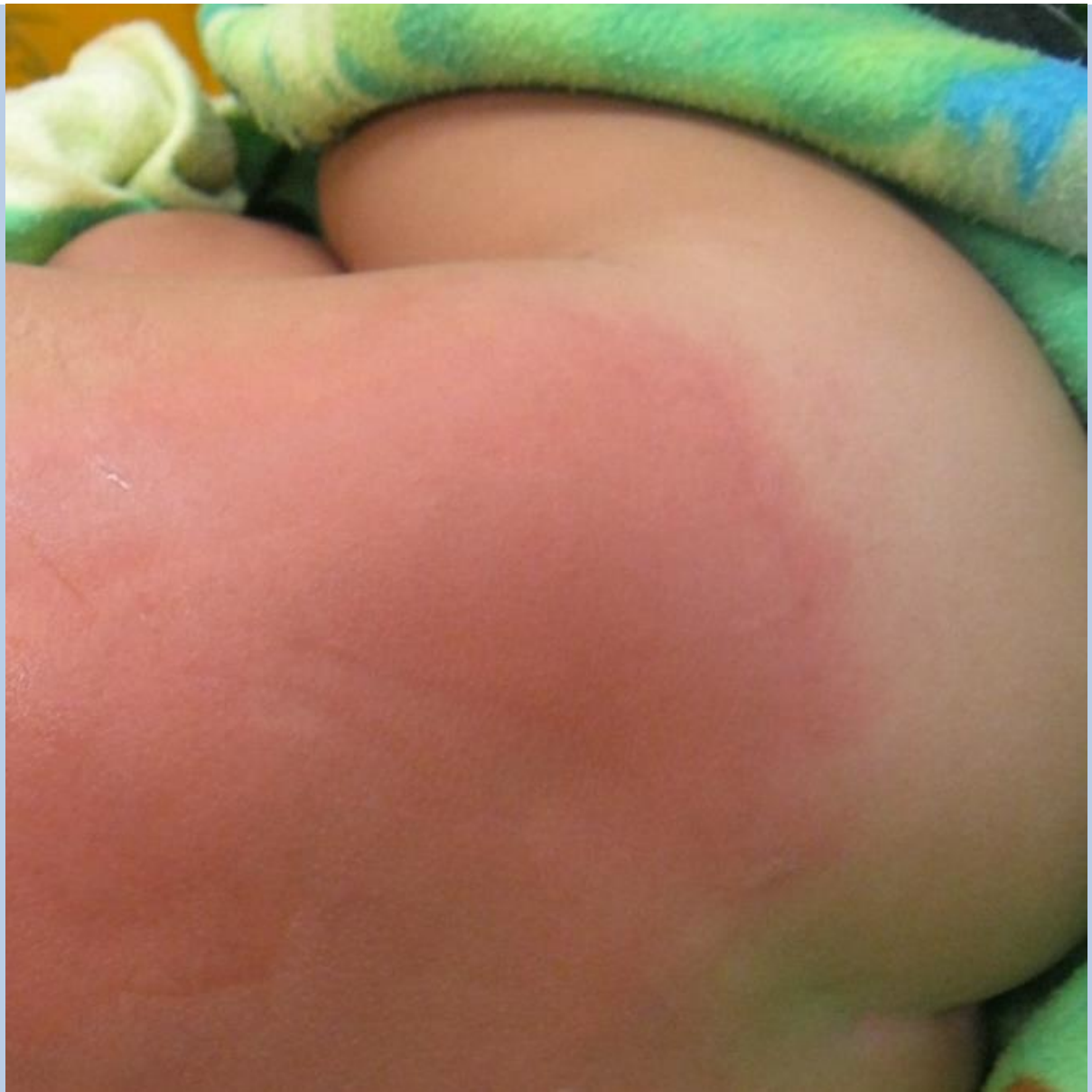
<10 days = 0%
10–14 days = 2%,
15–21 days = 20%,
22–25 days = 28%,
26–30 days = 75%
>30 days = 94%



Jackson Model



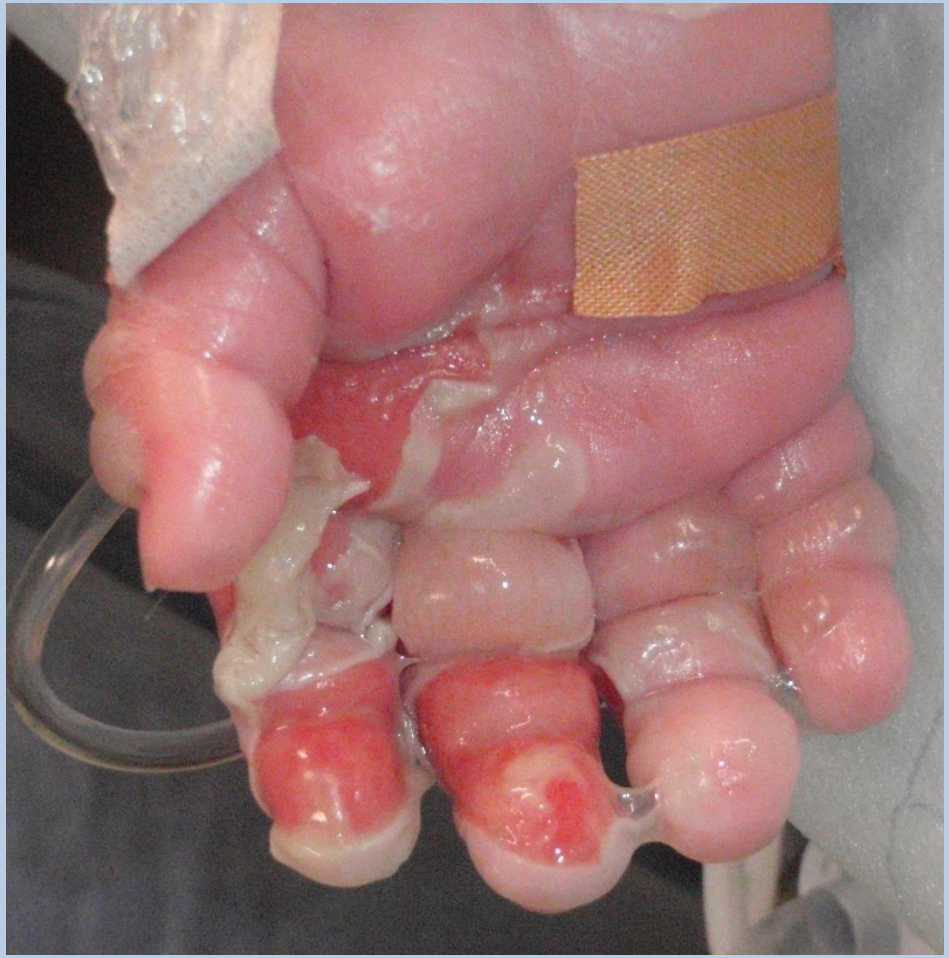
Burn Classification

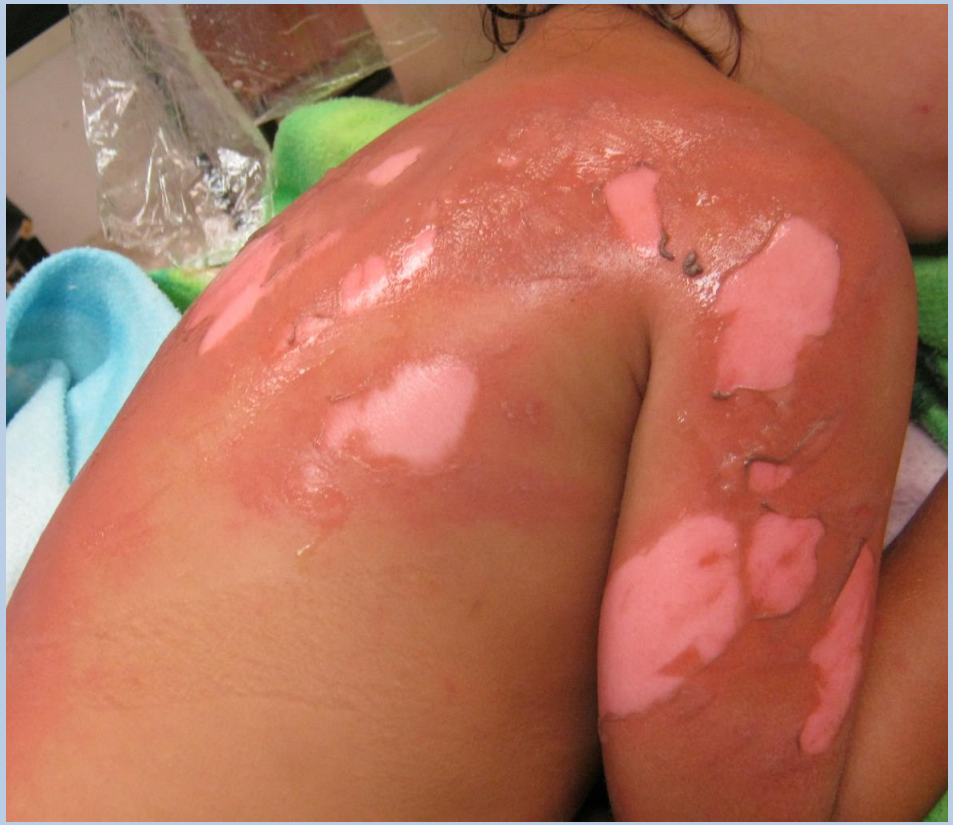


Superficial Burn
(erythema only)

Shakespeare PG: Standards & quality in burns treatment. Burns. 2001 Dec;27(8):791-2.

Burn Classification

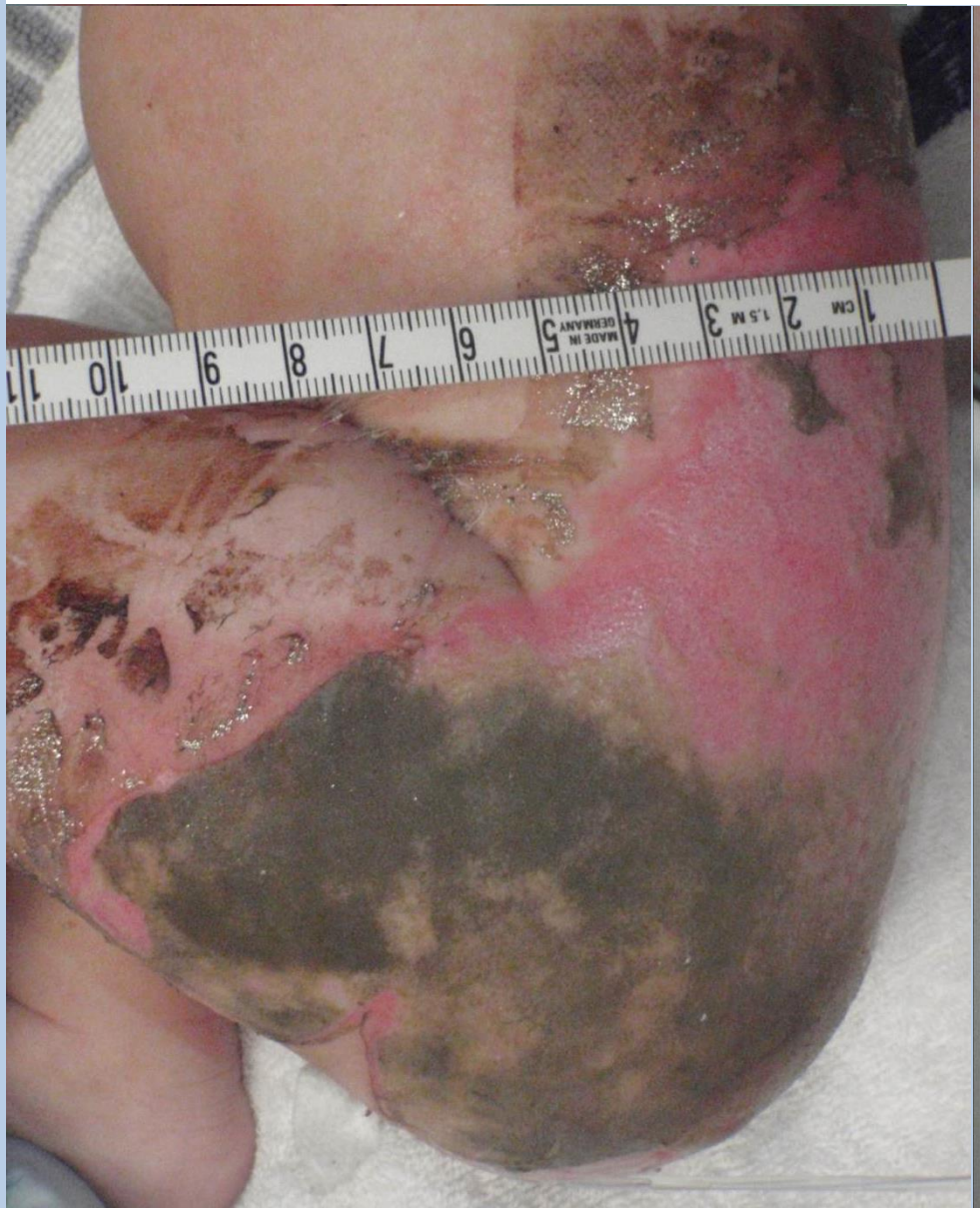


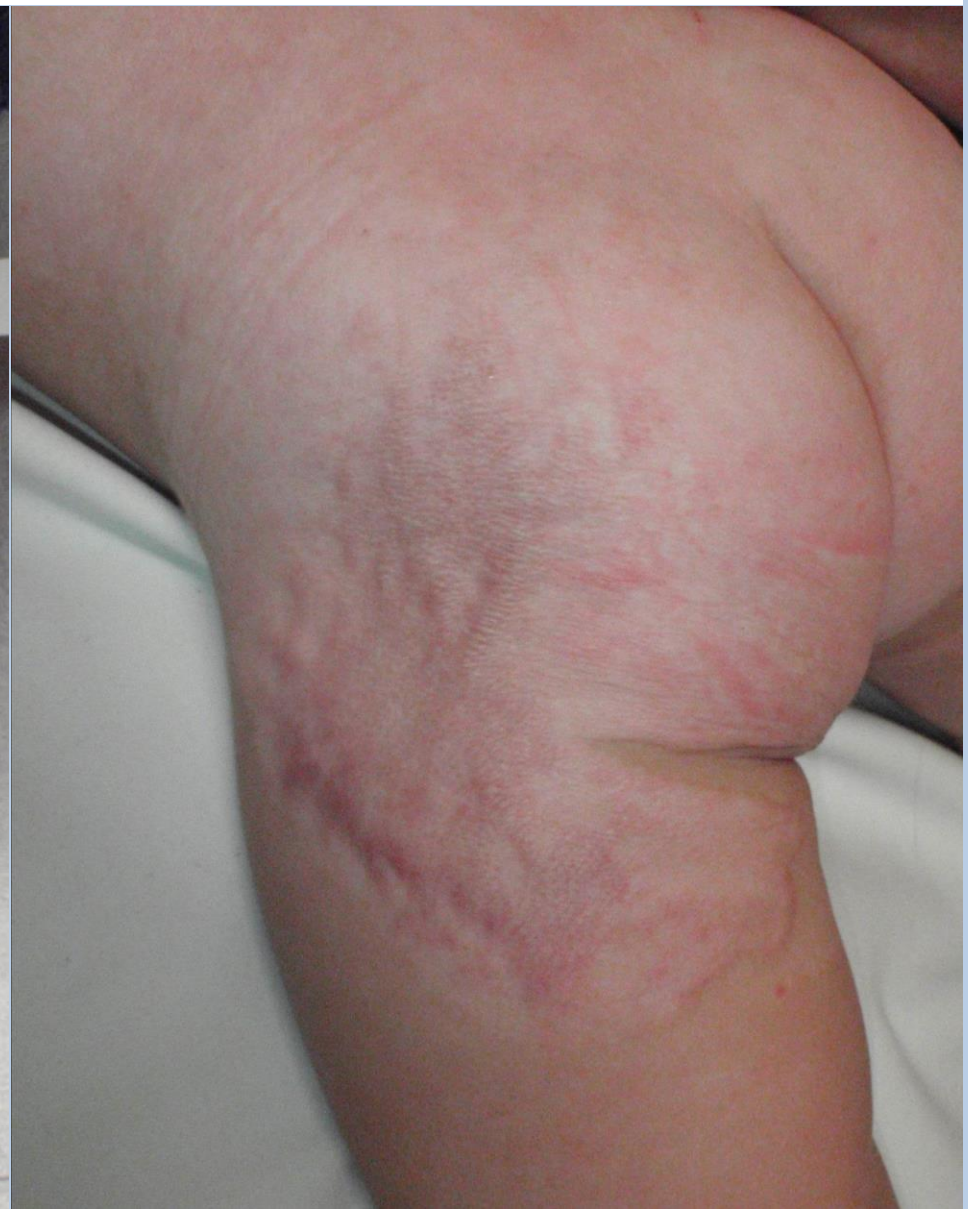


Superficial Partial Thickness Burn
(blisters, will re-epithelialise in <2/52)

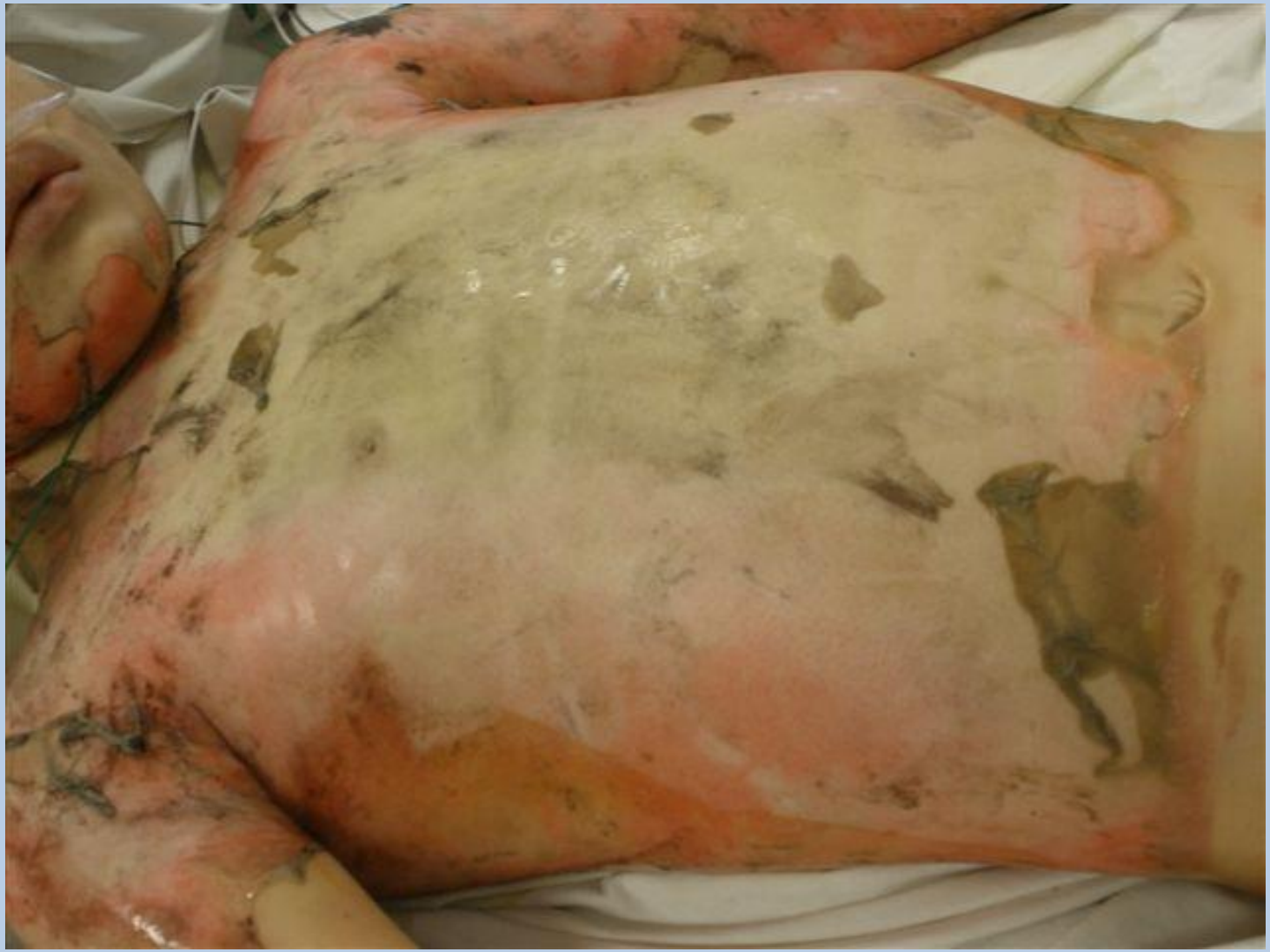
Shakespeare PG: Standards & quality in burns treatment. Burns. 2001 Dec;27(8):791-2.

Burn Classification



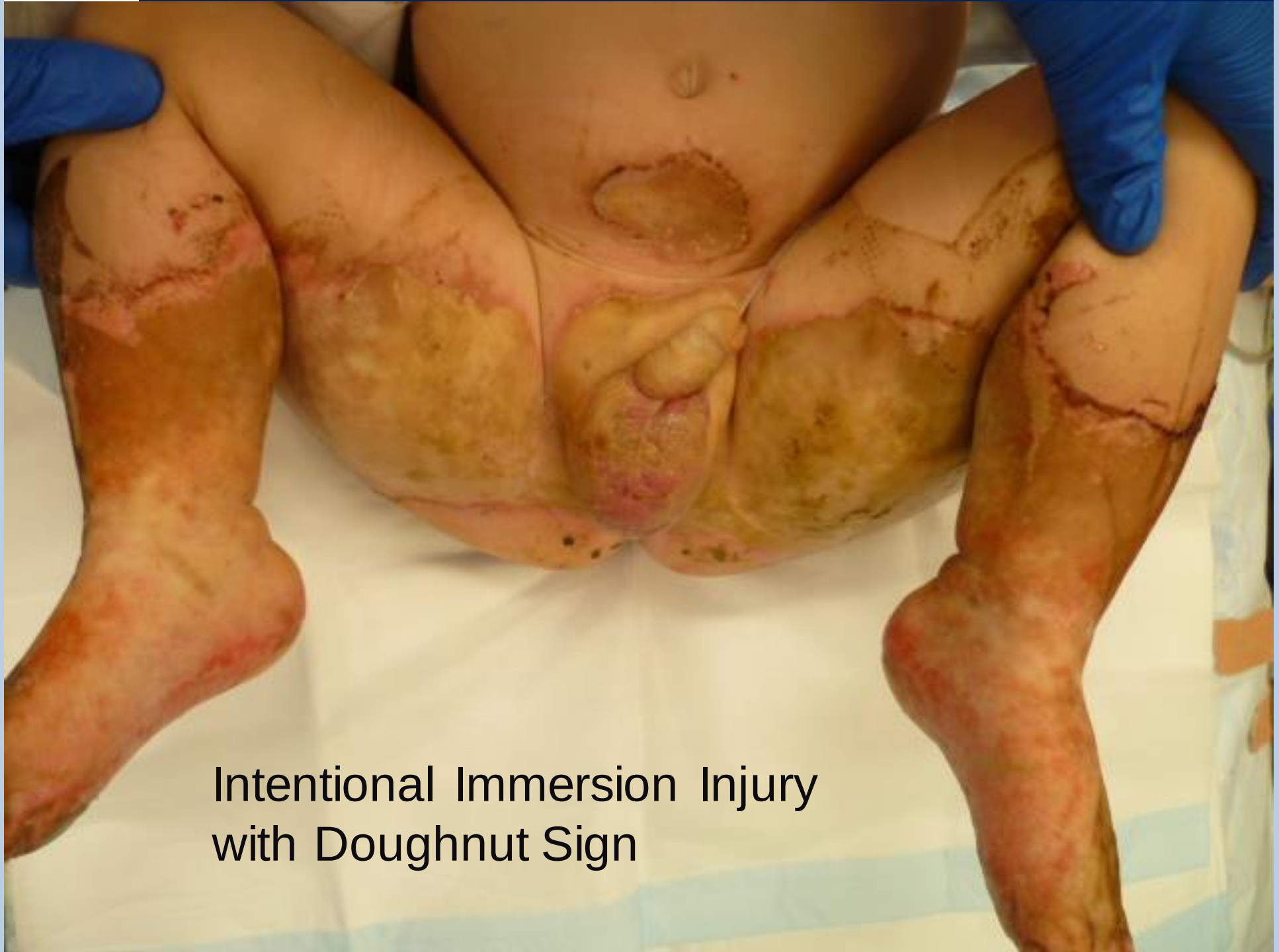


Burn Classification

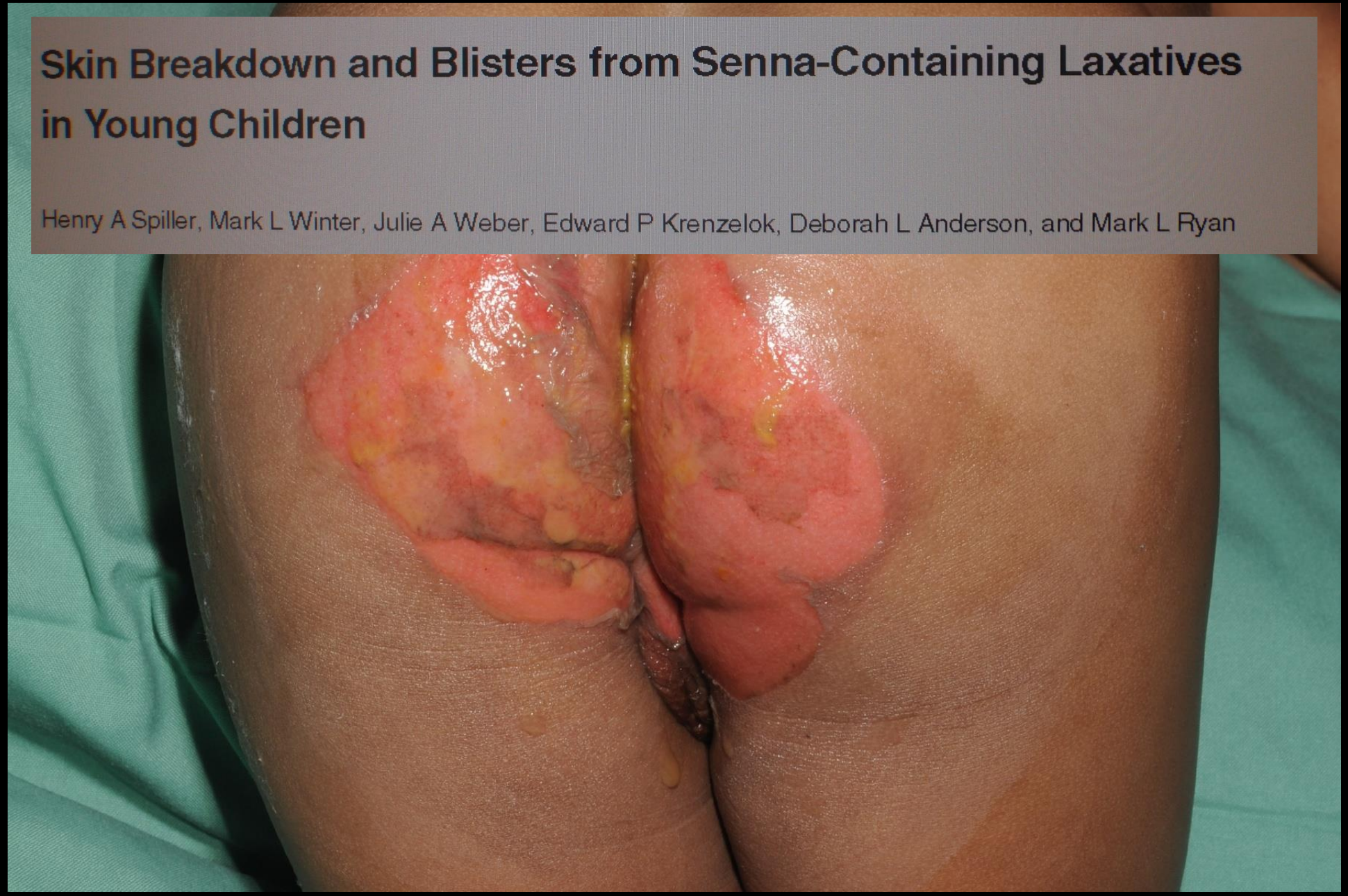


Full Thickness Burn

Shakespeare PG: Burns.2001:27(8) :791-2.



Intentional Immersion Injury
with Doughnut Sign

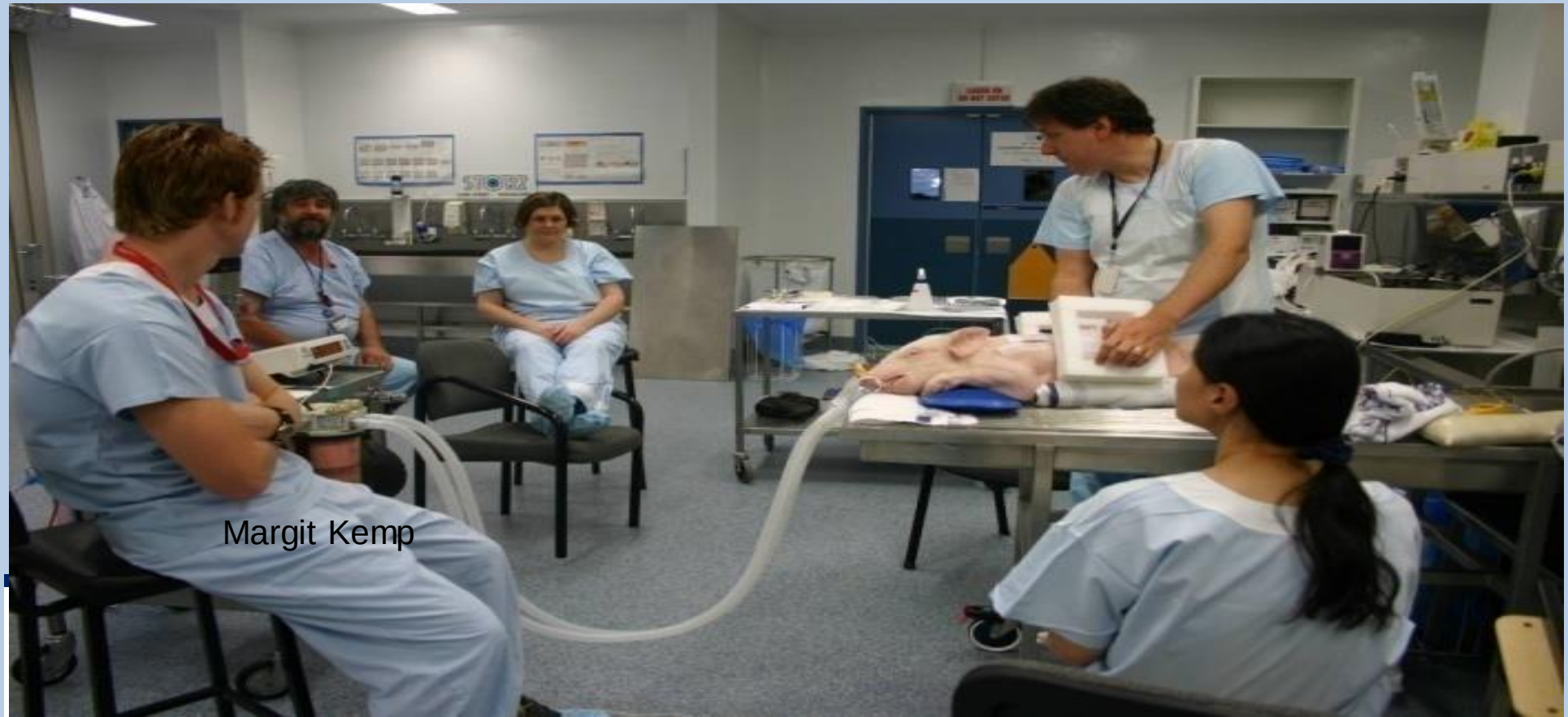


8yr old boy, unknown mechanism

Ann Pharmacother 2003;37:636-9.

First Aid Recommendations

- Cold running water 2-15°C
- 20 minutes duration, with delay up to 3 hrs
- Alternative treatments (inc. ice) only relieve pain

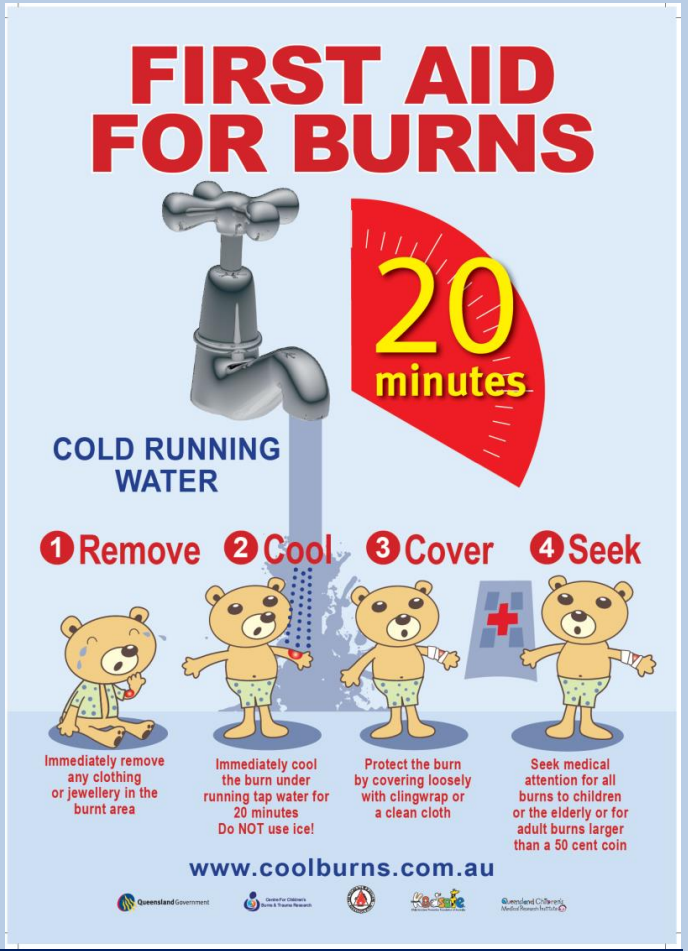


First Aid Community Promotion

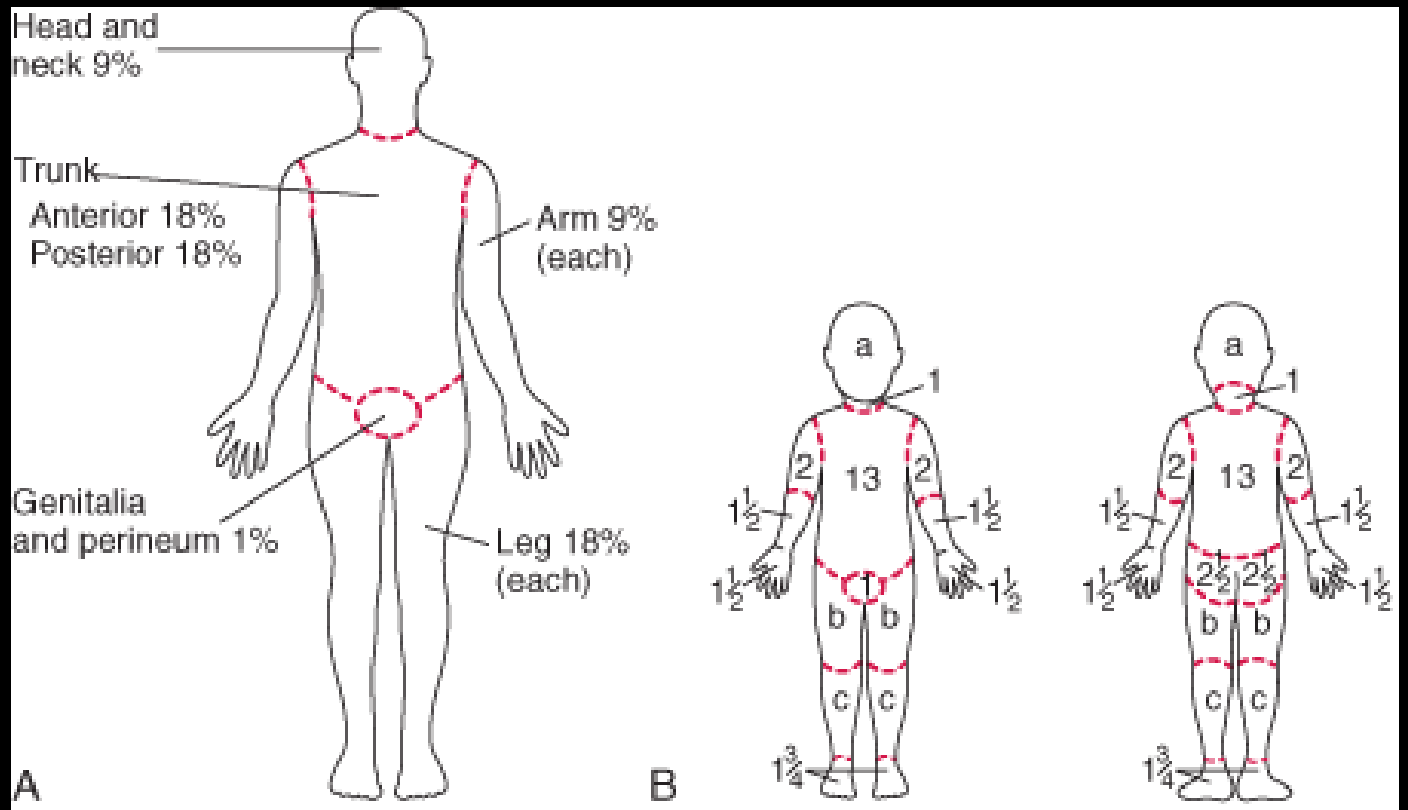
First Aid 2005: 12% have at least 20min water

First Aid 2012: 51% have at least 20min water

First Aid 2014: 68% have at least 20min water



Burn Wound Area Estimation



Relative percentage of body surface area (% BSA) affected by growth

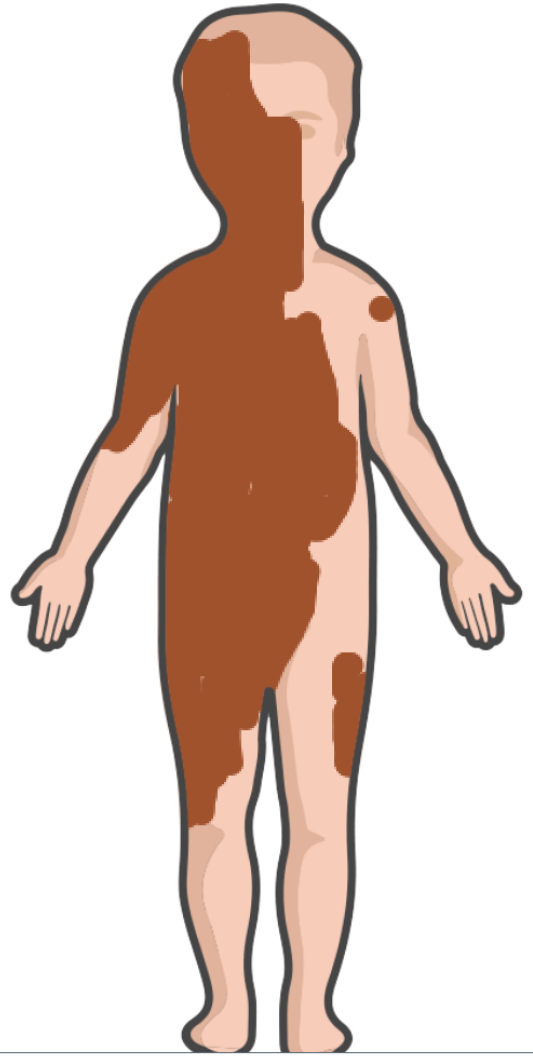
Body Part	Age 0 yr	1 yr	5 yr	10 yr	15 yr
a = 1/2 of head	9 1/2	8 1/2	6 1/2	5 1/2	4 1/2
b = 1/2 of 1 thigh	2 3/4	3 1/4	4	4 1/4	4 1/2
c = 1/2 of 1 lower leg	2 1/2	2 1/2	2 3/4	3	3 1/4

Lund CC, Browder NC The estimation of areas of burns Surg Gynecol Obstet 1944; 79: 352-8

docomo 11:02 am

Burns TBSA and Parkland Formula...

1040 mls	1040 mls	2080 mls	26 %
First 8 Hours	Next 16 Hours	24 Hours Total	Percentage



KG

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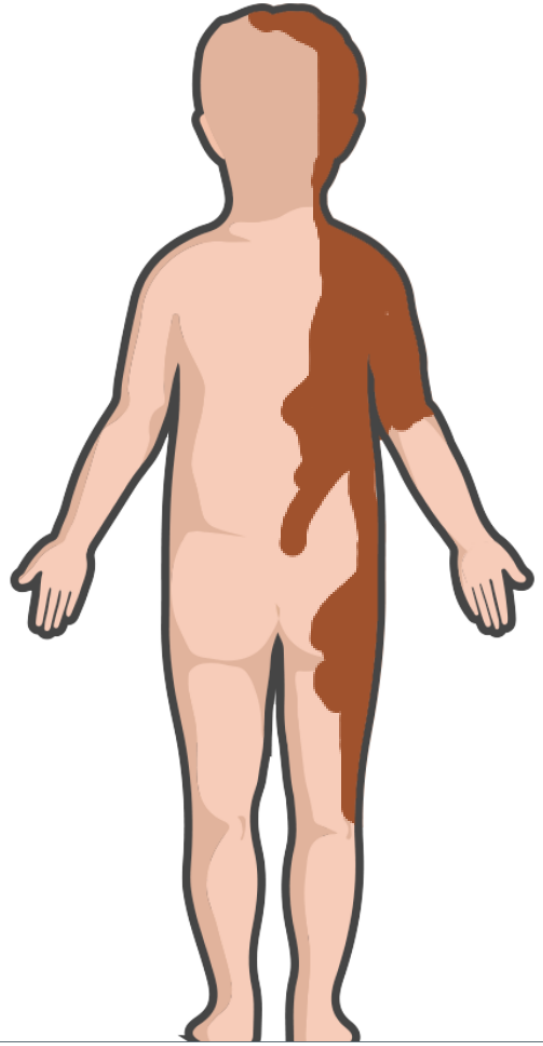
Burns TBSA and Parkland Formula...

1440 mls	1440 mls	2880 mls	36 %
First 8 Hours	Next 16 Hours	24 Hours Total	Percentage



KG

Burns Dressings

- Mepitel with Acticoat
- Multiplex Ag (silver)
- Summary

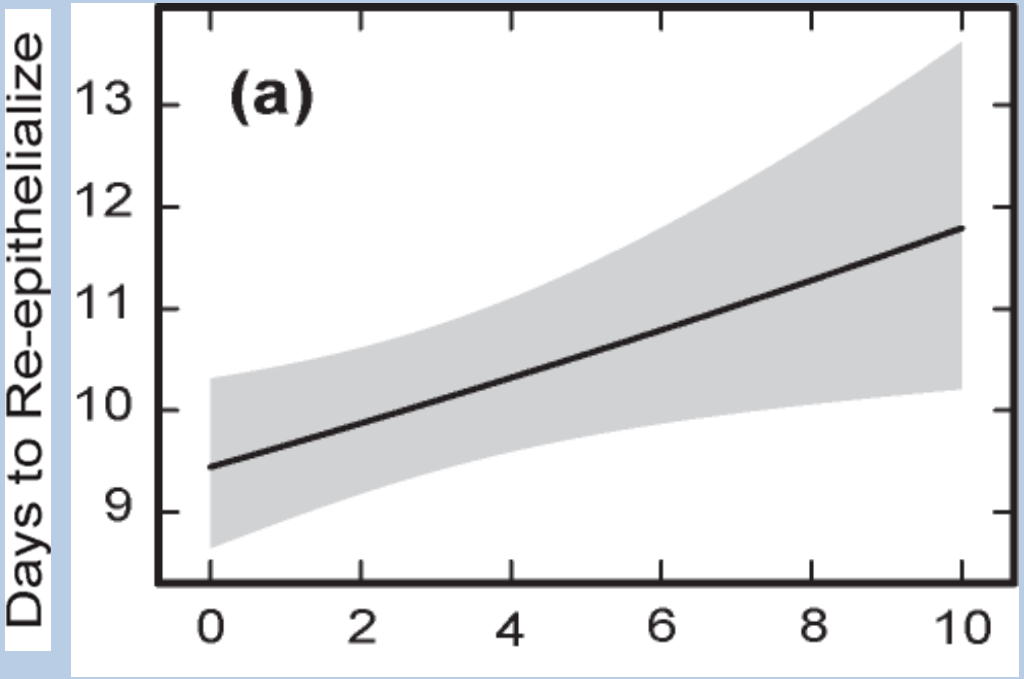
  Best –practice first aid

  Consult Burns Centre

  Photograph burn and transmit image

  Many burns are best managed locally with shared care.

The relationship between pain & burn re-epithelialisation



Burns
Volume 40, Issue 4, June 2014, Pages 751–758
ELSEVIER

Predictors of re-epithelialization in pediatric burn

Nadia J. Brown[a], Roy M. Kimble[a], Galina Gramotnev[a], Sylvia Rodger[b], Leila Cuttle[a, c]

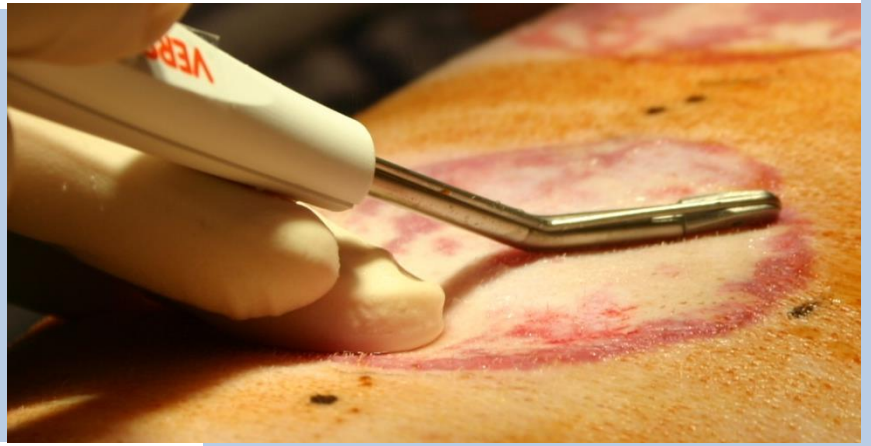
Model corrected for depth by laser Doppler

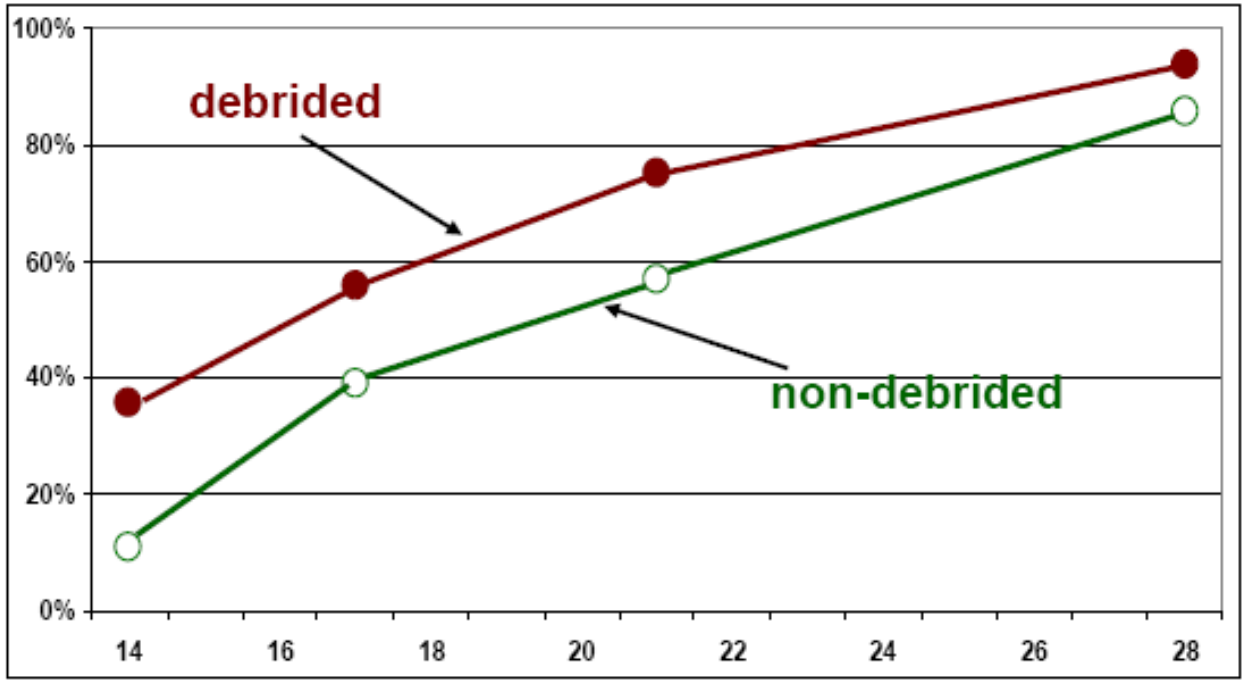
Faces revised pain score taken at first dressing change

A one point increase in pain score = a delay in re-epithelialisation of 2.2%

Wound Debridement & Blisters

Re-epithelialisation enhanced after Debridement





Wang, Kimble et al: Conservative surgical debridement as a burns treatment: Supporting evidence from a porcine burn model. Wound Repair Regen 16(6): 774-83, 2008

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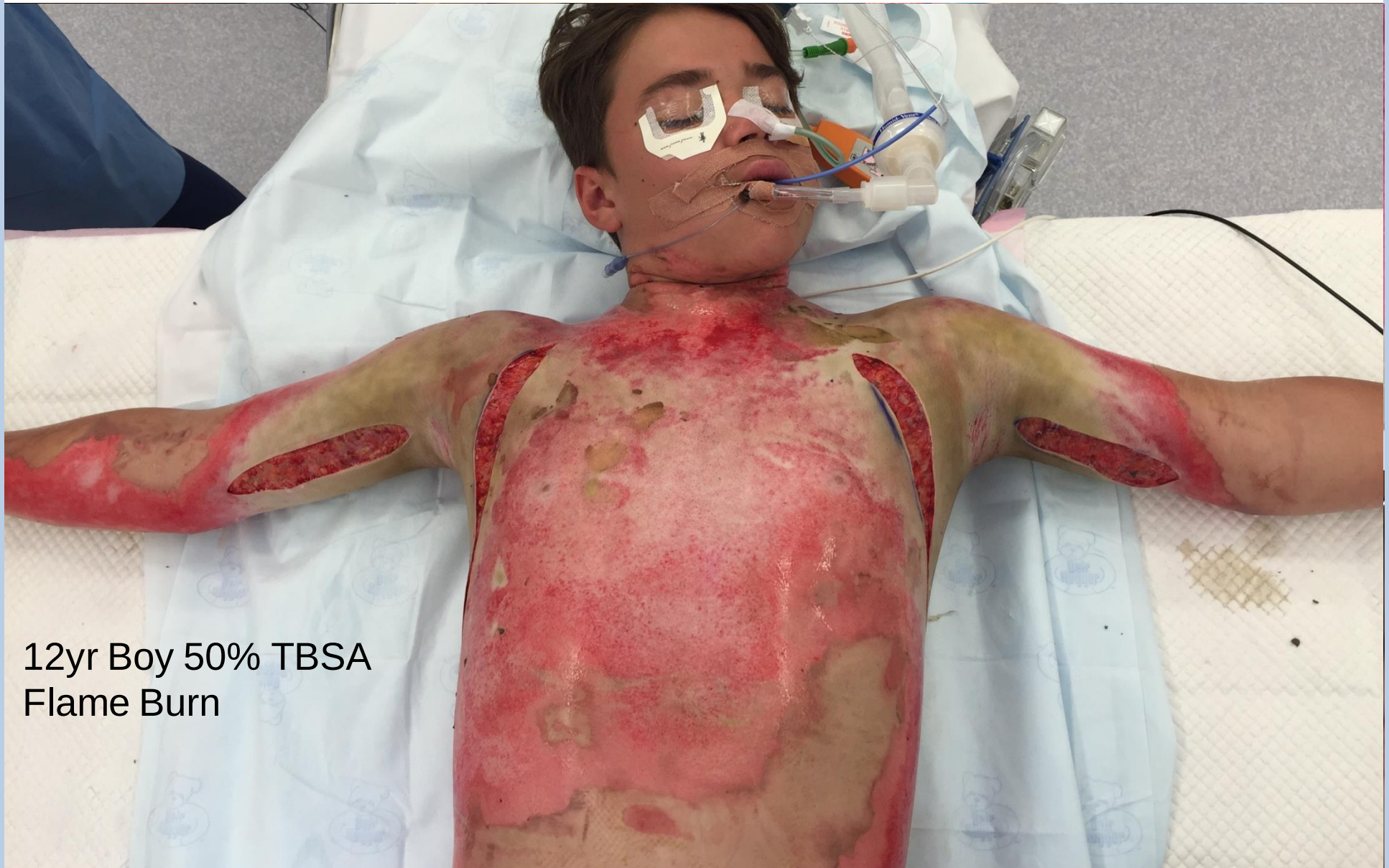
Escharotomy



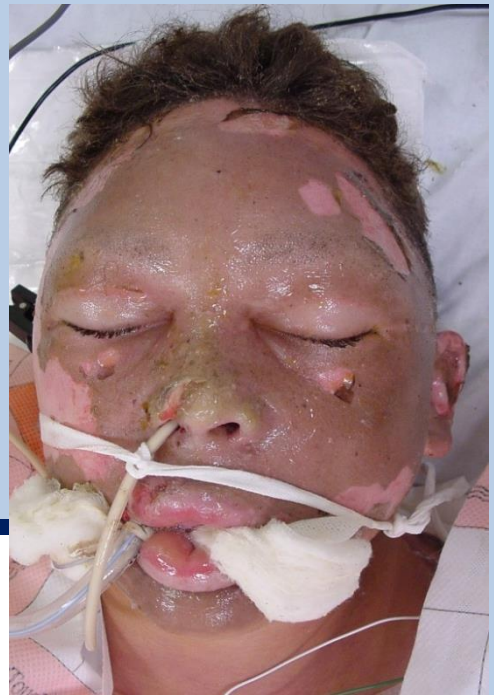
12yr Boy 50% TBSA
Flame Burn

Fluid Resuscitation, LCCH Brisbane

- Parkland Formula: % TBSA x Wt x 3-4
- 50% in 1st 8hrs, 50% in next 16hrs (Hartmann's solution)
- Maintenance fluids over and above (Hartmann's & 5% Dextrose)
- Enteral feeds started at 6hrs & increased to full feeds by 24hrs
- Second 24hrs, Crystalloids if needed, Colloids (4% albumin, only if unstable)
- Remember analgesia

Fluid Resuscitation, Large Burns >20% TBSA

- Parkland Formula: % TBSA x Wt x 4
- 50% in 1st 8hrs, 50% in next 16hrs (Hartmann's solution in 1st 6hrs, then 1:1 Hartmann's / 4% Albumin)
- Maintenance fluids over & above (Hartmann's & 5% Dextrose)
- Enteral feeds started at 6hrs & increased to full feeds by 24hrs
- Second 24hrs, 4% Albumin



The ideal burns dressing

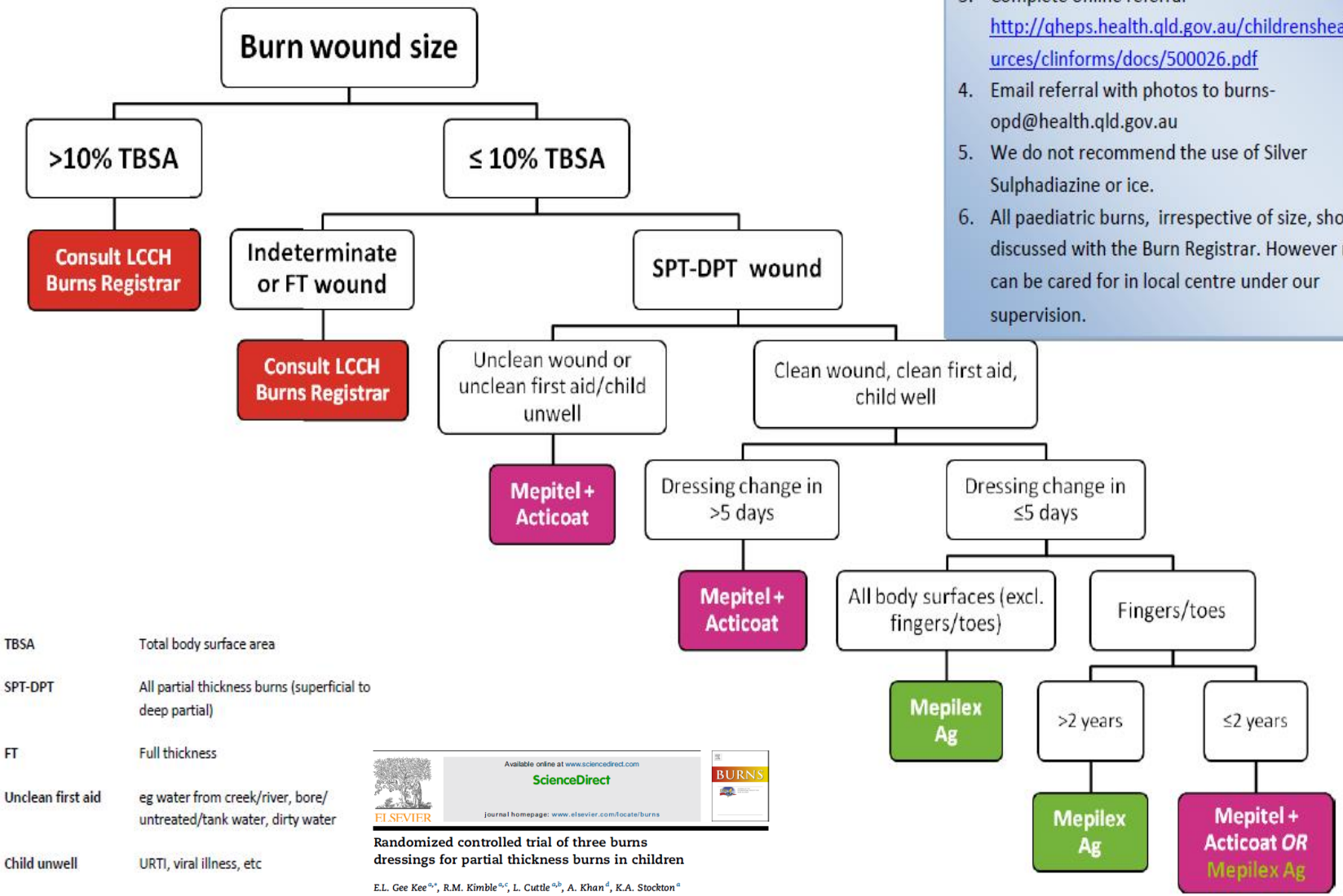
- Antimicrobial Properties
  NB: Toxic Shock Syndrome

- Promotes Re-epithelialisation
- Requires Infrequent Dressing Changes
- Cost-effective

Children's Health Queensland Hospital and Health Service

For all paediatric burns

1. Ensure adequate first aid is provided, 20 mins cool running water up to 3hr post burn
2. Contact the LCCH Burns Registrar (07)30681111 *prior to dressing, or sending referral*
3. Complete online referral http://qheps.health.qld.gov.au/childrenshealth/resources/clinforms/docs/500026.pdf
4. Email referral with photos to burns-opd@health.qld.gov.au
5. We do not recommend the use of Silver Sulphadiazine or ice.
6. All paediatric burns, irrespective of size, should be discussed with the Burn Registrar. However many can be cared for in local centre under our supervision.



TBSA	Total body surface area
SPT-DPT	All partial thickness burns (superficial to deep partial)
FT	Full thickness
Unclean first aid	eg water from creek/river, bore/ untreated/tank water, dirty water
Child unwell	URTI, viral illness, etc

Available online at www.sciencedirect.com
ScienceDirect
journal homepage: www.elsevier.com/locate/burns
BURNS
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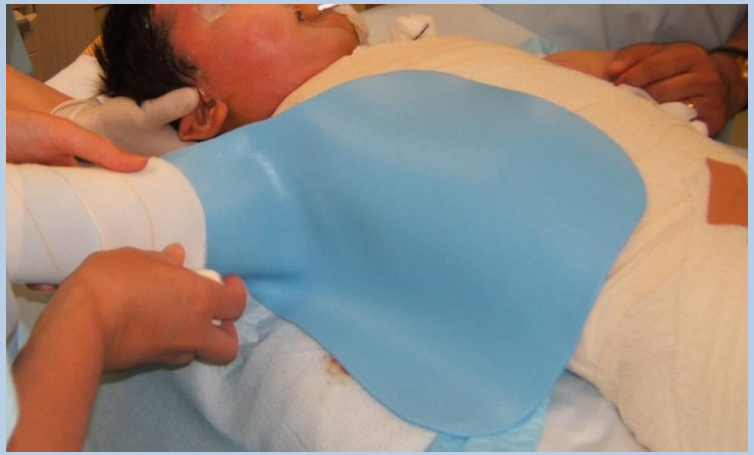
Randomized controlled trial of three burns dressings for partial thickness burns in children

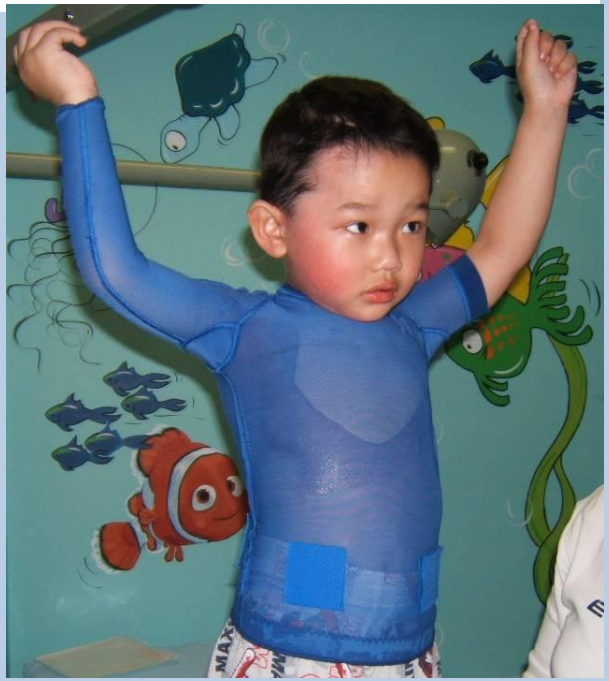
E.L. Gee Kee [a,*], R.M. Kimble [a,c], L. Cuttle [a,b], A. Khan [d], K.A. Stockton [a]

Scar Management



Splinting to Prevent Contractures

Silicone Contact Gel



Pressure Garments

Factors in Burn Wound Healing

Faster Re-epithelialisation & Reduced Scarring

Poor Pain & Anxiety Control

Poor Wound Conditions, Infection

Wound Progression

Delayed Re-epithelialisation & Increased Scarring

Decrease in Wound Progression

Optimal Fluid Resuscitation

Initial Wound Debridement

Optimal Wound Dressings

Pain & Anxiety Control

Thank You

Centre For Children's Burns & Trauma Research

Queensland Children's Medical Research Institute

Update on Burns

John Pearn
Paediatrician to the Burns Centre

NZMA Rotorua GP CME Conference
9 June 2017

The University Of Queensland
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