The FAQs of Burn injury:Understanding and Optimizing Burn Wound Management

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Wound Day 2021

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2021

Analgesia in Burn Care - Beyond Opioids

Register today for the next session in the 2021 Canadian Burn Association Webinar Series happening on March 23, 2021 from 7:00-9:00 p.m. (ET).

Upcoming sessions include:

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Burn injury in vulnerable populations

Webinar 6 - Tuesday, September 14, 2021, 5:00 p.m. (ET)
Psychosocial challenges and wellbeing for burn survivors, caregivers and care-providers

CANADIAN BURN ASSOCIATION
ASSOCIATION CANADIENNE DES BRÛLÉS

Objectives:

1. Immediate burn Management (Emergency)
2. Ongoing burn management (Clinic)
3. Specialized burn management (Burn/Plastic Surgery)

Why do we care?

- Common
- Majority don't need ICU or even admission
  - Managed by non burn specialists
- Many questions
  - Fluid resuscitation: What is Parkland?
  - Antibiotics?
  - Blisters?
  - What dressing do I use? How?
  - Who do I call?

Immediate burn Management (Emergency)

- Stop the burning process
- Analgesic
- Fluid resuscitation
- Antibiotics?

Stop the burning process

- Stop drop and roll
- Avoid ice (15°C water best)
- Saline-versus-Buffered solution
- Water / When to NOT use tap water
- Prevent hypothermia

Analgesic

- IV
- Long acting for burn pain (Morphine)
- Short acting for intervention (Fentanyl)
- Adjuncts

Fluid resuscitation

- Needed due to the capillary leak from inflammation
- Do not need to do for burns smaller than 20% TBSA

Circulation

- Parkland formula
  - 4cc/kg/%TBSA
  - 1/2 in first 8hrs
  - 1/2 in next 16hrs

Adjusted fluid rate

(once weight and TBSA are known)

Category	Age and weight	Adjusted fluid rate
Flame or scald	Adults and older children (≥14 years old)	**2** ml LR x kg x % TBSA
	Children (<14 years old)	**3** ml LR x kg x % TBSA
	Infants and young children (≤30kg)	**3** ml LR x kg x % TBSA Plus D5LR at maintenance rate
Electrical injury	All ages	**4** ml LR x kg x % TBSA

x

Starting point ONLY!!!

- Titrate to urine output
  - .5 cc/kg/hr in adults (30-50cc/hr)
  - 1cc/kg/hr in children

AIM FOR THE DRY SIDE!!!!!!!!

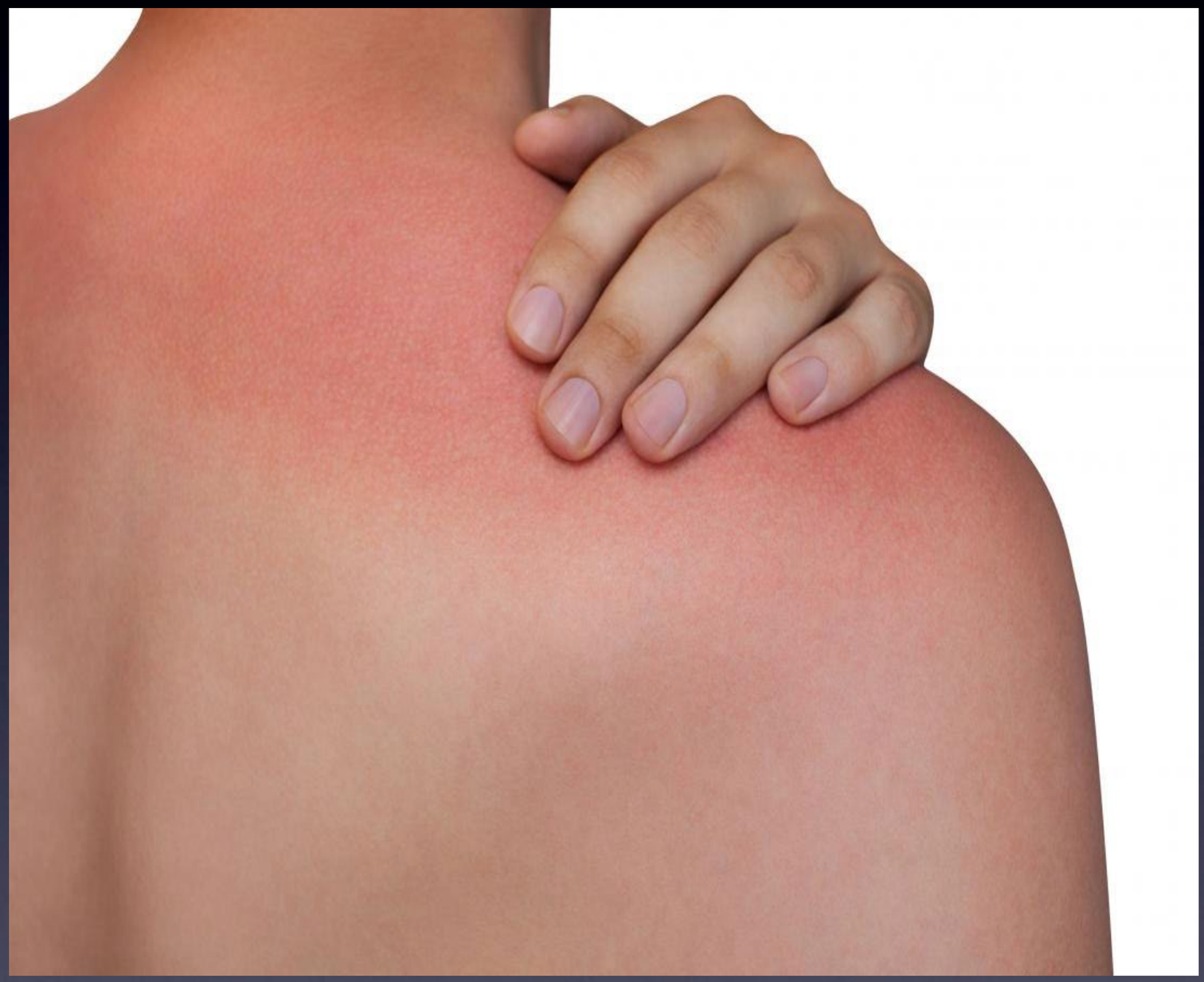
How do you decide %TBSA?

Rule of Nines

- A limb is either 9 or 18%
- Children have proportionately bigger heads
- Use the palm of the patient's hand to estimate 1%

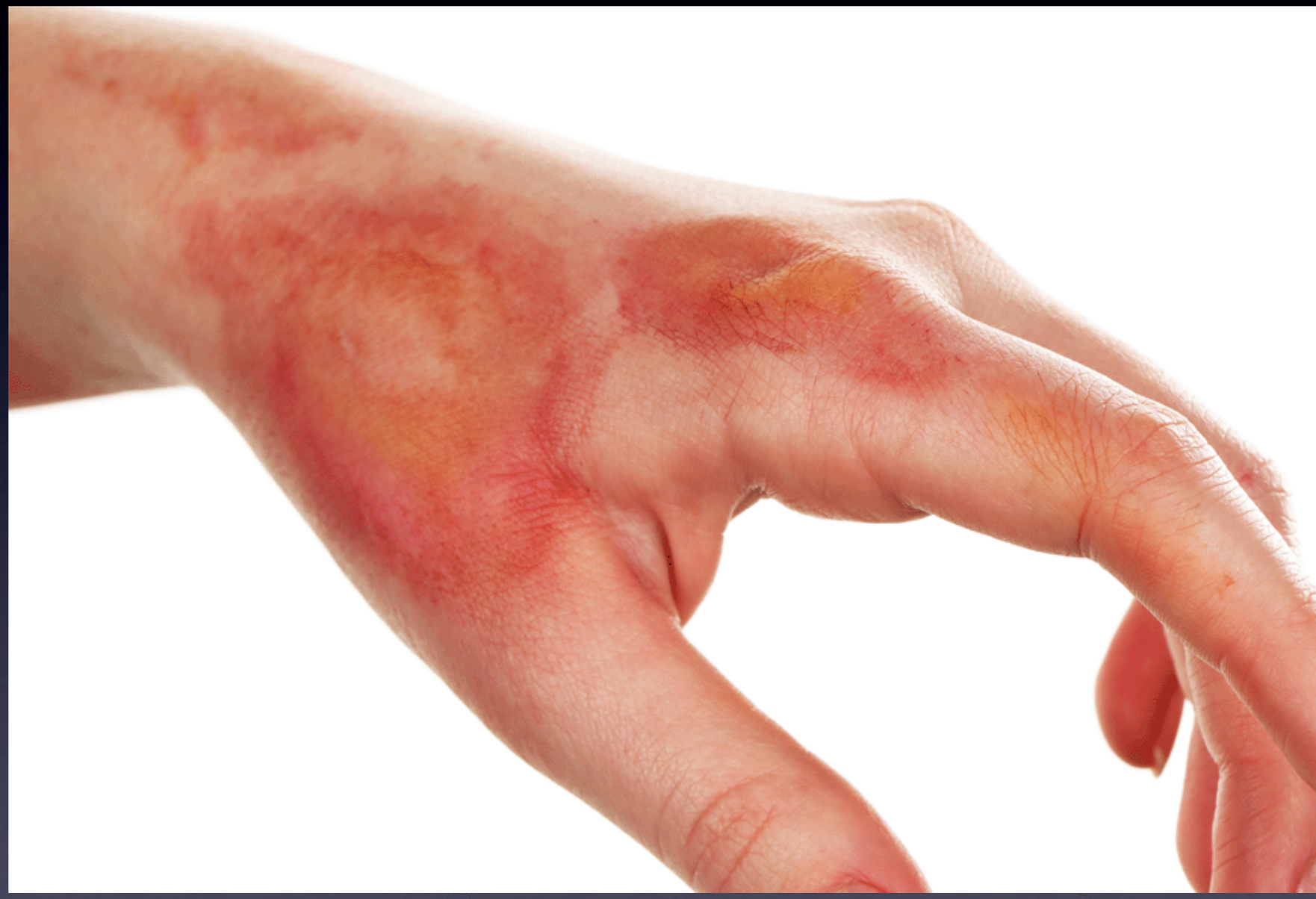
I° (superficial)

- Sunburn
- Don’t count
- Analgesic
- Moisturize



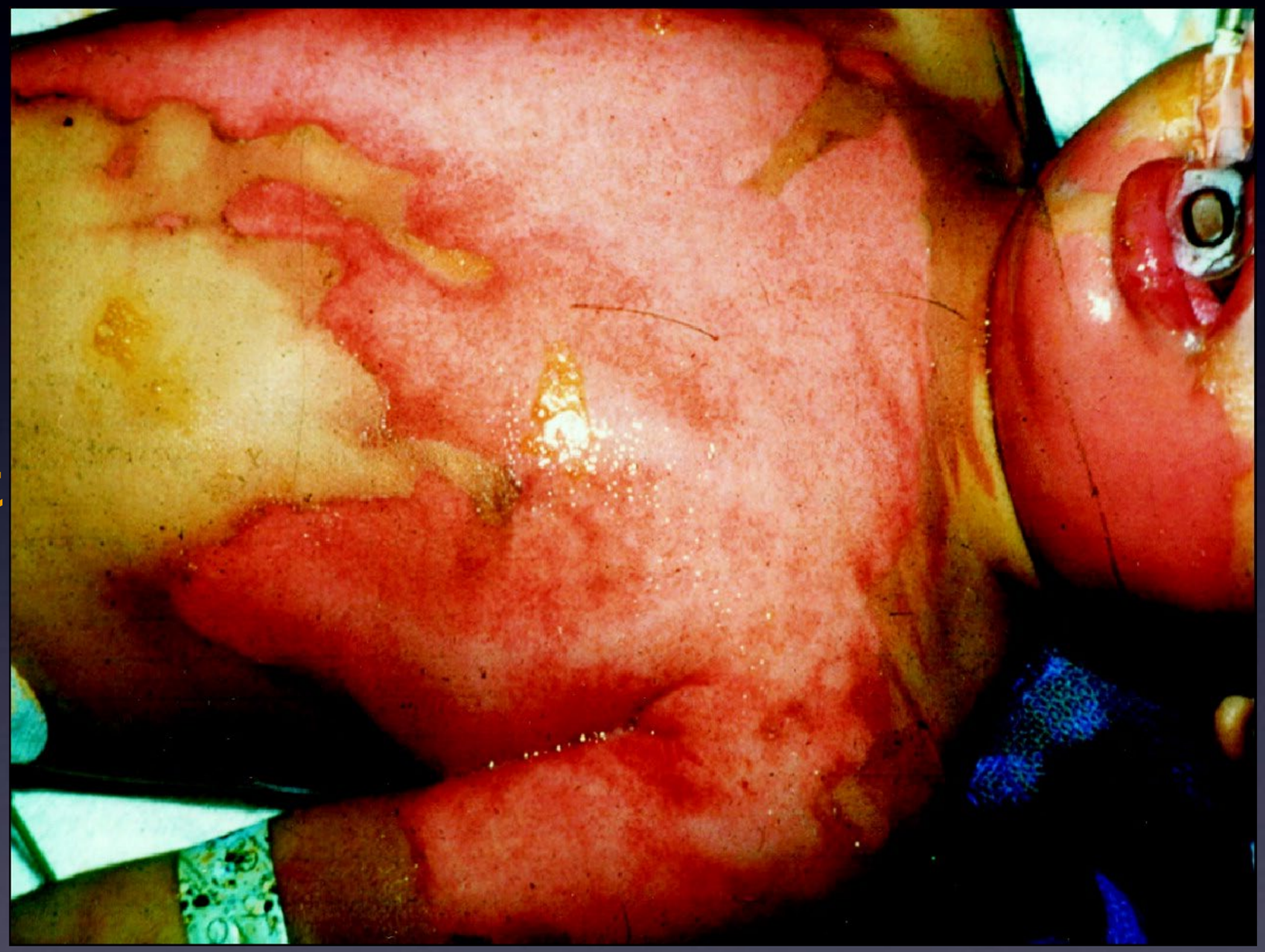
2° (superficial partial)

- blisters
- homogenous
- pink
- moist
- heals
- painful



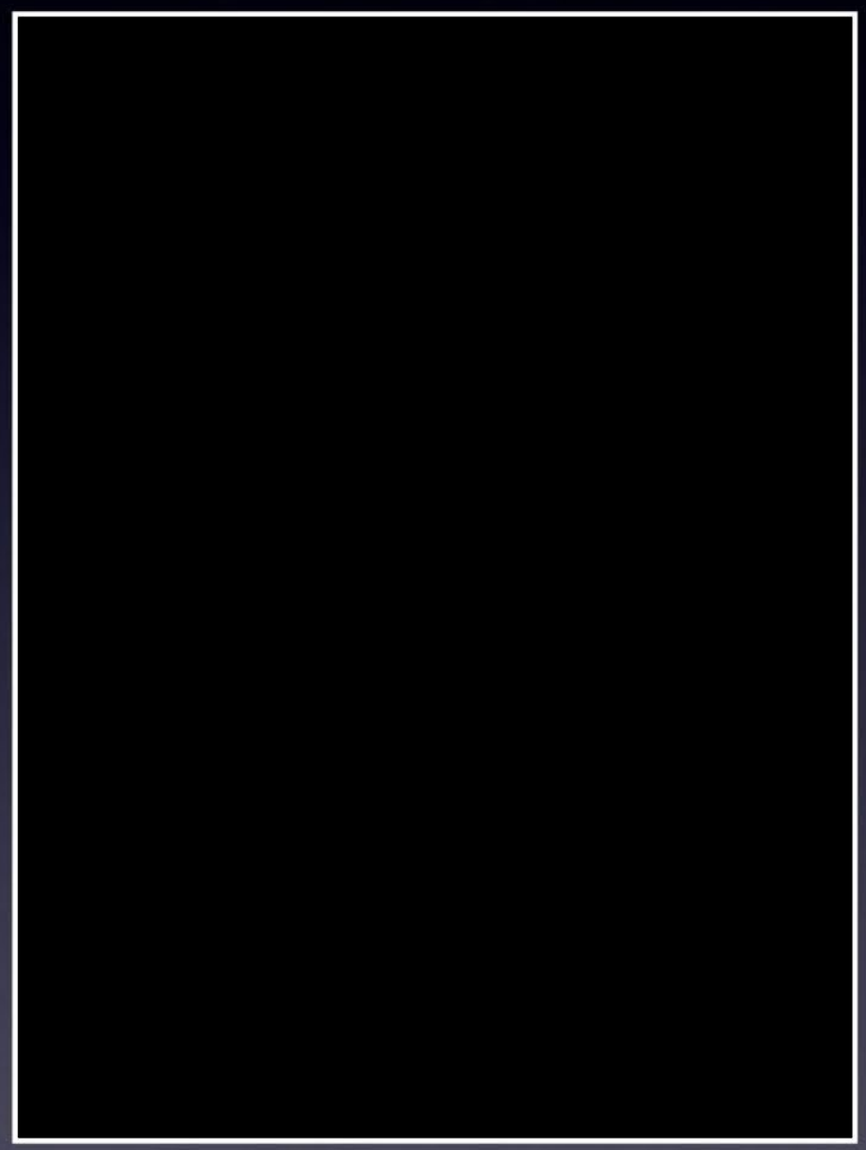
2° (deep partial)

- dry
- reticular
- may convert
- less painful



3° (Full)

- Dry
- Needs OR
- Insensate to pinprick, may be sensate to touch



Antibiotics?

Antibiotics?

Don’t forget Tetanus management

Antibiotics?

- If the burn tissue is alive it has good blood supply, so don't need antibiotics.
- If the burn tissue is dead there is no blood supply so antibiotics will not reach tissue.

Antibiotics?

- No need for prophylactic systemic antibiotics!
- Role for topical antimicrobial dressings.

Ongoing burn management (Clinic)

- Dressings.
- Blisters.
- ROM.

Infection Control is essential!!!!!

Immediate dressings

- Remove jewellery
- Clean dry towels, sheets
- May cool patient, but don’t transfer with wet coverings
- Pain increased from contact with air

Cleansing & Debridement

- Infection Control Important: (In Hospital: Gown, Glove & Mask for dressing changes and at all times for burns larger than 15% TBSA)
- Using sterile technique, cleanse wounds with sterile NS or sterile water loose skin should be debrided and blisters de-roofed.

PREVENT HYPOTHERMIA!!!!!!!!

What Dressing? Lots of options

- SSD
- Polysporin
  - Polymyxin, Neomycin, Bacitracin
- Acticoat
- Aquacel Ag
- Silver Nitrate
- Sulfamylon
- Nitrofurantoin

What to use: KIS

- SSD
- Polysporin
- Acticoat

What to use:

- Very little solid evidence!!!!

Silver as an antimicrobial

- Broad spectrum
- Fast acting
- Effective
- Low Toxicity
- No Genetic transmission of resistance

Silver as an antimicrobial

- Has to be the right kind!
- Most silver is ineffective!
- Needs to be the right form of silver. Most is NOT!

No Flamazine (SSD)

- Cochrane Reviews:
  - Proven to decrease epithelialization
  - Prolongs wound healing
- Protein exudate
  - Pseudomembrane/pseudoeschar
  - Opaque
  - Needs to be peeled or aggressively washed off
  - Difficult to accurately assess burn depth

Cochrane Library
Trusted evidence.
Informed decisions.
Better health.

Cochrane Database of Systematic Reviews

[Intervention Review]

Dressings for superficial and partial thickness burns

Jason Wasiak[1], Heather Cleland[2], Fiona Campbell[3], Anneliese Spinks[4]

[1]Victorian Adult Burns Service and School of Public Health and Preventative Medicine, Monash University, The Alfred Hospital, Melbourne, Australia. [2]Victorian Adult Burns Service, The Alfred Hospital, Melbourne, Australia. [3]School of Health and Related Research, University of Sheffield, Sheffield, UK. [4]School of Medicine, Griffith University, Meadowbrook, Australia

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Editorial group: Cochrane Wounds Group
Publication status and date: New search for studies and content updated (no change to conclusions), published in Issue 3, 2013.

Citation: Wasiak J, Cleland H, Campbell F, Spinks A. Dressings for superficial and partial thickness burns. *Cochrane Systematic Reviews* 2013, Issue 3. Art. No.: CD002106. DOI: 10.1002/14651858.CD002106.pub4.

silver sulphadiazine (SSD) was consistently associated with poorer healing outcomes

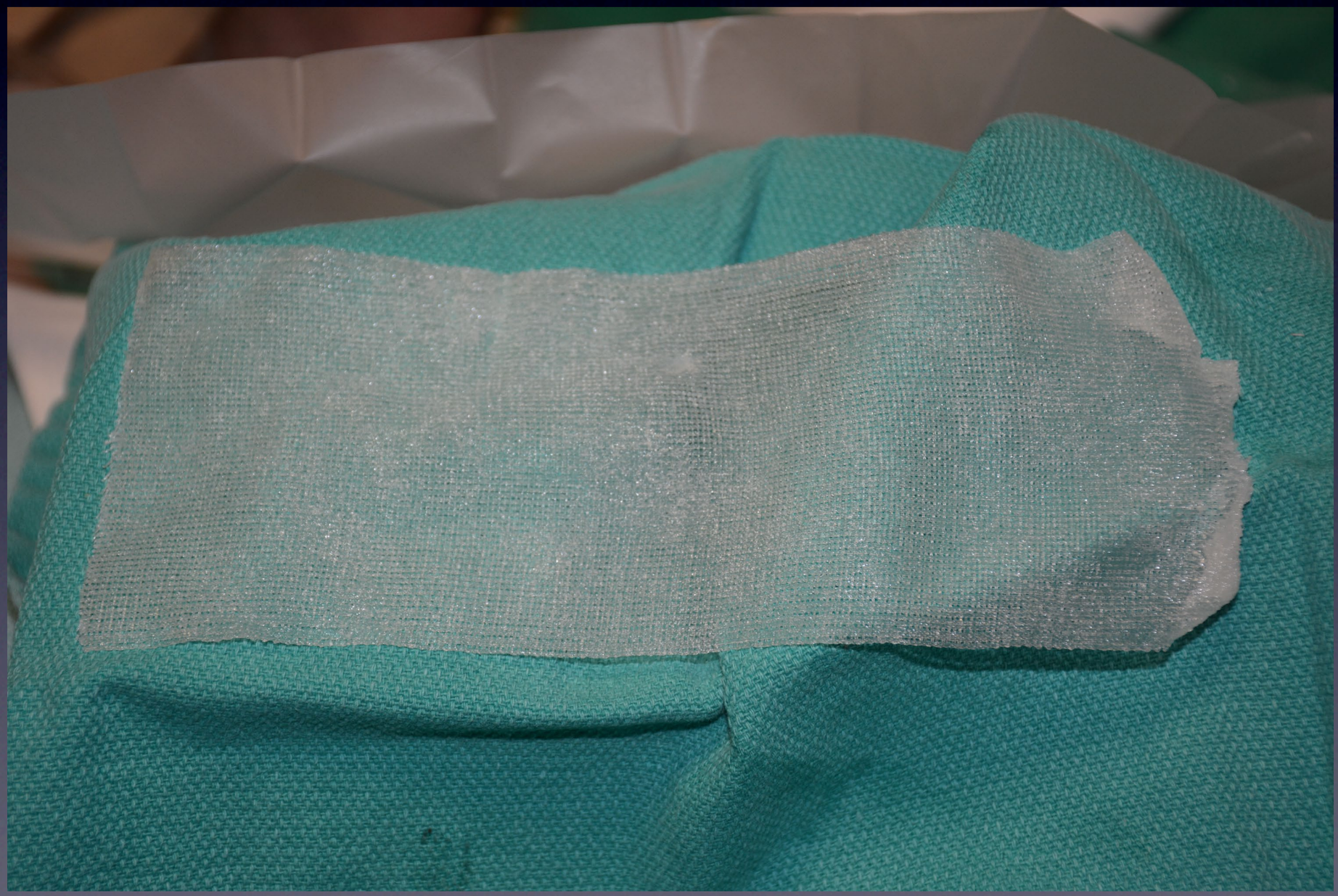
Polysporin (or equivalent)

- Topical antimicrobial ointment consisting of Polymyxin B / Bacitracin.
- Provides a broader spectrum of coverage than Bacitracin alone.
- Preferred in the treatment of superficial, small TBSA partial thickness and full-thickness wounds, superficial facial burns

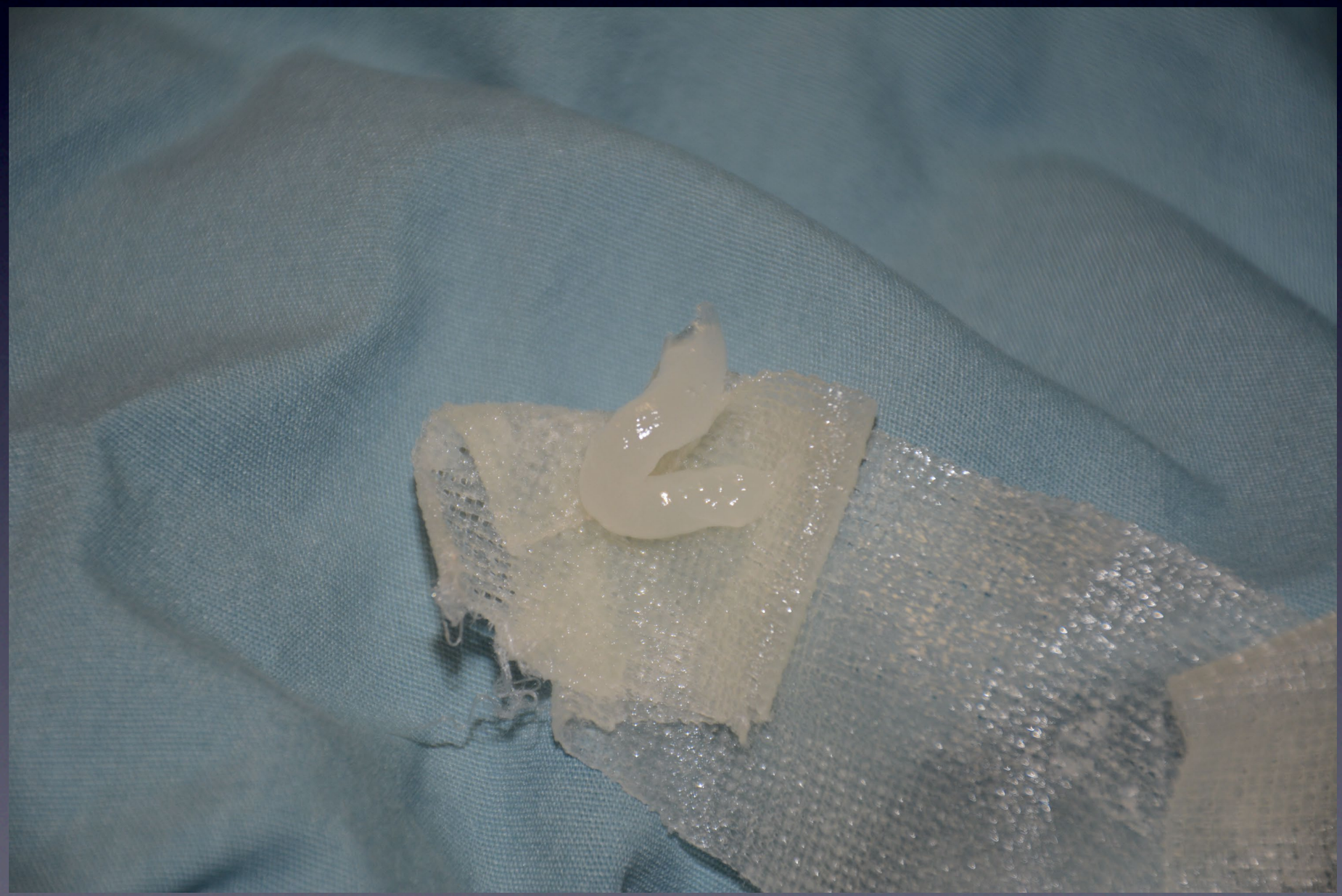
Adaptic

- Non-adherent dressing
- A small amount of Polysporin (paper thin layer) is creamed onto the Adaptic non-stick dressing and applied to the wound. Followed by gauze & kling then Burn Net.

Polysporin – YES!



Polysporin – NO!



Acticoat: Nanocrystallized silver

- Flexible, polyester layer coated with nanocrystalline silver for deep partial thickness and full thickness burns
- Conformable dressing
- Sustained release of broad spectrum ionic silver actively
  - protects the wound site from bacterial contamination for up to 3 days

> Burns. 2020 Apr 27;S0305-4179(19)30860-5. doi: 10.1016/j.burns.2020.04.004.
Online ahead of print.

Comparison of the efficacy of silver-based antimicrobial burn dressings in a porcine model of burn wounds

Joseph A Ross [1], Nick Allan [1], Merle Olson [1], Crystal Schatz [1], P Nick Nation [2], Justin Peter Gawaziuk [3], Japandeep Sethi [4], Song Liu [5], Sarvesh Logsetty [6]

Affiliations + expand

PMID: 32381448 DOI: 10.1016/j.burns.2020.04.004

Conclusion: Nanocrystalline silver-based wound dressings generally outperformed silver-plated nylon and high-oxidation silver salts in thisin vivo model of burn wounds. Relative to prophylactic use, it may be advisable to change the dressings more frequently when treating an infected wound.

What to use: KISS

- Polysporin and Adaptec q MWF
- Acticoat q M W F or twice weekly

What NOT to use:

- Telfa
- ABD pads

Avoid Hydrotherapy

- Spreads bacteria!!!!

What about blisters?

- Leave for >5 Days if possible: less pain, biologic dressing, need to remove to decide on surgery
  - Pus→remove
  - Blood→remove
  - Function→remove
- Bivalve/deroof
- Trim edges

Maintain Range of Motion

- Teach exercises
- Don’t restrict motion
- Debulk dressings
- Role for splints

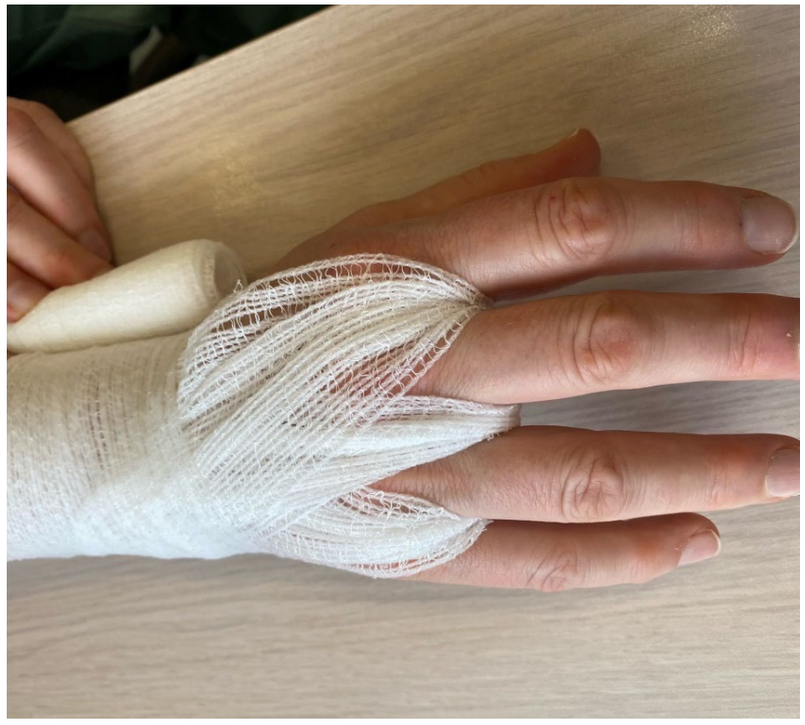
Dressings to help facilitate positioning/ ROM

- use dressings to facilitate positioning of fingers and toes and ensure separation of digits
- even if you wrap fingers individually initially please do not mitten wrap overtop
- lighter individually wrapped fingers makes doing exercises and moving in the dressings easier
- OT/PT can assist with dressings to help take down and re-wrap
- on the ward we have been doing hand and toe dressings and assisting with other dressings (axilla, chest) to facilitate anti-contracture positioning within the dressings and allow for better Range of Motion (ROM)

NO!!

YES!!

- Example of wrapping to provide web spacing and position a palmar burn into extension when at rest. This is done by a specific wrapping angle to provide specific pull.
- Polysporin and Adaptic would be underneath this wrapping.



Who ya gonna call?

- Immediate need: Emergency: Plastic surgery team on call. HSC or Children's Emergency
- Urgent but not emergent: Plastic surgery team on call. May be seen on RR4 Plastic surgery decanting clinic
- Less urgent: Call my office 204-787-8682 and we will arrange follow up with next clinic or sooner if needed

Any questions:

Any questions:

- Call Me!!!!!!

Review > Nat Rev Dis Primers. 2020 Feb 13;6(1):11. doi: 10.1038/s41572-020-0145-5.

Burn injury

Marc G Jeschke [1] [2], Margriet E van Baar [3] [4], Mashkoor A Choudhry [5], Kevin K Chung [6], Nicole S Gibran [7], Sarvesh Logsetty [8]

Affiliations + expand

PMID: 32054846 PMCID: PMC7224101 DOI: 10.1038/s41572-020-0145-5

Free PMC article

Abstract

Burn injuries are under-appreciated injuries that are associated with substantial morbidity and mortality. Burn injuries, particularly severe burns, are accompanied by an immune and inflammatory response, metabolic changes and distributive shock that can be challenging to manage and can lead to multiple organ failure. Of great importance is that the injury affects not only the physical health, but also the mental health and quality of life of the patient. Accordingly, patients with burn injury cannot be considered recovered when the wounds have healed; instead, burn injury leads to long-term profound alterations that must be addressed to optimize quality of life. Burn care providers are, therefore, faced with a plethora of challenges including acute and critical care management, long-term care and rehabilitation. The aim of this Primer is not only to give an overview and update about burn care, but also to raise awareness of the ongoing challenges and stigmata associated with burn injuries.

Webinar Series 2021

Analgesia in Burn Care- Beyond Opioids

Hosted by:

Lindsay **Burnett** RN BScN MN

Tuesday, March 23rd 2021

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Webinar Series 2021

Canadian Burn Association Conference Montreal

Saturday, October 23rd - Monday, October 25th 2021

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