Management of Acute Burn Wounds

Rural Provider Education Course

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April 8th, 2020

WARNING! Some of the images shown during this presentation are graphic and may be disturbing to some people.

Scope of the Problem

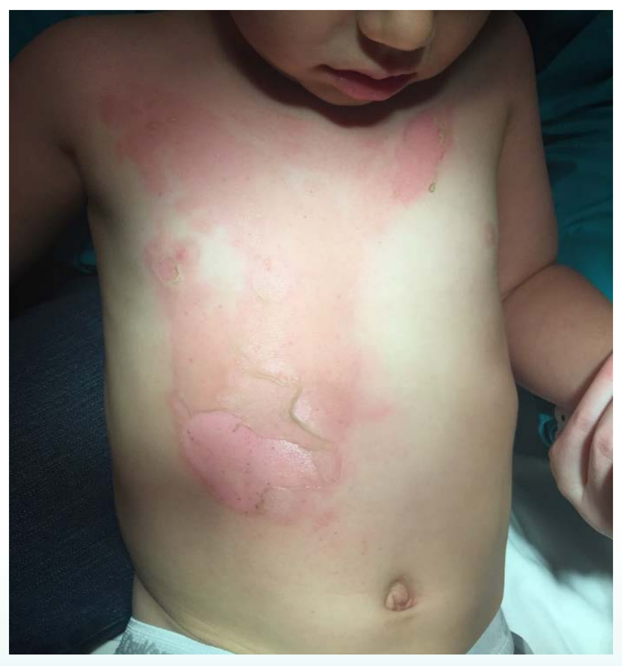
- About 100 burn injured patients are admitted to Alaskan hospitals per year
  - About 30% are pediatric burn patients (age < 18yo)

- Many more are seen in ED, clinics, etc.

- ANMC admits ~30 burn injured patients each year

Burn Wound Assessment

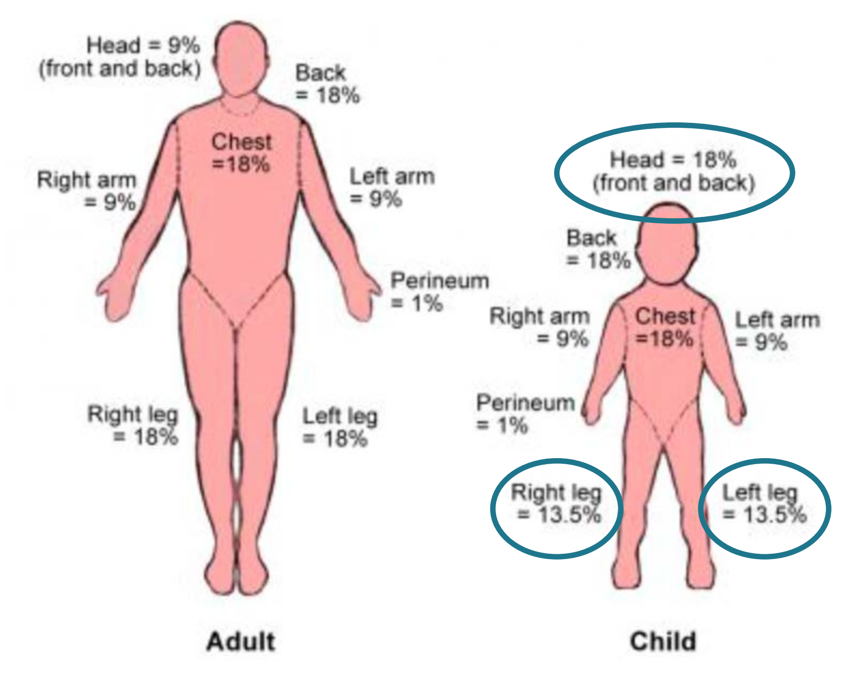
- Size
- Depth
- Location
- Mechanism



Common language for communicating with providers

Size

- Measured in TBSA "total body surface area" percent



1% TBSA = PATIENT'S palm

TBSA Calculation

- Lund and Browder Chart

INITIAL BURN CHART

RIGHT LEFT LEFT RIGHT

DATE: ______________________

COMPLETED BY: ______________________

PARTIAL THICKNESS	+	FULL THICKNESS	= ________ %

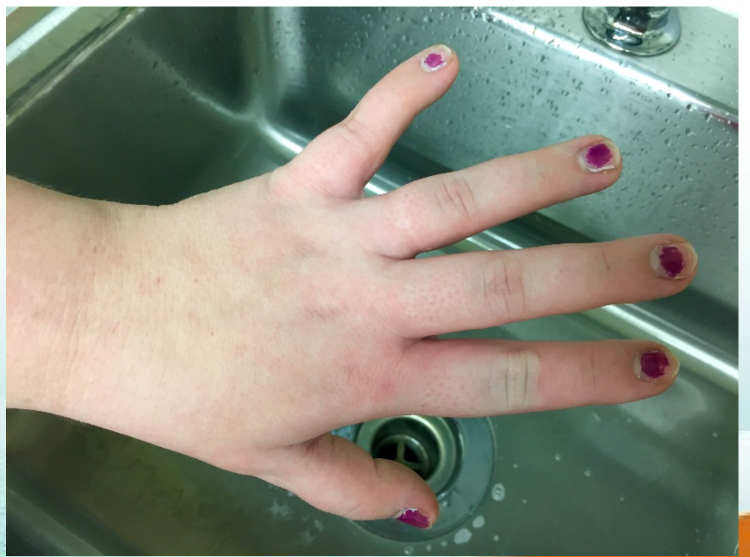
PARTIAL THICKNESS

FULL THICKNESS

AREA	1 YEAR	1-4 YEARS	5-9 YEARS	10-14 YEARS	15 YEARS	ADULT	PARTIAL THICKNESS	FULL THICKNESS
HEAD/NECK	21	19	15	13	11	9		
ANT. TRUNK	13	13	13	13	13	13		
POST. TRUNK	13	13	13	13	13	13		
R. BUTTOCKS	2.5	2.5	2.5	2.5	2.5	2.5		
L. BUTTOCKS	2.5	2.5	2.5	2.5	2.5	2.5		
GENITALIA	1	1	1	1	1	1		
R. ARM	7	7	7	7	7	7		
L. ARM	7	7	7	7	7	7		
R. HAND	2.5	2.5	2.5	2.5	2.5	2.5		
L. HAND	2.5	2.5	2.5	2.5	2.5	2.5		
R. LEG/FOOT	14	15	17	18	19	20		
L. LEG/FOOT	14	15	17	18	19	20		
TOTAL								

Depth

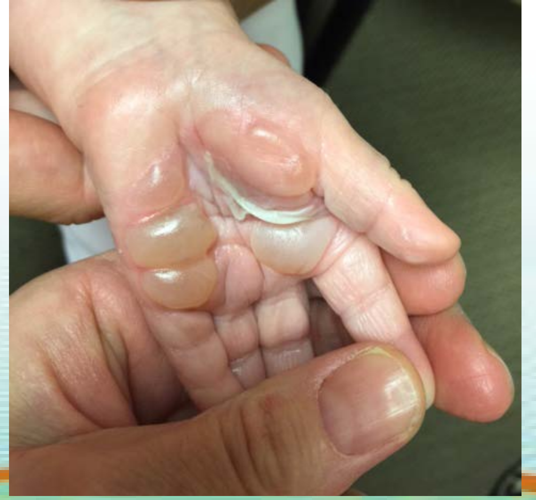
- 1st degree = superficial
  - Do not include in TBSA
- Wound will be erythematous, NO BLISTERS

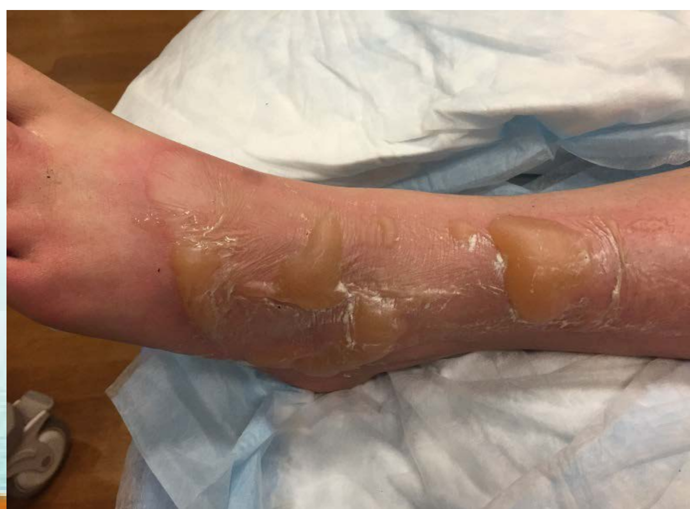


Depth

- 2nd degree
  - Superficial partial thickness (pink, moist)
  - Deep partial thickness (moist, but pale areas)

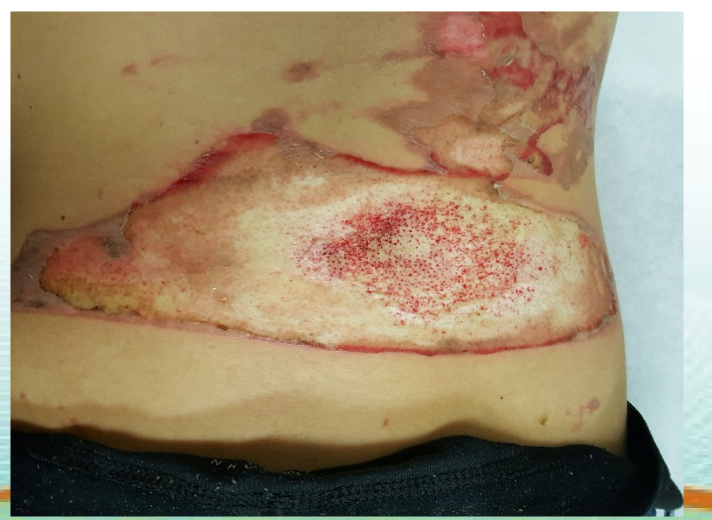
- Blisters present

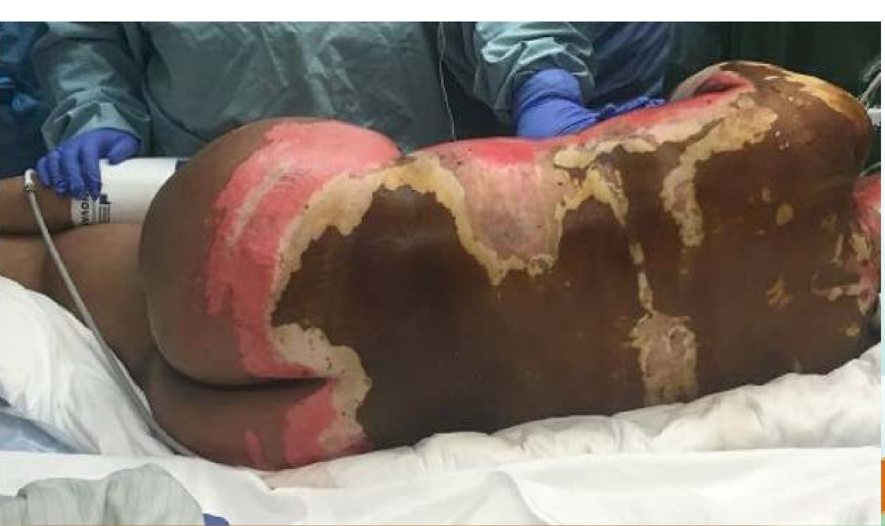




Depth

- 3rd degree = full thickness
- Dry, no sensation (painless)
- Many colors to 3rd degree burns





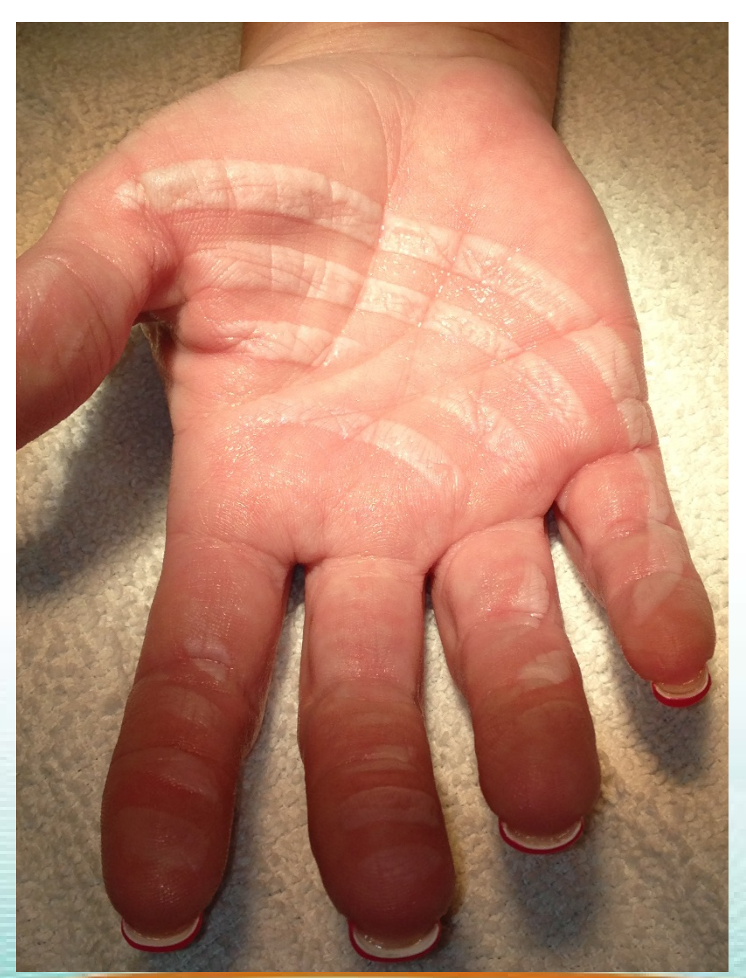
Location

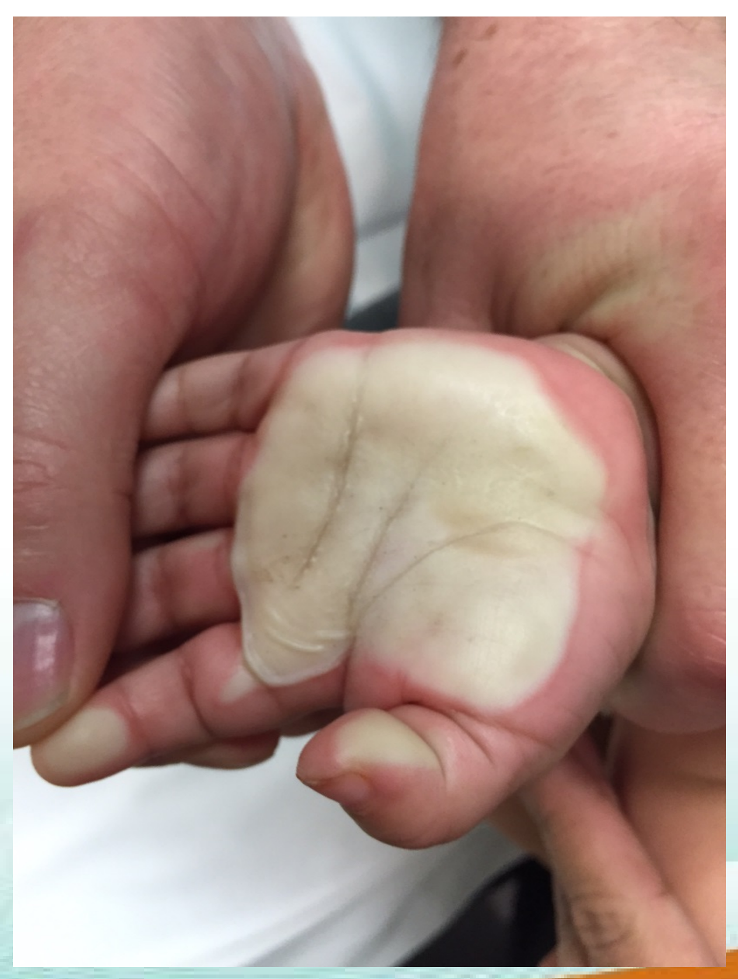
- Specialty areas:
  - Face
  - Hands/Feet
  - Groin
  - Major joints
- Hands: dominant?, dorsal/palmar

Mechanism

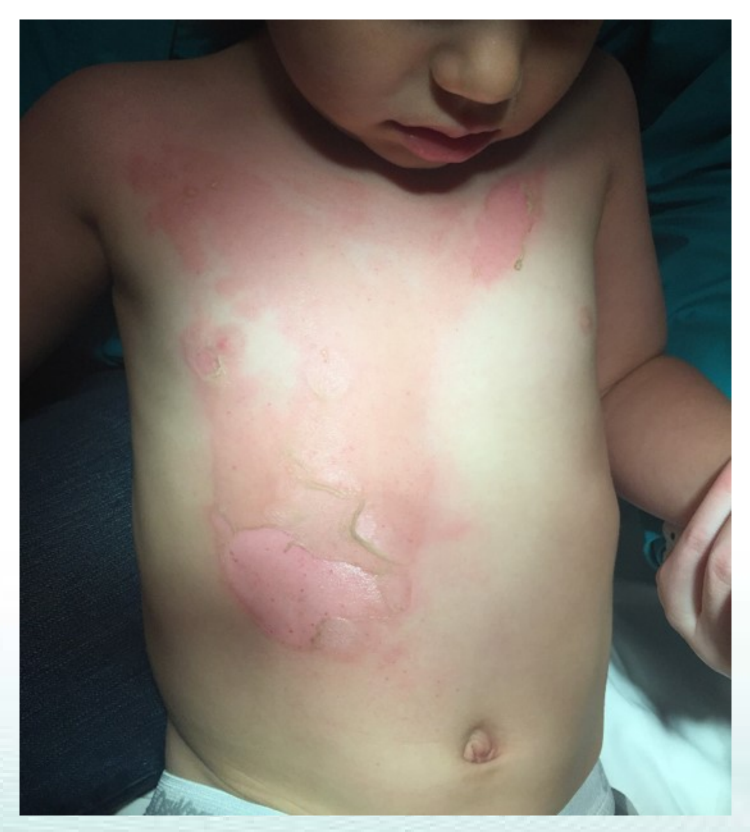
- Contact
- Scald
- Flame / Flash
- Electrical
- Grease
- Chemical
- Friction
- Inhalational

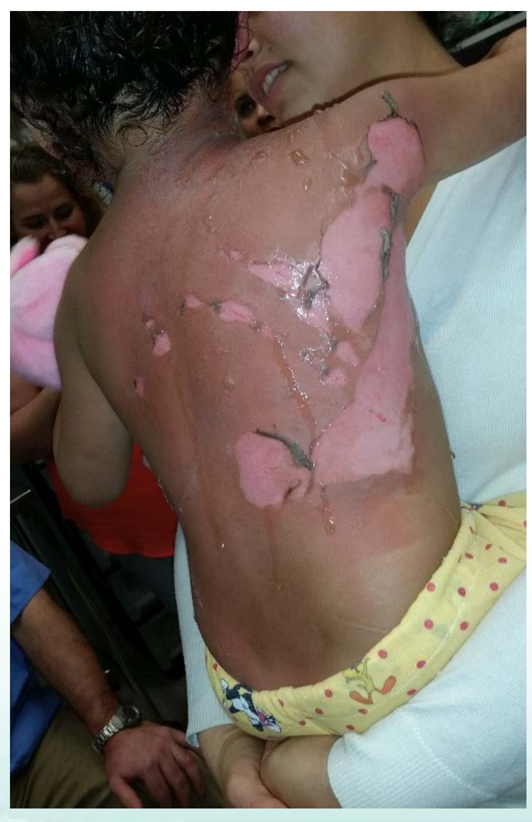
Contact Burns





Scald/Steam Burns

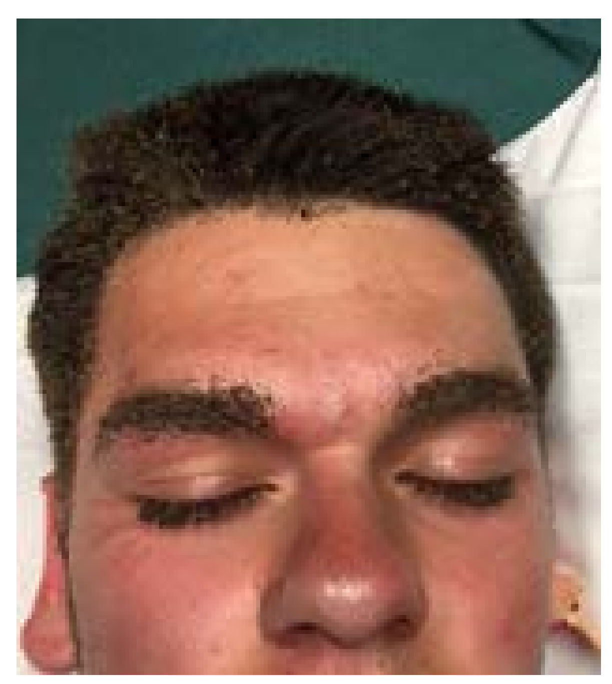


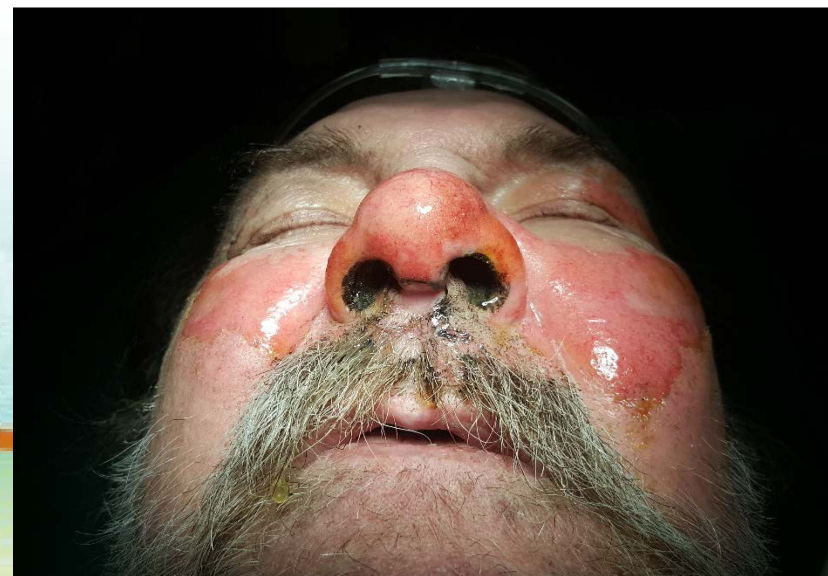


Scald/Steam Burns

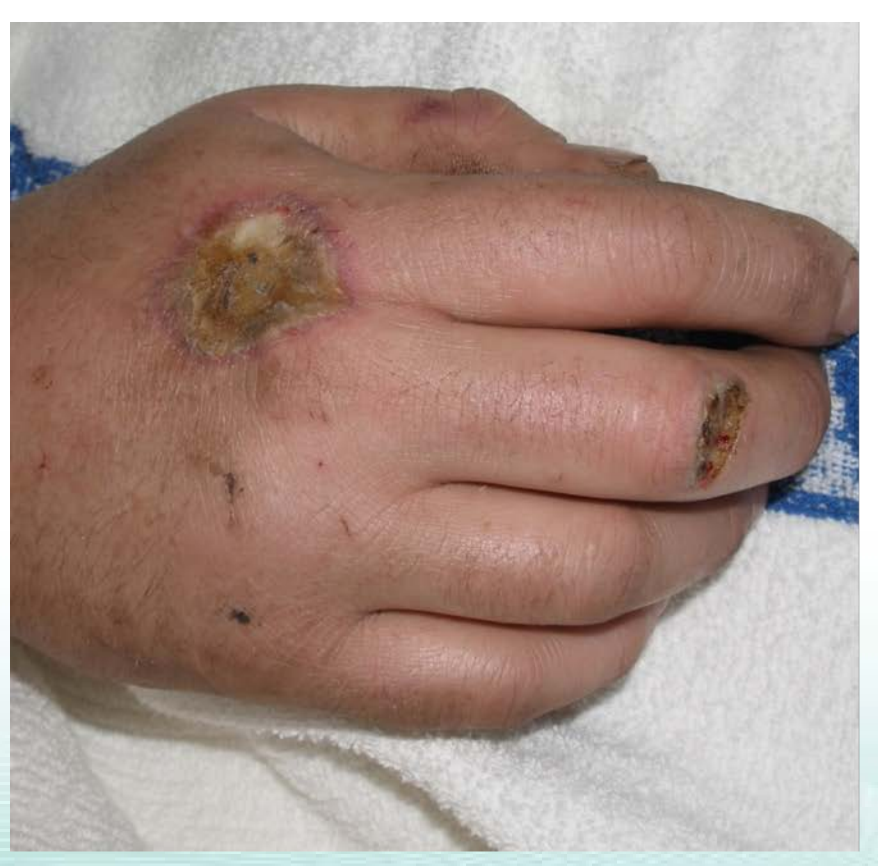
Water temperature		*Time for a third degree burn to occur*
155° F	68° C	1 second
148° F	64° C	2 seconds
140° F	6 0° C	5 seconds
133° F	56° C	15 seconds
127° F	52° C	1 minute
124° F	51° C	3 minutes
120° F	48°C	5 minutes
100° F	37° C	safe temperature for bathing

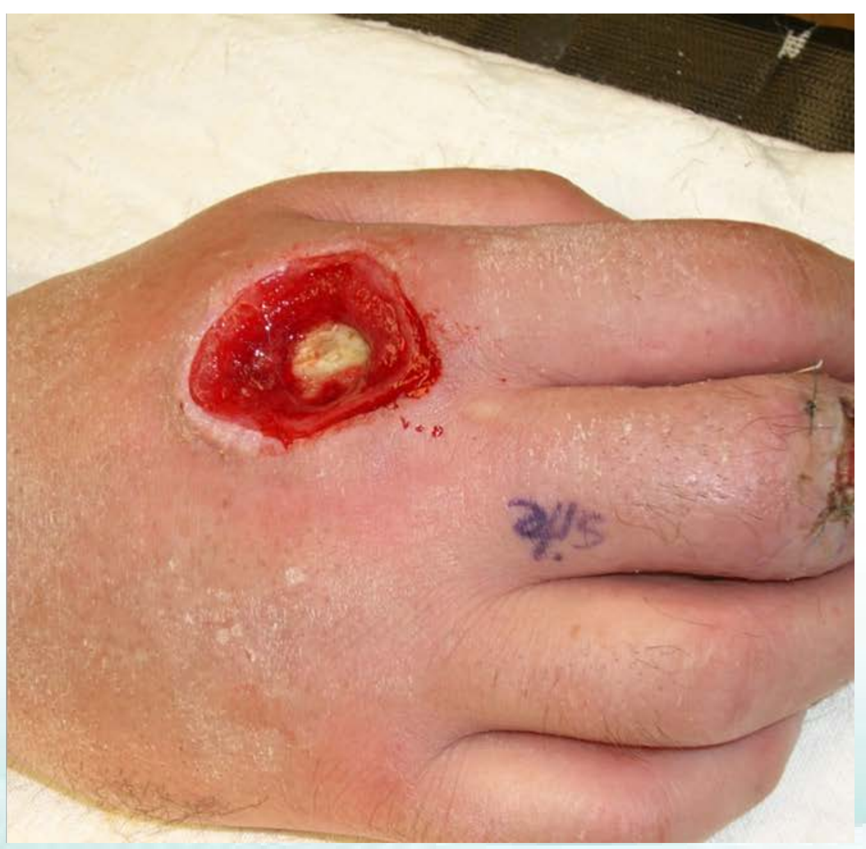
Flame / Flash Burns



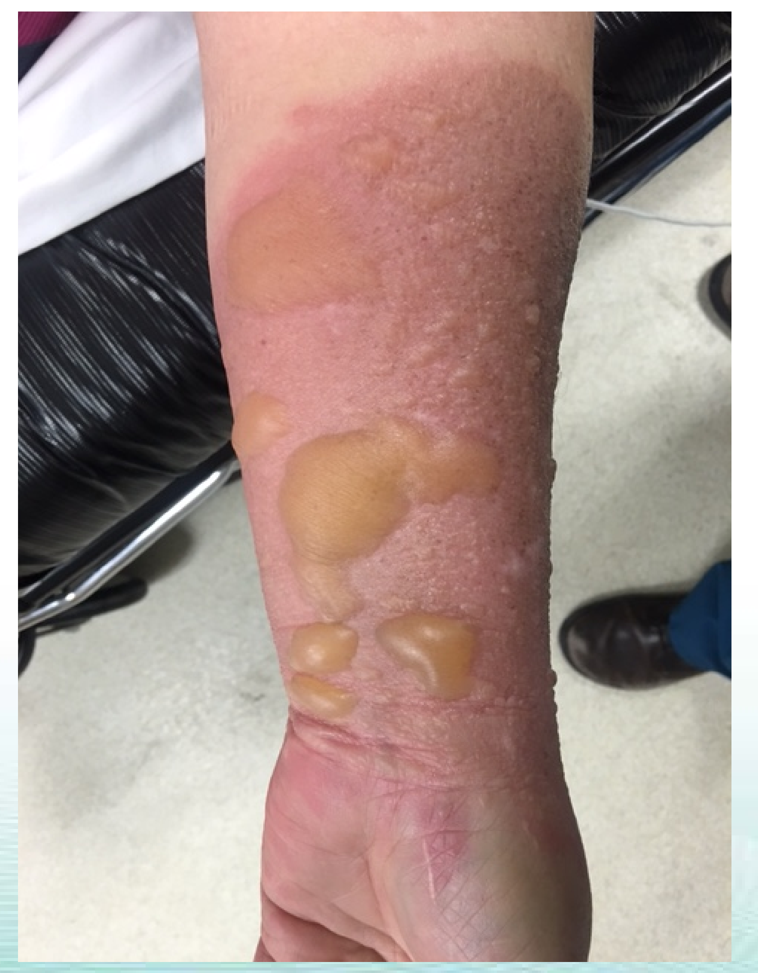


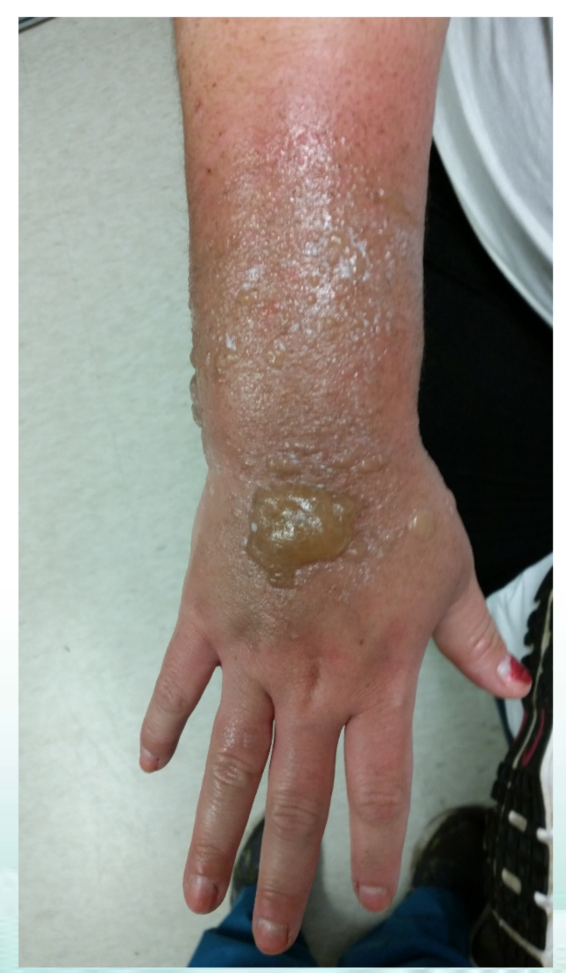
Electrical Burns



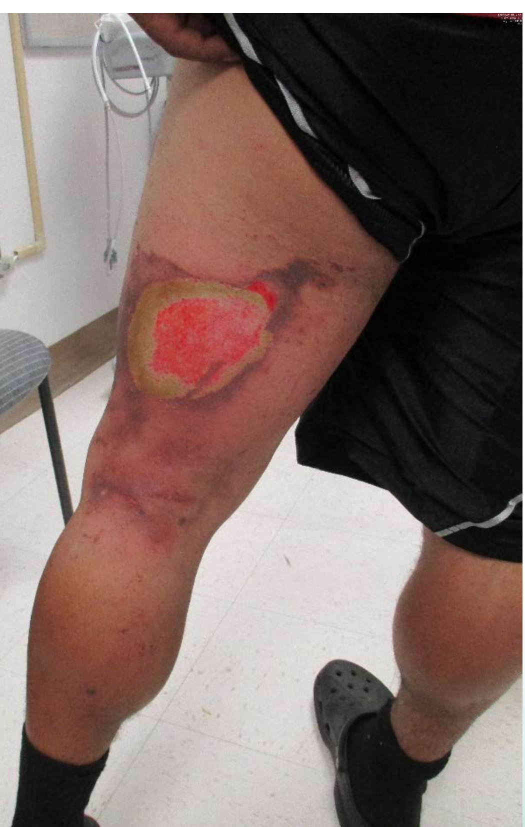


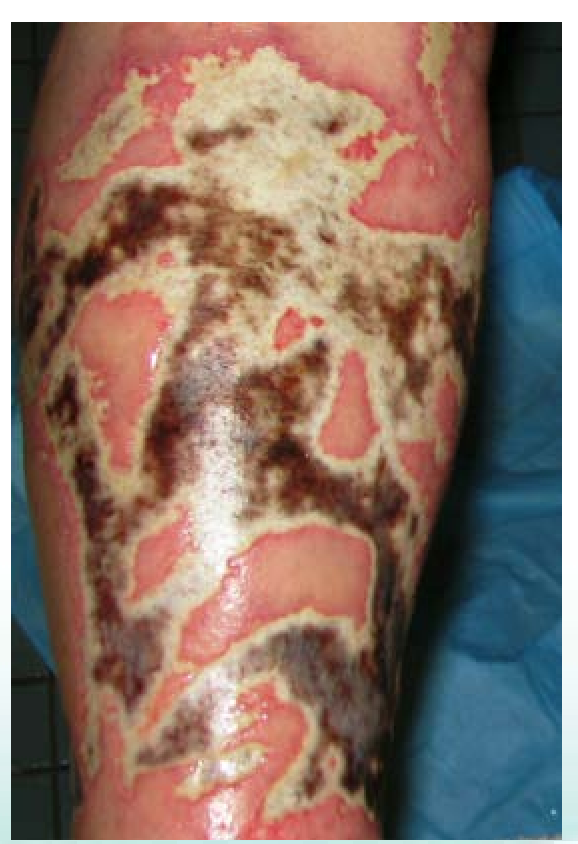
Grease Burns



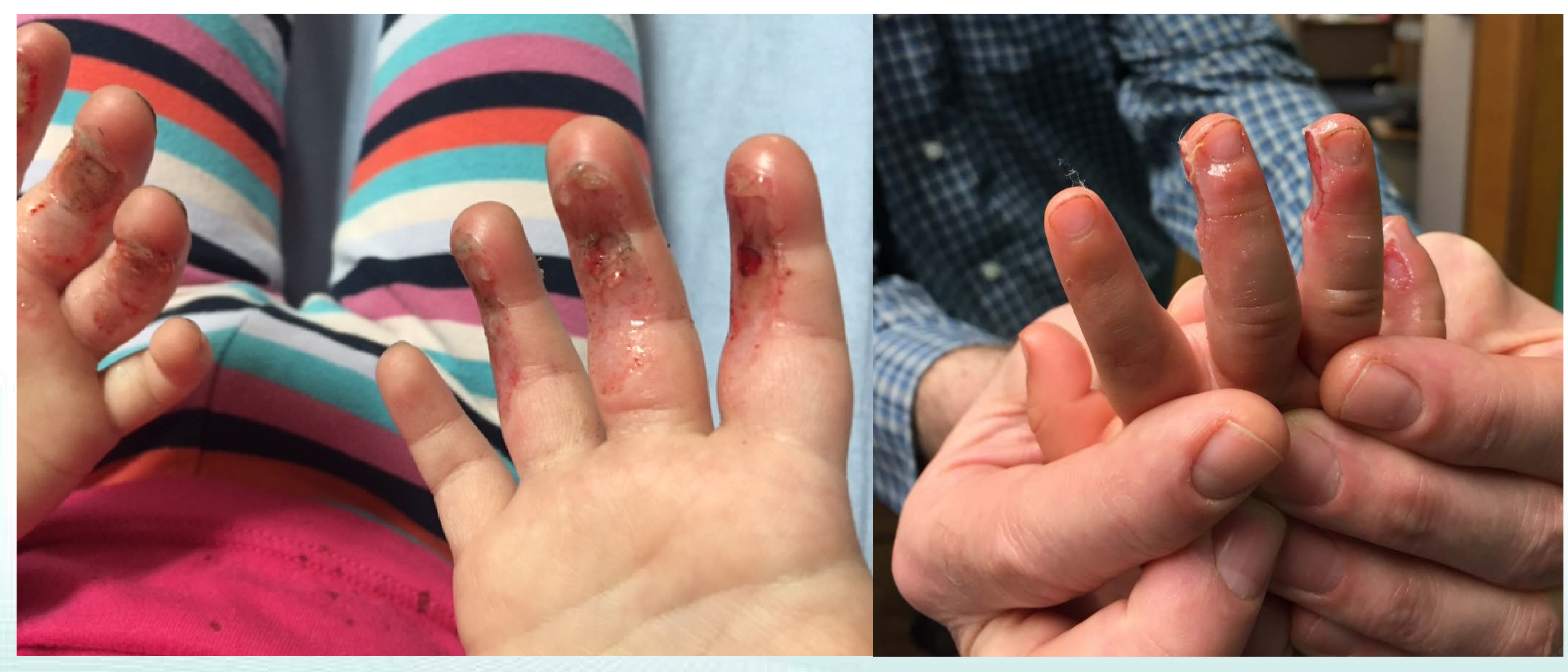


Chemical Burns





Friction Burns



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Oral Rehydration Therapy (ORT)

- **Feasible and favored** for small-to-moderate sized burns
- Acute burns <20% TBSA do not require IV fluid resuscitation
  - In kids <15% TBSA

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Wound Care Prior to Transfer??

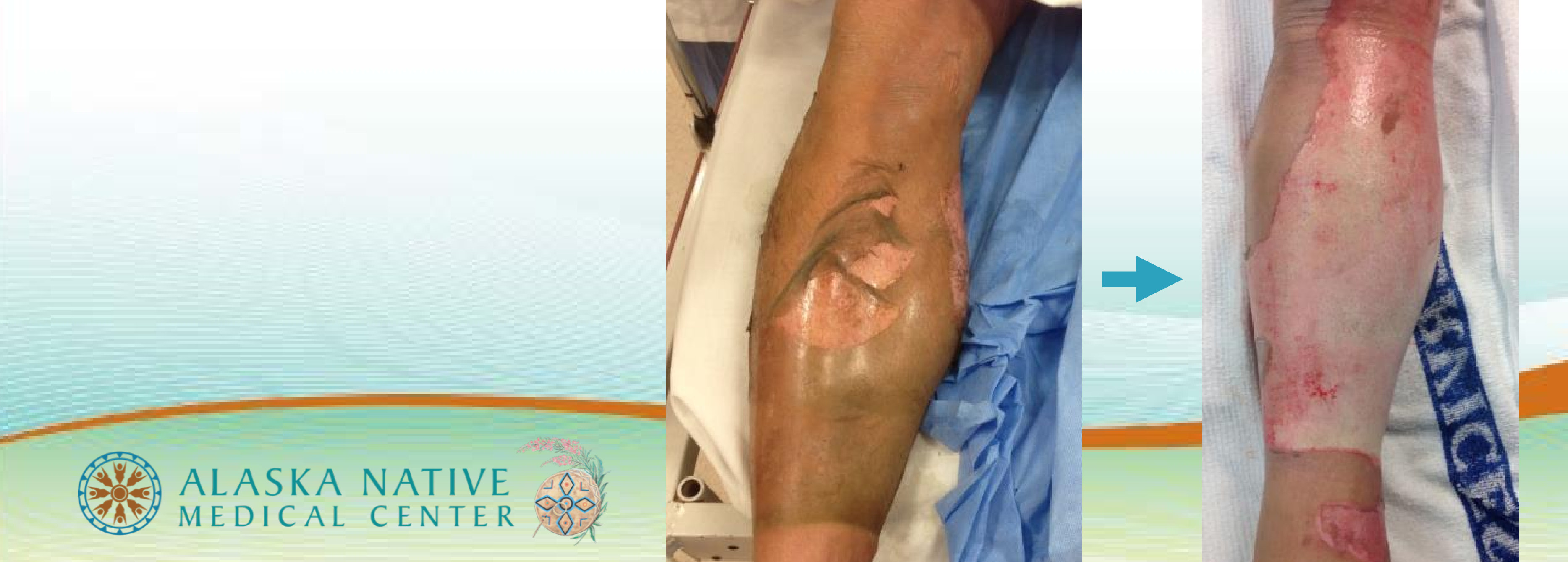
- Big burns → No need
  - Wrap in dry sheet
  - No creams or ointments
  - No soaked dressings

- Small burns
  - Depending on resources, may start initial wound care

- Avoid hypothermia
  - Burns can be cooled with cool (not cold) water for a few minutes → then should be kept warm and dry

Burn Wound Debridement

- Can be performed by any health care provider
- Important for wound evaluation
- Provides therapeutic care for the burn wound

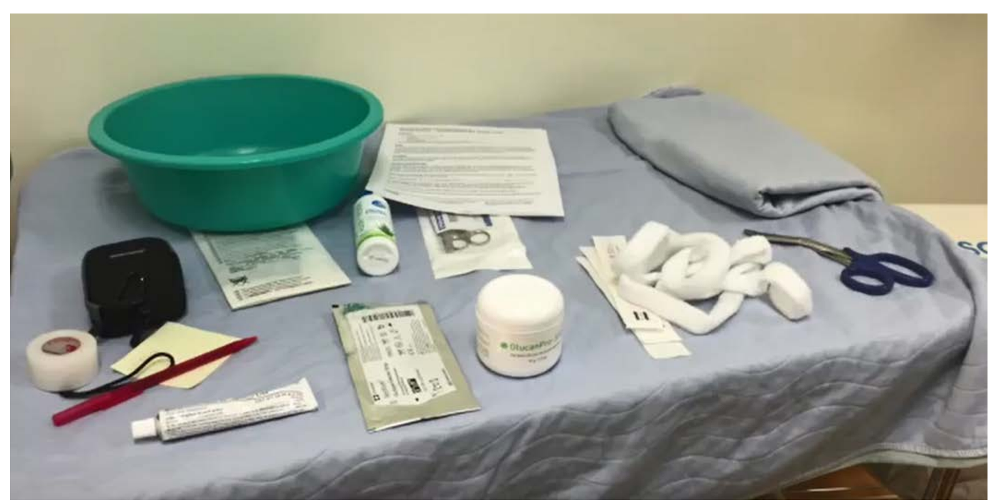


Pain Control

- Procedural pain
  - Can be IV/PO
  - May require sedation
  - Narcotics or NSAIDs for home wound care

- Procedural anxiety
  - Ativan/Versed

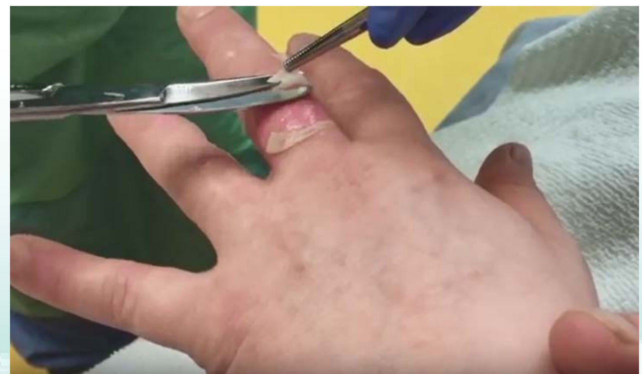
Supplies



- Wash
  - Bandage scissors
  - Basin
  - Warm saline/gentle soap
  - Washcloths
- Debridement
  - Suture removal kit
- Wound Care
  - Creams/ointments
  - Non-stick dressings
  - Tongue depressor
- Dressing
  - Kling/Kerlex
  - Netted dressing
  - Tubigrip
- Documentation
  - Camera
  - Pen/paper

Wound Debridement

- Start with firm wipe with washcloth
- Lift loose skin edges with forceps
- Trim back any loose skin with suture scissors



Burn Wound Care

- Primary Dressing
  - Therapeutic antimicrobial cream or ointment
  - Change only once a day
- Secondary Dressing
  - Dry dressings to keep primary dressings secure and clean
  - May change as needed

Burn Wound Care

- Ointments / Creams
  - Lather ointment or creams onto dressing, not on wound (PAINFUL!)
  - Ex: bacitracin on xeroform
  - Silver sulfadiazene on gauze

Burn Wound Care

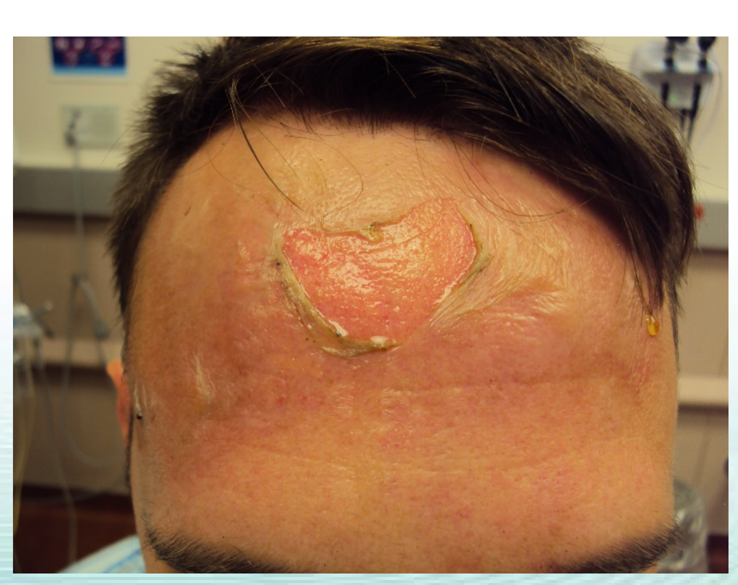
- Dressings
  - Keep minimal; avoid bulky dressings that impair ROM exercises
  - No need to put extra layer of gauze
  - Wrap hands in a glove-like fashion (not a mitten)
  - May use tubigrip or elastic netting for extremity dressings

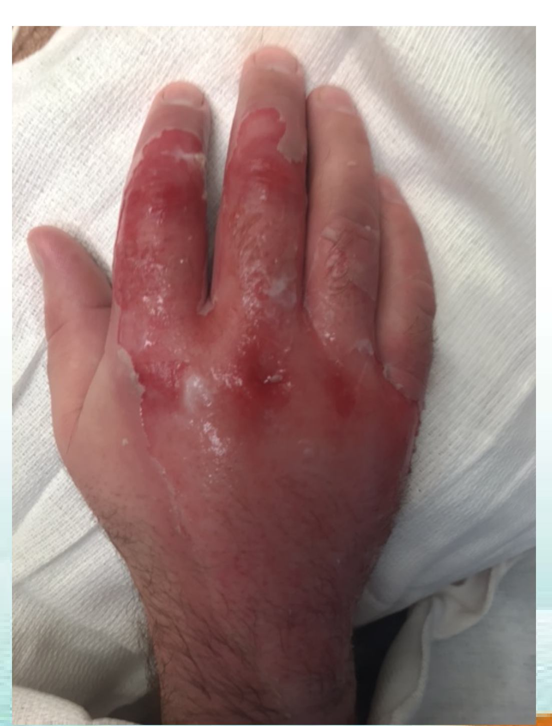
Burn Wound Care

- 1st degree: Superficial burns
  - Fragrance-free moisturizer
  - NOT Aloe Vera
  - NOT home remedies
  - Usually does not require surgical follow-up

Burn Wound Care

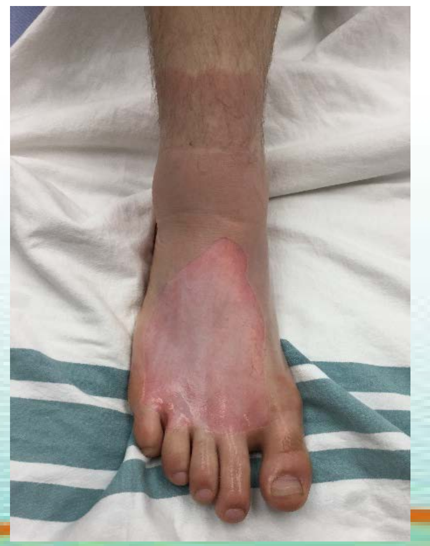
- 2nd degree: Superficial partial thickness burns
  - Antibiotic ointment / greasy gauze

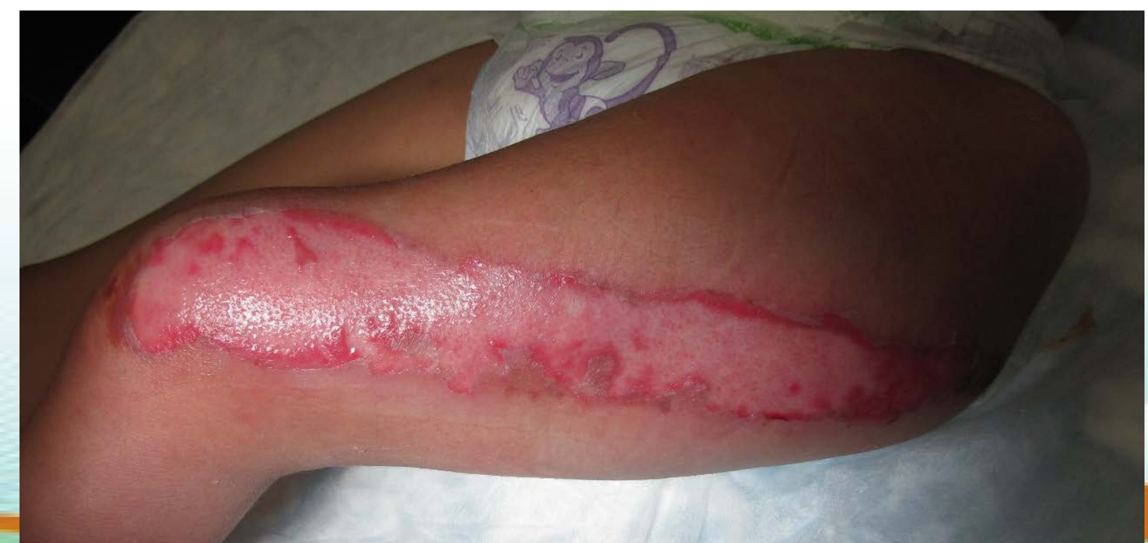




Burn Wound Care

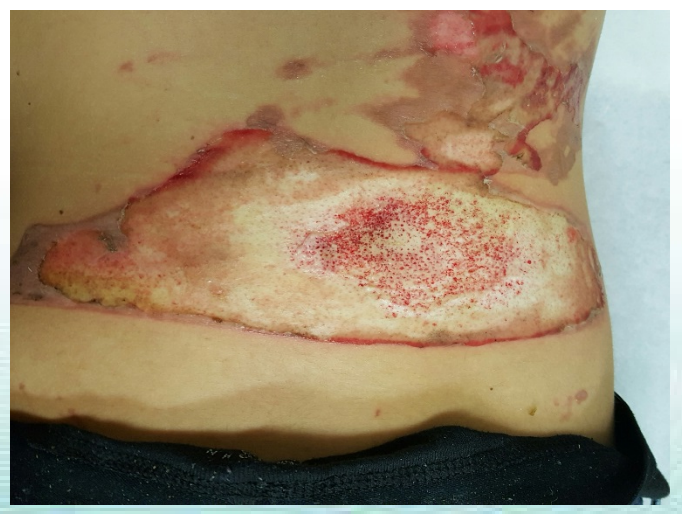
- 2nd degree: Deep partial thickness burns
  - Silver sulfadiazine
  - Early transition (5 days) to antibiotic ointment / greasy gauze

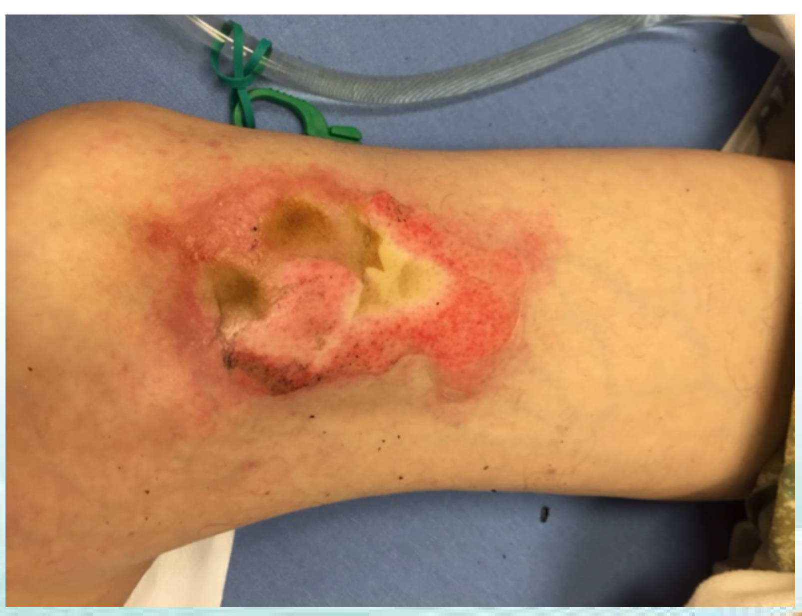




Burn Wound Care

- 3rd degree: Full thickness burns
  - Silver sulfadiazine
  - Early surgical consult





Burn Wound Care

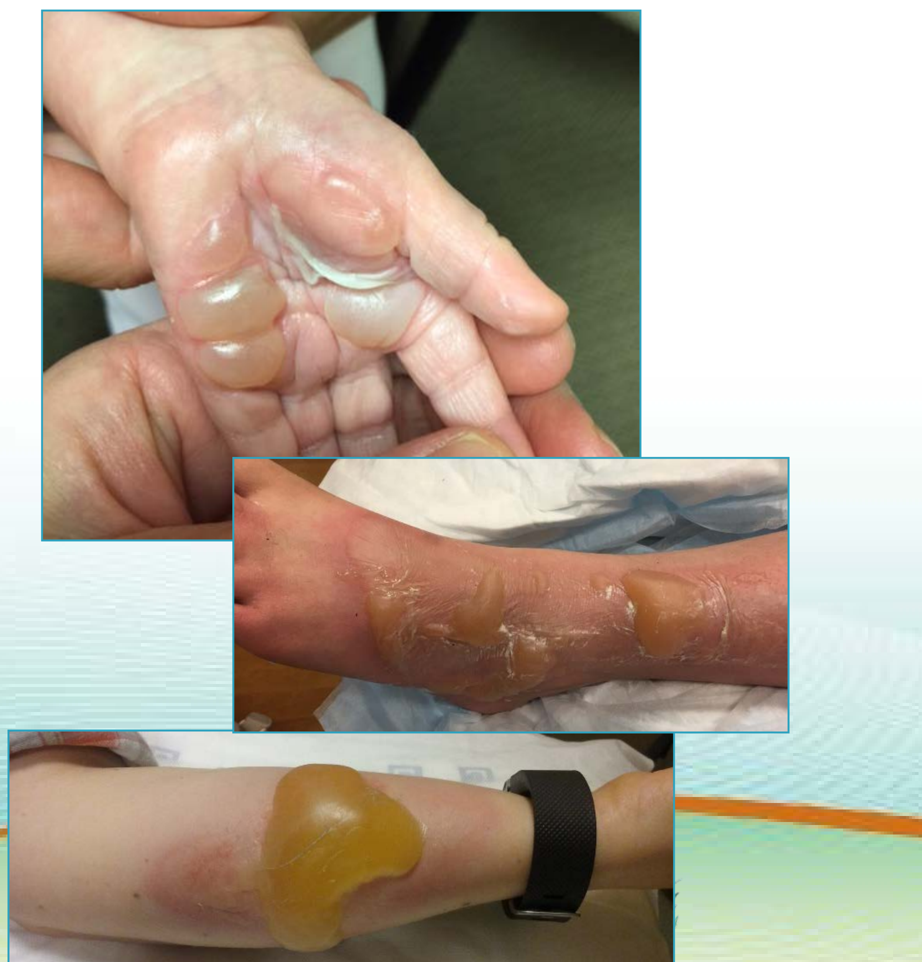
- Silver impregnated dressings may be left on for 5-7 days
  - Do not require daily dressing changes
  - Must keep dry
  - Best for flat surfaces, hard to contour to folds or joints

FAQs: Blister Care

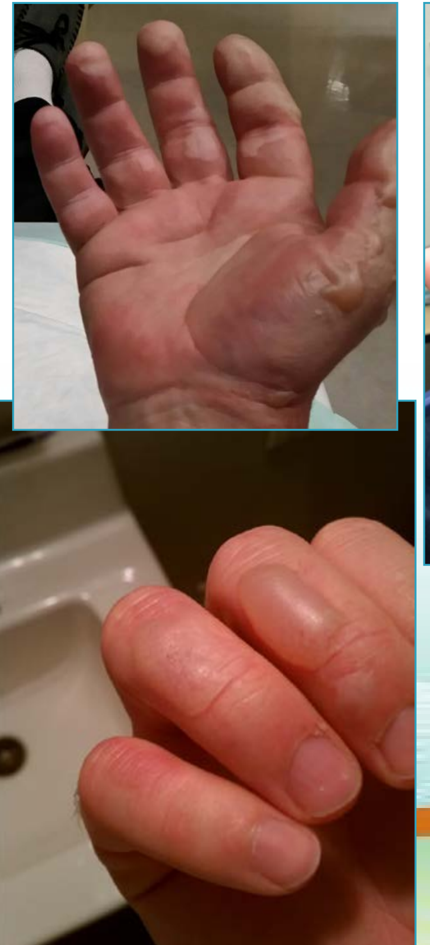
- Blisters should be debrided if:
  - Overlying joints that impair movement
  - Blisters >2cm
- Flat blisters may remain in place
- Small blisters may be decompressed with sterile needle
- Expect blisters to worsen over the first 24 hours

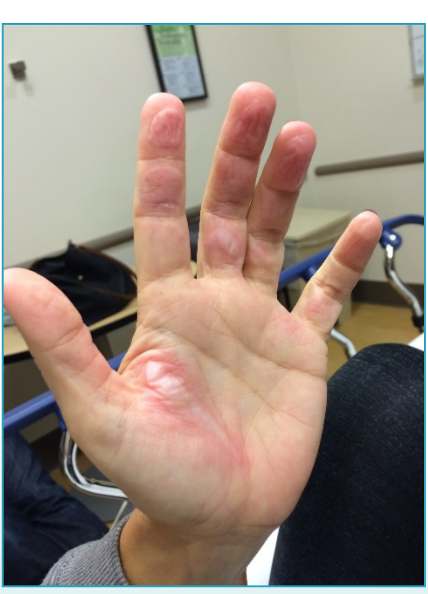
To Pop or Not to Pop…

Pop These!



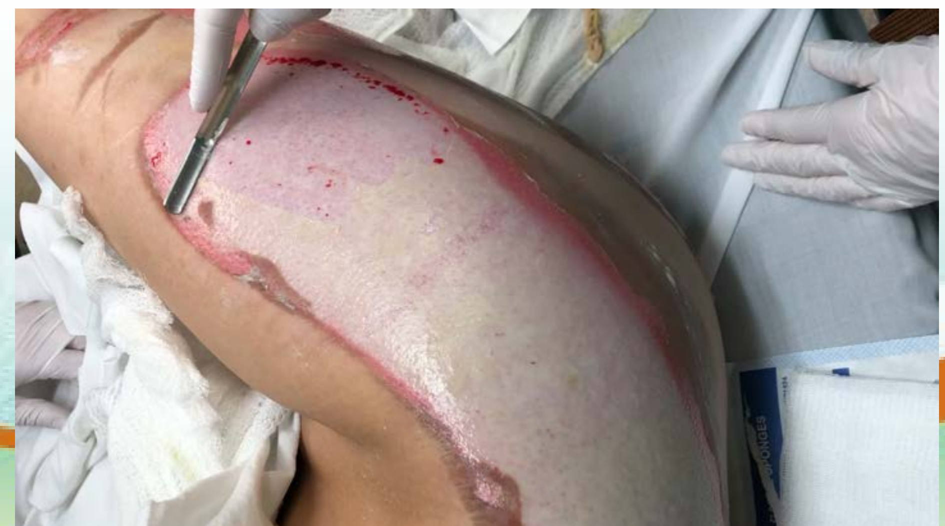
Leave in place!





FAQs: Silvadene

- Will silvadene cause staining?
- What can you put on face/ears?
- Why don't you like silvadene?
  - Good if eschar
  - Can impair epithelization
  - Pseudoeschar



Acute Burn Wound Treatment

- Tetanus immunization

- No antibiotics
  - Rarely needed
  - Often wound debridement and dressings resolved erythema
  - Topicals are sufficient

Admission for Burn Care

- Need for **pain control** beyond oral medications
- Need to train patient / family in **wound care**
  - Need for surgical monitoring of wound on daily basis
- Need to train patient / family in **range of motion** exercises
- No **safe disposition**
  - Social or environmental factors
  - CPS involvement

Outpatient Pain Control

- Ok for NSAIDs
  - Once out of window for possible skin grafting
- Breakthrough Pain and Procedural Pain
  - Often requires narcotics
- Neuropathic pain = Itching
  - Moisturizer
  - Claritin or Zyrtec
  - Benadryl for breakthrough

Burn Wound Care

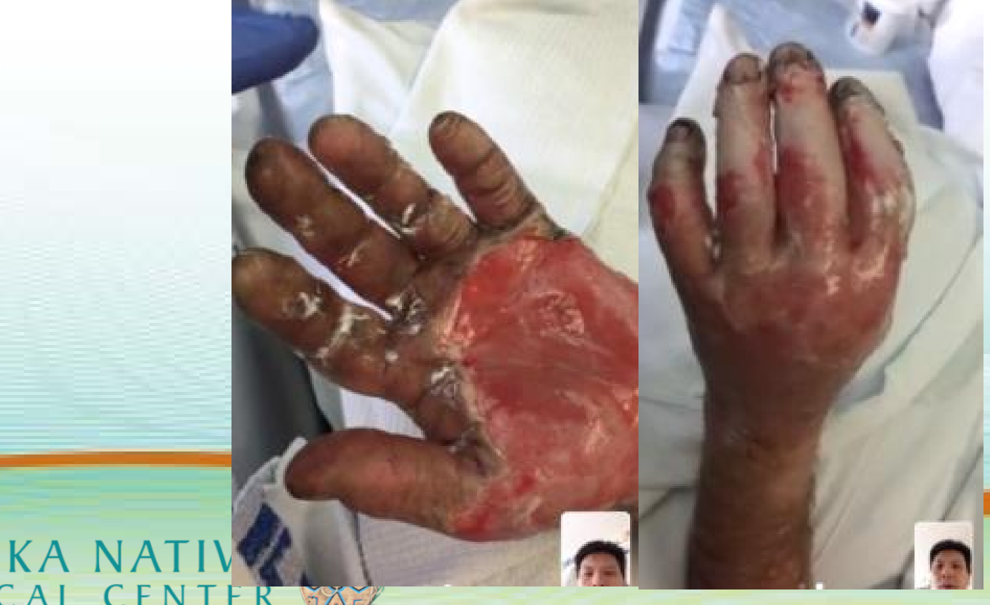
- Wash with soap and water
  - Remove dressings (can be in bath or shower)
  - Remove creams and ointment buildup
  - Shave if needed
- Daily dressings
  - No need for more frequent dressing changes (PAINFUL!)

Burn Wound Care

- Keep things simple!
  - Try not to mix dressing types
  - Encourage daily shower/bath to remove dressings
  - Patient and family should show independence with wound care prior to discharge

Telemedicine

- Wound evaluation (can be pictures or video)
- Provider to provider consults
- Trauma Surgeon On-Call is available
  - ANMC Transfer Center 907-729-2337
  - TigerConnect Role "ANMC On-Call General Surgery/Trauma Attending"



Burn / Soft Tissue ECHO 2020

- 4 Quarterly Sessions (Feb/May/Aug/Nov)
- 1 hour session (12:00 – 1:00pm)

- Topics:
  - Delayed Burn Care: Austere Environments
  - **Pediatric Foot Burns: Firepit Injuries (May 20th)**
  - Burn Therapy Basics
  - Inhalation Injury

- Registration: https://anthc.org/what-we-do/telehealth/getting-started-with-anmc-project-echo/

Burn Wound Dressings

YouTube

uw burn educational videos

UW Medicine

BURNS 101
Introduction to Burn Care

Jonathan Emerson Kohler, MD MA
Tam Pham, MD

University of Washington
Regional Burn Center

0:00 / 6:48

Burn Educational Videos
by UW Surgery • 1/15 videos

- Burns 101 Assessment — UW Surgery
- 2 Burns 101 Triage — UW Surgery
- 3 Burns 101 Initial Management — UW Surgery
- 4 Burns 101 Treatment — UW Surgery
- 5 Burns 101 Biology — UW Surgery
- 6 Burns 101 In the OR — UW Surgery

Burns Education

- 96 Hour Project
  - Sponsored by Western Region Burn Disaster Consortium (WRBDC)

- Free online modules geared to non-burn facilities to review burn practice guidelines in the event of a Burn Mass Casualty Incident (BMCI) for up to 96 hours when hospital resources and personnel are severely limited.

- 3 hours of CME/CEUs
- For additional information, please go to: crisisstandardsofcare.utah.edu

Questions?
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