Current Practices in Pediatric Burn Care
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Disclosure/s

All the planners and presenters for today’s CE activity declare they do not have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this activity.

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Burns by the numbers

Over 250,000 children are treated for burn injuries annually
300 treated daily in EDs

CNMC:
2014: 2000 burn visits
2015: 1881 burn visits
2016: 1992 burn visits
2017: 2005 burn visits
Areas of Service for Burn Care

Initial Burn Visits FY18
Washington DC .................217
Maryland .........................386
Virginia/West VA/other.....289
ED Discharges

ED Discharges

Burn Admissions
Key Components of Burn Assessment

Mechanism of Injury
Intensity & duration
Time from Injury
Location of Injury
(TBSA)
Depth Assessment
Mechanism of Injury

Thermal Burns

Chemical

Electrical Burns
What hot liquid is associated with the deepest scald burn?
Contact Burns

Second most common cause of pediatric burns

32%
Flame Burns

Associated with teenagers/older patients

Invincibility
Playing with matches
Grills/campfires

Associated with more burn deaths due to smoke inhalation
Tip: inhalation injury only occurs in enclosed spaces
Chemical Burns

Neutralizing agents are CONTRAINDIATED

Flush with copious amount of water

Call poison control
Electric Burns: Low Voltage Injuries

Healthy Children exposed to common household currents (≤240 V):

- Do **NOT** need an ECG
- Do **NOT** need CPK or Urine Myoglobin
- Very low risk for developing cardiac arrhythmias
- Discharge to home from the ED
- Treat cutaneous injury, f/u only as needed
Electric Burns

- Updated algorithm
What not to put on a burn...
Intensity and Duration

How hot was the source?
- Fresh tea or had it been sitting for awhile
- Was the iron on? or off? cooling when touched?
Time from Injury

When did the incident occur?

Important for:
- Fluid resuscitation
- Identifying burn progression
- Identifying whether care was sought appropriately
Location of the Injury
Estimating Burn Size:
Palm Method

Palm of patient = 1% TBSA

Quick and Easy to Use
New Tool for Assessment

NSW Trauma

smart phone app

(Free download)
Importance of Estimating Burn Size

>25% leads to a Trauma Activation

>40% leads to Burn Attending Presence in Trauma Bay
TBSA agreement among ED providers improved from 74% to 92%.
TBSA agreement among surgical residents improved from 65% to 94%.
Burn Classification

- **First-degree burn**
  - Epidermis
  - Nerve
  - Hair follicle

- **Second-degree burn**
  - Dermis
  - Blood vessels
  - Hair follicle

- **Third-degree burn**
  - Subcutaneous tissue
  - Blood vessels
  - Hair follicle

*Children's National*
Superficial Burn

Erythema and Blanching

Painful

Heal spontaneously within 1 week
Superficial Partial Thickness

Pink

Blanching

Moist, blisters present

Intense pain

Heal within 1-3 weeks

Minimal scarring, hypopigmentation
Deep Partial Thickness

Red, can be pale/yellow

Less painful

Heals in 3-6 weeks +

Will have residual scarring and hypopigmentation
Full Thickness

No blanching

Ivory, brown, black (dry eschar)

Minimal to no pain

May require skin grafting
What to do?
New Guidelines for ED burn management

Partial Thickness burns <5% managed in ED unless burn is involving:

Airway/eyes
Genitalia
Palmar crease of the hand
Sole of the foot

-OR-
Concern for NAT
Is caused by a treadmill
Minor-Moderate Burns

- Ensure adequate analgesia (pre-procedure and for home/follow up appts)
- Debride with gauze/wound cleanser
- Dress (mepilex), kerlix, tubifast
- Follow up:
  - Parent to call (202) 476-2150 within 24 hours of d/c from ED for a burn clinic appointment.

Please also email npsurgery@childrensnational.org
Burn Dressings
Moderate/Major (>5-10%)

Large burns (> 10 %):
- Petroleum or dry dressing
- **no wet dressings
- Pain medication, do not debride
EZ Derm (porcine xenograft)

- Provides wound coverage
- Minimizes painful dressing changes
- Decreased hospital LOS
Fluid Resuscitation

Burns less than 15% TBSA
   Maintenance IV Fluid

Burns greater than 15% TBSA
   1.5x Maintenance IVF
   Then Parkland Formula in ICU only.
   Goal: ED to PICU <1 hour
Pain Control - Initial Debridement

Minor/Moderate Burns:
- IN Fentanyl
- Morphine IV
- Ketamine
- Anesthesia

Major Burns >15% TBSA:
- Debridement in PICU/OR
Door to Initial Pain Med
Pain Score 2-10

Minutes


Ave
Median
Special Cases: Treadmill Injuries

**WARNING:** Treadmills are known to be EXTREMELY dangerous to children. Keep your children safe by making a safe zone around the treadmill when in use.
Burn Center Referral

- TBSA burned >10%
- Full thickness injury
- Hands, feet, genitalia, perineum involved
- Suspicion of inflicted injury
- Circumferential injury
- Other comorbid diseases
- Social concerns
- Electrical injury
- Inhalation
Complications following burn injury

• Fever
• Immunosuppression
• Infection (rare)
• Staph/HSV rash
• Dehydration
• Wound conversion
• Feed intolerance-STOP feeds
Services Provided at CNMC

Experience
CNMC has over 2500 burn patient visits/year

A dedicated team and growing team of burn care experts
Burn Surgeons, Plastic Surgeons, Intensivists, Trauma/Burn NPs, Forensic Pediatricians, Occupational/Physical Therapists, Nutritionists Child Life, Social Work, Case Management, and burn RNs

Access to long acting wound care

Rehabilitation services

Scar management techniques
- steroid therapy
- laser treatments
Burn OR 14

Dedicated OR time every weekday morning for IP/OP procedures
Outpatient clinic support

- Dedicated burn psychologist
- Child life presence all clinics
- PT
- OT
- Scar clinic
- Compression
Sun shirt initiative

Protective clothing! Ultraviolet Protection (UPF) 30-50+. Blocks 96-98% of the sun’s harmful rays.

*look for us next year! Buy a shirt and help support a burn patient!

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PRIORITIES IN CARE

• Assessment of TBSA/depth
• Pain Control
• Wound Coverage
• Follow up
• Minor burns: debride and refer
• Mod-major or special considerations: admit
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