

# Burns 101

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## Disclosures

- Non-Declaration Statement: I have no relevant relationships with ineligible companies to disclose within the past 24 months.
- None of the photos used in the presentation are my own.

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## Educational Objectives

- At the conclusion of this session, participants should be able to:
  - Identify the difference between 1st, 2nd, 3rd, and 4th degree burns
  - Estimate burn resuscitation based on total burn surface area
  - Manage burns acutely upon presentation
  - Develop a wound care plan for burn patients
  - Identify which patients should be transferred to burn centers

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### Don't be scared! Burns are manageable!



<https://twitter.com/CPKamohar/status/1020958330271687760>

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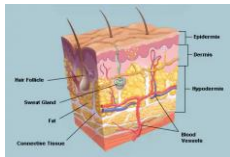
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### Function of Skin

- Thermoregulation
- Protection
- Secretion
- Excretion
- Absorption
- Sensation
- Vitamin D production



<https://www.khanacademy.org/a/high-point/2016/11/10/04skin-fun-facts>

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### Mechanism of Burns

- Scald
  - Most common children
- Fire/Flame
  - Most common adult
- Electrical
- Chemical
- Radiation
- Contact
- Friction



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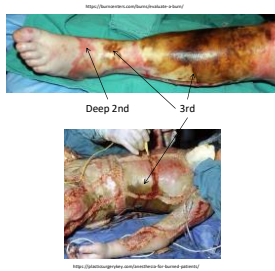
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### Degrees of Burns

#### 3rd degree (Full thickness)

- **DOES NOT** blister or blanch (no blood flow, dead tissue)
- **NO** pain
- Leather, dry, waxy, firm, white appearance



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### Degrees of Burn

#### 4th Degree

- To the muscle or deeper structures
- Usually electrical etiology
- Black, necrotic appearance
- Cannot salvage



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### Pathophysiology of Burn Shock and Edema

- Hypovolemia via intravascular fluid leaking into interstitial space causing edema (leads to compartment syndrome)
- Cardiac depression due to humoral factors and loss of preload -> decreased Cardiac Output
- Increased systemic vascular resistance
- Large release of inflammatory mediators

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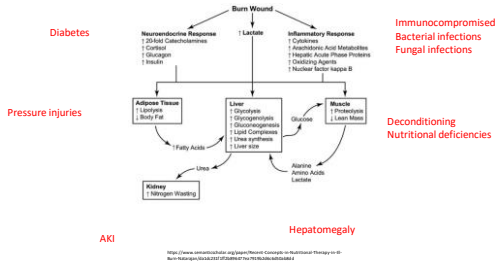
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### Immediately After the Burn; Management in the EC

#### Primary Assessment

##### Airway

- Burns to the face? Concerning for inhalation injury and airway edema
  - Humidified oxygen via nasal cannula
  - +/- intubation (nasal intubation preferred) if concern for airway obstruction. Not always indicated.

##### Breathing

- Smoke inhalation and carbon monoxide can impair ventilation and oxygenation
- Look for soot in airway or singed nose hairs – indicates smoke exposure or prolonged time with fire

##### Circulation

- Due to burn shock, blood pressure may not be accurate with large burns
- Resuscitation via Parkland or Galveston formula with LR (preferred) or another crystalloid

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### Immediately After the Burn; Management in the EC

#### Secondary Assessment

- Allergies? Antibiotics indicated with burns > 10%TBSA
- Medications?
- Past Medical History?
- Last Meal?
- Events Surrounding Injury? Concerning for abuse? NAT?
- Control pain and prevent hypothermia

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### Take Home Points

- 2<sup>nd</sup> degree burns ALWAYS blister, are painful and blanch.
- Silver sulfadiazine causes pseudoeschar to burn wounds. Should be avoided as this is an infection risk. Bacitracin can be used instead.
- Burn resuscitation and airway management should be started sooner than later. DO NOT use 1<sup>st</sup> degree burns to calculate %TBSA.
- Source control and infection are important to prevent infections and aid in healing time
- Any question or concern regarding ANY phase of burn healing – contact an ABA burn center

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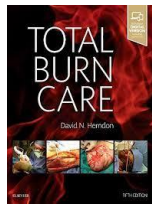
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### References

- Herndon, D. N. (2018). *Total burn care (fifth edition)*. Elsevier.
- Wound Certification Prep Course, 2021
- <https://ameriburn.org/quality-care/verification/verification-criteria/verification-criteria-effective-october-1-2019/>



<https://www.elsevier.com/books/total-burn-care-5th-edition/9780323766218>

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### Questions?

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**Contact Info**

Please feel free to reach out!

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