



Burns

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Burn categories

- Thermal
- Chemical
- Electrical
- **Each with its distinct issues**



Thermal burns

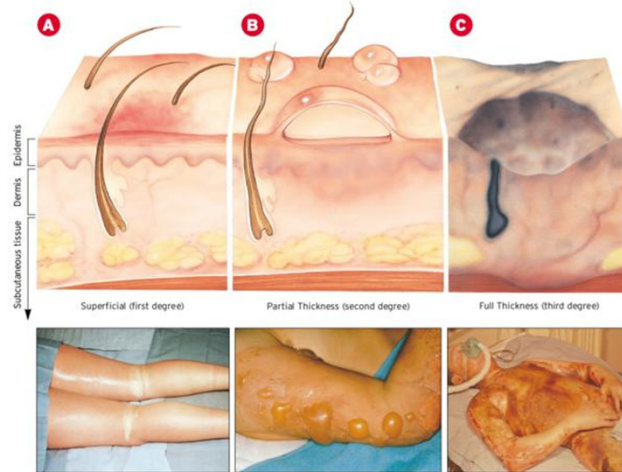
- Also known as heat burns
- Caused by flames or heat



Burn classifications

- Superficial or First Degree
- Partial Thickness or Second Degree
- Full Thickness or Third Degree

Burn classifications



Superficial burns

- Only epidermal layer is involved
- **Redness**
- Pain

Superficial burns



Partial Thickness burns

- Involves dermal layer **as well**
- Redness and **blistering**
- Extremely painful

Partial Thickness burns



Full Thickness burns

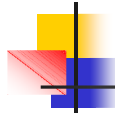
- Involves all skin layers and can include bone
- Sometimes call "**painless burns**"
 - *Why?*
- Charring
- "Eschar"
- **Associated with poor outcomes and permanent disfiguration**

Full Thickness burns



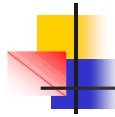
Quantifying burns – Rule of Nines

- Divide the body into 11 segments of 9% and 1% for the genital area
- **Does *nothing* to treat the patient**
 - **But allows receiving hospital to get some idea of the severity to expect**



Rule of Nines -- **Adult**

- Each of the following body parts get 9%
 - Head
 - Chest
 - Abdomen
 - Upper back
 - Lower back/buttocks
 - Each arm
 - Front of each leg
 - Back of each leg
- Genital area gets 1%

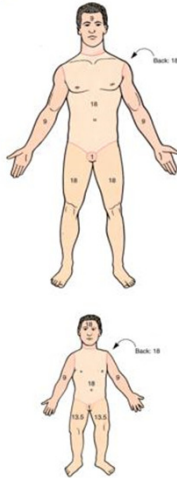


Rule of Nines -- **Child**

- Body divided as follows:
 - Head.....**18%**
 - Chest.....9%
 - Abdomen.....9%
 - Upper back.....9%
 - Lower back/buttocks.....9%
 - Each arm.....9%
 - Front of each leg.....**7%**
 - Back of each leg.....**7%**
- Genital area gets 1%



Rule of Nines



Question 1

- Your 55 year old patient has been burned on most of his chest, entire right arm and the entire front of his right leg.
- **Using the Rule of Nines, what percentage of his body has been burned?**



Question 2

- Your 5 year old patient has been burned on his entire head, entire right arm and the entire front of his right leg.
- **Using the Rule of Nines, what percentage of his body has been burned?**



Quantifying burns – Palm Rule

- The patient's palm will cover approximately 1% of their body surface
- Use the number of the **patient's** palms required to cover the burns as an approximation
- **Very good for burns covering a small area**
- **Rule of Nines is a better approximation for large areas burned**



Burns -- Treatment

- **As per regional burn centers**
- *No oils or ointments*
- **Stop the burning process**
 - **Use saline/water to stop burning PRN**
- Cover with sterile dressings (burn sheet)
 - Maintains sterility
 - Minimizes exposure to air
 - Minimizes pain!
- Keep patient warm
- ABCs
- **Do not break blisters**



Critical burns

- Second degree > 20% BSA
- Burns to critical areas
 - Having social or functional effects
 - Face, hands, genitalia...
- Check textbook for others



Chemical burns – key items

- **Scene safety**
- Gloves, eye protection
- Remove substance from patient with copious irrigation with water
- **Exceptions:**
 - **Sodium, lye, sulfuric acid**
 - **Water will increase the burning**
- Treat chemical inhalation with **careful attention** to airway control



Chemical burns -- Liquids

- Flush with copious amounts of H₂O
- Except as noted above



Chemical burns -- Dry

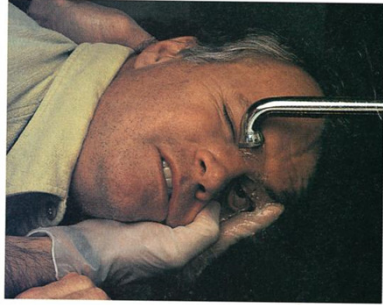
- **No Water**
- Brush off carefully
 - Sweat on hands may react with chemicals
- Be extra careful with lime and sodium



Chemical burns to the eye

- Gently flush eye
 - Affected eye downward
 - Even during transport
 - At least 20 minutes
- Use **whatever works** to flush eye
 - E.g. IV bag, nasal cannula...
- **Consider calling for ALS**

Irrigation



Irrigation





Electrical burns

- **Scene safety!**
- From current or lightning (static)
- Can cause damage to remote areas as electricity travels through body
- Can cause damage anywhere on the route
- Always check for an exit wound
- **Main concern is not the burn itself, rather from the cardiovascular effects**



Complications

- Smoke inhalation
- **Airway burns**
 - **May quickly swell and occlude airway**
 - Look for
 - Singed mustache hairs
 - Swollen lips/tongue
 - **Dire emergency – Rapid transport**
- Infection
- Social effects