PEDIATRIC ASSESSMENT

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Learning Objectives

- Attendees will be able to utilize the pediatric assessment triangle to identify critical illness in children
- Recognize clinical findings concerning for abuse or neglect
- Recognize and assess common childhood medical concerns
- Identify a medical emergency and initiate appropriate response measures

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Head Injuries

- Mechanism
  - Length of fall
  - Helmet?
  - Material or surface of impact
- Physical assessment
  - Loss of consciousness
  - Vomiting
  - Responsiveness, orientation level
    - GCS
    - What's their baseline?
  - Palpable boggy area?
  - Pupillary response
    - Symmetrical? Sluggish?

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Seizures

Initial Response

- Help to ground if possible/witnessed
- Remove obstacles that could cause injury
- Timing
- Signs of respiratory compromise
- Rescue meds if appropriate/available

Assessment (Post)

- Return to baseline?
  - Postictal phase? Typical length?
- Prior history
  - How do they “wake up”
  - Typical length
  - Current medications
- Related to another injury

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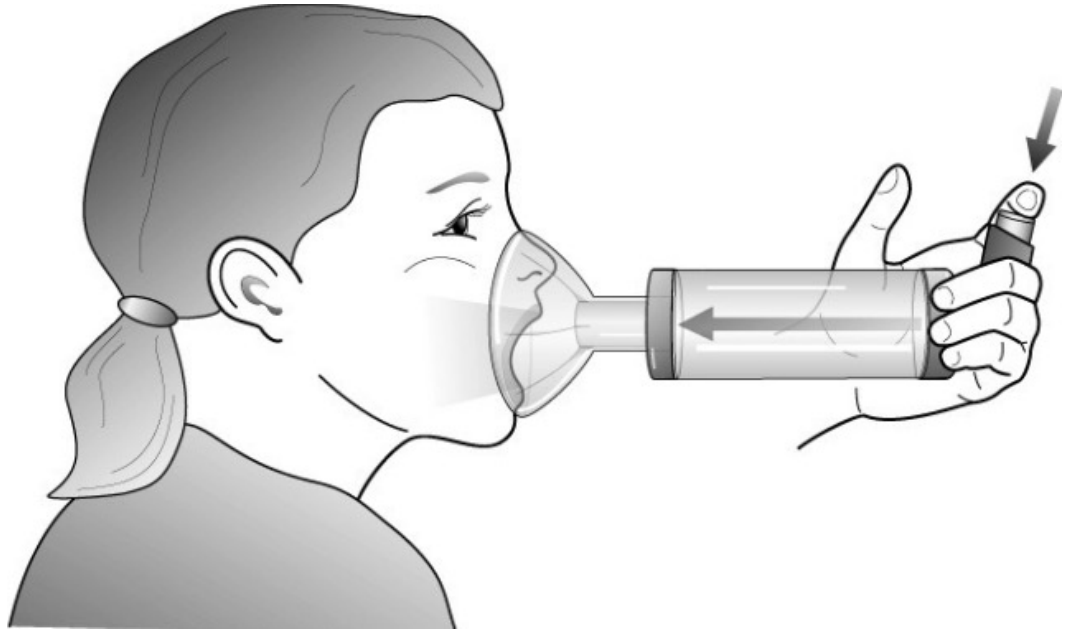
Respiratory

- General Appearance
  - Cyanosis?
- Lung sounds
  - Inhaler use?
    - Spacer?
  - Wheezing or diminished?
- Work of breathing
  - Locations of retractions
  - Positioning



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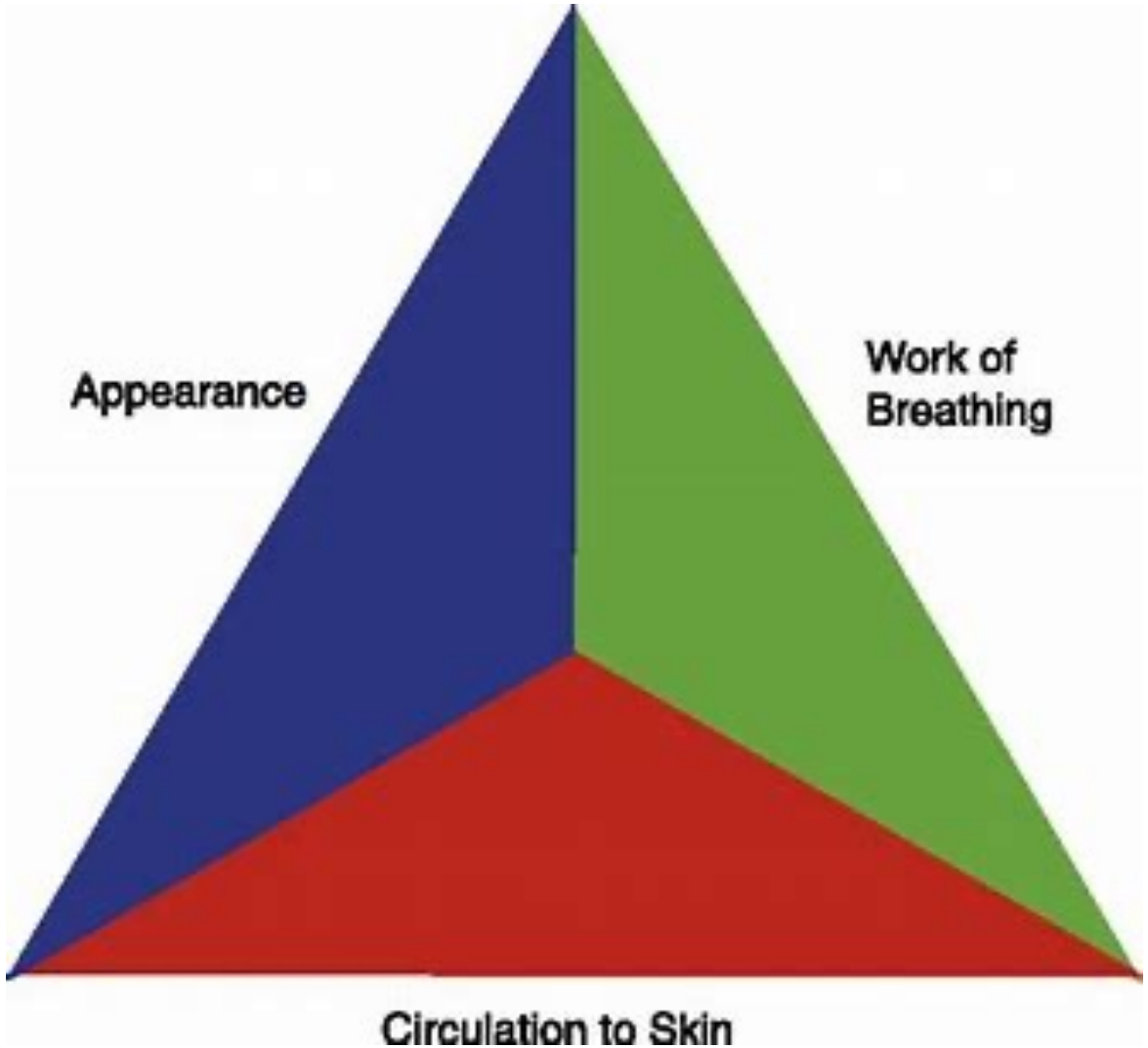
Pediatric Assessment Triangle



Respiratory Scoring

Who:

- History of asthma or albuterol use
- Recurrent cough or wheezing

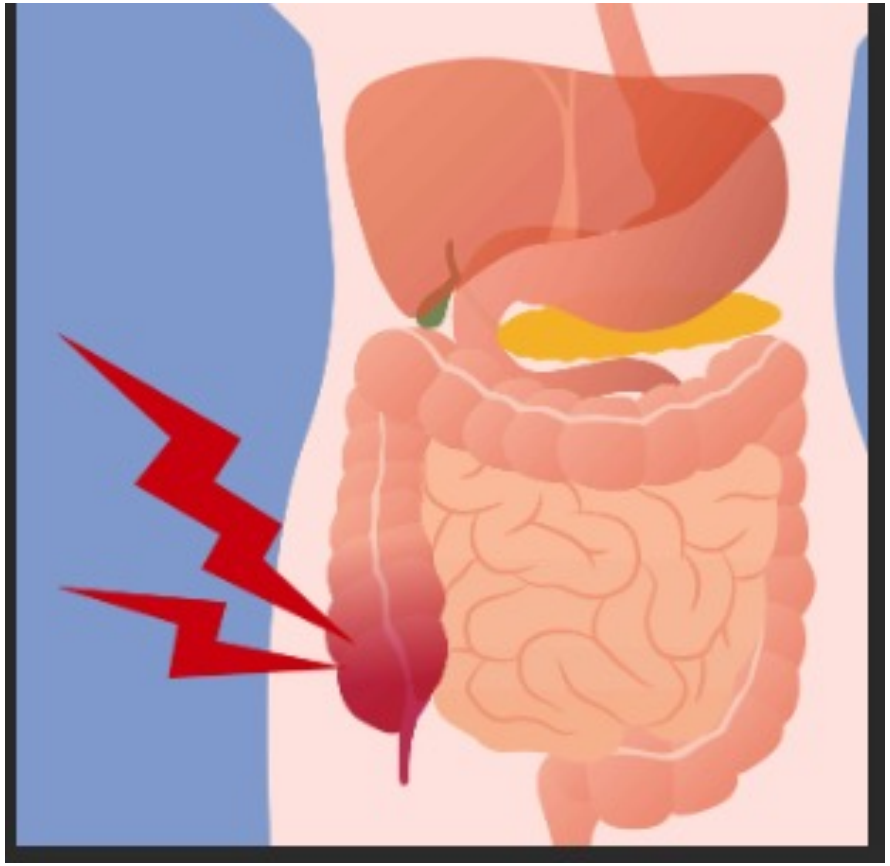
Exclusions:

- Chronic lung disease
- Cystic Fibrosis
- Cardiac history
- Aspiration

Respiratory Score	0 Points	1 point	2 points	3 points
Respiratory Rate				
<2 months		<=60	61-69	>=70
2 months - 1 year		<=50	51-59	>=60
1-2 years		<=40	41-44	>=45
2-3 years		<=34	35-39	>=40
4-5 Years		<=30	31-35	>=36
6-12 Years		<=26	27-30	>=31
>12 Years		<23	24-27	>=28
Retractions	None	1 of the following: Subcostal or intercostal	2 of the following: subcostal, intercostal, substernal OR nasal flaring	3 of the following: intercostal, substernal, subrasternal, supraclavicular, nasal flaring OR head bob
Dyspnea				
0-2 years	Normal activity, feeding and vocalizations	1 of: Difficulty feeding or decreased vocalization or agitated	2 of: difficulty feeding, decreased vocalization or agitated	stops feeding, no vocalization OR drowsy or confused
2-4 years	Normal feeding, vocalization and play	1 of: decreased appetire, increased coughing after play, hyperactivity	2 of: Decreased appetite, increased coughing after play, hyperactivity	Stops eating or drinking, stops playing or drowsy or confused
>4 Years	Counts to >=10 in one breath	counts to 7-9 in one breath	Counts to 4-6 in one breath	Counts to <=3 in one breath
Wheeze	Normal breathing, no wheeze	End expiratory wheeze only	Expiratory wheeze (> end expiratory)	Inspiratory and expiratory OR diminished or both

Appendicitis

- **Assessment Considerations**
  - Right lower quadrant pain
  - Periumbilical pain radiating RLQ
  - Abdominal rigidity
  - Absent or diminished bowel tones
  - Rovsing's Sign
    - Pain in RLQ when palpating LLQ
  - Rebound tenderness with palpation



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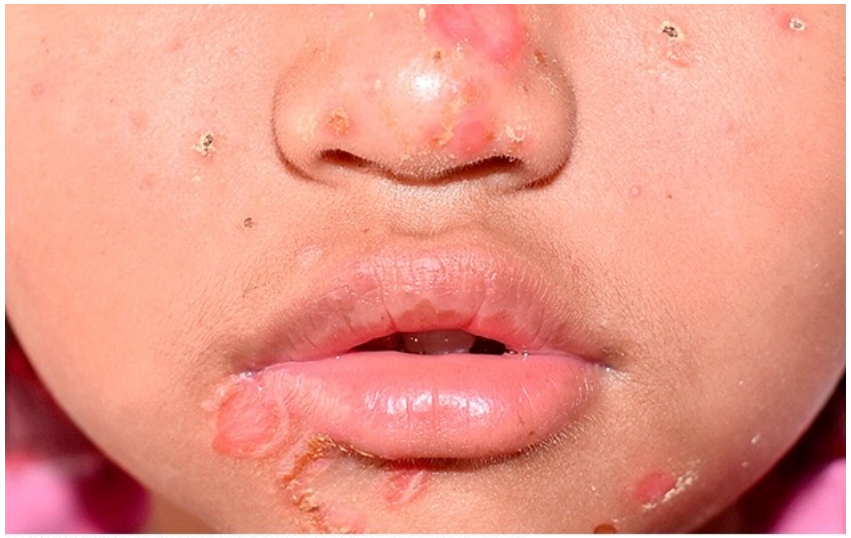
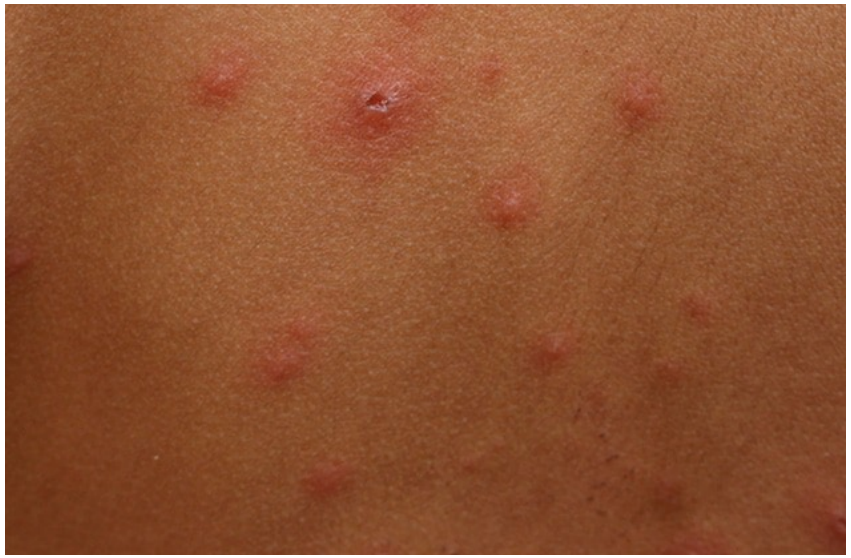
Dermatology

Describing Dermatology

- What color is it?
- Does it blanch?
- Is it itchy?
- Is it oozing?
- How does it feel?





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Causes of Rashes

Viral infections

- Herpes Simplex Virus
- Varicella
- Rubeola
- Rubella
- Roseola

Bacterial Infections

- Abscess
- Boils
- Cellulitis
- Impetigo
- Scarlatina
- Staphylococcal Scalded Skin Syndrome

Fungal Infections

- Candidiasis
- Tinea
- Molluscum Contagiosum

Skin Infestations

- Pediculosis
- Scabies

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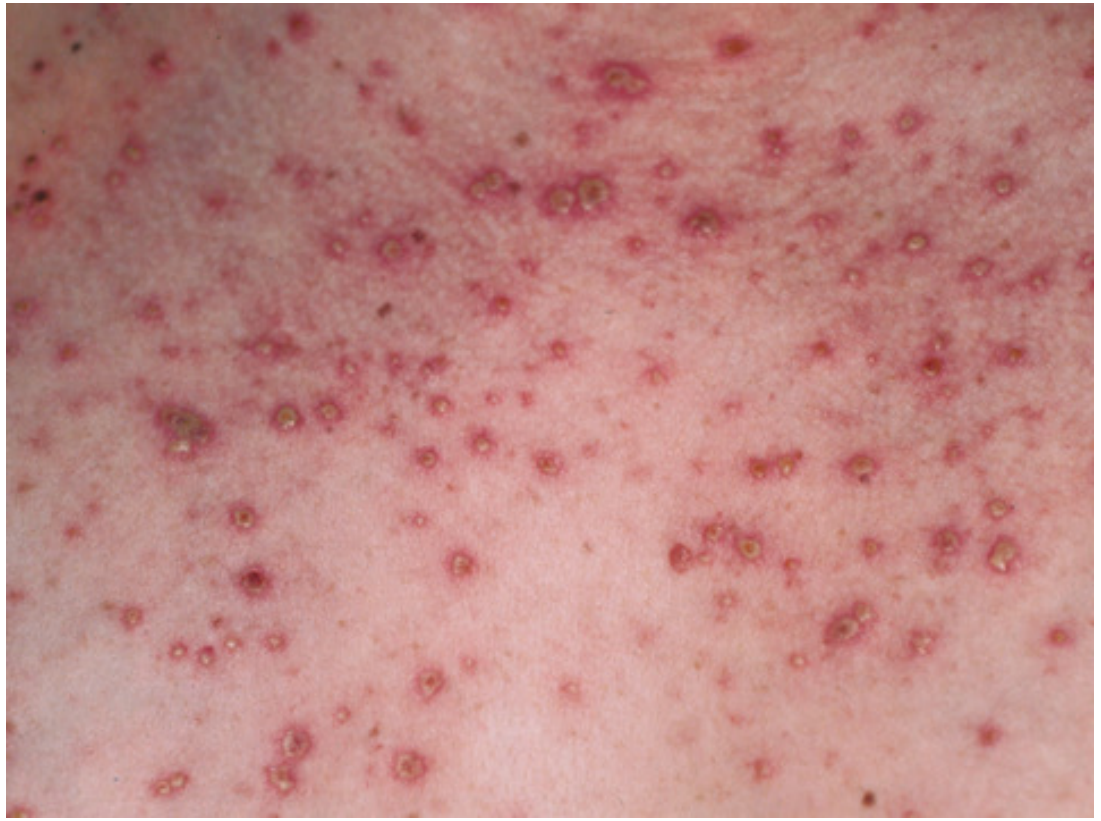
Varicella

Chickenpox!

- Transmission through airborne droplets, direct & indirect contact
- Fever, Rash, ulcers, weakness
- Airborne & contact precautions
- Antipyretics, fluids, calamine lotion
- Vaccine



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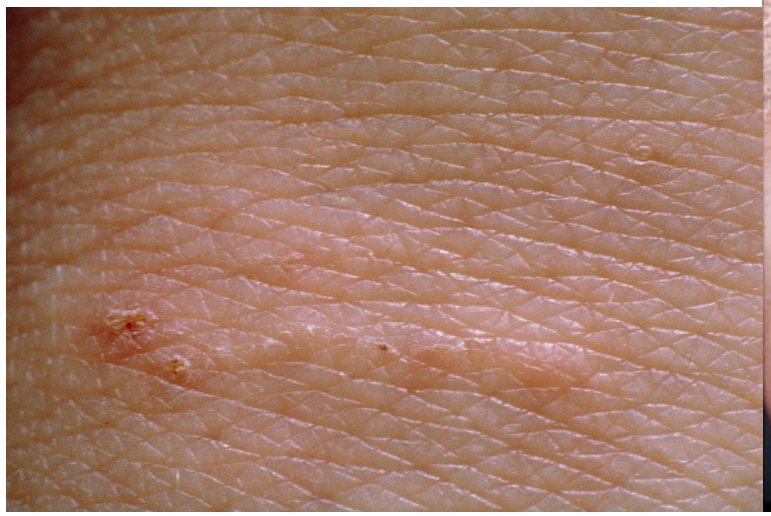
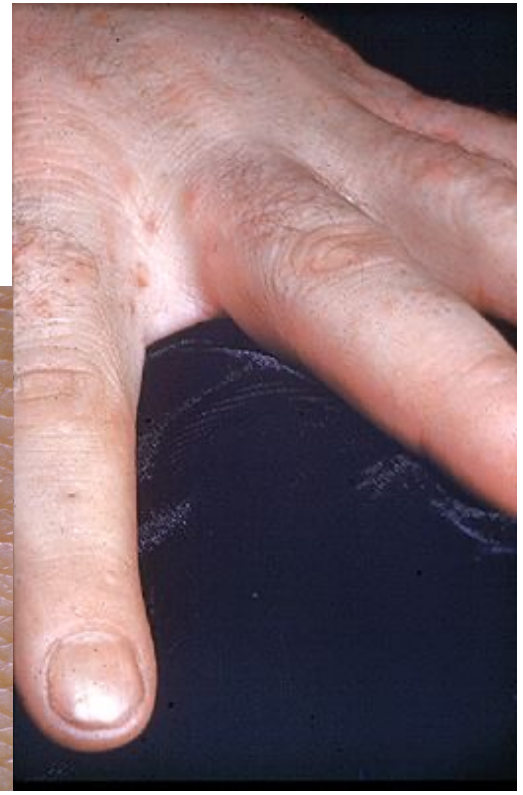
Scabies

- Tiny mites burrow under the skin to lay eggs
- Most often affects:
- Fingers & webbing between fingers
- Armpits
- Sides/bottoms of feet
- Lower buttocks and upper thighs
  - Treated with Permethrin





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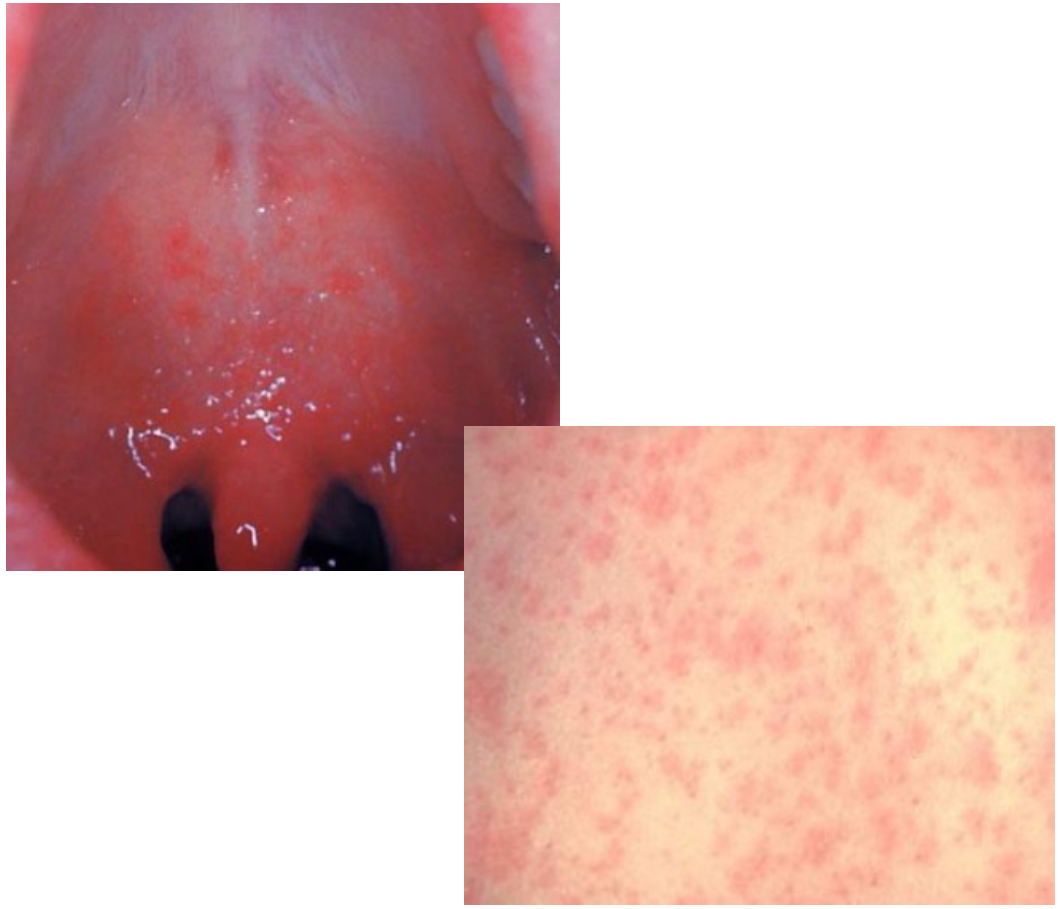
Measles

- Signs and Symptoms
  - High Fever
  - Runny nose
  - Cough
  - Red, watery eyes
  - Koplik spots 2-3 days
  - Rash 3-5 days



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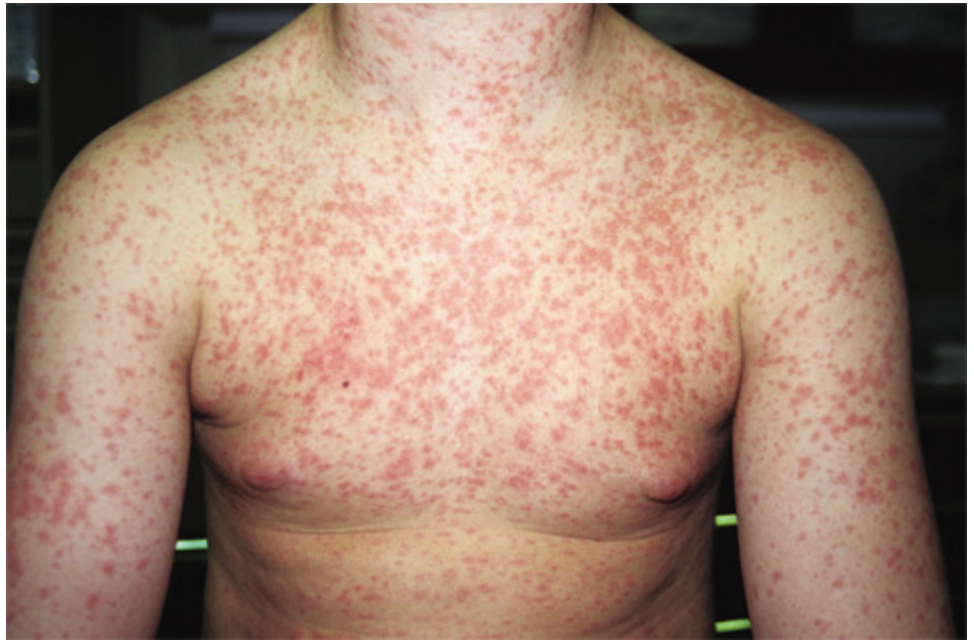
Measles Considerations

- Isolation
- Report to health department



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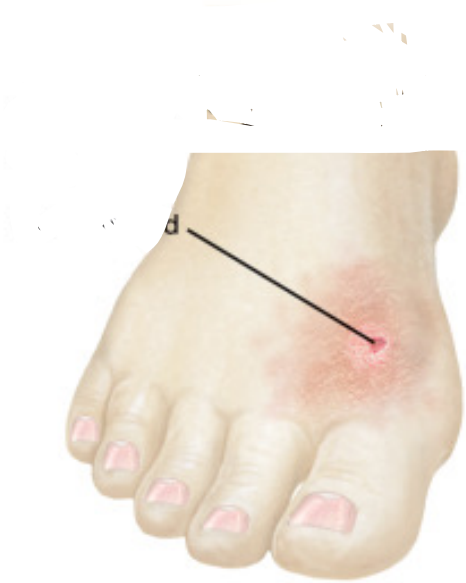
Cellulitis

- Inflammation of the dermis & subcutaneous tissue layers of the skin usually caused by an infection
- Usually caused by Staphylococcus or Streptococcus
- Warm, red skin that is swollen & painful
- Treated with antibiotics, corticosteroids and analgesics



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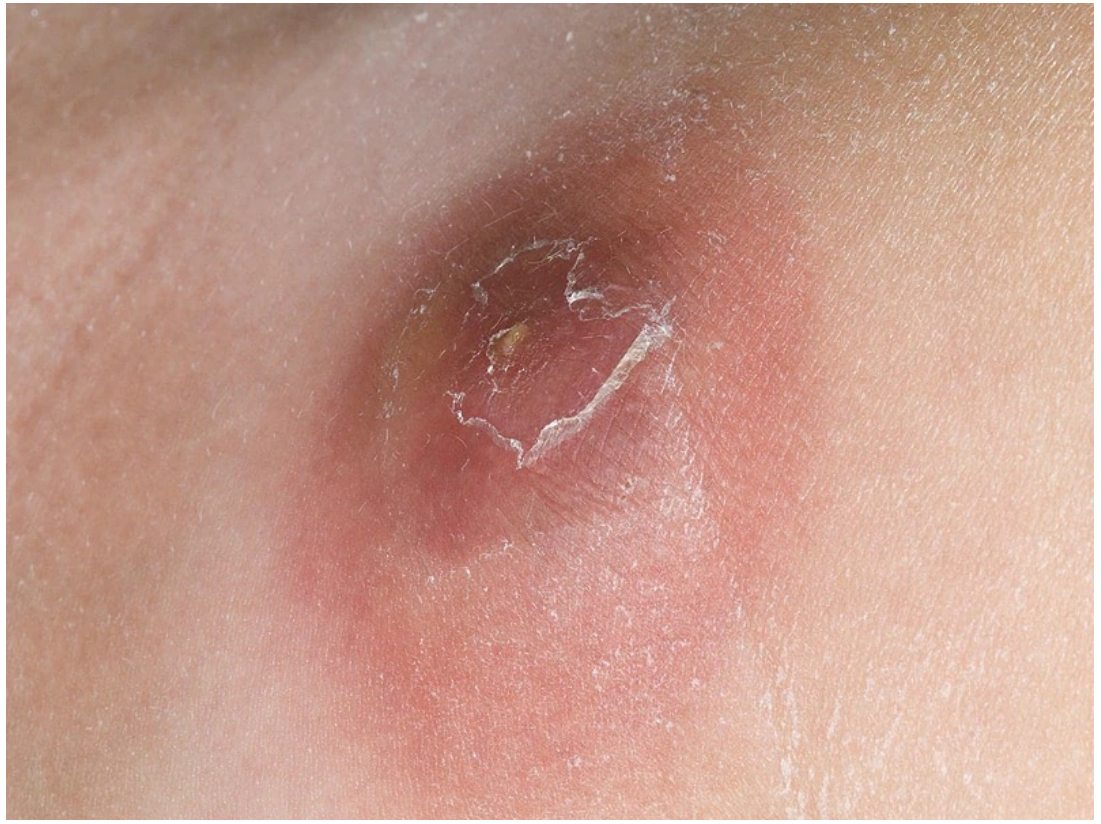
Abscess

- Collection of pus under the skin
- Erythema, tenderness, warm to touch
- Incision & Drainage vs warm packs
- Antibiotics



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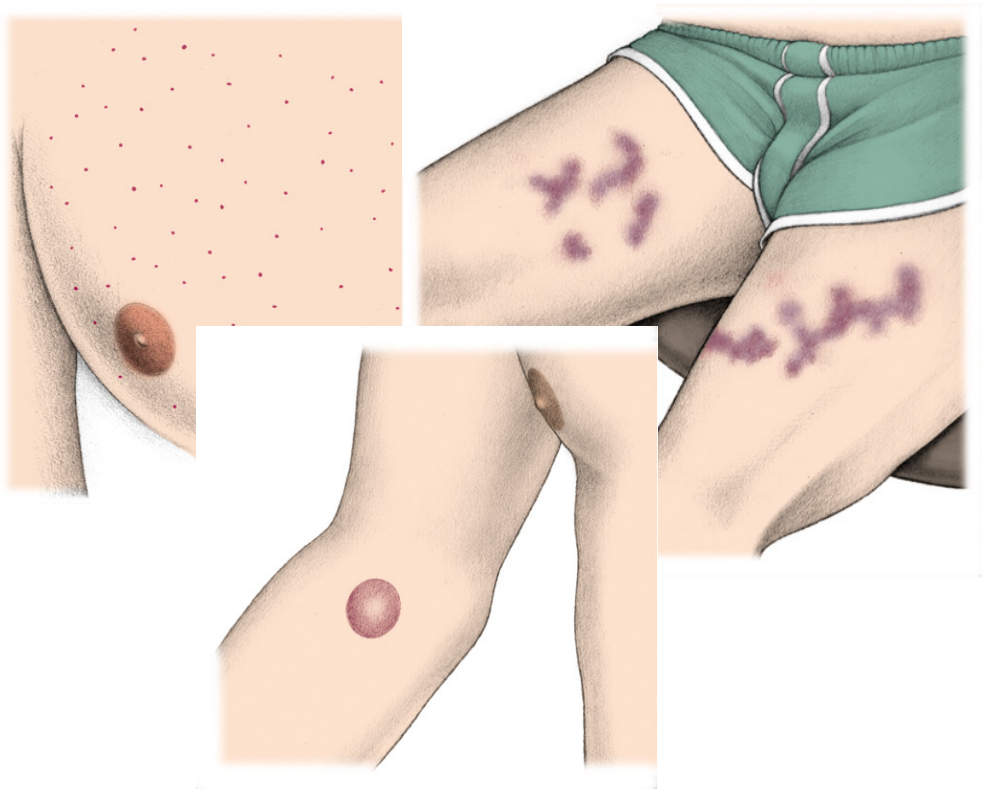
Purpura

- Extravasation of red blood cells into the skin, subcutaneous tissue or mucous membranes
- Visible purplish or brownish-red discoloration
- Do not blanch with pressure
- Types of Purpura



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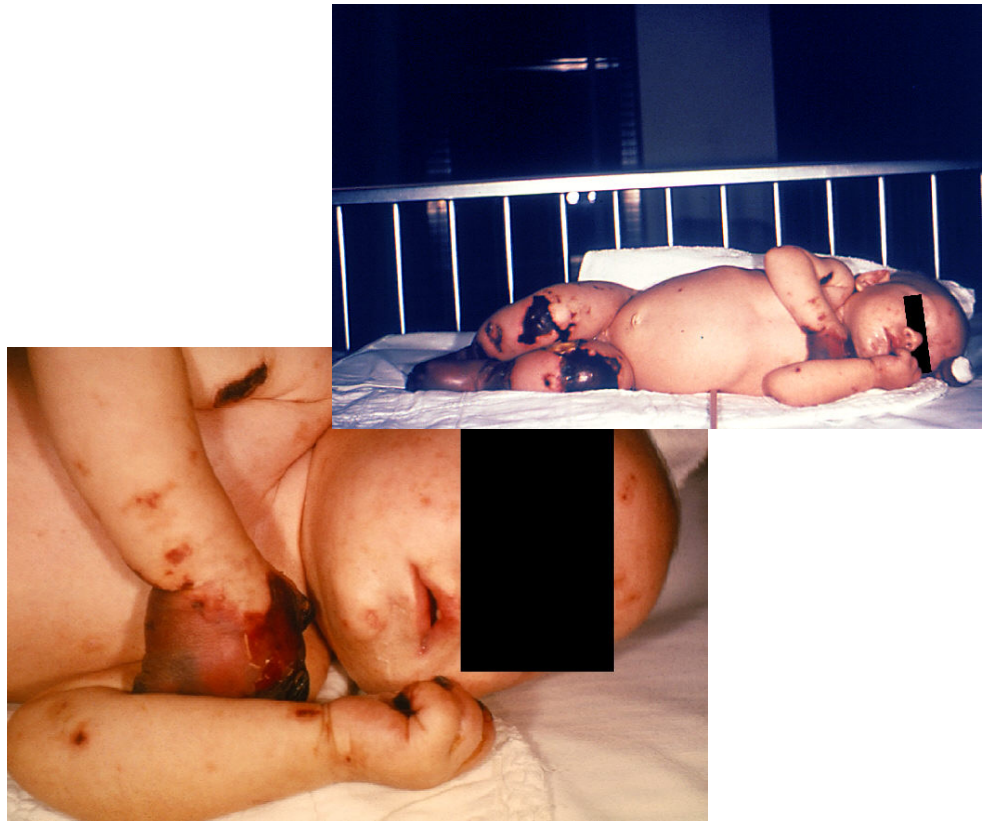
Purpura

- Causes of Purpura
  - HSP
  - ITP
  - Leukemia
  - Meningococcemia



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Burns

Types of Burns

- Thermal
- Electrical
- Chemical
- Mechanical
- Radiation

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Severity of Burn

Pediatric Burns are treated in a variety of settings depending on the severity of the burn

Depth	Affected area	Symptoms	treatment
Superficial (1st degree)	epidermis	Pain & erythema	5-10d
Partial thickness (2nd degree)	Epidermis & dermis	Blister +/- scarring	14-21d
Full thickness (3rd degree)	Epidermis, dermis, & subcutaneous	Destruction of nerve endings, sweat glands, & hair follicles. No blanching	Weeks-months Requires grafting
Deep full thickness (4th degree)	Involvement of muscle, fascia, & bone	No pain. Scarring.	Weeks-months Requires grafting

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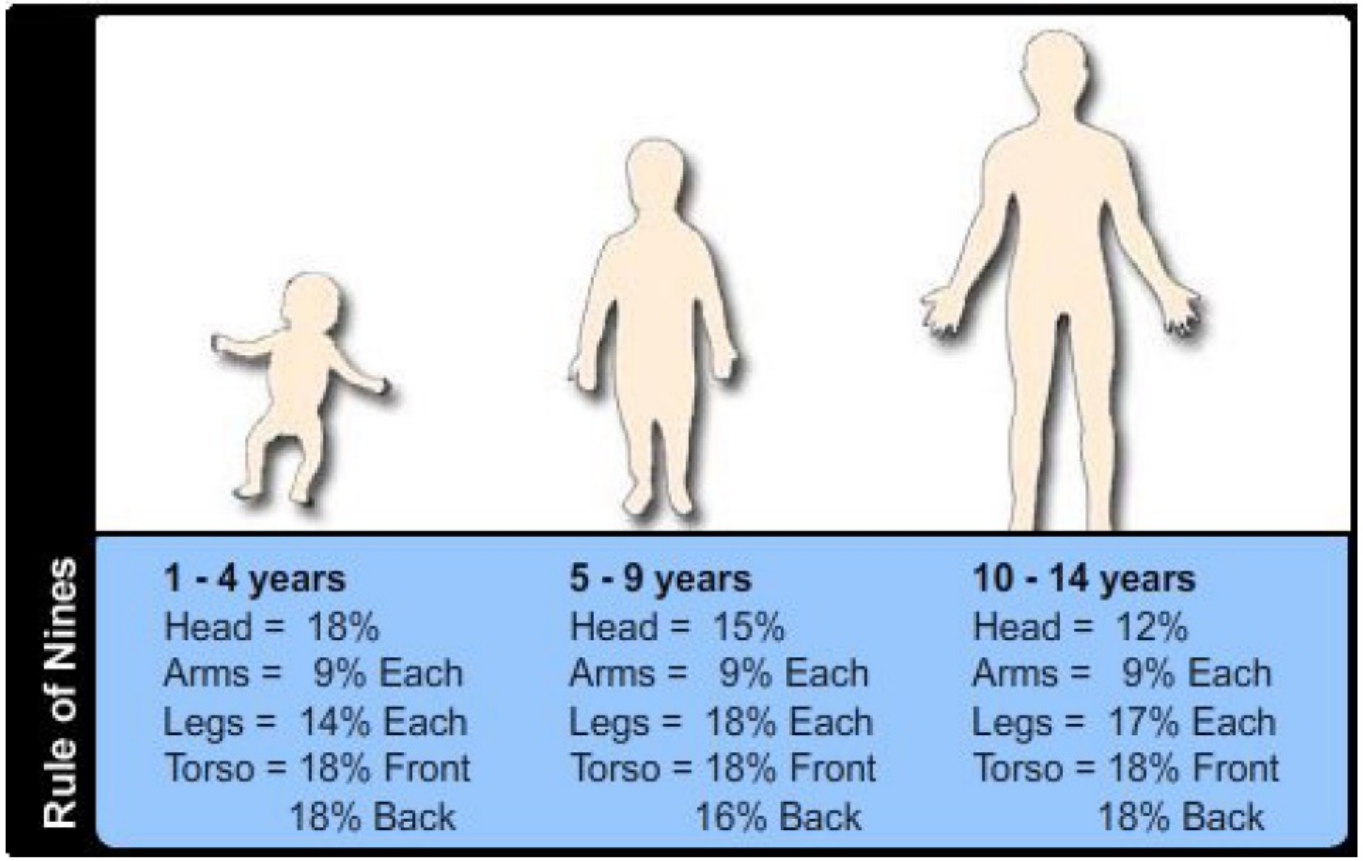
Body Surface Area – Rule of Nines



Children's Hospital Association, 2022

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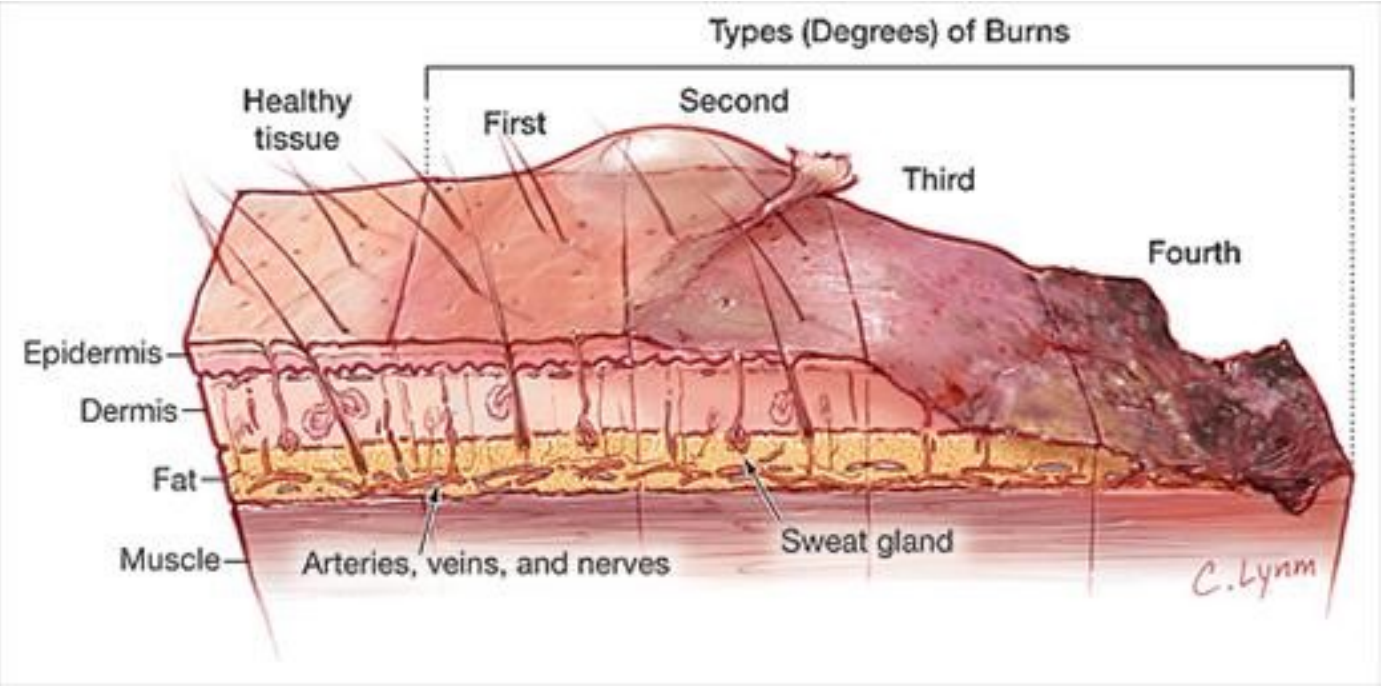

Burn Description

Described by how deep into the skin the burn has gone

Common Causes of Burns by Age Group

Infants – Toddlers – Preschoolers

- Thermal Burns
  - Pulling at hot liquids
- Electrical
  - Chewing on cords
- House Fires
- Non-accidental

School Age

- Fire
- Radiation
- Sun without protection
- Chemical exposures

Adolescents

- Overexposure
- Playing with matches
- Ingestions
- accidental & intentional
- Flash burns
- Gas & kerosene

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Burn Injuries

Initial

- Edema & Inflammation
- Loss of skin's protective layer
  - Decreased ability to preserve heat
  - Decreased protection from infection
  - Increased insensible fluid losses

Secondary

- CO poisoning
- Cardiac arrhythmias
- Deep tissue burns
- Inhalation injury

Orthopedic

Fractures

Assessment

- Open vs closed
- Circulatory compromise
- Motor response
- Sensation
- Secondary injury depending on mechanism

Initial Care

- Control bleeding if necessary
- Splinting
  - Recheck circulation
  - Position of comfort
- Ice
- Elevation
- Transport

Cast/Splint Care

- Assess skin around edges of cast for irritation
- Keep cast clean and dry
- Assess for circulatory compromise distal to cast
- Ice and elevation
- Have patient wiggle fingers/toes frequently

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Compartment Syndrome

Increased pressure within an enclosed body compartment

- Signs and symptoms:
  - Disproportional pain; pain on passive stretch
  - Motor weakness; paralysis
  - Excessive edema; swelling and tenderness
  - Loss of pulses

Compromises muscle and nerve perfusion

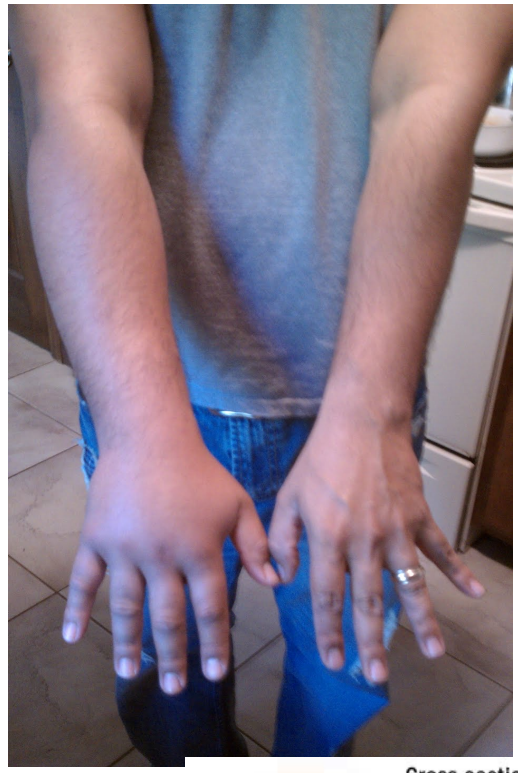
Leads to ischemia and tissue death

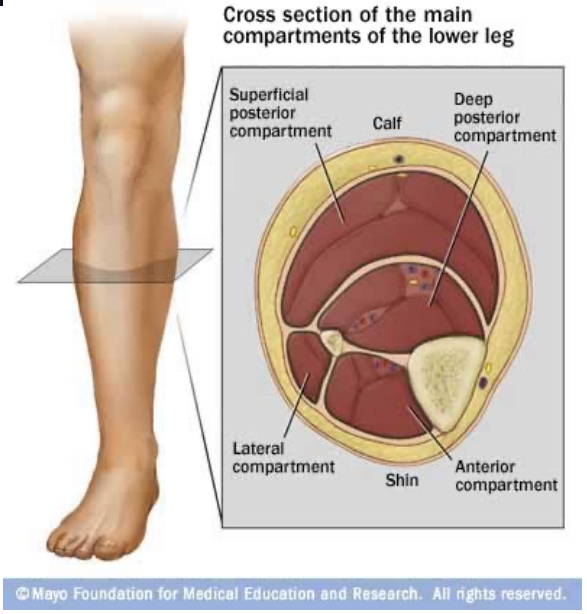
Most common in anterior compartment of lower leg

Acute

Damage causing swelling -> increased pressure -> compresses vessels and tissue -> decreased circulation -> decreased oxygenation

75% of acute cases related to fractures





Non-Accidental Trauma

Overview

- 558,899 children in 2022 were reported victims of child abuse or neglect
- Estimates are as high as 1 in 4 children have experienced some form of neglect or abuse
- Early Intervention is vital
  - Can mitigate escalating injuries

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Risk Factors

- Alcohol use
- Domestic violence
- Drug misuse
- Inadequate housing

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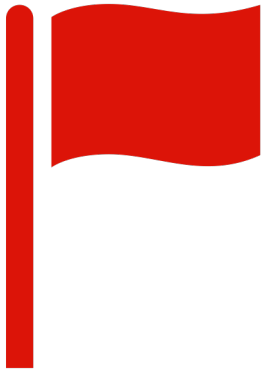
Red Flags

- Affect of the child/caretakers
- Inappropriate comments
- Under and overreactions
- Family member interactions
- History of injury
  - No history or inconsistent history
  - Delay in seeking care
  - Injury attributed to other causes
  - Developmental age doesn’t match mechanism



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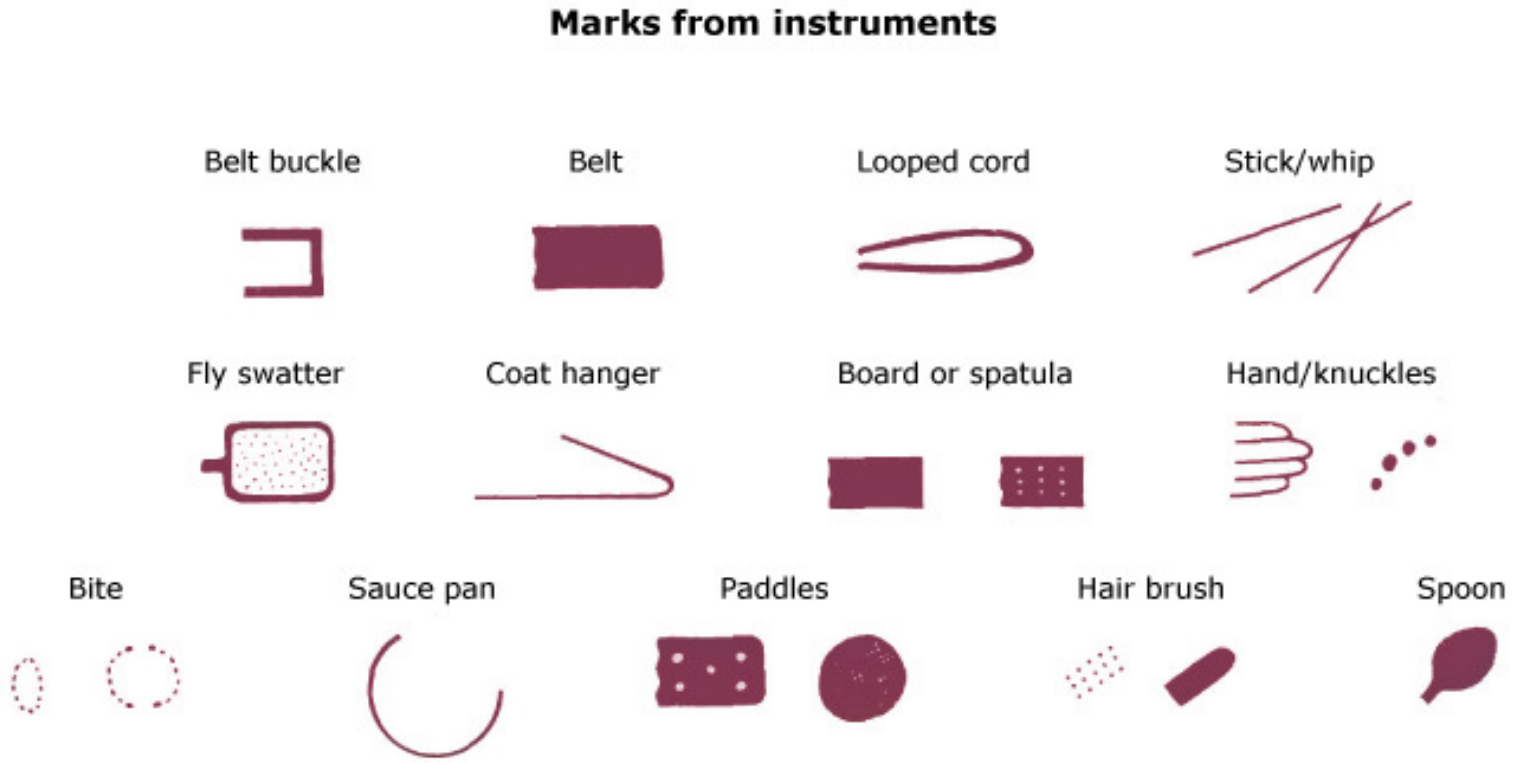
Common Injuries

- Bruising
  - Most common, first injury to occur from physical abuse
  - Fall downstairs, from bed or couch
  - May be warning sign of internal injuries
  - Bruises or marks in patterns
- Oral injuries – mostly infants
- Burns
  - Risk of recurrent abuse and mortality is high
  - Patterns
  - Quiet and withdrawn child
- Abdominal injuries
- Skeletal injuries

Bruising Patterns



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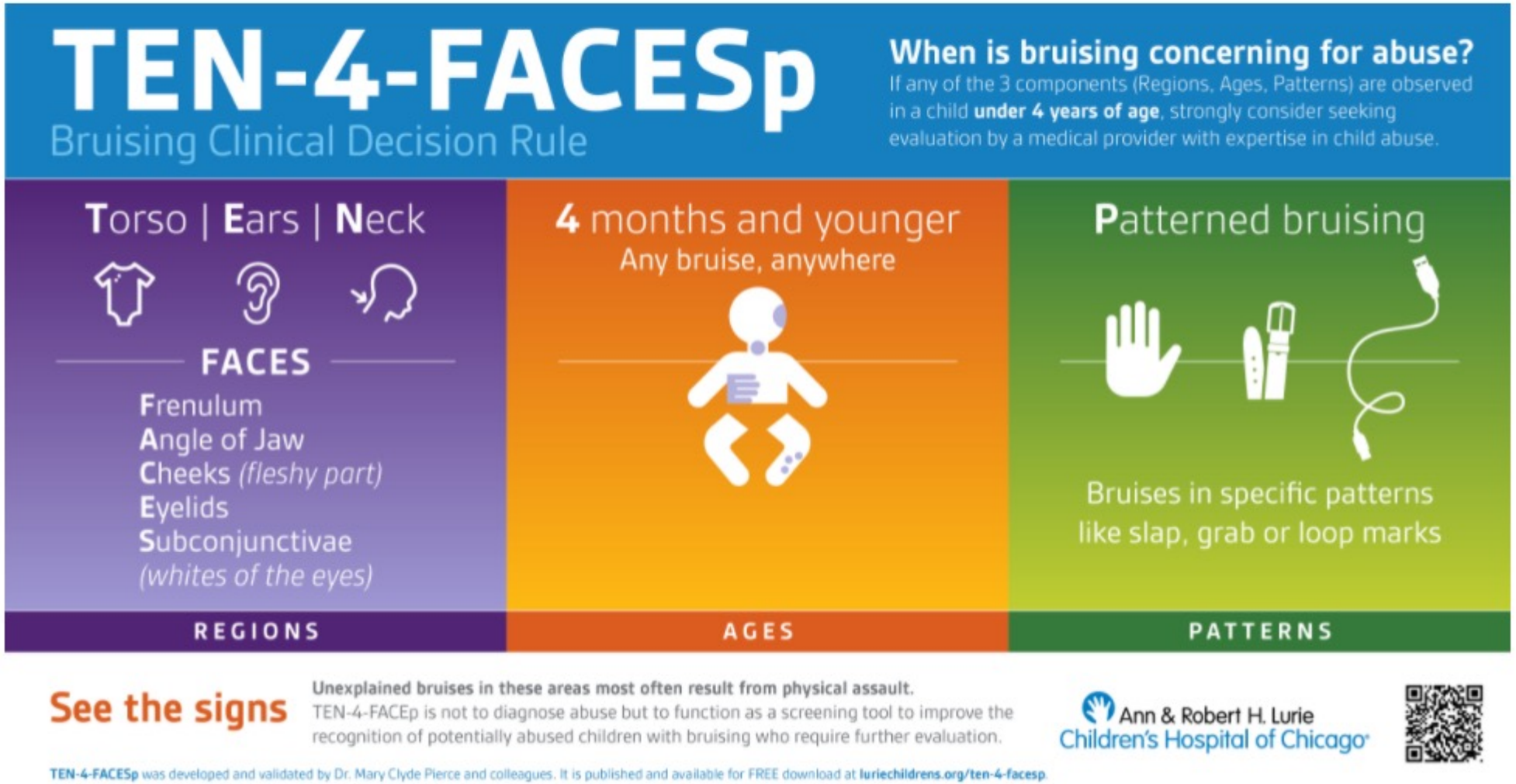
TEN-4-FACESp[5]



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Mary Bridge Screening Tool[4]

Red Flags
Associated Risk Factors
Contact Numbers

Appendix A: Child Physical Abuse Screening and Management Guideline

"Red Flag" Findings		
History of Present Injury	**Physical Exam Findings**	**Radiographic Findings**
• Referred for suspected child abuse • No history or inconsistent history • Delay in seeking care • Domestic violence in home • Changing history	• Bruise(s) in the **"TEN-4-FACESp" regions*** • Perineal bruising or injury • Torn frenulum	• Metaphyseal fractures • Rib fractures in infants • Any long bone fracture in non-ambulating infant • An undiagnosed healing fracture • Subdural hematoma (SDH) and/or subarachnoid hemorrhage (SAH) on neuro-imaging, particularly in the absence of a skull fracture <1 year
Associated risk factors *(increase concern for abuse but do not independently mandate workup)*		
• Unwitnessed injury • Prior ED visit • Premature infant (< 37 weeks) • Low birth weight/IUGR • Chronic medical conditions	• Failure to thrive (weight, length, head circumference • Large heads in infants	
Recommended evaluation in cases of suspected physical abuse: If patient presents at any MHS PSR Hospital other than Mary Bridge Children's Hospital, with "Red Flag" findings, call the MBCH Emergency Department at (253) 403-1418 for consultation or arrange transfer for complete child physical abuse workup. For all other MHS Emergency Departments recommend consult and transfer to an appropriate pediatric facility.		

Washington Mandatory Reporting Laws

RCW 26.44.030[6]

(1)(a) When any practitioner, county coroner or medical examiner, law enforcement officer, professional school personnel, registered or licensed nurse, social service counselor, psychologist, pharmacist, employee of the department of children, youth, and families, licensed or certified child care providers or their employees, employee of the department of social and health services, juvenile probation officer, placement and liaison specialist, responsible living skills program staff, HOPE center staff, state family and children's ombuds or any volunteer in the ombuds's office, or host home program has reasonable cause to believe that a child has suffered abuse or neglect, he or she shall report such incident, or cause a report to be made, to the proper law enforcement agency or to the department as provided in RCW **26.44.040**.

