Financial Disclosures

DRIVING CHANGE 2023
THE URGENT CARE CONVENTION

- I have no financial disclosures

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Objectives

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- Identify red flag signs and symptoms in pediatric dermatology
- Diagnose the high-risk illnesses associated with these red flag signs and symptoms
- Develop management strategies for urgent and emergent pediatric rashes

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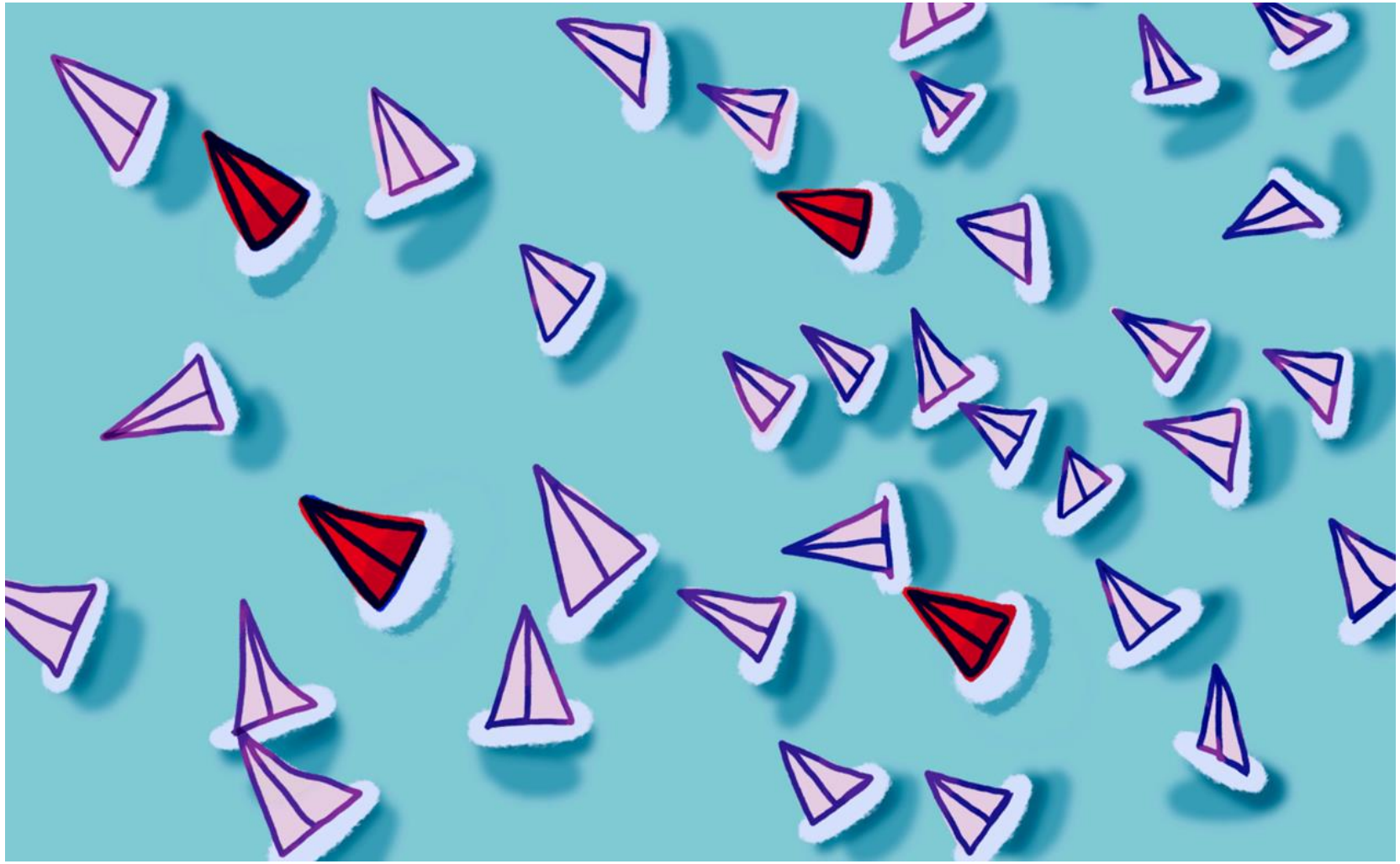

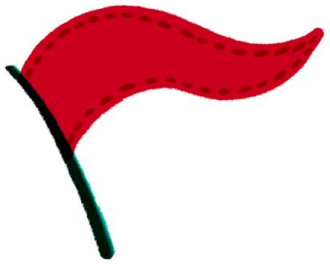

Red Flags in Rashes

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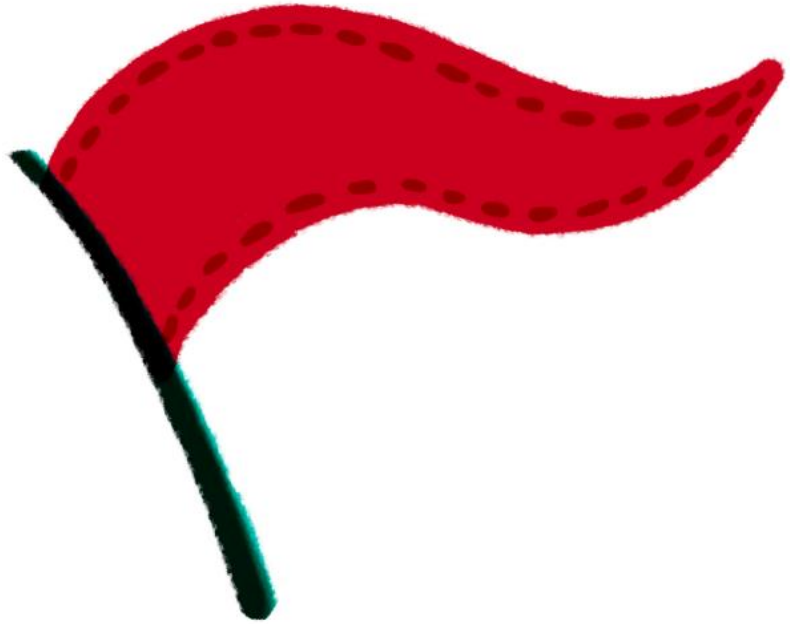
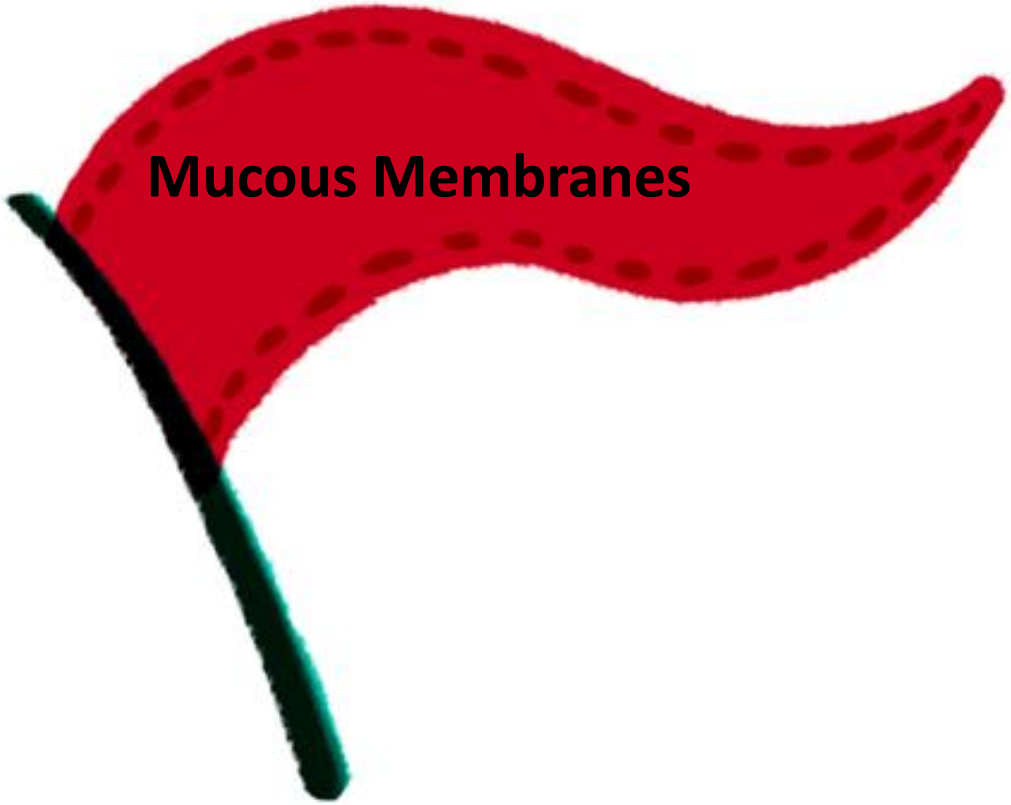
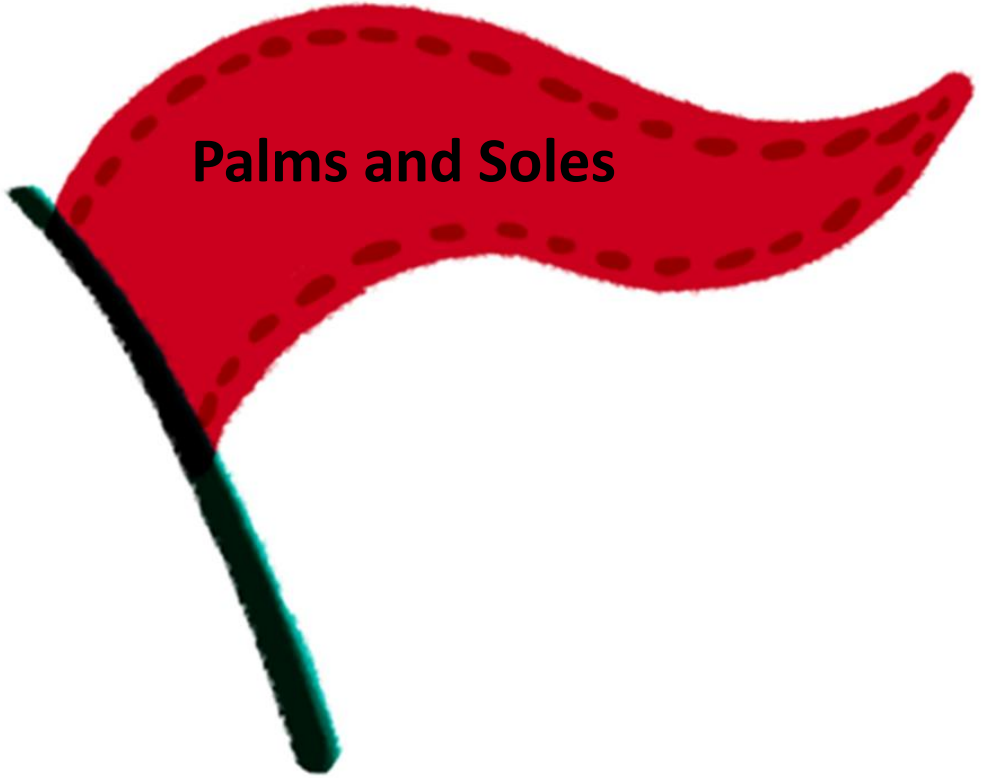
- Ill Appearing
- Mucous Membrane Involvement
- Palms and Soles
- Nikolsky's Sign
- Non-blanching
- Exposure
- Vesicular
- Tender/Painful







Case 1

14 mo male with fever,

URI symptoms for 4 days, with

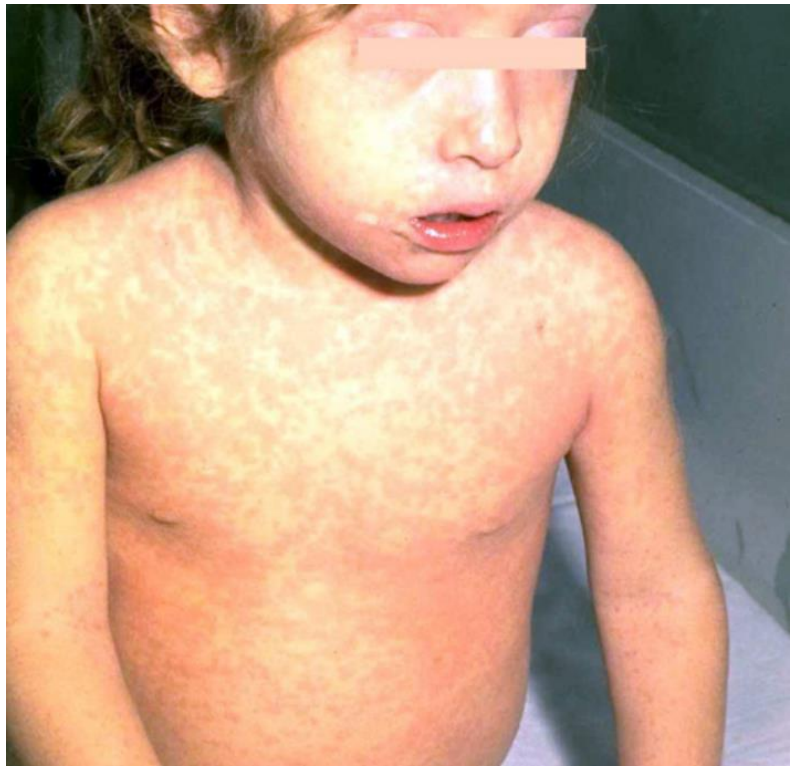
conjunctivitis, maculopapular rash

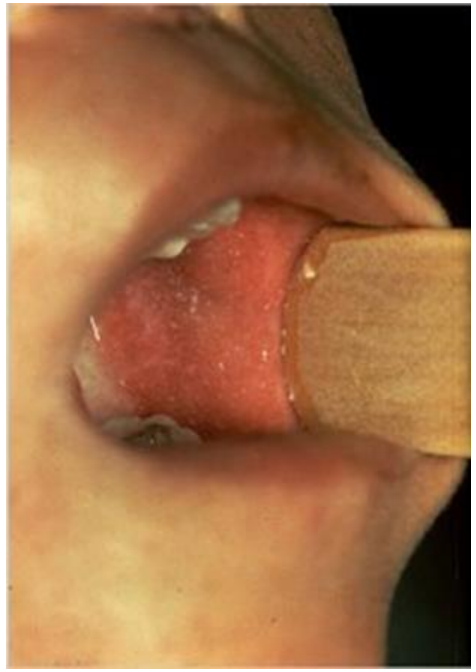
spreading from face to

trunk, pinpoint white spots on

buccal mucosa. Irritable

but consolable, nontoxic.





What's Your Diagnosis?

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A. Staph Scalded Skin

B. Erythema Multiforme

C. Measles

D. Roseola

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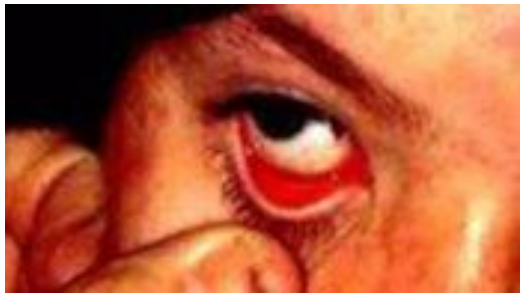
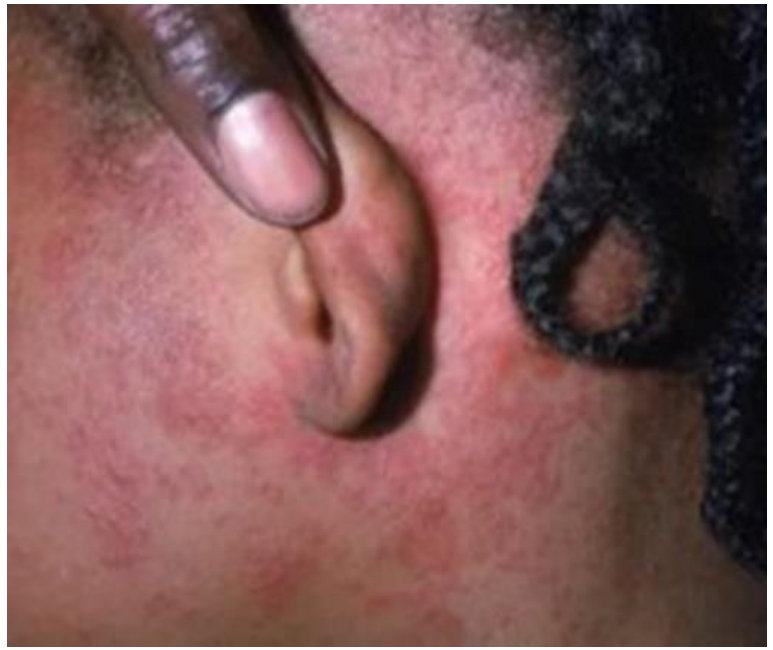
Measles





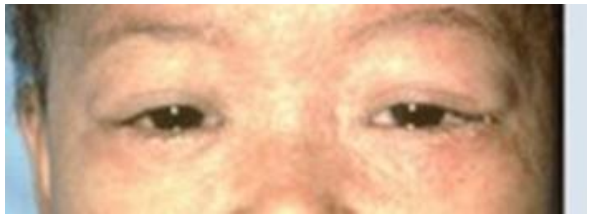
- Incubation ~10 days
- Airborne Transmission
- Stage 1 Prodrome. Lasts 2-4 days
  - Fever + Cough, Coryza, Conjunctivitis* (3C's)
  - Koplik spots mouth – pathognomonic!
- Stage 2. Lasts 5-6 days
  - Rash spreads from face down to hands/feet
- Contagious 4 days before symptoms to 4 days after rash

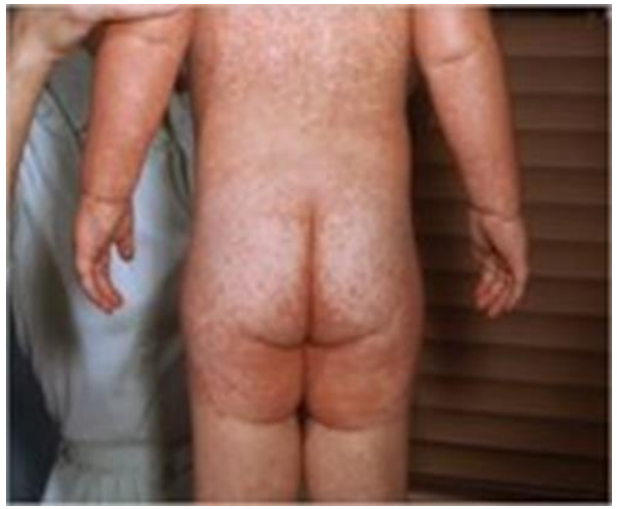
Measles

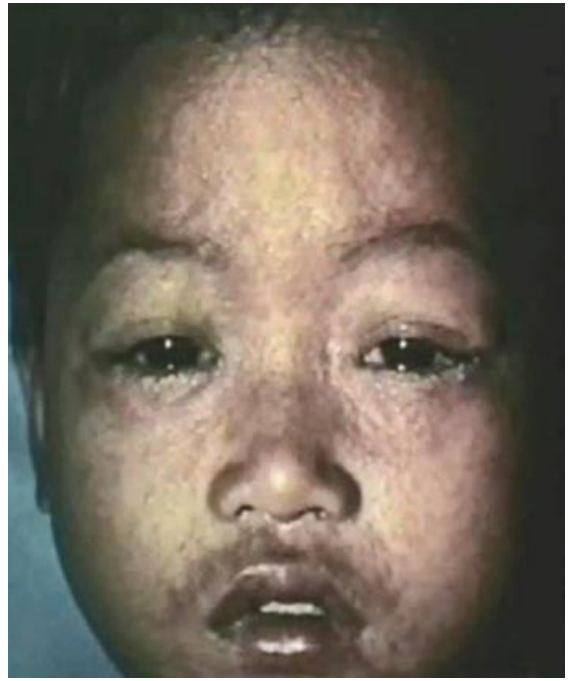
- Isolate the patient, mask

- Call DOH – send screening labs:
  - Blood - Measles IgM
  - Urine – PCR
  - Nasopharyngeal swab

Urgent Care Management - Contain the spread - Don't transfer unless toxic

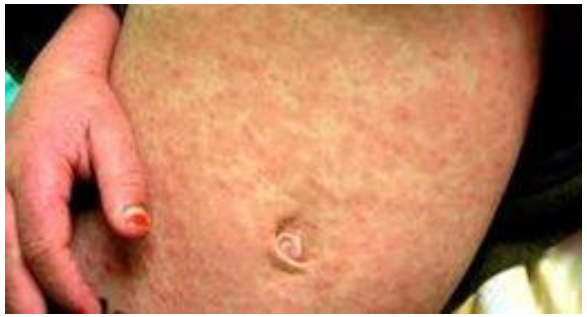


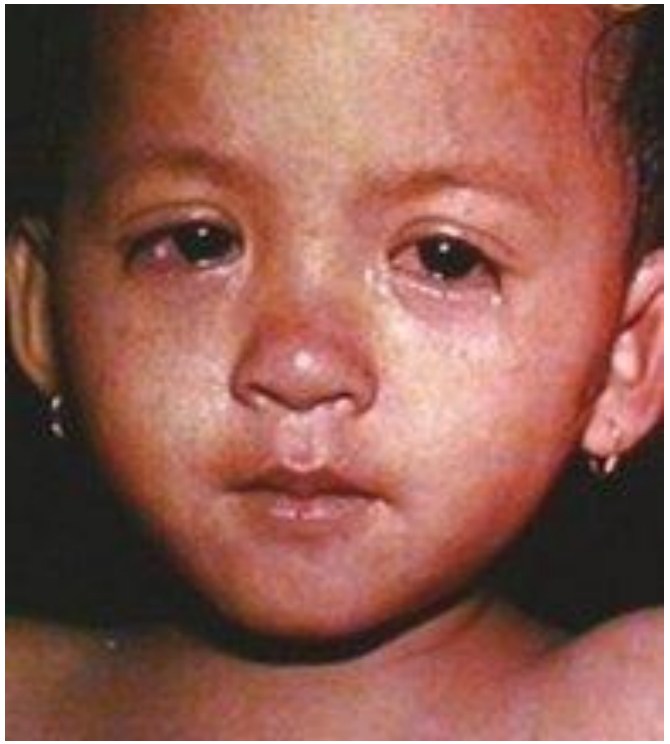




Complications of Measles

- AOM
- Pneumonia
- Bacterial superinfection (5%)
- Encephalitis (0.1%)
- Hearing or vision loss
- Later: Subacute sclerosing panencephalitis





- **Case Fatality rate 4-10% worldwide**
  - **US fatality rate ~1/1000**
  - Usually due to PNA or encephalitis

Measles – like Rashes

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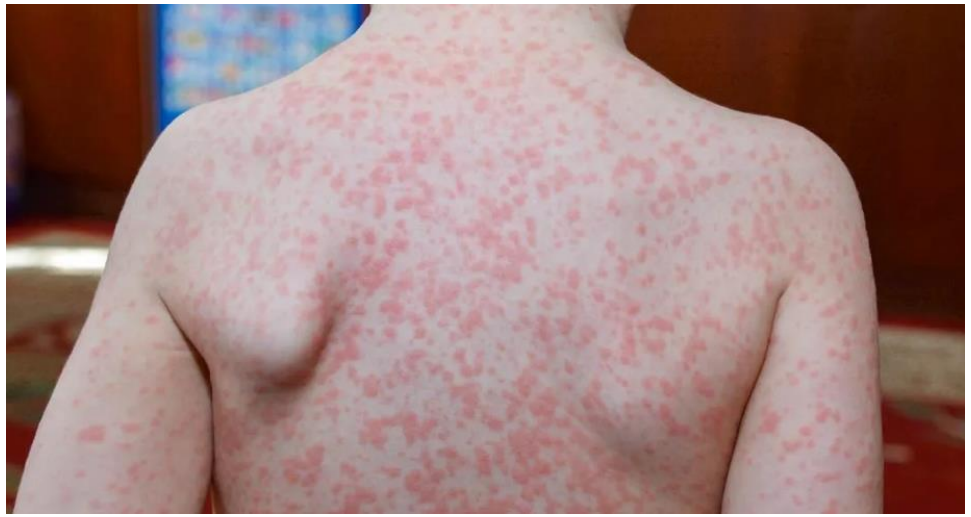
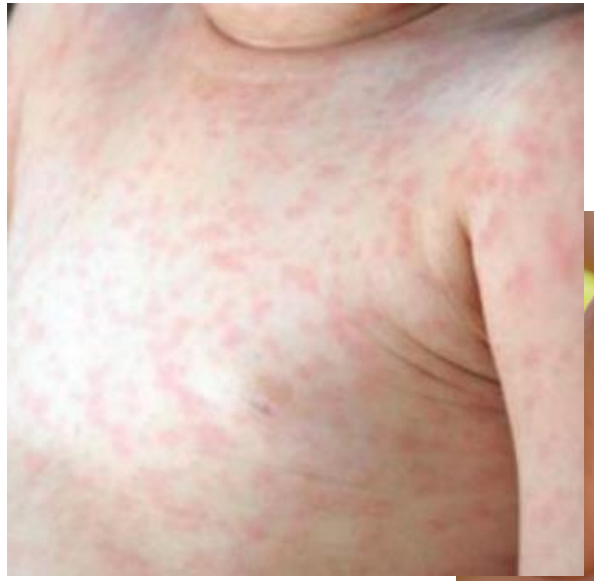
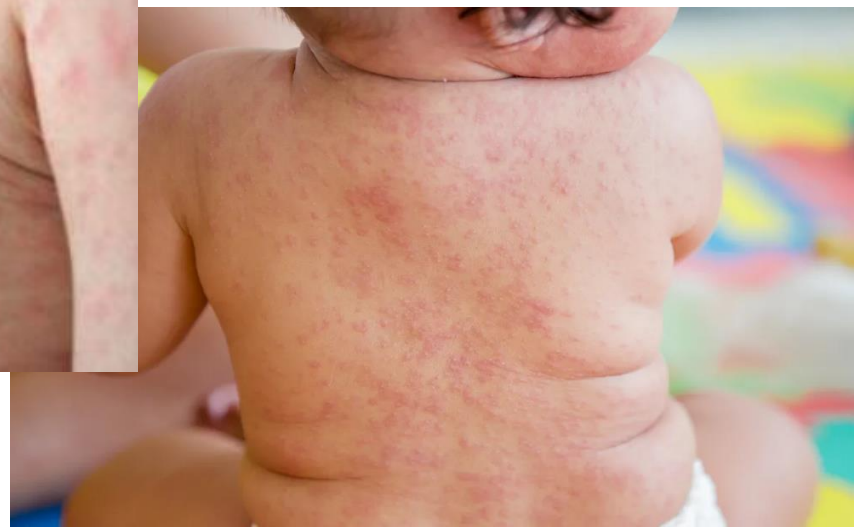
- Epstein Barr Virus (Mono)





- Human Herpesvirus 6 (Roseola)



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Other Pediatric Viral Illness with Enanthem

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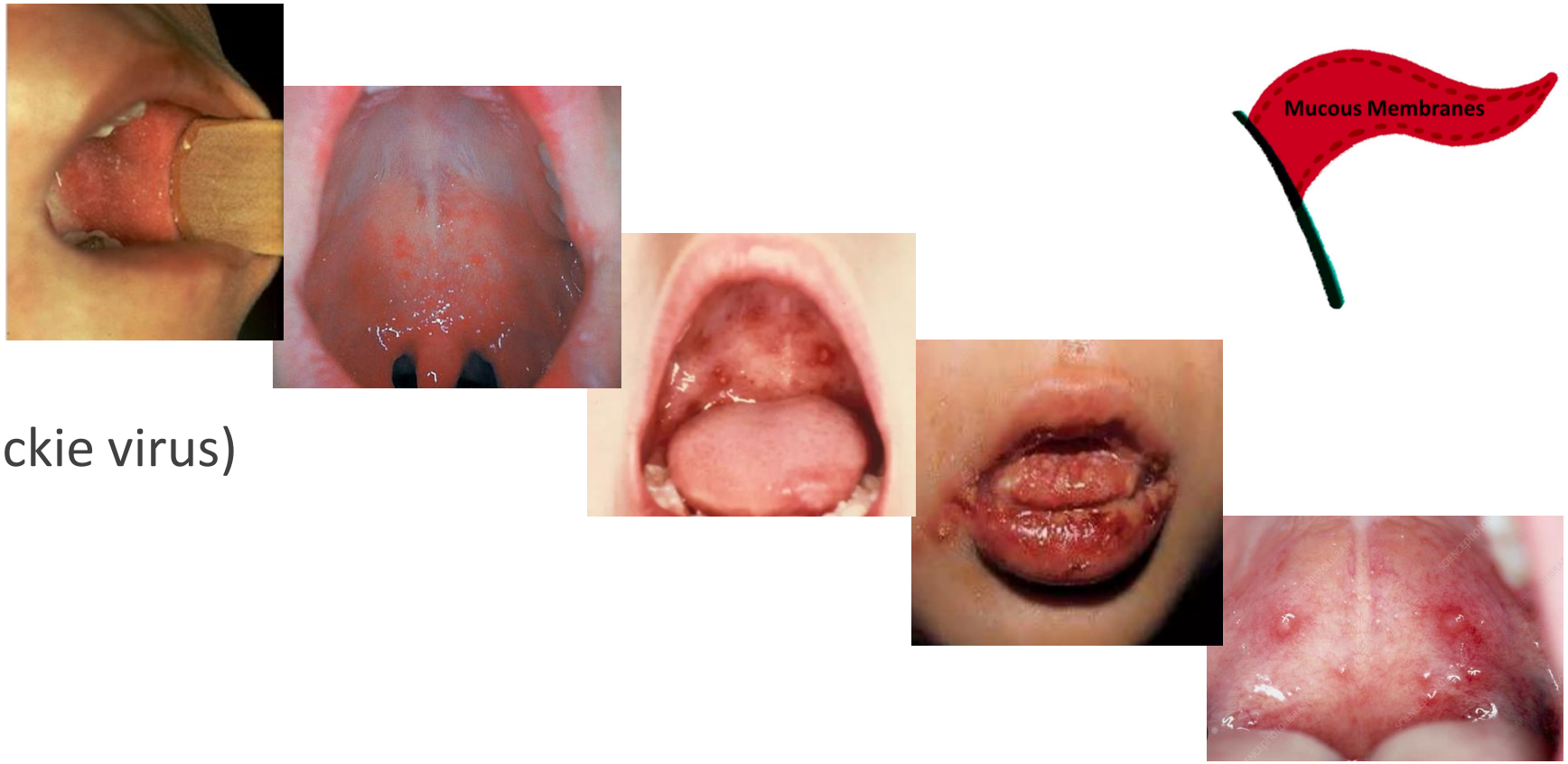
- Measles
- Rubella
- Enteroviruses (Coxsackie virus)
- Herpes simplex virus
- Varicella +/-



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Another Common Infection with Enanthem – Group A Strep

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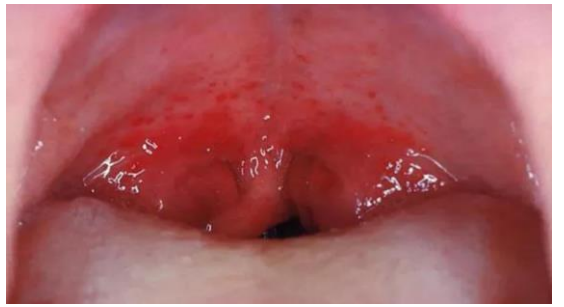
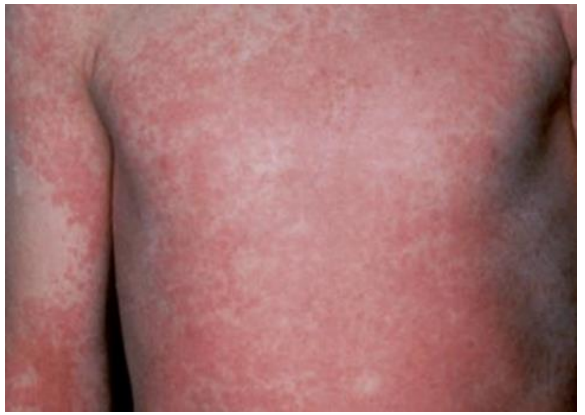
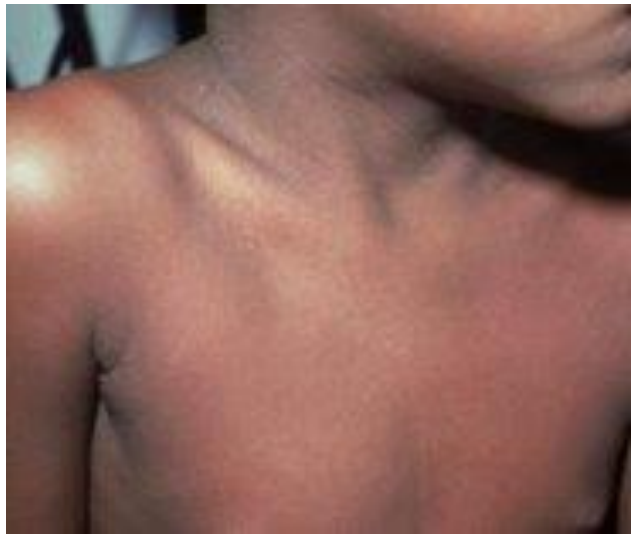
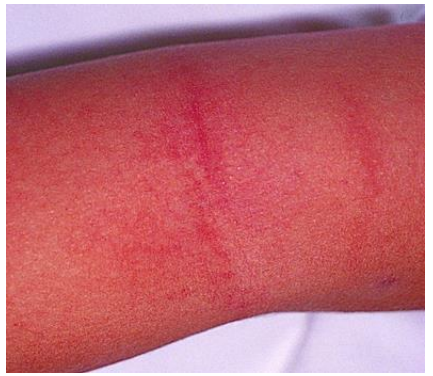
- Fine scarlatiniform rash
- Starts on trunk, spreads outwards to extremities and head/neck, usually spares palms and soles
- Most marked in skin folds = Pastia's lines
- +/- Fever, pharyngitis
- Rapid strep test

Urgent Care Management - Amoxicillin









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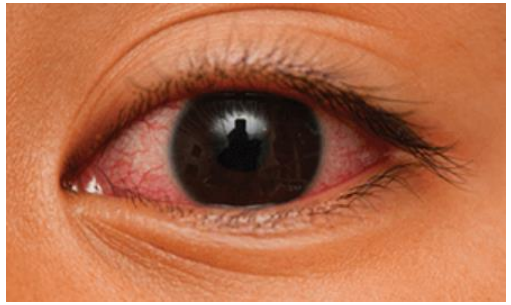
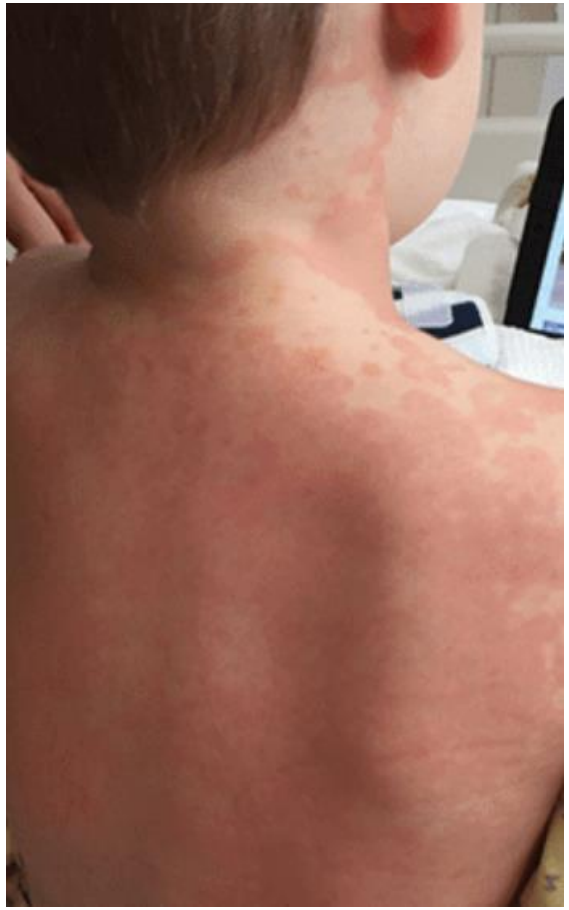
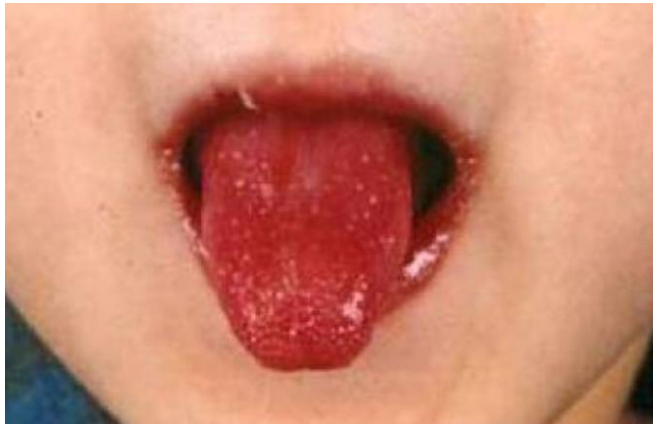
Case 2

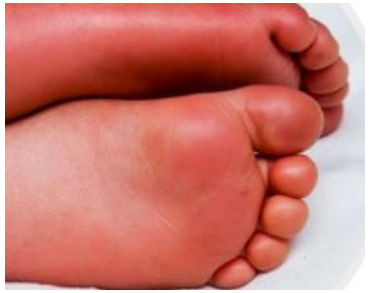
3 yo male with 5 days of fever, fussiness, cervical lymphadenopathy.

Additional findings on exam:









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What do you suspect?

A. Scarlet Fever

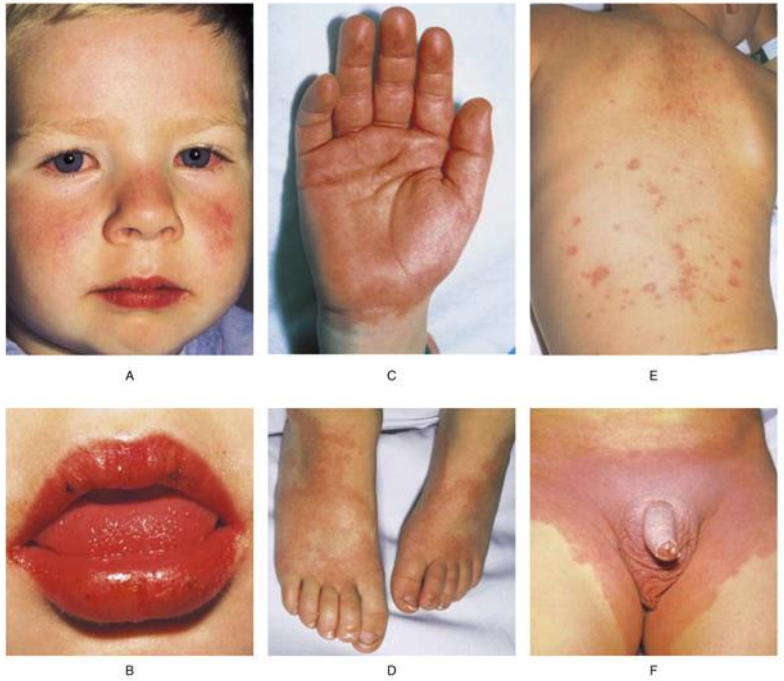
B. Kawasaki Disease

C. Enteroviral infection

D. Measles

Kawasaki Disease

- Diagnosis: Child with fever ≥ 5 days and at least 4 of the 5 following criteria:
  - Bilateral bulbar conjunctival injection
  - Oral mucous membrane changes
    - Injected/fissured lips, injected pharynx, strawberry tongue
  - Peripheral extremity changes
    - Erythema of palms/soles, edema of hands/feet, periungual desquamation
  - Polymorphous rash
  - Cervical lymphadenopathy (at least 1 node ≥ 1.5cm diameter)



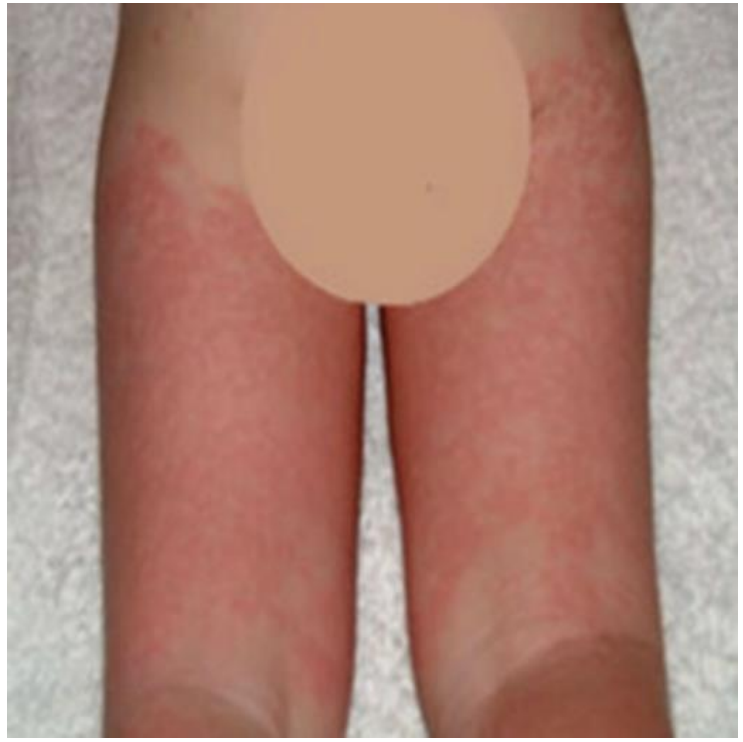
Urgent Care Management - Transfer to hospital (IVIG, aspirin, cardiology), if does not meet criteria but concerned, may begin outpatient workup:

If <3 criteria present, or if child is <6 mos old with ≥ 7 days of unexplained fever, consider laboratory work-up for incomplete/atypical disease

Case 3

16 yo female with 2 days of fever to 39C, body aches, abdominal pain, vomiting, and diarrhea. Yesterday developed rash over her whole body that resembled a sunburn. Today, she almost fainted when she tried to get out of bed because she was light-headed.

On exam: T 34C, HR 160, RR 30, BP 70/50. She is ill-appearing, with injected conjunctivae. She has total body erythroderma, worse on inner thighs, palms and soles, with oral mucosal hyperemia. Cap refill ~5 sec.



What's the Organism?

A. Strep pyogenes

B. Rickettsia rickettsii

C. Borrelia burgdorferi

D. Staph aureus

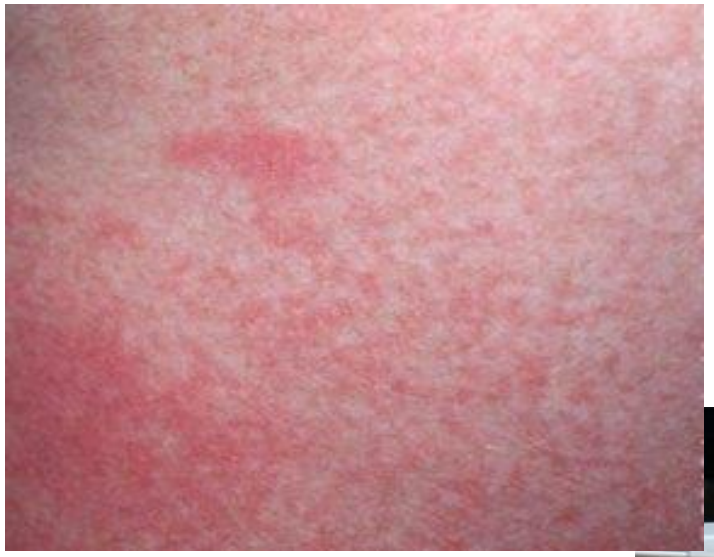
Toxic Shock Syndrome

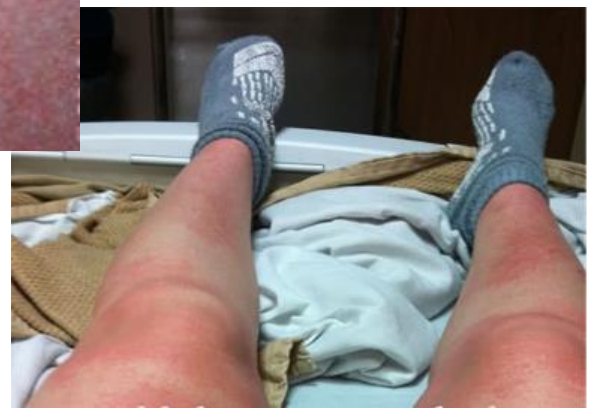
Epidemiology

- 50% menstrual (highly-absorbent tampons)
- 50% other (post surgical, wound infxn)

Diagnosis = Clinical + Labs

- TRIAD = Fever, hypotension, rash
- Diffuse erythroderma (like sunburn), including palms and soles
- Desquamation 1-2 weeks later
- 3 organ involvement
- Labs – Wound and MM culture

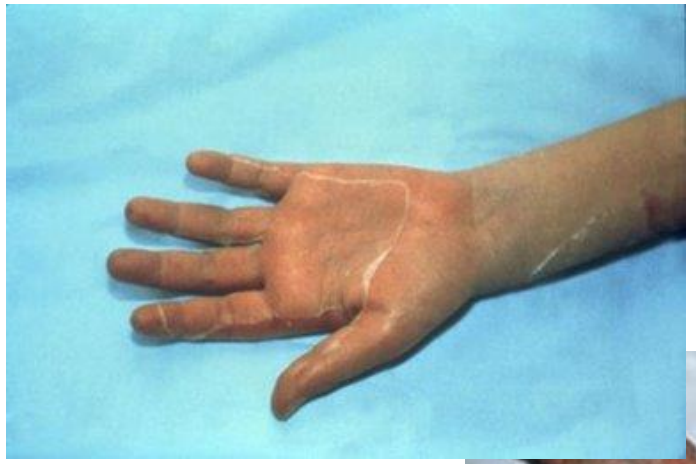


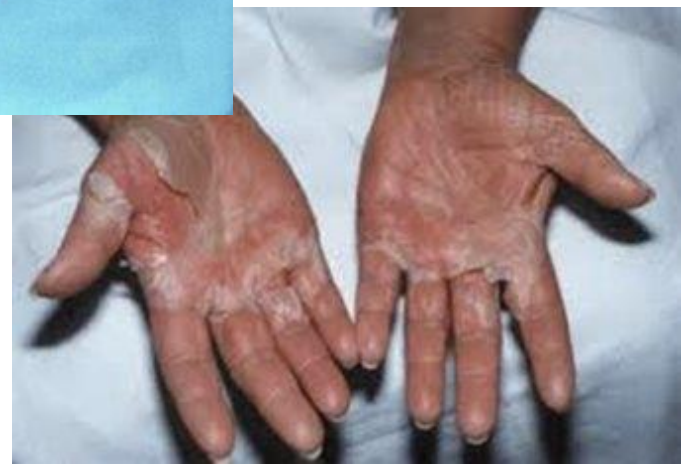


Toxic Shock Syndrome

Erythroderma of skin & mucous membranes

- 1-2 wks → pruritic maculopapular rash
- 1-3 wks → desquamation of palms & soles





Urgent Care Management

- Early transfer to ED
- Early IV Antibiotics – Clindamycin + Vancomycin
- Early Aggressive fluid management

- Mortality = 5% non-menstrual, 1.8% menstrual

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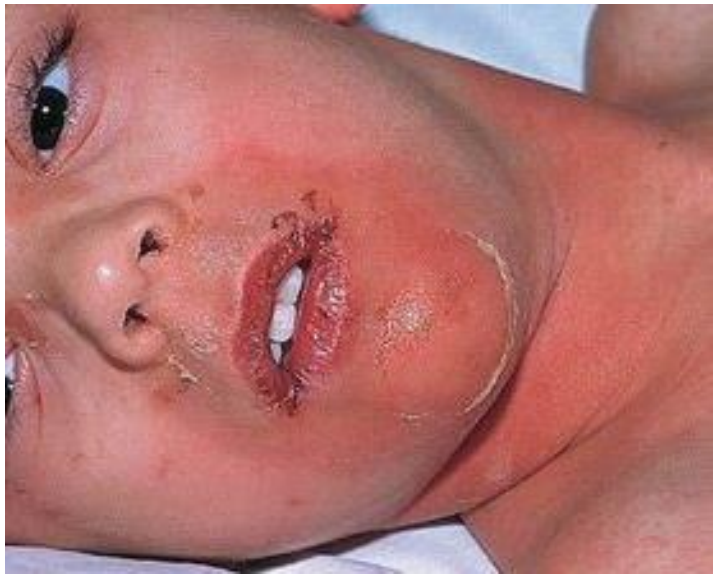
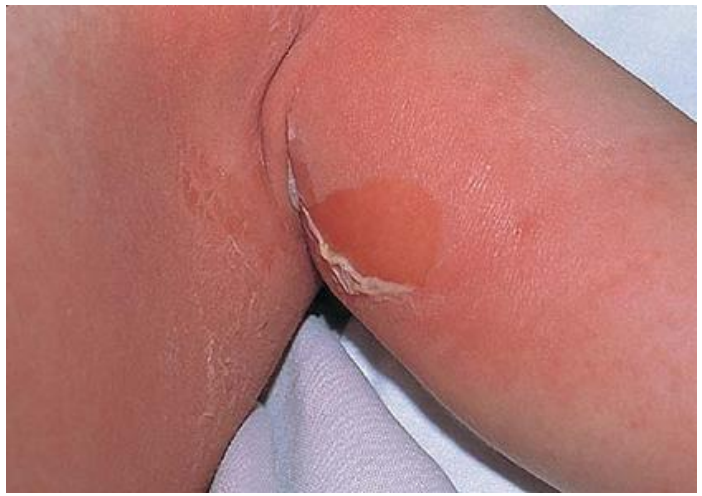
Case 4

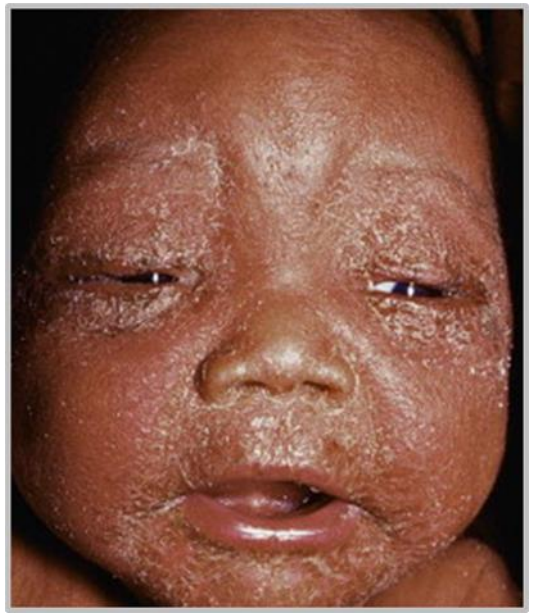
3 yo male with fever, irritability. Sandpaper-like rash which has begun to peel around mouth. Lesions peel off with pressure. Oropharynx is clear.

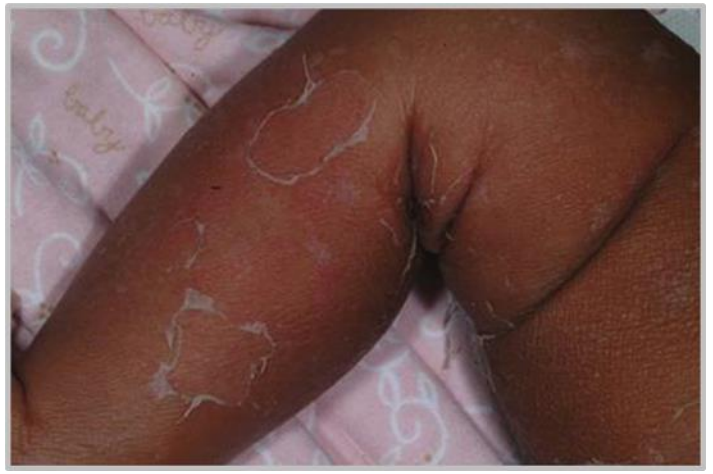


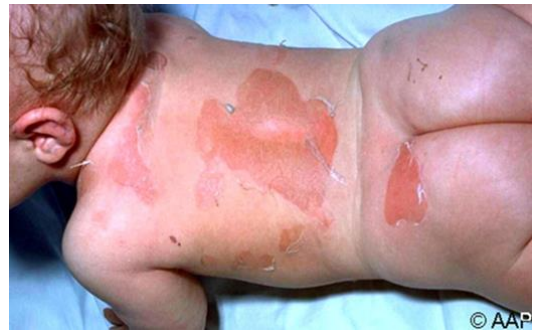


Staph Scalded Skin

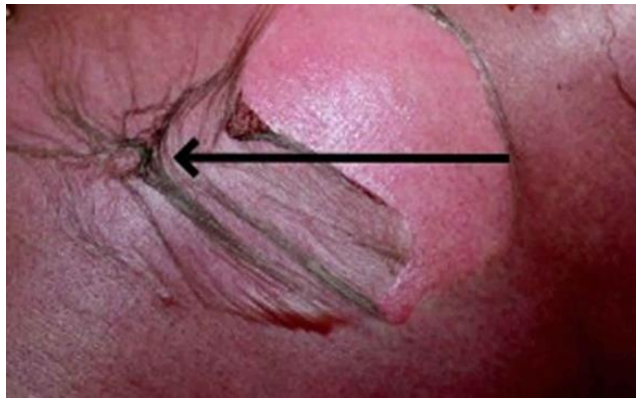
- Children < 6 years old, newborns especially susceptible
- Exfoliative toxins
- Initial pharyngitis, conjunctivitis, rhinorrhea, or impetigo
- Fever & irritability followed by rash
- Nontoxic appearing







Nikolsky's Sign



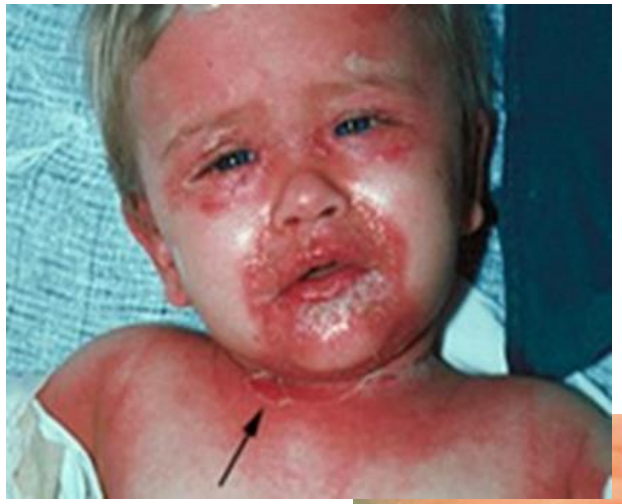
Staph Scalded Skin

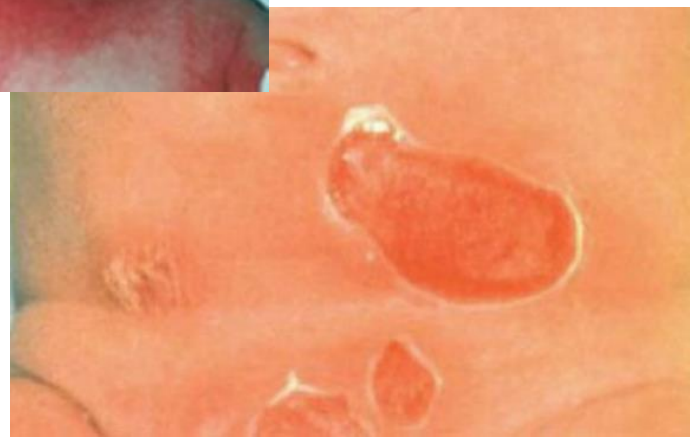
- Erythroderma
- Blisters form 1-2 days later, perioral and creases, mucous membrane involvement rare
- Early desquamation
  - Skin peels off in sheets (Nikolsky's sign) → Like a burn

Urgent Care Approach - Transfer for inpatient management:

- Parental antibiotics
- Fluid management
- Wound care

- Mortality = 1-5% infants, 20-30% adults





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Nikolsky's sign is pathognomonic for all of the following except…

A. Staph Scalded Skin

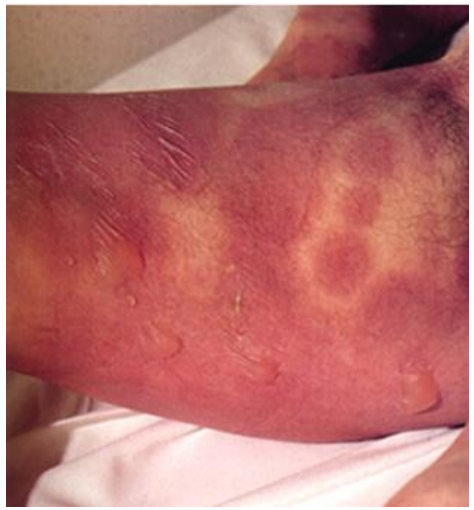
B. Herpes Simplex Dermatitis

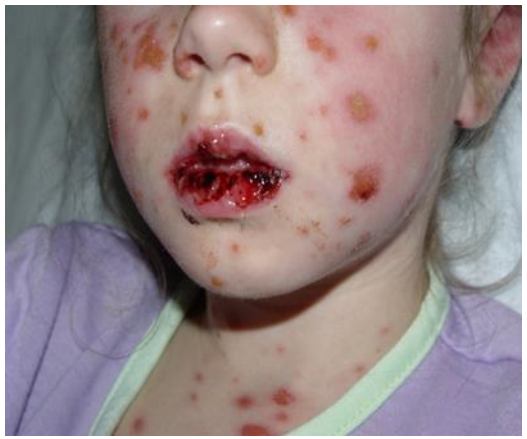
C. Toxic Epidermal Necrolysis

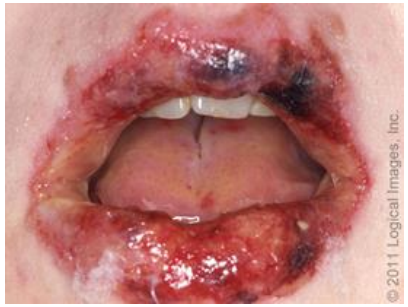
D. Pemphigus

Stevens-Johnson Syndrome - Toxic Epidermal Necrolysis

- Idiosyncratic reactions, usually triggered by medications or infection (mycoplasma, HSV)
- Fever and mucocutaneous lesions, then necrosis and sloughing of epidermis
  - Prodrome fever & malaise, followed by rapid onset of erythematous/purpuric macules & plaques, pain, with progression to epidermal necrosis and sloughing
  - Mucosal involvement in > 90% of cases
- Distinguished by severity & percentage of BSA:
  - SJS: Sloughing < 10% of body surface
  - TEN: Sloughing > 30% of body surface







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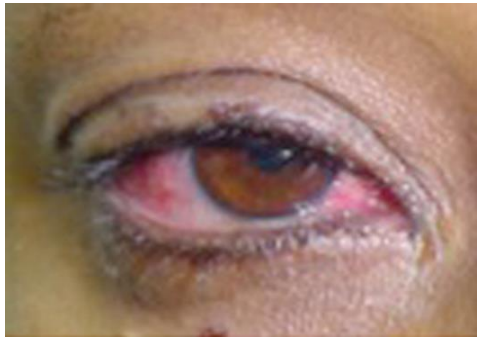
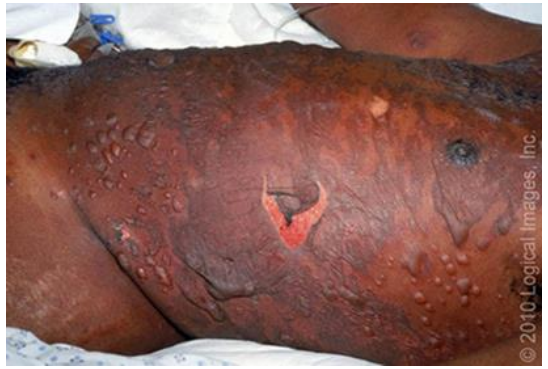
SJS - TEN Spectrum

Diagnosis:

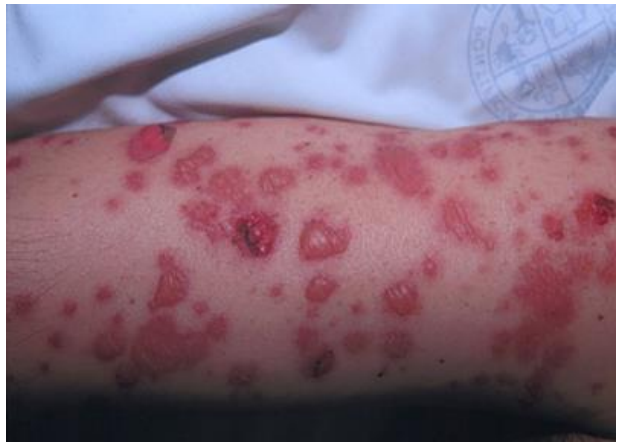
- based on history & clinical findings

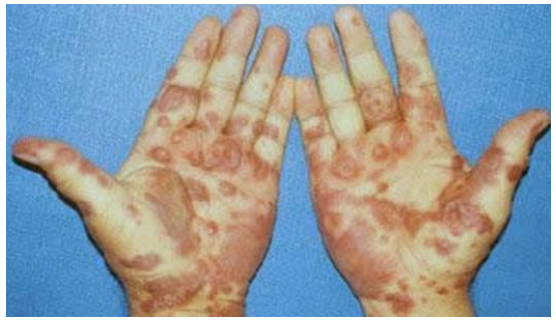




Urgent Care Management - Transfer to hospital

- Wound care
- Fluid & electrolyte management
- Pain control & supportive care





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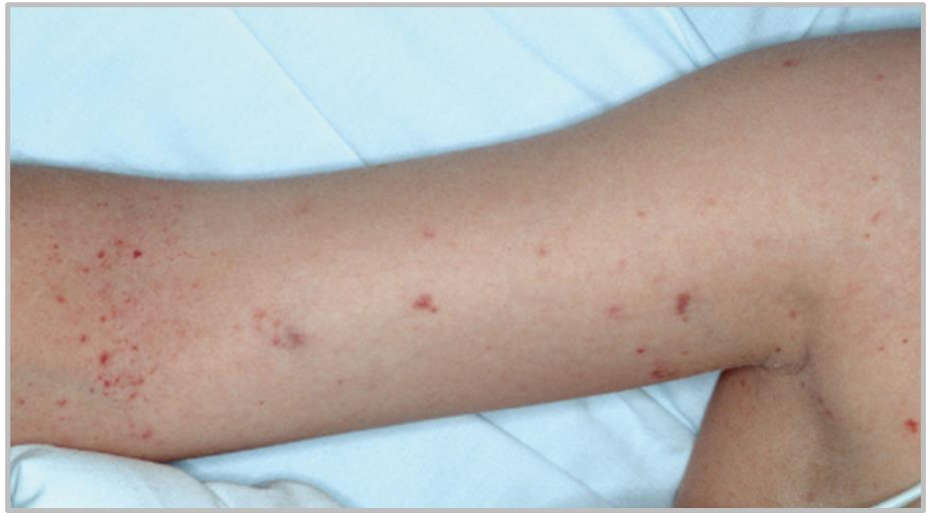
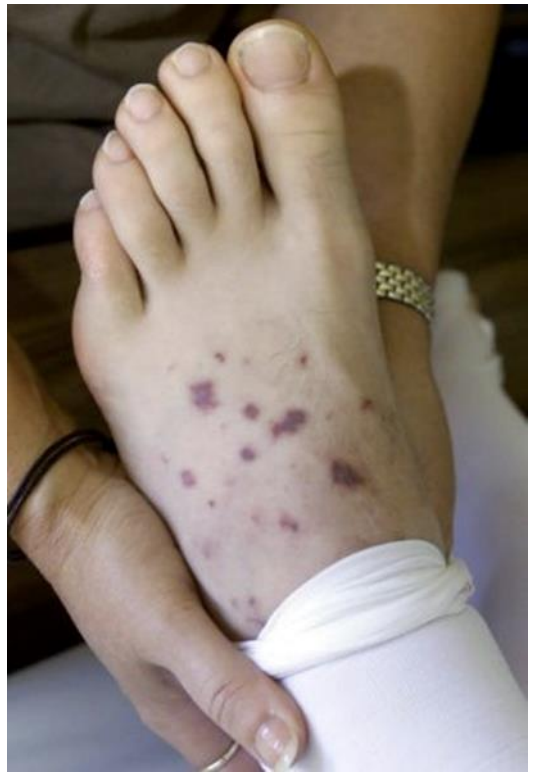
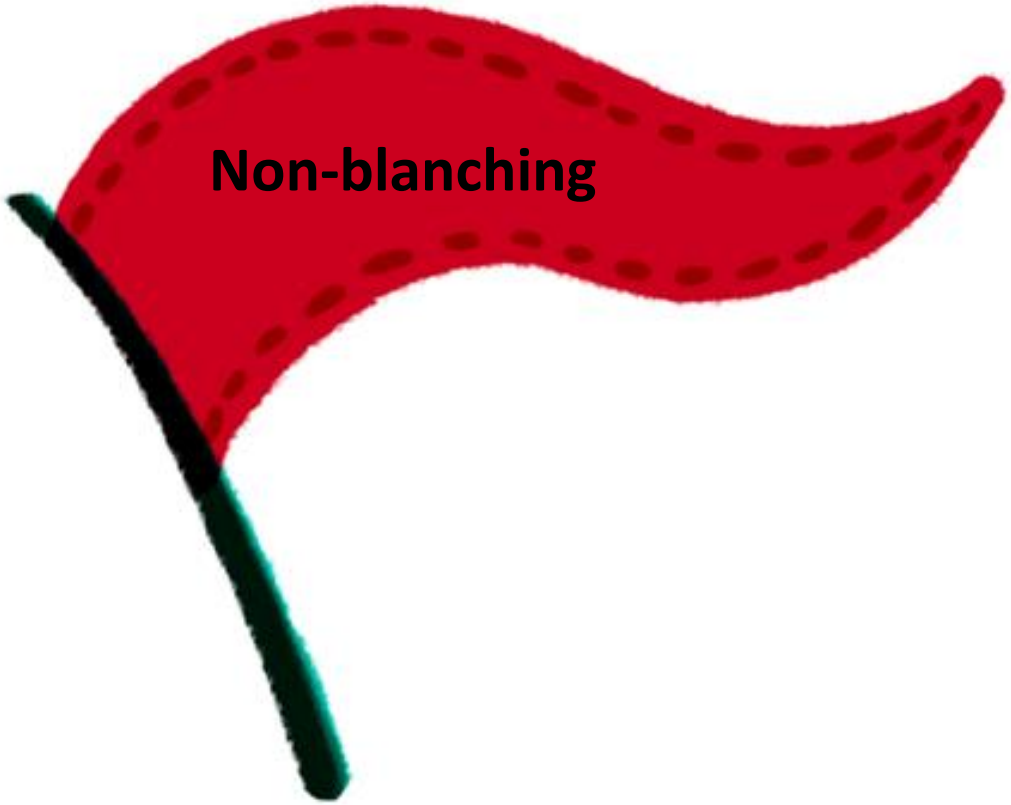
Case 5

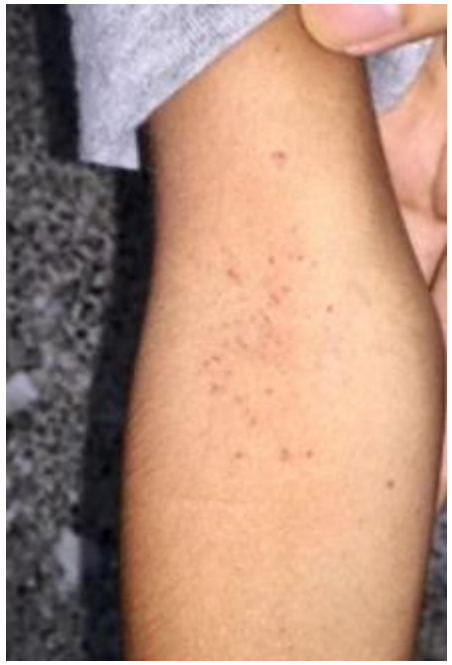
18 yo female presents with 6 hour history of fever and rash. Patient states she feels ill and complains of dizziness.

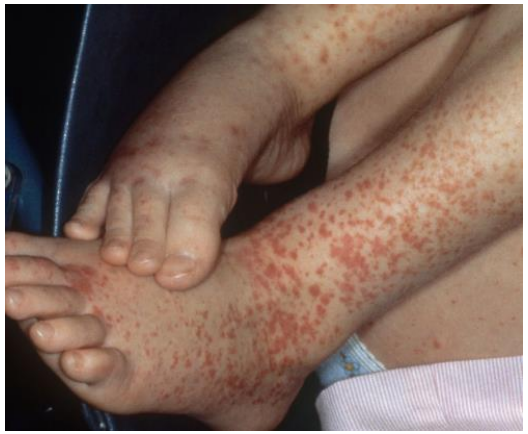
Initial vitals: T 40.3C, HR 120, BP 90/60. The rash is concentrated on the extremities, purplish-red in color, non-blanching.











What do you suspect?

A. Meningococcal infection

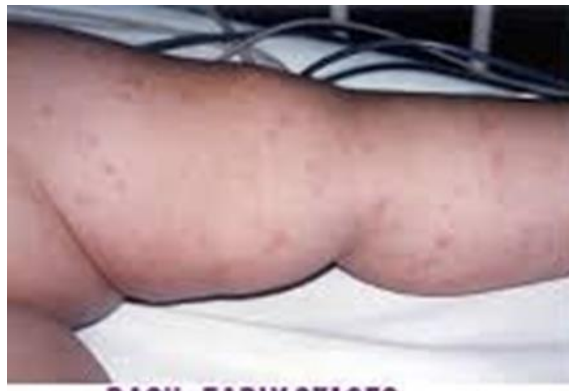
B. Henoch-Schonlein Purpura

C. Gonococcal Infection

D. Toxic Shock Syndrome

Meningococcemia

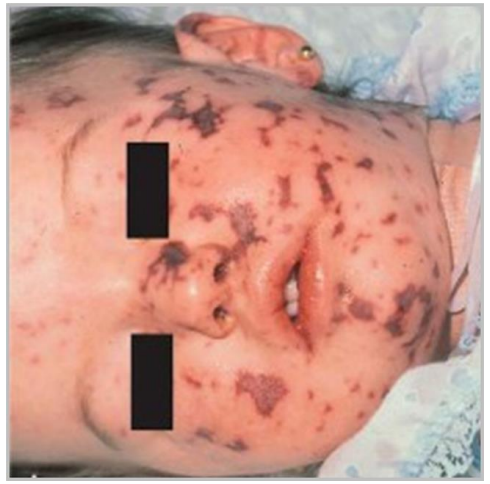
- Neisseria meningococcus
- Sudden onset fever, nausea, vomiting, headache, and myalgias
- About ¼ of patients with fever, neck stiffness, and altered mental status
- Petechial rash on trunk and lower body
- Progression into larger purpuric and ecchymotic lesions
- Eventually purpura fulminans = acute onset of cutaneous hemorrhage and necrosis due to vascular thrombosis/DIC

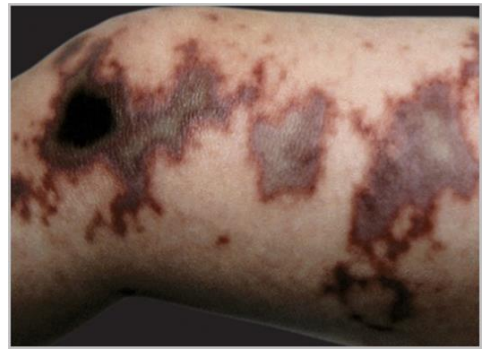


RASH-EARLY STAGES

RASH-FINAL STAGES

Meningococcemia

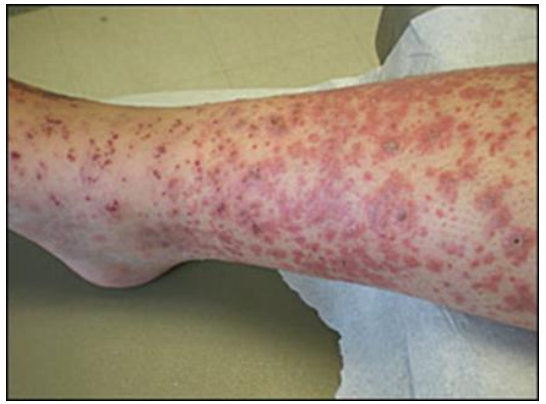


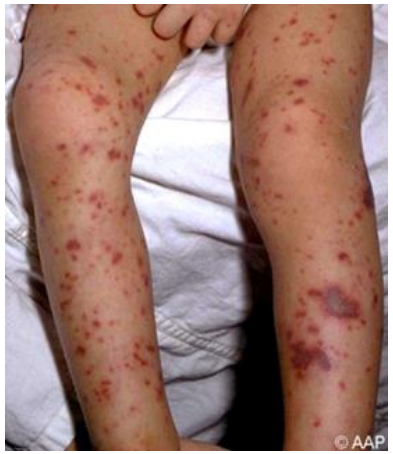


Rapid progression within hours: hypotension, tachycardia, shock, DIC

Urgent Care Management - Transfer to hospital

- Administer ceftriaxone while awaiting transfer
- Report to DOH within 24 hours





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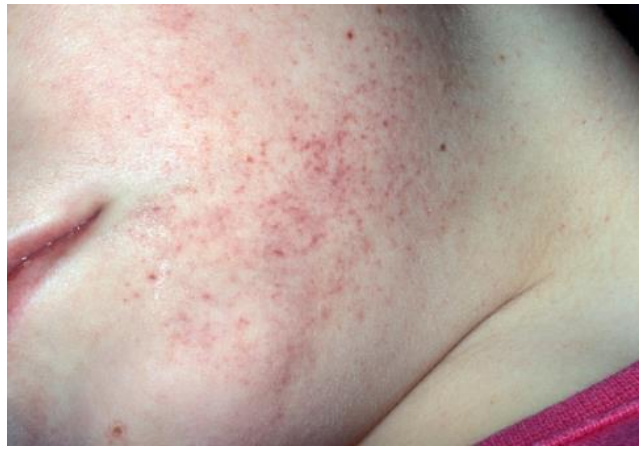
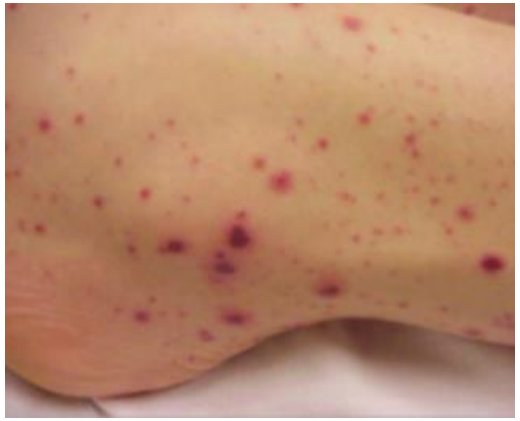
Petechiae & Purpura - Differential Diagnoses

- Neisseria meningococcus
- Sepsis – bacterial or viral
- Henoch-Schonlein purpura
- Immune Thrombocytopenic purpura
- Rocky Mountain Spotted Fever
- Leukemia
- Aplastic anemia
- Disseminated intravascular coagulation
- Vomiting or Coughing – above the nipple line





Henoch-Schonlein Purpura

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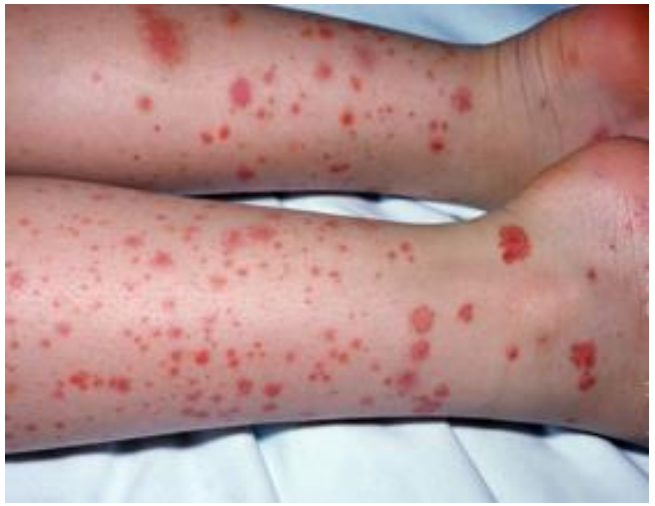
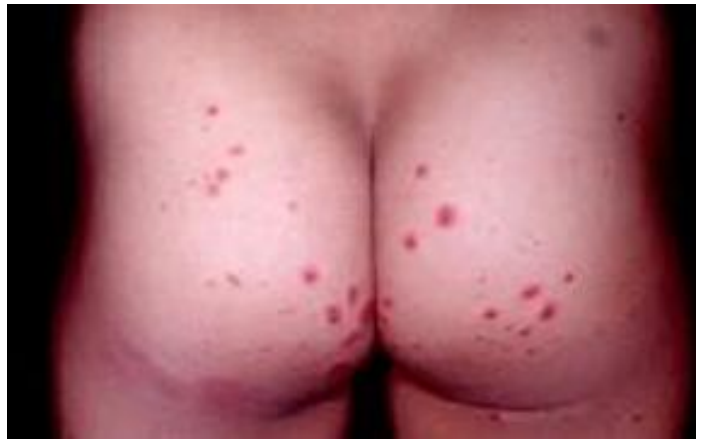
Epidemiology
- 3-15 yrs
- 50% preceded by URI

Diagnosis = Clinical
- Palpable purpura (~100%)
- Joint pain (50-75%)
- Colicky abdominal pain (20-30%)
  - If severe, need to r/o intussusception!
- Nephritis(20-50%)





Urgent Care Management
- UA – blood, protein
- Check blood pressure
- Consider BMP to r/o renal disease
- Consider screening CBC, PT/PTT/INR
- Close follow up

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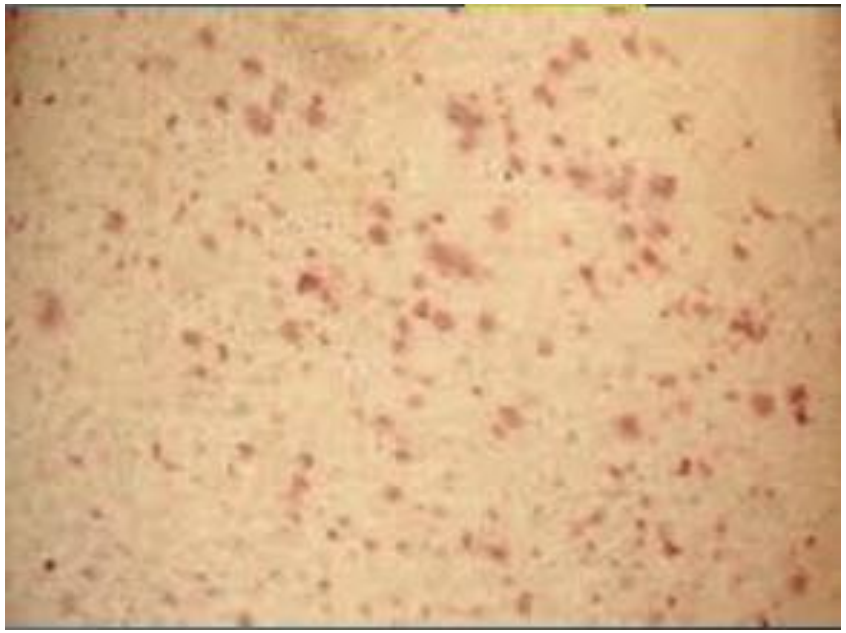
Immune Thrombocytopenic Purpura

Sudden appearance petechiae and purpura +/- bleeding
- 60% cases: prior infection
- Usually well appearing

Diagnosis:
- Isolated thrombocytopenia
- No associated conditions that can cause thrombocytopenia

Labs:
- CBC – platelets usually < 20,000
- Peripheral blood smear

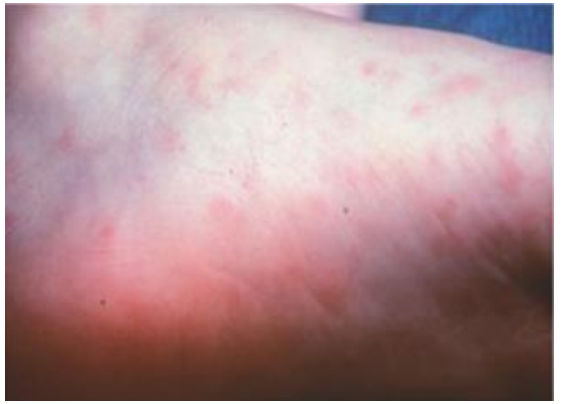
Risk of bleeding:
- Platelets < 30,000
- Mucosal bleeding



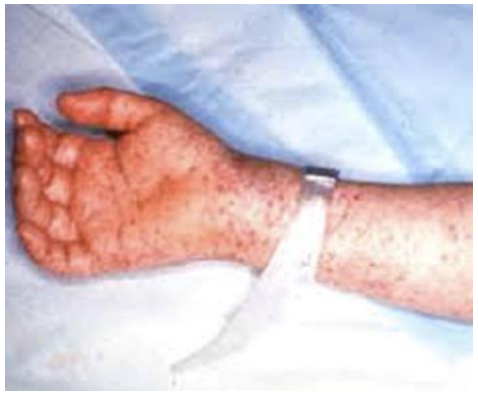
Urgent Care Management
- Consult Hematology
- Hospital Transfer

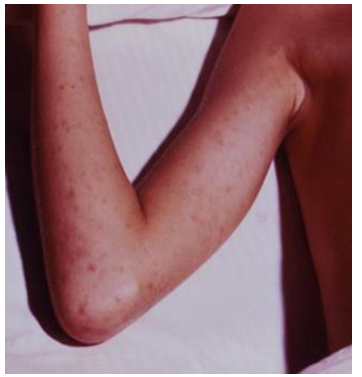
Rocky Mountain Spotted Fever

- Ricketsia rickettsia – South/Midwest but across US
  - Transmitted by Ticks (*Dermacentor* sp).
  - Incubation period 2-14 days from tick bite



- Clinical Presentation:
  - Early: fever, headache, malaise, myalgias, abdominal pain, nausea/vomiting
  - Rash develops between 3rd & 5th days:
    - Maculopapular initially, then becomes petechial due to small vessel vasculitis
    - Starts on ankles and wrists, spreading both centrally and to palms and soles



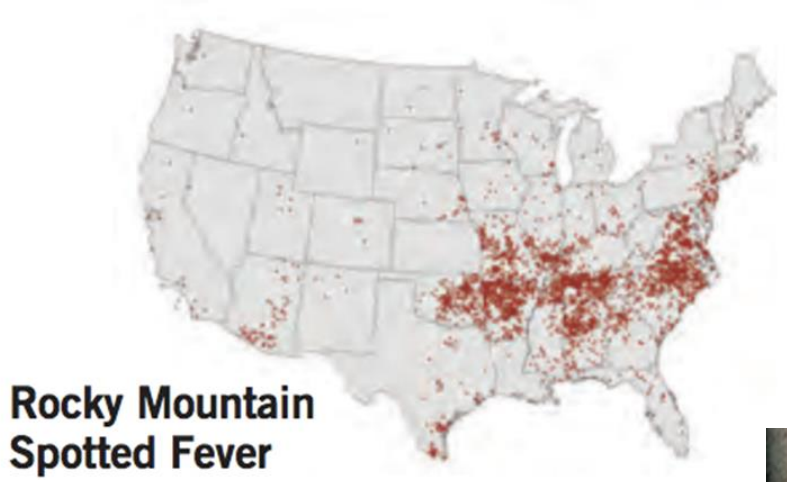


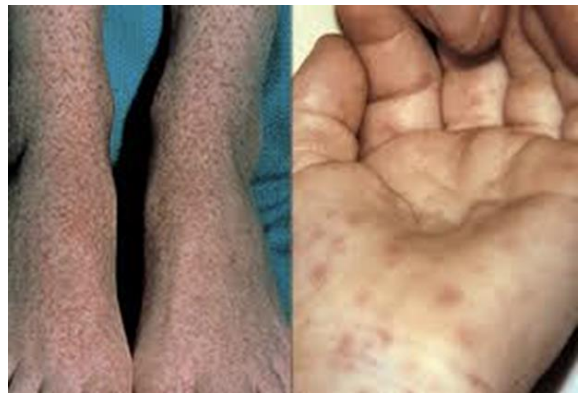
- Diagnosis is clinical - serologic testing not helpful in early stage

Rocky Mountain Spotted Fever

Urgent Care Management

- If treated within 5 days, mortality decreased
- Suspect if fever, headache with Hx tick bite
  - Endemic areas → Don't wait for rash!
  - Doxycycline (all ages)
  - Serology: IFA assay – paired testing





Transfer to ER if ill appearing, non-blanching rash

- IV Doxycycline (all ages)
- IV Ceftriaxone to cover for Meningococcemia

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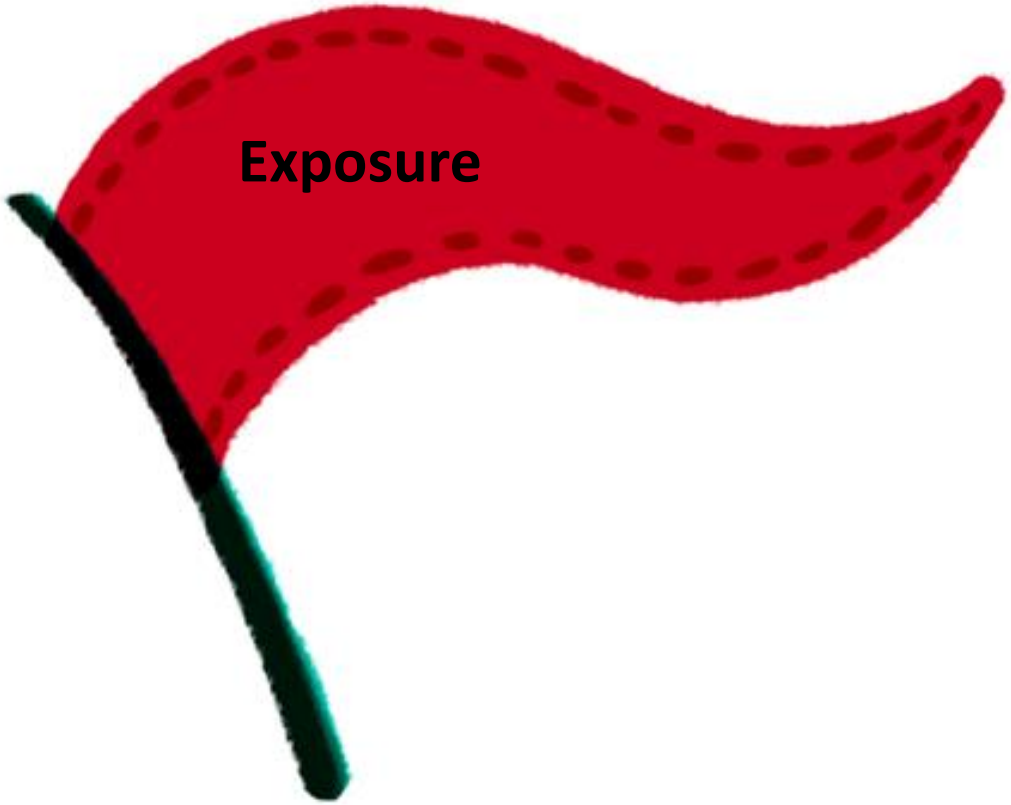
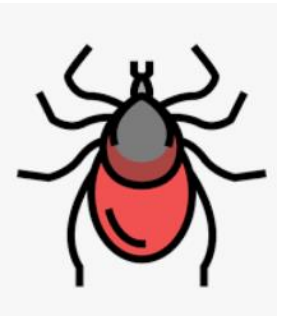
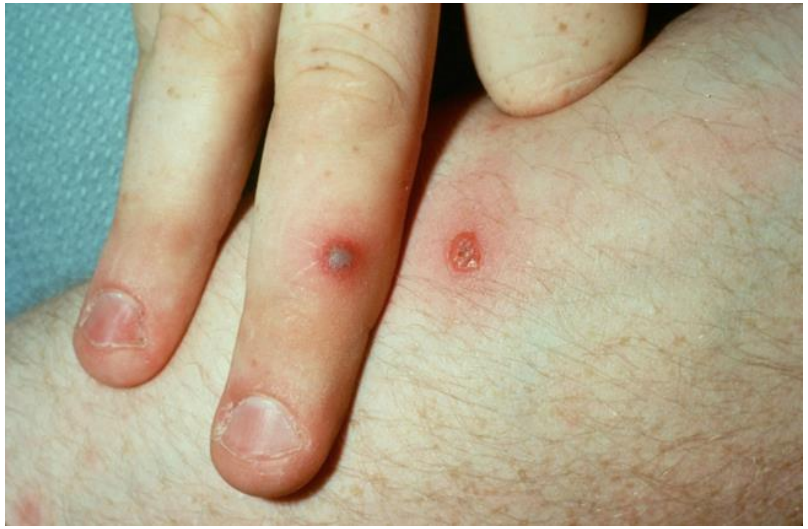


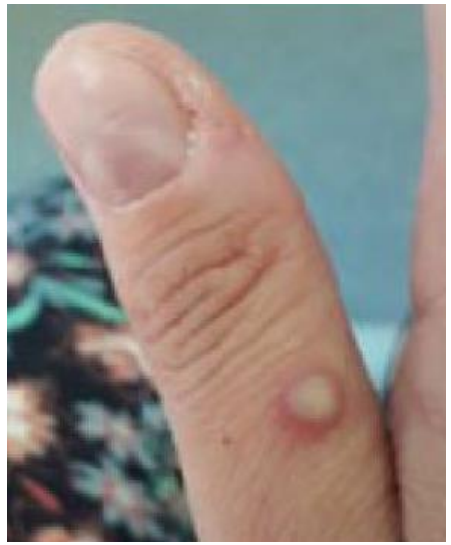


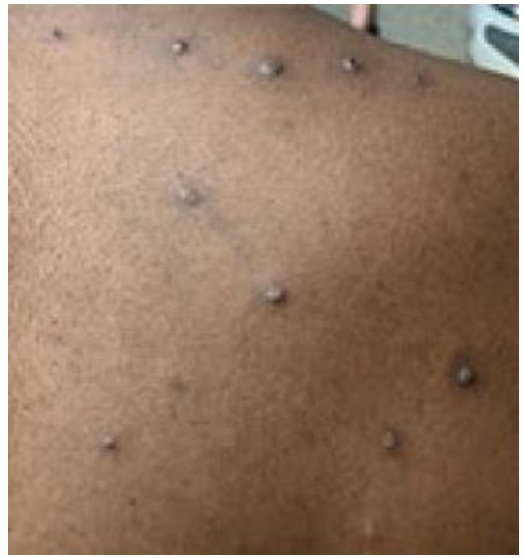
Exposure - Sexually Active

Patient 1: 19 yr old M with 2 days of fever, achy knees and wrists, and a few skin lesions. He has no urogenital symptoms.



Patient 2: 20 yr old M with 3 days of fever, fatigue, headache, and 2 days of multiple scattered skin lesions.





Patients 1 and 2 have rashes due to…

A. Syphilis, Gonorrhea

B. Trichomonas, Chlamydia

C. Mpox, Coxsackievirus

D. Gonorrhea, Mpox

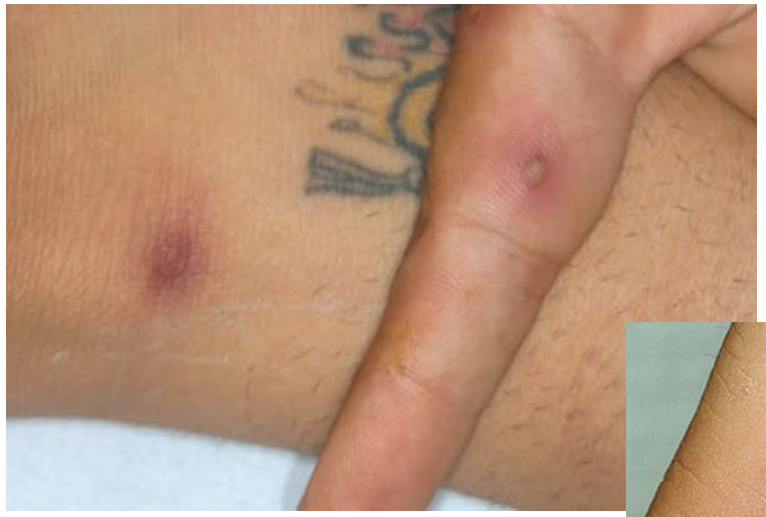
Disseminated Gonorrhea

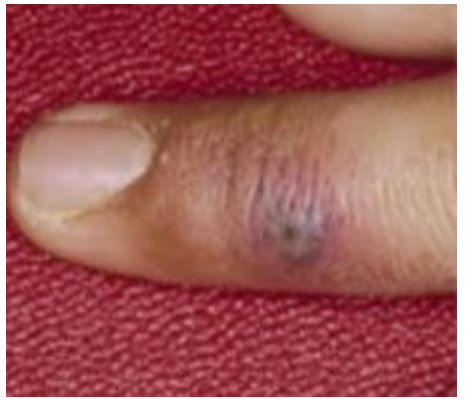
Clinical Presentation, two types:

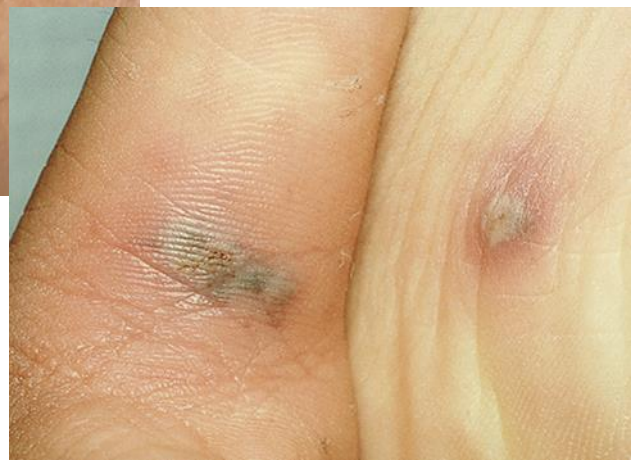
- Purulent arthritis without skin lesions
- Tenosynovitis, dermatitis, polyarthralgia syndrome
  - Fever, chills, malaise
  - Multiple tendons involved
  - Cutaneous manifestations:
    - Pustular or vesicopustular, hemorrhagic pustules
    - Painless, few in number (<40), transient

Urgent Care Management -

- Transfer to hospital (IV ceftriaxone)







Mpox

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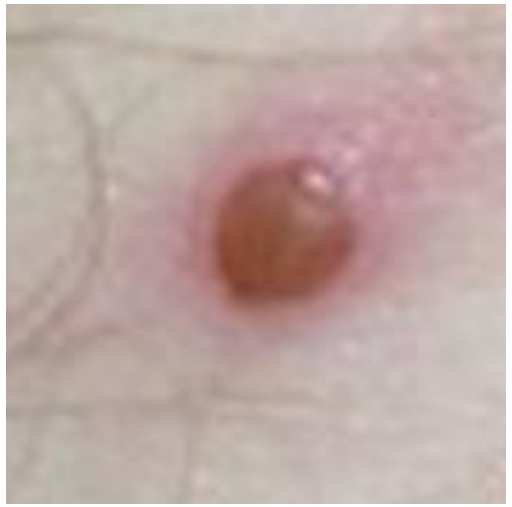
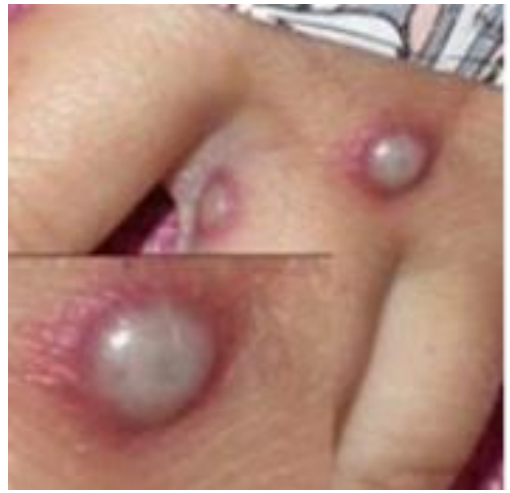
Orthopoxvirus (along with Smallpox)

Clinical Presentation:

- Flu like illness – fever, myalgias
- Rash progression: macular-papular-vesicular-pustular
- Lymphadenopathy
- Mucosal ulcers





Urgent Care Management:

- Labs: unroof and swab 1-2 lesions for PCR testing
- Screen for other STIs
- Supportive care, isolation

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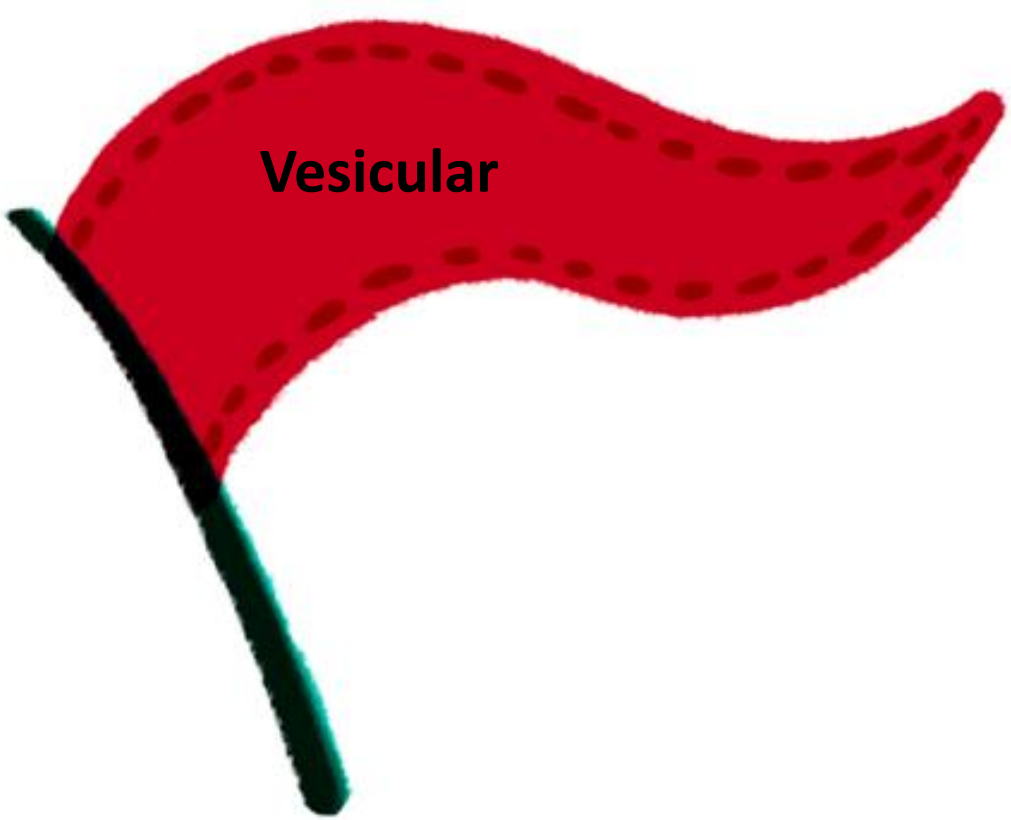
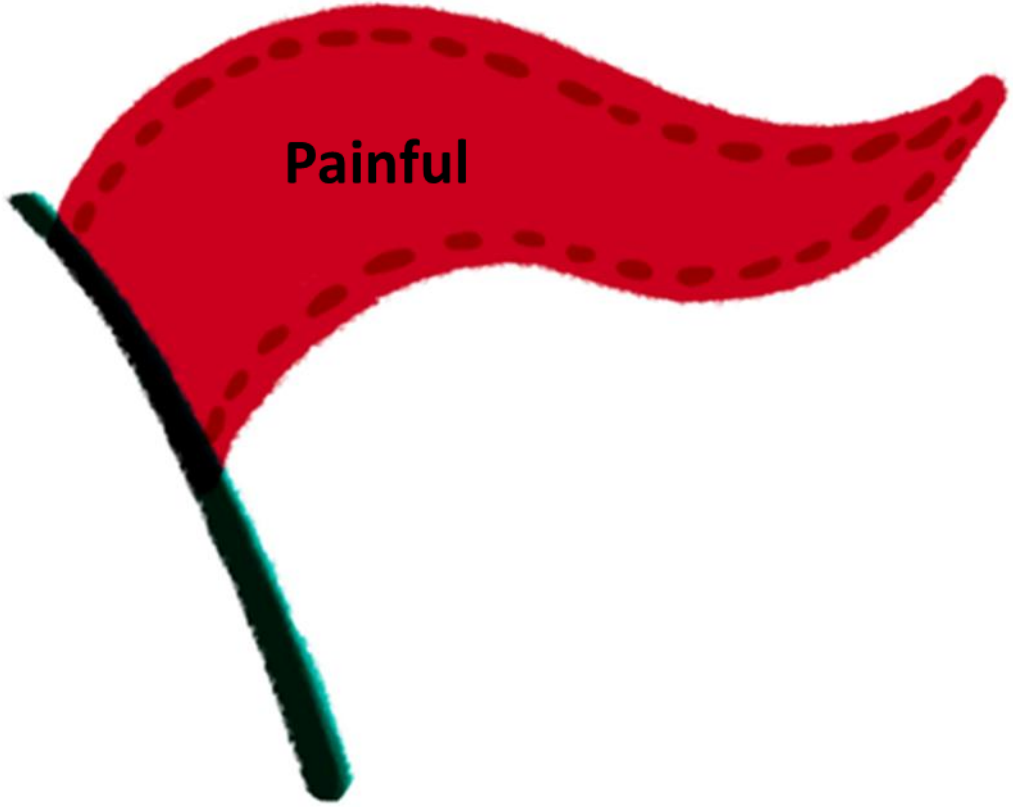
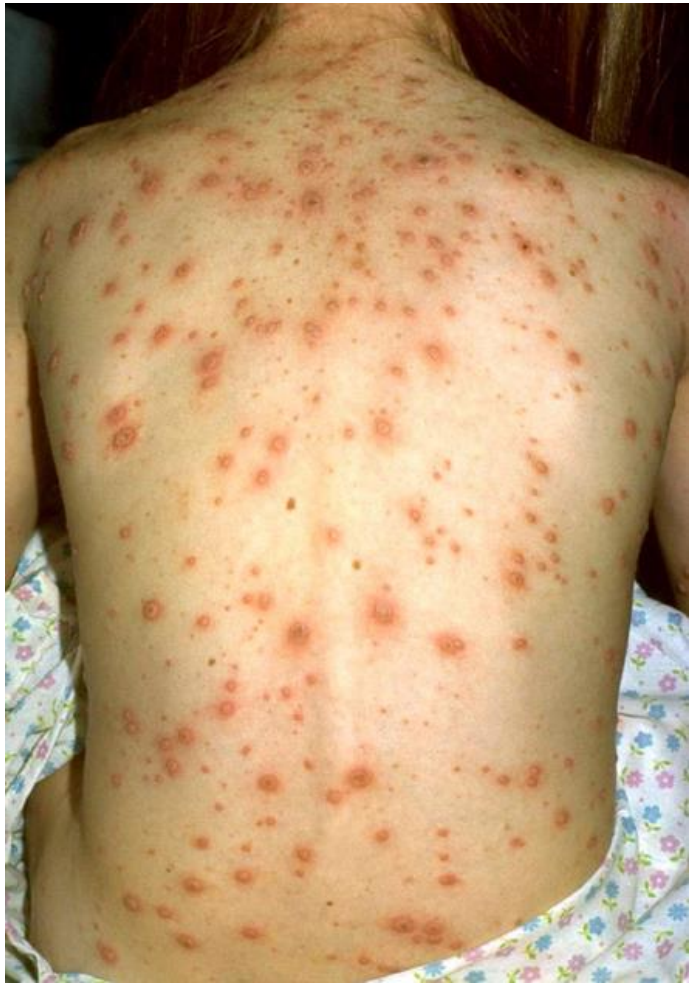




Varicella Virus



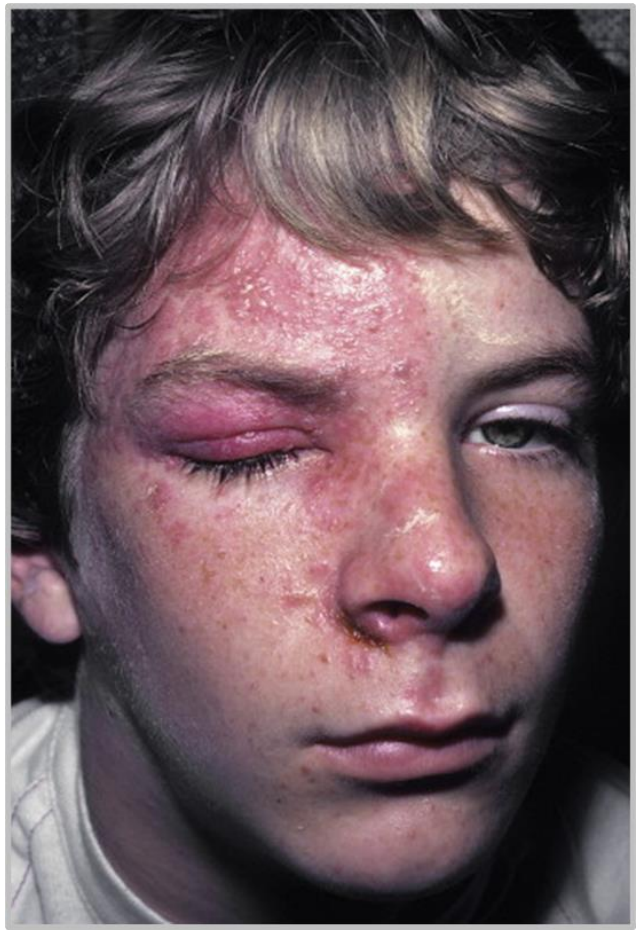
- Clinical Presentation:
  - Abrupt onset of crops of lesions
  - Progression: faint macules – edematous papules – vesicles – crusts – erosions

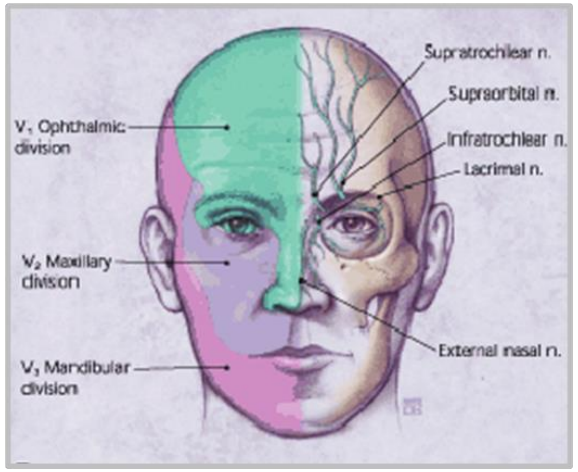
Urgent Care Management:

- Isolate
- Supportive care
- Antivirals for high-risk groups

Varicella - Zoster Virus

Vesicular lesions on the nose are associated with herpes zoster ophthalmicus (Hutchinson's sign)





Urgent Care Management:

- Urgent Ophthalmology consult
- Hospital Transfer

Zoster Ophthalmicus

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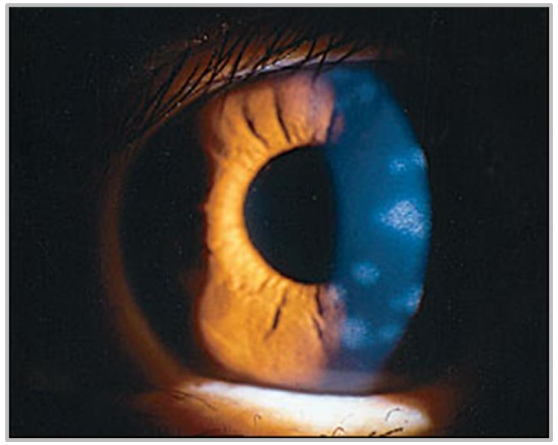
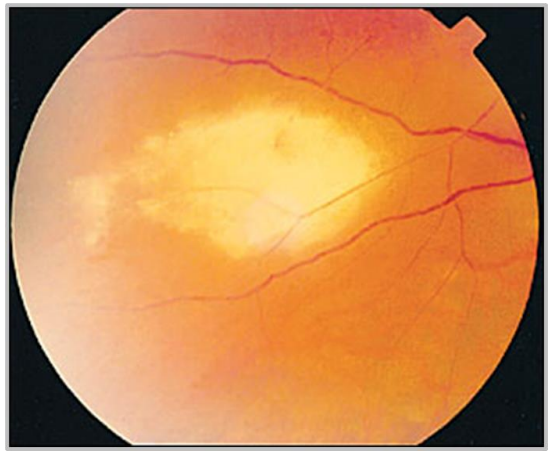
- Sight Threatening
- Rash in dermatome associated with the ophthalmic division of trigeminal nerve (CN V)
- If the cornea is affected, a slit-lamp exam must be performed to look for the presence of dendrites.





Urgent Care Management - Ophthalmology consult: Treatment includes oral antivirals, topical steroids, and pain control initiated within 72 hrs of rash onset

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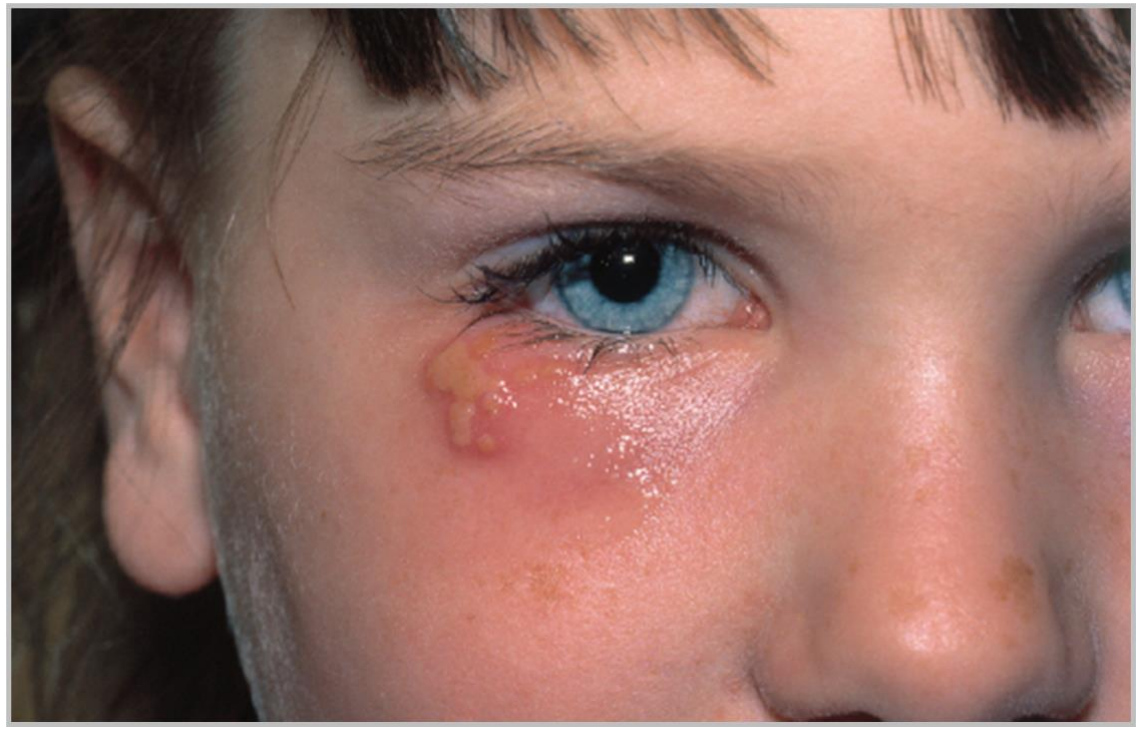
Herpes Simplex Virus - Herpetic Facialis

- Also sight threatening due to scarring
- Rash is not dermatomal
- Painful!
- Look for conjunctival injection – suggests ocular penetration

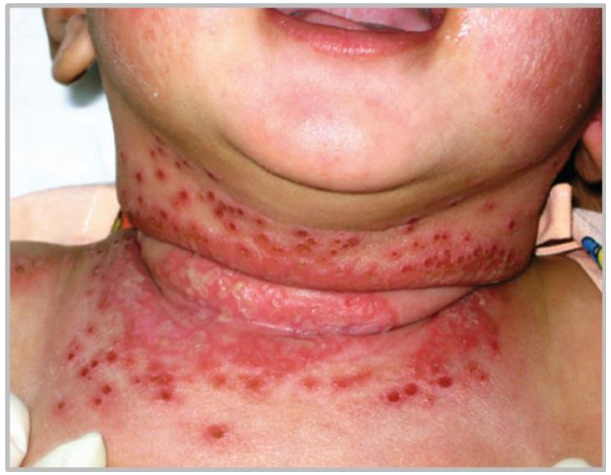


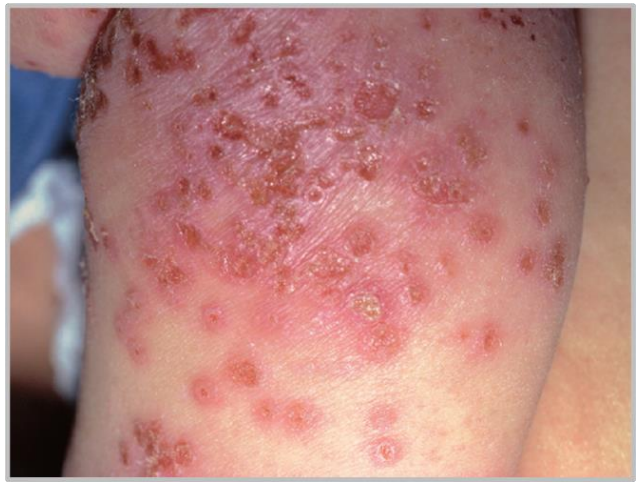
Urgent Care Management - Urgent Ophthalmology consult and treatment

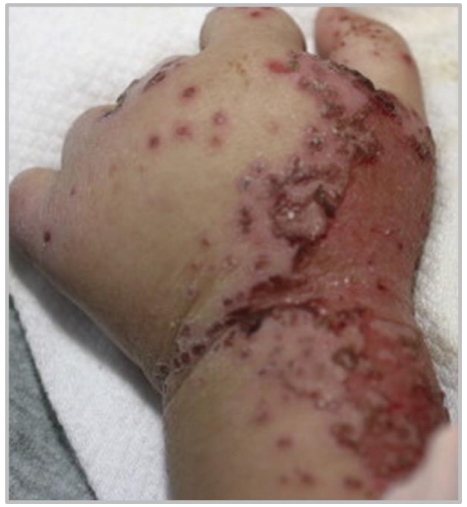
Eczema Herpeticum

Herpes simplex infection in a child with underlying eczema

- Crops of hemorrhagic vesiculopustular lesions in areas of preexisting dermatitis
- Lesions rupture and crust
- Impaired skin barrier allows virus to penetrate







Urgent Care Management - Hospital transfer for most, IV Acyclovir

How you can drive change:

- Recognize the “red flags” of pediatric rashes
- Learn the high-risk disorders associated with these red flags
- Develop strong consult and transfer relationships to manage these patients safely in the urgent care setting

Session Evaluation

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THE URGENT CARE CONVENTION

- Your feedback is valuable, take a moment to complete the survey for this session.
- To claim CME, you must complete a separate survey available after the convention.