



# Common Dermatologic Conditions in Children

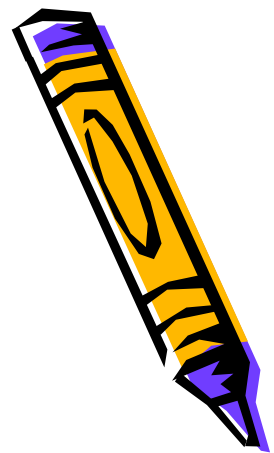
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**Calmoseptine**®  
Ointment



# A few clinical terms:



- **Papule** - Solid palpable lesion <10 mm in diameter
- **Nodule** - Solid palpable lesion >10 mm in diameter
- **Macule** - Flat nonpalpable lesion <10 mm in diameter
- **Patch** - Flat nonpalpable lesion >10 mm in diameter
- **Plaque** - Plateau-like lesion >10 mm in diameter (may be a group of confluent papules)
- **Vesicle** - Circumscribed elevated lesion containing serous fluid <5 mm in diameter
- **Bulla** - Circumscribed elevated lesion containing serous fluid >5 mm in diameter
- **Wheal** - Transient elevated lesion caused by local edema
- **Petechiae** - Minute hemorrhagic spots that do not blanch
  - **Crust** - Hard rough surface formed by dry sebum, exudate, blood, or necrotic skin
  - **Scale** - Heaped-up piles of horny epithelium with a dry appearance



# Starting at the beginning...

- **Port-wine stain (Nevus flammeus)** - 0.1-0.3% of infants; f=m; most often on face, but may be in other areas of body (often unilateral)
  - Dilated capillaries through depth of dermis
  - Do not regress with age; size remains stable throughout life, but color may darken
  - Appear at birth: flat, irregularly shaped, red-purple patches. May become cobblestoned or papular as the patient ages
  - Tx: pulsed dye laser or tinted waterproof makeup



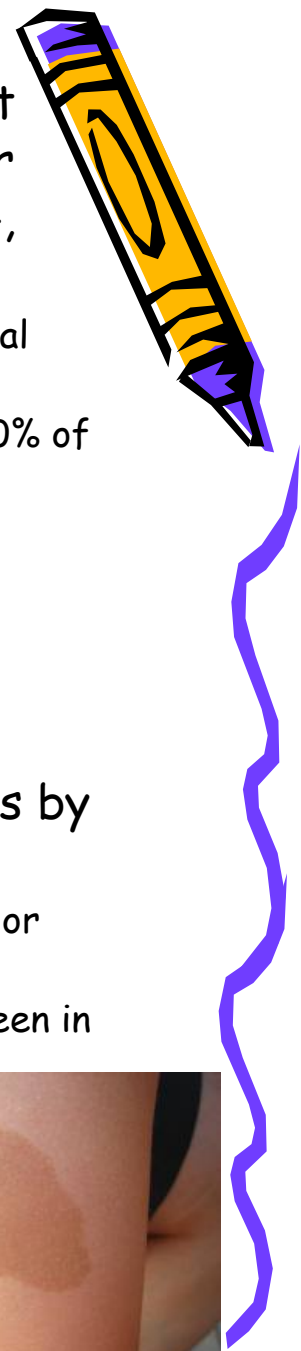
- **Strawberry hemangioma** - 1-3% of infants; f>m; most occur at birth or within the first year of life; face, scalp, back, chest = most common
  - Collection of dilated vessels in the dermis surrounded by proliferating endothelial cells
  - Bright red with well-defined borders
  - Reassure parents and monitor growth
    - Most regress by age 5-8
    - If impinging on vital structures, refer to dermatology for possible oral or intralesional steroid treatments



- **Congenital Dermal Melanocyanosis (Mongolian spot)** - f=m; most often on the sacral area of healthy newborns; present at birth or occur within the first few weeks of life; usually regress by age 4, but may be present throughout life
  - entrapment of melanocytes in the dermis during their migration from the neural crest into the epidermis
  - More than 90% of Native Americans, 80% of Asians, and 70% of Hispanics; <10% of whites
  - Documentation is crucial!



- **Café Au Lait spot** - f=m; develop in early infancy, usually obvious by age 2
  - Hyperpigmented lesions, may be light to dark brown; borders may be irregular or smooth
  - Observed in 95% of patients with Neurofibromatosis (NF1); also most often seen in African American patients
    - Refer to neurology if:
      - Six or more café au lait spots > 5 mm in greatest diameter in prepubertal individuals and >15 mm in greatest diameter in postpubertal individuals
      - Axillary or inguinal freckling



# Candida

## Activating factors

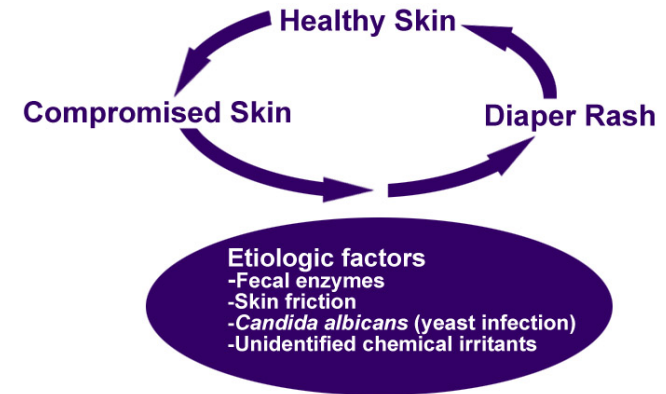
- Excess skin wetness
- Feces and fecal enzymes
- Interaction of feces & urine
- Increased pH leading to
- greater fecal enzymes activity
- increased skin permeability

## Caretaker intervention

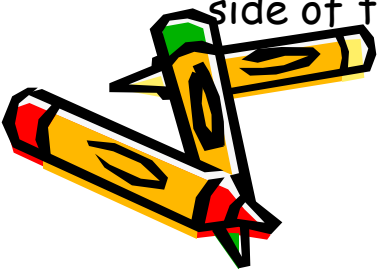
- Frequent diaper change
- Fast urine acquisition (Supersorber)
- Lotion, ointment, cream
- Isolation of feces from urine away from baby's skin

## • Diaper dermatitis

- 40% and 75% of diaper rashes that last for more than 3 days are colonized with *C albicans*
- Distinctive clusters of erythematous papules and pustules are present, which later coalesce into a beefy red confluent rash with sharp borders. Satellite lesions frequently found.
- Topical ointments or creams, such as nystatin, clotrimazole, miconazole, or ketoconazole can be applied to the rash with every diaper change.



- **Oral Candidiasis (Thrush)** - healthy newborns (esp premature); white creamy exudate or white, flaky adherent plaques with underlying red, sore mucosa; Caused by *C albicans*
  - Should be treated, so as not to interfere with feedings.
  - Mycostatin (Nystatin) = 2 mL oral suspension four times per day (1 mL in each side of the mouth via dropper). Typically given for 10 days (2 days after symptoms resolve)



# Warts

Warts are caused by Human Papilloma Virus within the keratinocytes; there are over 60 types of this virus

Transmitted by touch

Warts obscure normal skin lines and when skin lines are reestablished, the wart has resolved; most resolve spontaneously

The black dots that are visible on the skin surface are thrombosed black vessels

**Common warts/Verruca vulgaris:** smooth flesh-colored papules that evolve into dome-shaped hyperkeratotic growths with black dots on the surface (most common on hands)

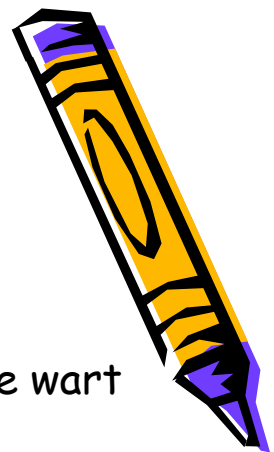
Tx: Liquid nitrogen, light electrocautery, topical acid preparations (both otc and office)

**Flat warts/Verruca plana:** slightly elevated, flat-topped papules; usually numerous and seen in clusters (most common on forehead, backs of hands, shaving areas, and around the mouth); may be resistant to tx and may stay a long time

Tx: tretinoin cream, liquid nitrogen, light electrocautery

• **Plantar warts:** occur on points of maximum pressure (ball of foot or heels); do not require tx unless they are painful

•Tx: topical acid preparations (otc and office), paring, blunt dissection, liquid nitrogen



# Common warts



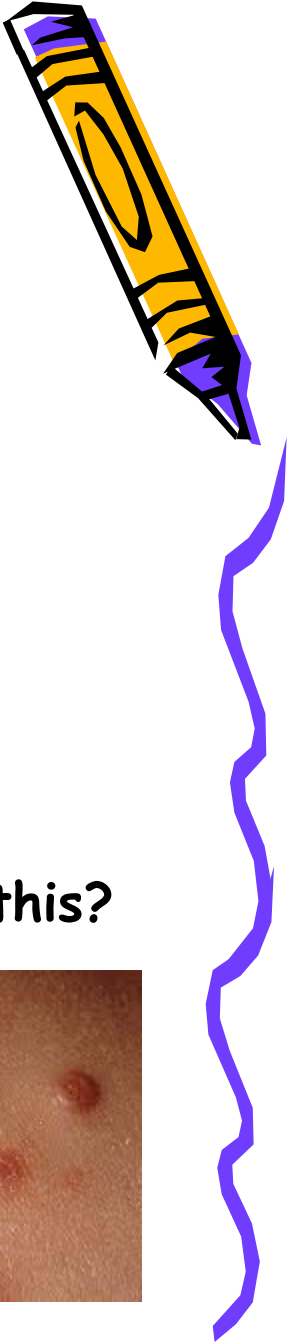
# Flat warts



# Plantar warts



# So then what is this?



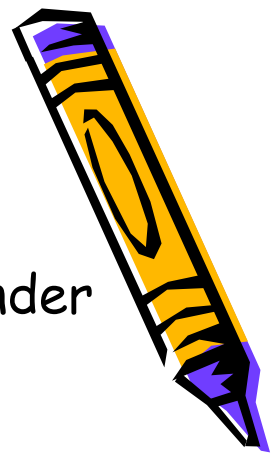
# Molluscum contagiosum

- Caused by the MCV, a variant of the poxvirus family; has a bimodal age distribution (children and older adults)
- Transmission:
  - Children - contact with an infected object (towels, toys, bath, etc) - mostly affects children with atopic derm or immunodeficiency; common in those who play sports or from gym equipment
  - Adults - sexual contact
- **Signs/Symptoms:** Discrete, smooth, white-to-flesh-colored, dome shaped papules, often with a central dell (usually 1-5mm); asymptomatic
- **Tx:** Often resolve on their own in 6-9 months (can be up to 5 years); removal will lessen autoinoculation and transmission
  - Most common and effective = curretage, liquid nitrogen, cantharidin solution, topical Aldara for up to 12 weeks, topical tretinoin daily until resolved; all can cause minimal scarring





# Atopic Dermatitis



- Affects 15% of children in the US; 70% start in children under age 5; slightly increased in males
- Chronic and relapsing disorder that begins in childhood
  - Type I IgE-mediated hypersensitivity reaction
  - Many patients have the triad: allergic rhinitis (35%), asthma (30%), atopic dermatitis
- Signs/Symptoms:
  - Papules and plaques +/- scale; may be associated with edema, erosion, and crusts; dry, scaly skin; Dermatographism is characteristic.
  - Scratching leads to lichenification, fissures, and worsening rash ("itch-scratch cycle"); secondary infection with *S. aureus*
  - Most common areas: flexural surfaces, neck, eyelids, forehead, face, and dorsum of hands and feet
- Dx: clinical +/- culture if secondary infection is a concern
- Tx: Antihistamines (for itching), topical corticosteroids (be careful on the face!), topical calcineurin inhibitors, hydration, topical emollients (EpiCeram), UV light therapy



# Contact Dermatitis



## Types:

- Irritant contact: chemical irritant in contact with the skin
- Allergic contact: allergic type IV cell-mediated hypersensitivity reaction
  - Occupational or personal contact with solvents, oils, cleaning products, abrasives, dust, nickel, plants (Rhus dermatitis) = common!

## Symptoms: itching/burning in affected areas

- Acute: well-defined erythematous plaques; may have vesicles, erosions, or crusts
- Chronic: lichenification, +/- scaling, satellite papules and excoriations

**DX:** clinical +/- patch testing; culture if secondary infection is a concern

## Tx:

- Avoid or remove trigger (often easier said, than done)
- Topical corticosteroids (be careful on the face!)
  - Cleaning with mild soaps/detergents (free & clear), oatmeal baths, antihistamines for itch
  - Systemic steroids if needed in severe cases
  - Consider referral to an allergist if no improvement



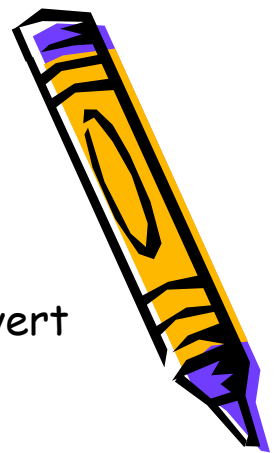
# Bugs and Bites



- **Scabies** (*Sarcoptes scabiei*, an 8-legged mite)
  - Transmission = skin-to-skin or clothing/bedding
  - Most commonly found on hands, genitalia, axillary areas (web spaces between fingers, belt or sock line)
  - Sx: Pruritic (worse at night) burrows, vesicles, nodules with excoriations and crusting; Secondary infection is likely caused by group A streptococci
  - Dx: Skin scraping with microscopy (if possible) for eggs, feces, or mites
  - Tx: antihistamines/topical steroids for itching
    - 1% lindane (not in kids under 2, pregnancy/lactation) or 5% permethrin lotion or cream; apply from chin to bottom of feet; leave on overnight for 8+ hours; repeat in 1 week
    - Wash all bedding and clothing
- **Pediculosis** (*Pediculus humanis*- corporis = body and capitis = scalp)
  - 1-3 mm creatures with 3 pairs of legs; nits are opalescent, found on hair shafts, and hatch in about 1 week; person to person transmission
  - Sx: pruritis, excoriations; nits are more commonly seen on exam than lice
    - Tx: Permethrin 5% apply and wash off in 10 minutes; reapply in one week. For hair, comb with a fine tooth-comb after application to remove nits; wash and dry all bedding and clothing
    - Prevention: Avoid sharing of combs, hats, etc. Examine all contacts



# Acne vulgaris



- Most prevalent in adolescents and more severe in males
- **Pathology/Sx:** caused by *Propionibacterium acnes*. Androgens stimulate sebaceous glands to produce more sebum and bacteria secrete lipase to convert lipids to fatty acids; the sebum and fatty acids cause inflammation in the pilosebaceous unit
  - Open comedones: blackheads (melanin deposits on a keratin plug) - noninflammatory
  - Closed comedones: whiteheads (flesh-colored papules) - noninflammatory
  - Erythematous papules, pustules, nodules, cysts ranging from 1-5mm - inflammatory
- **Tx:**
  - Mild: otc products/washes (Salicylic acid/Benzoyl Peroxide) + topical medications
    - Topicals: tretinoin (Retinoids- Tazorac, Atralin, Tretin-X, Differin, Retin-A), BP + antibiotic (Duac, Acanya, Benzacilin), antibiotic + tretinoin (Ziana, Veltin), dapsons (Aczone)
    - Benzoyl peroxide preps are all otc now, unless combined with another medication.
  - Moderate/severe: topical medications + systemic antibiotics or Accutane
    - Systemic antibiotics: Doxycycline (Doryx, Monodox), minocycline (Solodyn, Minocin), erythromycin (Ery-tab 333), trimethoprim/sulfamethoxazole (Bactrim)
    - Accutane - oral isotretinoin (Claravis, Sotret, Amnesteem) - GREAT medication if monitored and dosed correctly
      - Must be done in a dermatology office
      - Strictly regulated by the FDA through the i-Pledge program



# Dermatophytosis

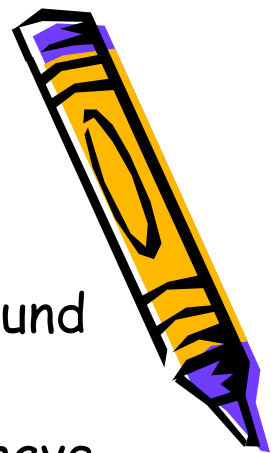


- Occur in 10-20% of the US population - most tx in primary care
- Most common are: *Trichophyton*, *Microsporum*, *Epidermophyton*  
(*T. rubrum* = most common in the industrialized world)
- Most common types in pediatrics:
  - Tinea pedis (foot) - peaks between age 70 and 75
  - Tinea capitis (head) and Tinea corporis (body)
- **Sx:** well-demarcated, erythematous, scaly annular patches with central clearing; itching, stinging, burning; maceration or peeling fissures in between digits; can have a "moccasin" appearance with dry, thick scales/fissuring on the plantar surface
  - Tinea capitis, broken hair shafts are seen as black dots; may produce a kerion: a boggy, indurated, inflammatory plaque with pustules
- **Dx:** KOH prep (hyphae and spores - spaghetti and meatballs) or Wood's lamp
- **Tx:** Topical creams, lotions, ointments, powders - must be used consistently (my favorites = Zeasorb and Oxistat)
  - Fungocidal (kills fungus): Lamisil AT, Lotrimin Ultra - takes 1-4 weeks
  - Fungostatic (inhibit fungal growth): Lotrimin AP, Lamisil AF Defense, Tinactin - takes 4 weeks
  - Oral griseofulvin for tinea capitis (must monitor LFTs)



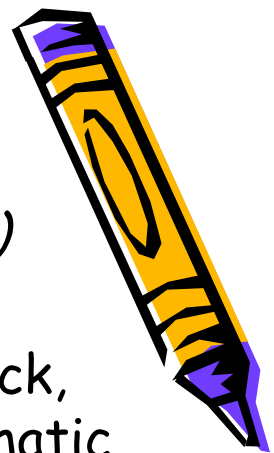
# Dermatophytosis (continued)

- Life style modifications: dry feet completely after bathing, cotton socks (changed frequently), avoid going barefoot around the house
- Importance of medication adherence (70% of patients will have recurrence)

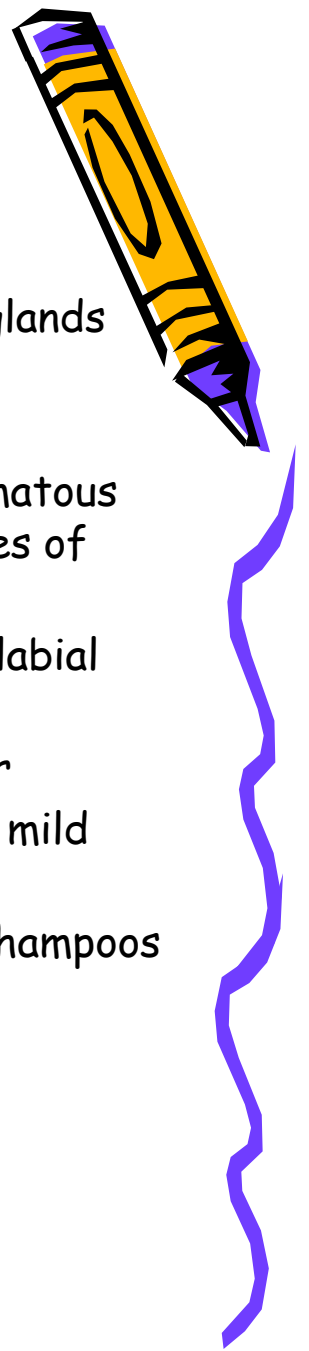


# Tinea (Pitriasis) Versicolor

- Caused by *Malassezia Furfur* (formerly called *Pityrosporum*)
- **Signs/Sx:** multiple, well-defined round to oval macules of various colors (white to brown) and size located on arms, back, chest, neck, abdomen, axillae; lesions are typically asymptomatic
- **Dx:** KOH prep (hyphae and spores - spaghetti and meatballs) or Wood's lamp
- **Tx:**
  - Topical: selenium sulfide 2.5% lotion or shampoo used as a body wash (Head & Shoulders and Selsun Blue); ketoconazole 2% shampoo or cream (Nizoral)
  - Systemic: ketoconazole, fluconazole, itraconazole



# Beyond dandruff...



## • Seborrheic Dermatitis

- Common in infancy and puberty (as well as adulthood) where sebaceous glands are most active (body folds, face, scalp, genitalia); m>f
- Exact pathology is not known; possible fungal component

Sx: Infants: scalp (cradle cap), flexural areas, perioral region with erythematous plaques with fine, white scales to thick, yellow-brown, waxy/greasy plates of scales

- Older children and adults: scalp (dandruff), eyebrows, eyelashes, nasolabial folds, postauricular sulci; may have itching, burning, or pruritis

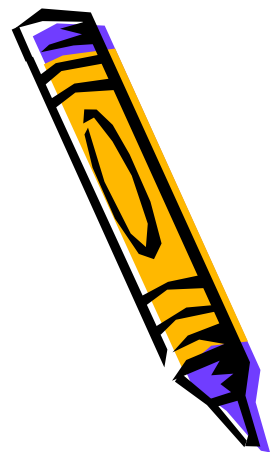
Tx: UV radiation (generally flares in the winter and is better in the summer)

- Cradle cap: olive oil compresses, baby shampoo, ketoconazole shampoo, mild corticosteroids
- Dandruff: selenium, zinc, ketoconazole shampoos, steroid foams and shampoos in severe cases





# Pityriasis Rosea



- Cause: unknown; possibly viral (human herpes virus 7)
- Sx:
  - Herald patch - solitary round or oval pink plaque with a raised border and fine adherent scales in the margin; precedes the rash by about a week
  - May be a mild URI-like prodrome before the start of the rash
  - Rash begins on the trunk as round/oval, salmon-colored slightly raised, papular and macular lesions with a fine scale (1 cm diameter)
  - Follows natural skin folds - ie: Christmas tree pattern
- Tx:
  - Generally lasts for 3-8 weeks and resolves spontaneously
    - Lotions for the scale and oral antihistamines for itch as needed

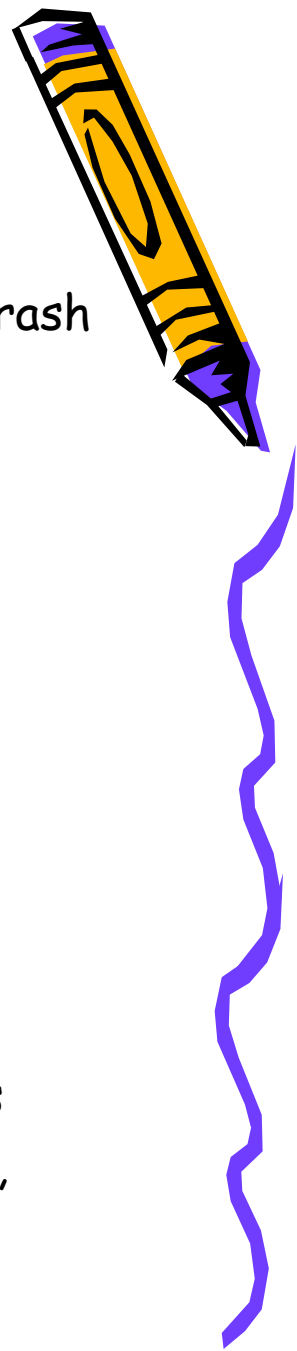


# Viruses



- Coxsackie A16 (Hand, Foot, and Mouth Disease)
  - Transmitted by direct contact with nose, throat, discharge, or stools of infected person
  - Most cases affect children under the age of 10
  - Sx: fever, decreased appetite, rhinitis pharyngitis = 3-5 days after exposure
    - Vesicular rash eruption in oral cavity (buccal mucosa and tongue) and on extremities 1-2 days following initial symptoms
  - Dx: can do throat or body fluid swab for diagnosis, if needed
  - Tx: symptomatic (increase fluid intake, decrease fever); usually self limited

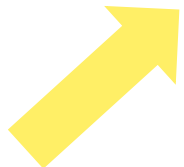




- Erythema Infectiosum (5<sup>th</sup> disease)

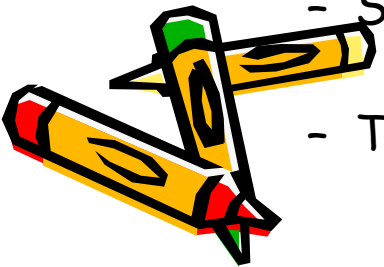
- Caused by Parvovirus B19; "Slapped cheek"
- Incubation period of 4-14 days; transmission = aerosol droplets
- Sx: no prodrome; red face (slapped cheek), lacey, pink, macular rash on torso; rash disappears within 10 days

Tx: symptomatic



- Roseola (6<sup>th</sup> disease)

- AKA Roseola Infantum; caused by human herpes virus 6 and 7
- Incubation period of 10-14 days; transmission = aerosol droplets
- Sx: 4 day prodrome of fever; fever resolves, then small, blanchable, pink macules and papule rash appears
- Tx: symptomatic



# Keratosis Pilaris

- More common in patients with atopic dermatitis; more common in young children; incidence peaks in adolescence
- Sx: small (1-2 mm), rough, follicular papules or pustules most often seen on the posterolateral upper arms and anterior thighs
  - Association with dry skin should differentiate it from a dx of acne
  - Asymptomatic
- Tx: gentle exfoliation, tretinoin cream, short course of mild steroids, Am-Lactin or LachHydrin lotion
  - Oral antibiotics against *S. aureus* if infection occurs (folliculitis)



# Impetigo

- **Causes:** *S aureus* and/or group A B-hemolytic *Strep pyogenes*; bacteria colonize unbroken skin, then with bites or abrasions, inoculate the intradermal space
- **Types:**
  - **Bullous:** vesicles and bullae with clear-turbid fluid rupture and form shallow erosions with gray to hemorrhagic crusts
    - Face, hands, trunk, and intertriginous areas
  - **Nonbullous:** small vesicles/pustules form erosions covered by honey-colored crusts
    - Face, legs, arms, legs, buttocks
- **Dx:** clinical; may culture lesions if needed
- **Tx:**
  - Benzoyl peroxide wash daily
  - 2% mupirocin ointment TID x 10 days (as effective as oral antibiotics)
  - For mixed infections: dicloxacillin, azithromycin, clarithromycin, amoxicillin with clavulanate

