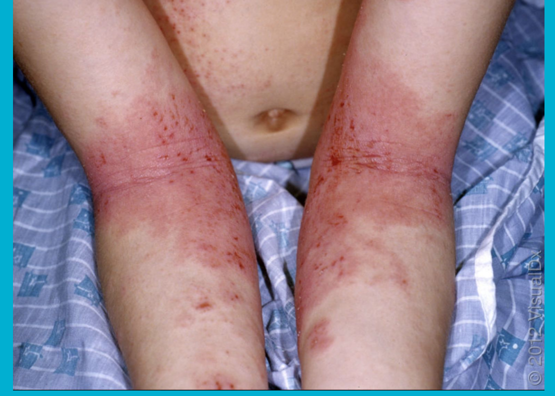
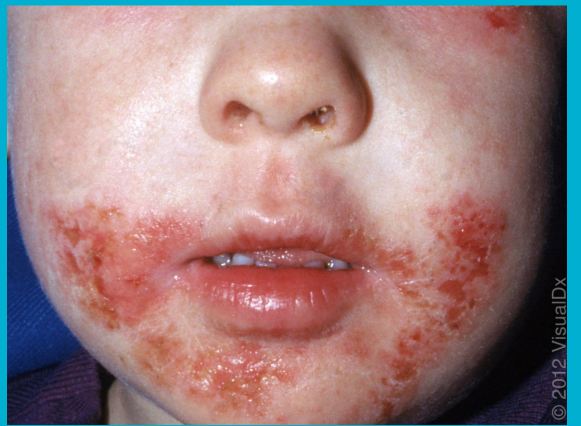
Eczematous Disorders

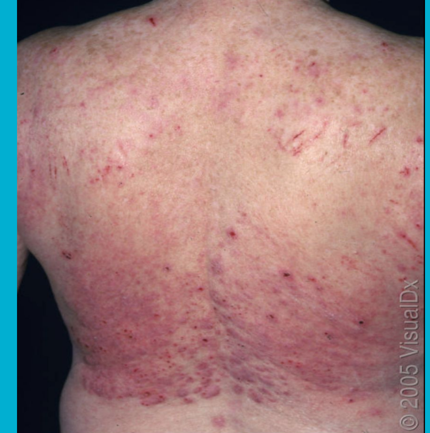
1. Atopic dermatitis/eczema
    a. Nummular eczema
    b. Asteatotic eczema
    c. Dyshidrotic eczema
2. Allergic contact and irritant contact dermatitis

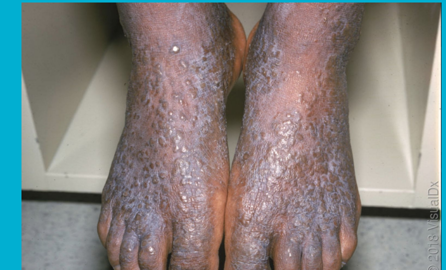
Atopic Dermatitis- “the itch that rashes”

- Inflammatory and xerostic skin disease
- Genetic influence + environmental factors
- Allergic triad: AD, asthma, and allergic rhinitis
- Predictors of severity: Early age of onset, respiratory allergy, urban living
- Mutations in filaggrin -> loss of filaggrin ->poorly formed stratum corneum -> prone to water loss
- Xerosis -> **PRURITUS** -> scratching and excoriations ->disrupted skin barrier is vulnerable to potential infections and penetration of allergens -> IgE production









Box 9-6. Skin Features Associated with Atopic Dermatitis

- **Atopic pleat (Dennie–Morgan fold)**—extra fold of skin that develops under the eye
- **Cheilitis**—inflammation of the skin on and around the lips
- **Hyperlinear palms**—increased number of skin creases on the palms
- **Hyperpigmented eyelids**—eyelids that have become darker in color from inflammation or hay fever
- **Ichthyosis**—dry, rectangular scales on the skin
- **Keratosis pilaris**—small, rough bumps, generally on the face, upper arms, and thighs
- **Lichenification**—thick, leathery skin resulting from constant scratching and rubbing
- **Papules**—small raised bumps that may open when scratched and become crusty and infected
- **Urticaria**—hives (red, raised bumps) that may occur after exposure to an allergen, at the beginning of flares, or after exercise or a hot bath

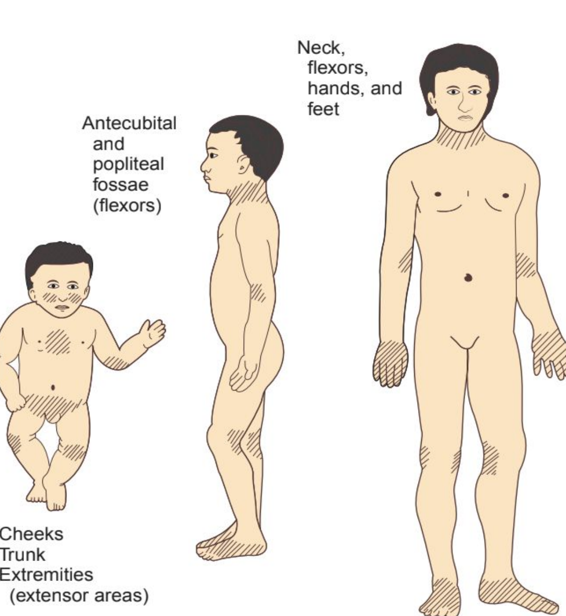


FIG. 3-1. Distribution of atopic dermatitis at various ages. Children have involvement of their face and neck. The extensor aspects of extremities are affected in infants, whereas the flexural aspects are more affected in older children and adults. Atopic dermatitis usually spares the axillae and groin.

Atopic Dermatitis

DIFFERENTIAL DIAGNOSIS Atopic dermatitis

- Tinea
- Psoriasis
- Nummular eczema
- Contact dermatitis
- Molluscum contagiosum dermatitis
- Seborrheic dermatitis
- Lichen simplex chronicus
- Cutaneous T cell lymphoma, mycosis fungoides type

BOX 3-1 Clinical Criteria for a Diagnosis of Atopic Dermatitis

Essential features (both must be present)
Pruritus
Eczema (characteristic distribution and morphology)

Important features (support of the diagnosis of AD)
Early age of onset
Atopy (personal or family history, IgE reactivity)
Xerosis

Associated features (suggests the clinician consider the diagnosis of AD)
Nipple eczema
Facial pallor, white dermographism, delayed blanching response
Keratosis pilaris
Ichthyosis
Hyperlinear palms
Periocular (Dennie–Morgan lines) and/or perioral changes, cheilitis
Perifollicular accentuation
Lichenification/prurigo lesions

Adapted from Eichenfield, L.F., Hanifin, J.M., Luger, T.A., Stevens, S.R., & Pride, H.B. (2003). Consensus conference on pediatric atopic dermatitis. *Journal of the American Academy of Dermatology*, *49*,1088–1095.

Atopic Dermatitis - Management

1. Bathing and moisturizing
   a. Hydrates the skin and increases penetration of topical therapies
   b. Bathwater should be warm or cool NOT hot
   c. Apply moisturizer or topical corticosteroids within 3 min of bathing
2. Emollients
   a. Regular use of moisturizers several times a day is essential to maintain control and prevent flar
3. Medications
   a. Topical Steroids
   b. Steroid Sparing agents: Calcineurin inhibitors, crisaborole, and ruxolitinib
   c. Immune Modulators: Dupilumab, abrocitinib
   d. Antihistamines
   e. Antibiotics
4. Phototherapy
5. Bleach baths

Atopic Dermatitis - Management

Recommended moisturizers:

- Vaseline
- Vanicream or Vaniply
- Eucerin
- Cetaphil

Atopic Dermatitis - Management

1. Medications
    a. Topical Steroids
    b. Steroid Sparing agents: Calcineurin inhibitors, crisaborole, and ruxolitinib
    c. Immune Modulators: Dupilumab and abrocitinib
    d. Antihistamines
    e. Antibiotics

Topical Corticosteroids

Prescription Considerations:

1. Percutaneous Absorption
2. Vehicle
3. Strength and frequency of application
4. Quantity
5. Side Effects

Topical Corticosteroids- Vehicles

Preparation	Composition	Skin hydration versus drying	Preferred dermatoses or site of use	Preferred location of use	Cosmesis	Potential for irritation
Ointment	Water in oil emulsion	Very good skin hydration	Best for thick, lichenified, or scaly dermatoses	Best for thick palmar or plantar skin; avoid with naturally occluded areas	Very greasy	Generally low
Cream	Oil in water emulsion	Moderate in skin hydrations potential	Best for acute, subacute or weeping dermatoses	Good for moist skin and intertriginous areas	Elegant	Variable; require preservatives
Gel	Cellulose cut with alcohol or acetone	Drying	Scalp or dermatoses in dense hair areas	Best for naturally occluded areas, scalp, and mucosa	Elegant	Higher
Lotion	Oil in water	Drying	Scalp or dermatoses in dense hair areas	Best for naturally occluded areas and scalp	Elegant	Higher
Solution	Alcohol	Drying	Scalp or dermatoses in dense hair areas	Best for naturally occluded areas and scalp	Elegant	Higher

Topical Corticosteroids- Strength

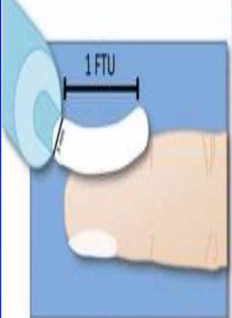
TABLE 4-3 Potency Ranking of Some Commonly Used Topical Steroids

Group	Generic Name	Brand Name
I	Clobetasol propionate Halobetasol propionate Betamethasone dipropionate (optimized vehicle) Diflorasone diacetate	Cormax 0.05%, Olux 0.05% Ultravate 0.05% Diprolene 0.05% Psorcon 0.05%
II	Amcinonide Betamethasone dipropionate Halcinonide Fluocinonide Desoximetasone	Cyclocort 0.1% Diprosone 0.05%, Elocon 0.1% Halog 0.1% Lidex 0.05% Topicort 0.025%
III	Fluticasone propionate Betamethasone valerate	Cutivate 0.005% Betatrex 0.1%
IV	Triamcinolone acetonide Fluocinolone acetonide	Kenalog 0.1% Synalar 0.025%
V	Hydrocortisone butyrate Hydrocortisone valerate	Locoid 0.1% Westcort 0.2%
VI	Alclometasone dipropionate Desonide	Aclovate 0.05% DesOwen 0.05%
VII	Hydrocortisone	Hytone 2.5% Hytone 1.0% Many other brands

Potency (Class)	Type of dermatosis	Extent of dermatoses	Duration of TCS Usage	Location of dermatoses	Usage in infants and children	State of the epidermis
Superpotent (I)	Dermatoses resistant to intermediate or high potency TCS	Avoid extensive application (>50 g weekly)	For short term use only, ideally 2–3 weeks at a time	Do not use on the face, axillae, submammary area or groin	Avoid use in infants and children under 12 years	Best for thick, lichenified or hypertrophic skin; avoid with thin skin
High (II & III)	Severe	Avoid extensive application (>50 g weekly)	For short term use only, ideally 2–3 weeks at a time	Do not use on the face, axillae, submammary area or groin	Avoid use in infants and children under 12 years	Best for thick, lichenified or hypertrophic skin; avoid with thin skin
Intermediate (IV & V)	Moderate	Best for short term treatment of extensive dermatoses	Avoid extended use (>1–2 weeks) in infants and children	Best on trunk and extremities	Avoid extended use (>1–2 weeks) in infants and children	Safer for short term use on thin skin; less effective on thicker skin
Low (VI & VII)	Steroid sensitive	Preferred for treatment of large areas	Best if long term treatment is required	Best choice for face, axilla, groin, and other moist, occluded areas	Infants and children	Best for thin skin; not effective on thicker skin

Topical Corticosteroids- Quantity

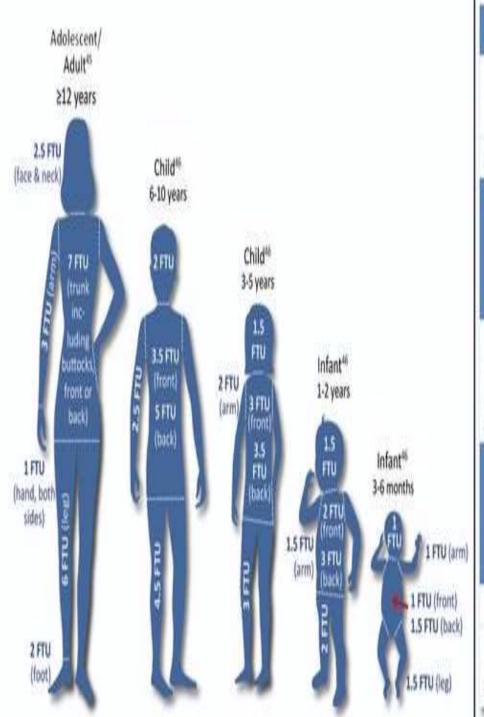
FTUs[45]



FTU = amount of ointment expressed from a tube with a 5-mm diameter nozzle measured from the distal skin crease to the tip of the palmar surface of an adult's index finger[a] (~0.5 g)

1 FTU = adequate amount of ointment for "thin and even" application to an area of skin equal to ~2 adult hands[a] (fingers together)

Quantity of Ointment per Application per Body Area by Age Group[a,b,c]



Weekly/Monthly Quantities by Age Group (Whole Body Application)[a]

Moisturizer[c]	Basic Management
Infant	100 g/week
Child	150–200 g/week[8]
Adolescent/Adult	500 g/week[8]

Ointment	Acute Treatment[45,46] 2-times daily	Maintenance Treatment		
		1-2-times weekly[d]	2-3-times weekly[8]	1-2-times daily[d]
Infant	60–100 g/week	10 g/month	15 g/month	75 g/month
Child	125–250 g/week	20 g/month	30 g/month	150 g/month
Adolescent/Adult	260–300 g/week	40–60 g/month	60–90 g/month	300–450 g/month

Cream[e]	Acute Treatment 2-times daily	Maintenance Treatment		
		1-2-times weekly	2-3-times weekly	1-2-times daily
Infant	66–110 g/week	15 g/month	20 g/month	100 g/month
Child	140–275 g/week	25 g/month	35 g/month	175 g/month
Adolescent/Adult	290–330 g/week	45–70 g/month	70–100 g/month	350–500 g/month

TABLE 2-4 Estimated Amounts for Topical Medication

LOCATION	PER APPLICATION, FTUs	AMOUNT FOR 2 WEEKS, ADULT (g)
Entire face and neck	2.5	35
One hand (both sides)	1	14
One entire foot	2	28
One arm (both sides)	3	42
One leg	6	84

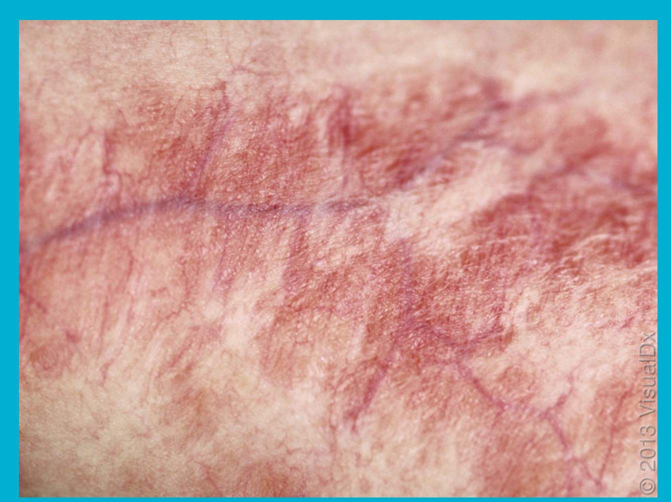
Conversions: Adult: 30 g covers entire adult body in one application; children: ½ of the adult amount; infants (6–12 months): only ¼ of the adult amount; 1 FTU = 0.5 g per application.

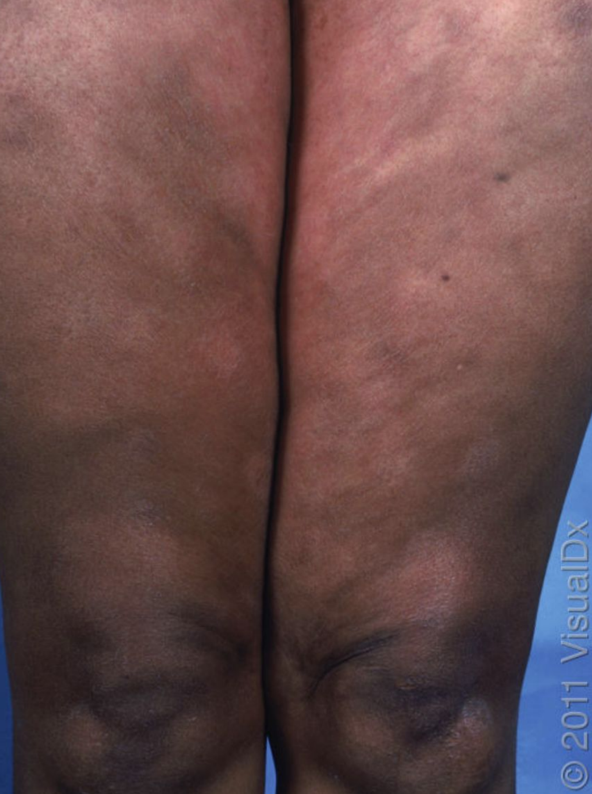
FTU, fingertip unit.

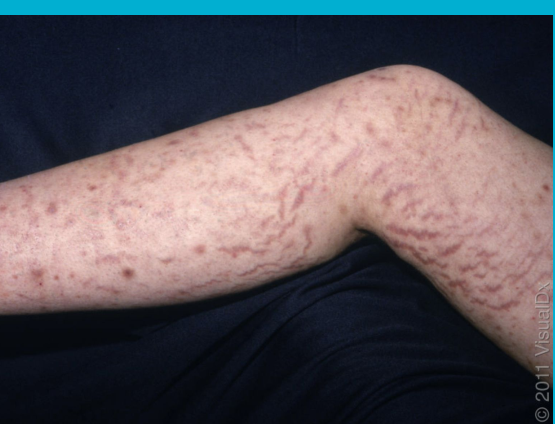
Topical Corticosteroids- Side effects

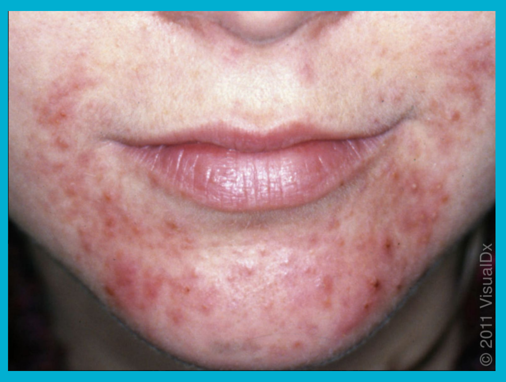
1. Allergic or irritant Contact Dermatitis
2. Epidermal atrophy
3. Steroid addiction/rebound
4. Glaucoma/cataracts
5. Tachyphylaxis
6. Perioral dermatitis, rosacea, acne
7. Folliculitis (especially under occlusion)
8. Adrenal suppression

Topical Corticosteroids- Side effects









Steroid Sparing Agents: Calcineurin inhibitors

- Tacrolimus:
  - 0.03% approved in children 2-15yrs
  - 0.01% approved for >15yrs
  - Moderate-severe AD
- Pimecrolimus
  - 2yrs and older
  - Mild-moderate AD

Steroid Sparing Agents: Calcineurin inhibitors

- Can be used in combination with TCS or as a steroid sparing agent
- No side effects of steroid atrophy so can be used on thinner skin
- Side effects: burning, itching, and stinging, which usually dissipates with continued use
- Black box warning, 2003: increase risk of skin cancer and lymphoma

Steroid Sparing Agents: Crisaborole

- Eucrisa is used for mild to moderate eczema in adults and children 3 months of age and up
- Can be used in sensitive areas
- Advertised as not having a stinging sensation, but have heard otherwise from patients

Steroid Sparing Agents: Ruxolitinib

- Opzelura (ruxolitinib): topical Janus Kinase (JAK) inhibitor
- For the short-term and non-continuous chronic treatment of mild to moderate atopic dermatitis in non-immunocompromised adult and pediatric patients aged ≥12 years
- twice daily to affected skin on up to 20% BSA (no more than 60 g per week)

Systemic Immune Modulators

- Dupilumab (Dupixent): Monoclonal antibody
    - DUPIXENT treats adults and children 6 months of age and older with moderate-to-severe eczema that is not well controlled with topical prescription therapies.
    - Biologic that does not require blood work
    - Can be used with or without topical corticosteroids
- Abrocitinib (Cibinqo): oral JAK inhibitor
    - FDA approved for adults with moderate-to-severe eczema (atopic dermatitis) who didn't respond to previous treatment and when other treatments, including oral or injected medicines, haven't worked well or are not right for them

Antihistamines

- Sedating antihistamines can help promote more restful sleep by decreasing pruritus
    - Hydroxyzine (better than benadryl due to longer half life)
- Non sedating antihistamines are not recommended for routine therapy in the absence of urticarial or other atopic conditions

Antibiotics

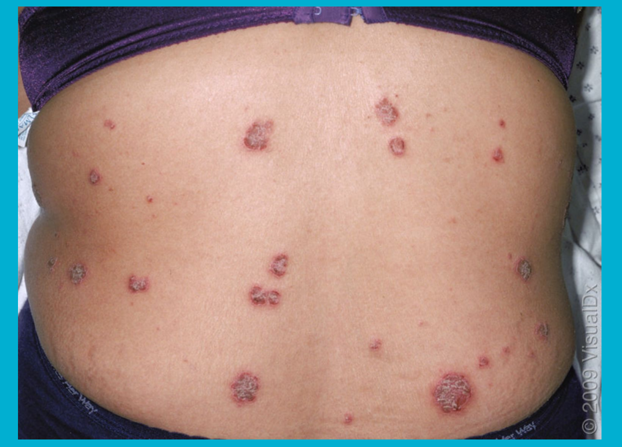
- Needed to treat Staphylococcus aureus skin infections
  - Cephalexin or dicloxacillin x 5-10 days
  - Topical mupirocin for localized infection and in staph aureus nasal colonization
- Bleach baths for recurrent infections to decolonize skin
  - Pediatrics ¼ cup of bleach in full tub of water
  - Adults ½ cup of bleach in full tub of water
- Culture for sensitivities to r/o MRSA (especially if not responding to standard therapies)

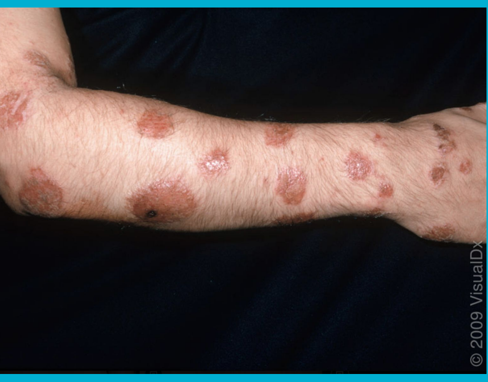
Clinical pearls- AD

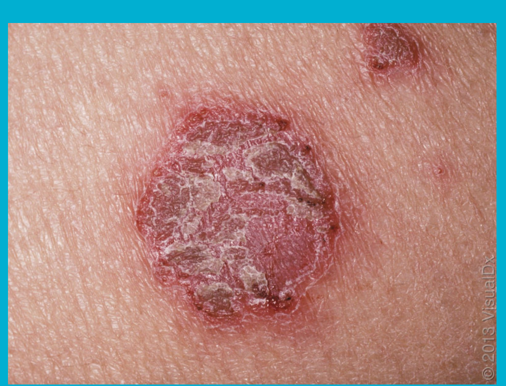
- AVOID oral steroids in AD due to risk of rebound and worsening of AD
- Help patients identify triggers for flares

Nummular Eczema

- M>F; onset >50yrs M and 30s for females
- Chronic course
- Clinical signs and a history of atopy are not present
- Males > lower extremities; females > forearms and dorsal hands
- Bacterial cultures and KOH
- Treat with potent TCS. Can be used under occlusion
- If no improvement with potent TCS think Bowens or CTCL

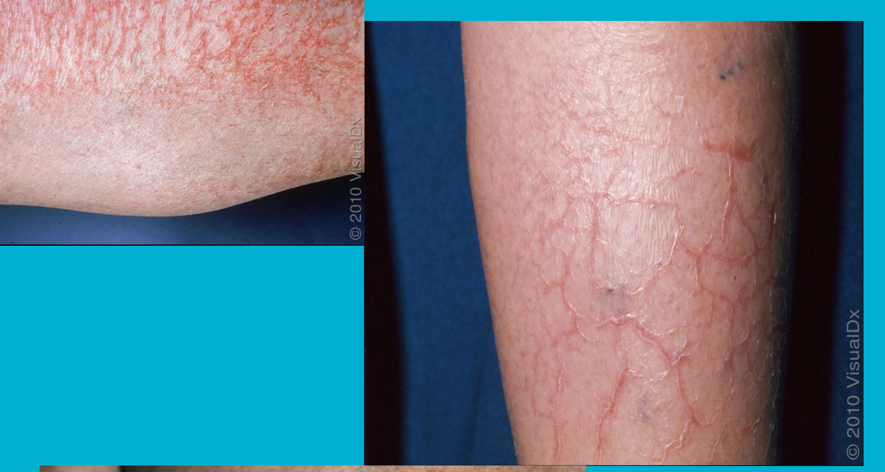


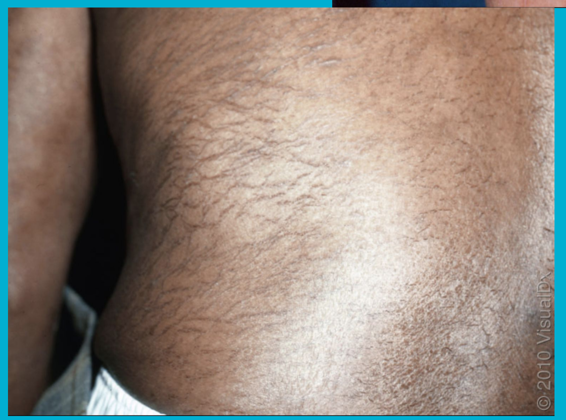




Asteatotic Eczema

- Severely dry skin that is inflamed and fissured
- M>W
- Contributing factors: low humidity, low ambient temperatures, chronic ultraviolet light, excessive use of soaps, habitual scrubbing, and excessive water exposure.
- Worse in winter
- Tx: mid-potency TCS ointment for 5 to 7 days then maintenance with creamy or greasy emollients





Dyshidrotic eczema

- Extremely pruritic form of eczema characterized by vesicles on the hands and feet
- 2x more in females vs males
- Tx: TCS under occlusion with cotton gloves at night; can use paraffin baths; moisturization
- Antihistamines may be helpful
- Refer to derm if first line therapies are not effective or disease is severe and/or recalcitrant

Contact Dermatitis

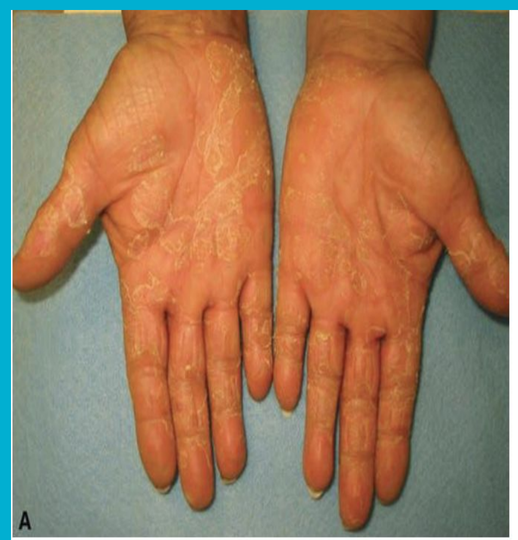
1. Irritant Contact dermatitis: nonimmunologic disease resulting from physical contact with skin barrier (responsible for 80% of CD)
2. Allergic Contact dermatitis: immunologic response with genetic predisposition (about 20% of CD)

Irritant contact dermatitis

- Most common cause of occupational skin dermatoses
- Higher risk occupations: Food catering, furniture industry, health care providers, housekeeping workers, food service workers, hair stylists industrial workers exposed to chemical irritants, dry cleaners, metal workers, florist shop employees and designers, and warehouse employees
- Due to repeated exposure to an irritant
- Water in the most common irritant

Irritant contact dermatitis

- Acute ICD: reaction in minutes-hours after exposure
  - Erythematous patches sometimes with bullae
- Chronic ICD: multiple subthreshold contacts
  - Not as distinctly demarcated and less inflammatory
- Bacterial or fungal culture
- Tx: irritant avoidance and TCS



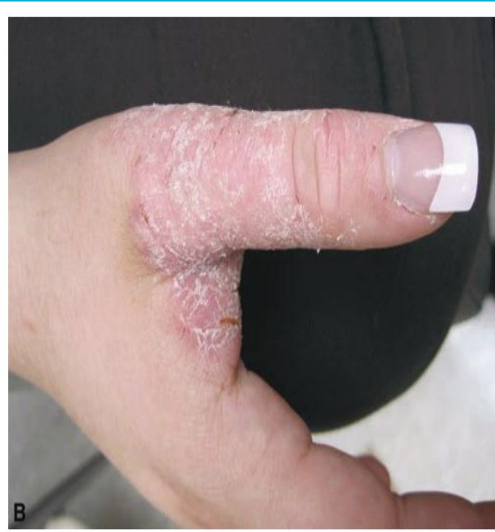


FIG. 3-8. **A:** Irritant contact dermatitis on the hands of a health care worker. **B:** Chronic ICD, becoming fissured and lichenified on a woman who worked as a coffee barista and came in contact with a bleach cloth regularly.

Allergic contact dermatitis

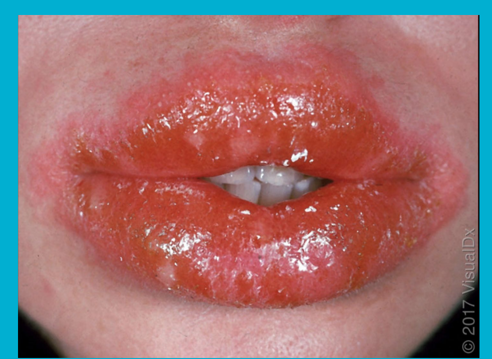
- Majority of occupational skin diseases affecting the hands
- Type IV delayed hypersensitivity reaction
  - Initial exposure allows allergen to penetrate then repeat exposure causes release of cytokines causing inflammatory and pruritic dermatitis
- Areas of involvement limited to areas of exposure

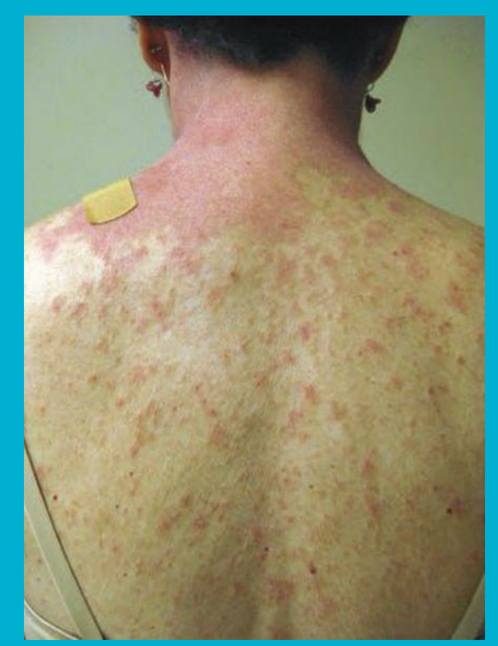
BOX 3-2 Common Allergens

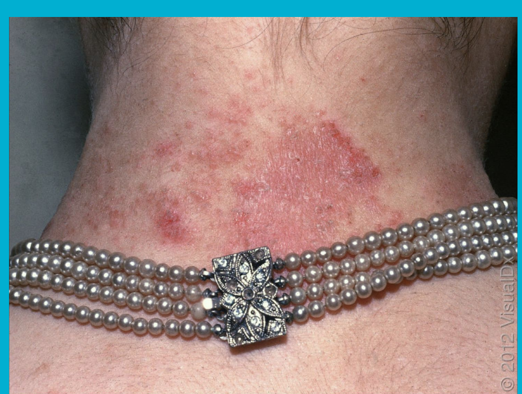
Bacitracin
Balsam of Peru
Cobalt chloride
Formaldehyde
Fragrance mix
Neomycin sulfate
Nickel sulfate
Propylene glycol
Quaternium-15
Sodium gold thiosulfate
Thimerosal
Thiuram mix

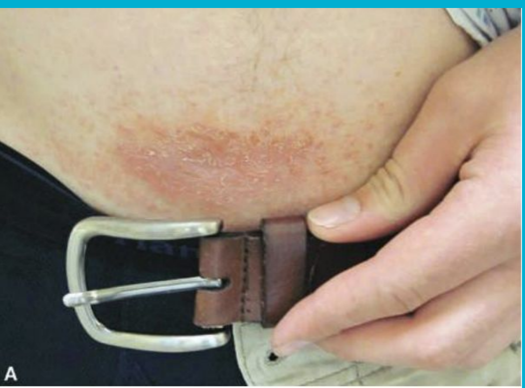
Allergic contact dermatitis

- Patch testing is the diagnostic GOLD STANDARD
  - TRUE test- 36 allergens, allergen mixes, and controls used to diagnose 90% of the most common allergens seen in ACD.
- Avoidance of allergens in key in treatment
  - It can take up to 6 weeks for dermatitis to resolve
- Chronic ACD or if affecting critical areas such as hands and/or face, referral to dermatology or allergy/immunology for patch testing is crucial









Papulosquamous

1. Psoriasis
2. Seborrheic dermatitis
3. Pityriasis Rosea

Psoriasis

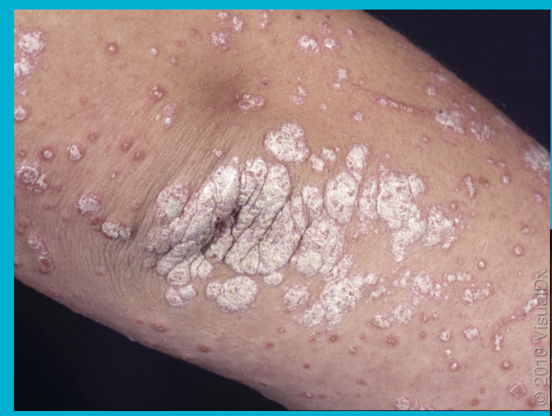
- Autoimmune skin condition affecting 2-5% of the world population
- M=F
- Can affect joints in about 30% of patients
- Genetic predisposition + environmental triggers -> inappropriate immune response -> cytokine production -> accelerated production of new skin cells and angiogenesis
- Bimodal peak of onset 20-30yrs and 50-60yrs
- Prevalence increases with increased distance from the equator

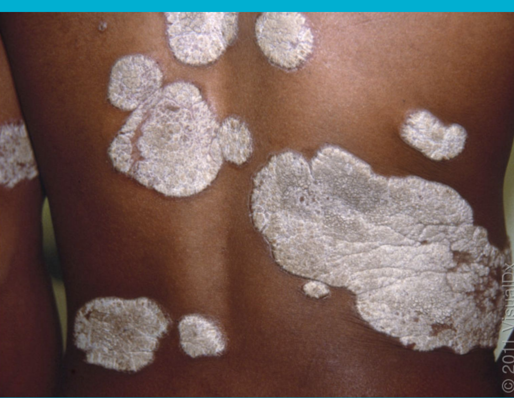
Psoriasis - Clinical Presentations/Subtypes

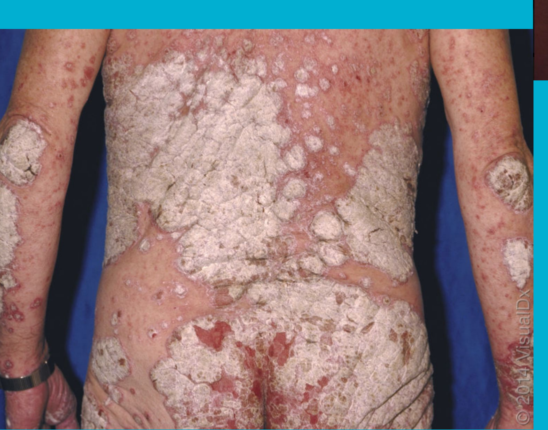
1. Plaque psoriasis
2. Scalp psoriasis
3. Palmoplantar psoriasis
4. Guttate Psoriasis
5. Inverse psoriasis
6. Erythrodermic psoriasis
7. Psoriatic nails

Plaque Psoriasis

- 80-90% of patients
- Well demarcated plaques with varying degrees of:
    - Erythema (pink to red)
    - Scale (desquamation)
    - Induration (thickness)
- Occurs anywhere on body
- Auspitz sign: removal of scale reveals punctate blood vessels that bleed

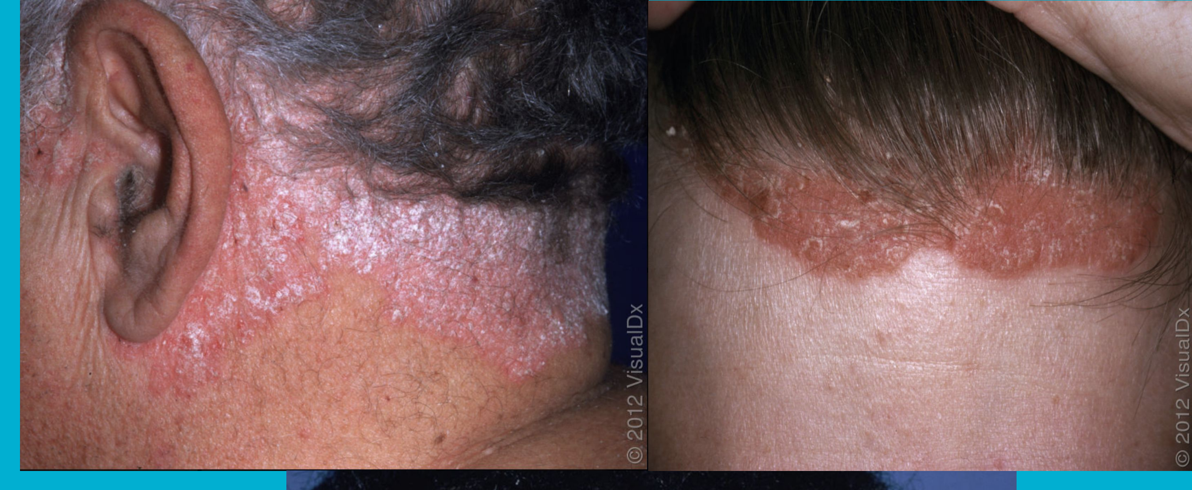


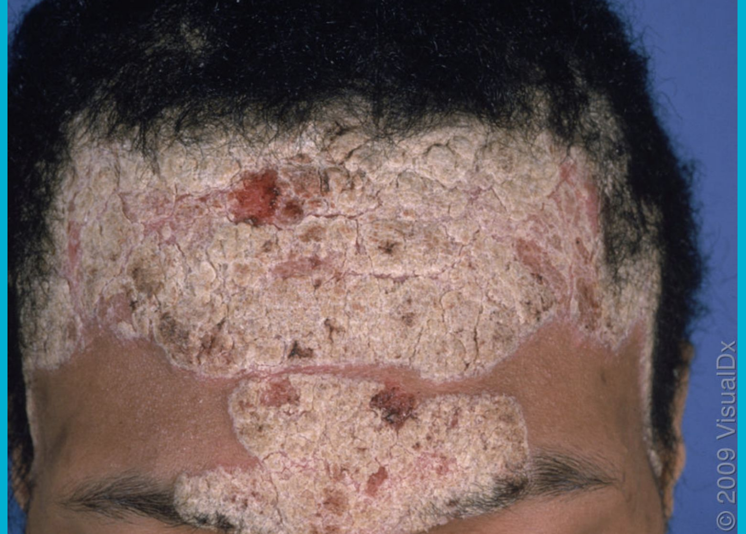




Scalp Psoriasis

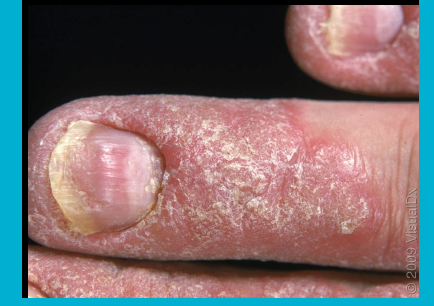
- Very challenging form of psoriasis that can often be mistaken for seborrhea or seborrheic dermatitis
- Can be very distressing due to visibility, significant pruritus, and shedding on clothing

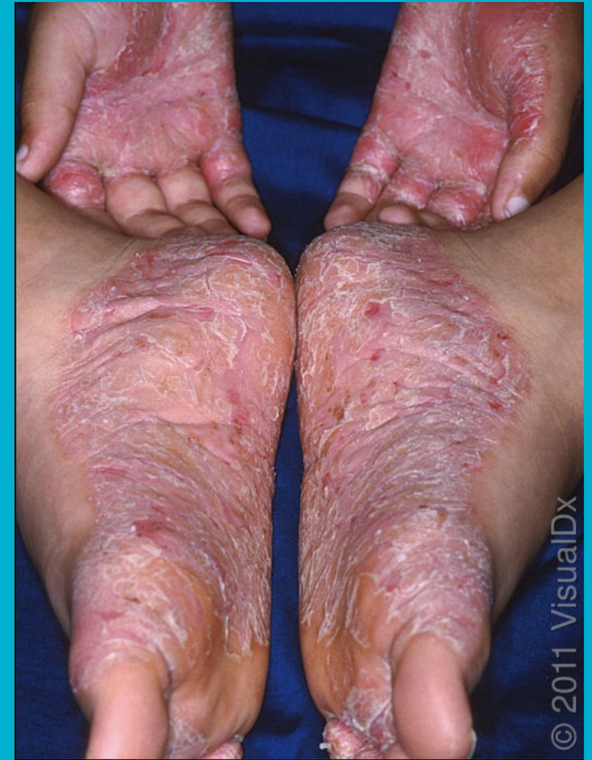




Palmoplantar Psoriasis

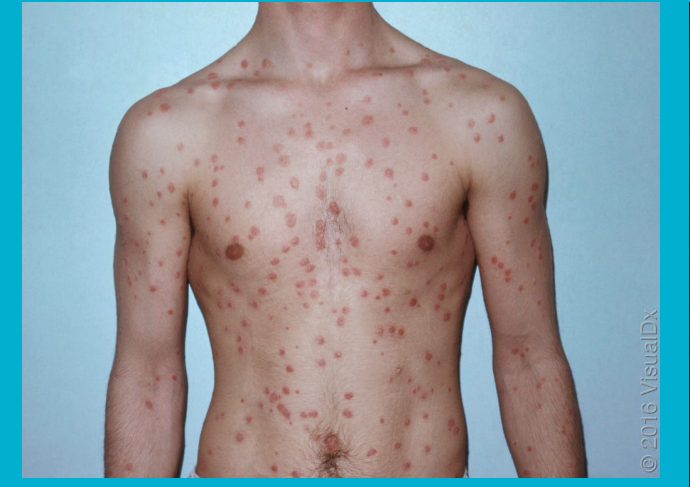
- Lesions can present as erythematous papules, patches, deep-seated vesicles, and pustules.
- Dystrophic nail changes can occur
- Culture of sterile papules does not reveal any microorganism

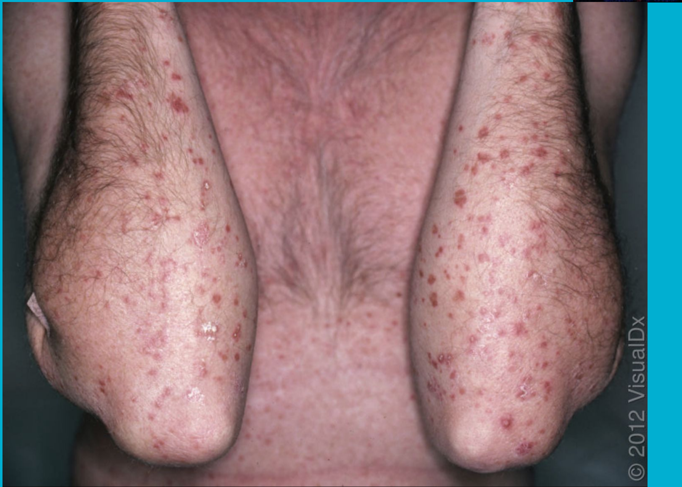




Guttate Psoriasis

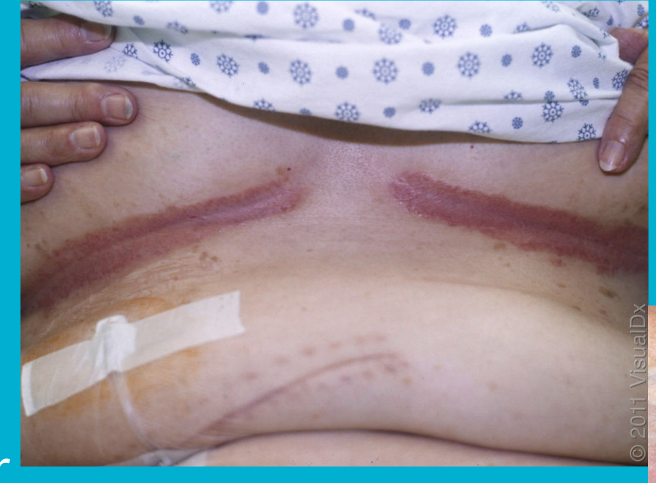
- Occurs in 2% of patients with psoriasis
- Usually <30yrs
- Erruptive
- Often preceded by a streptococcal throat of sinus infection
- Pathophysiologic association is not well understood
- Latin *gutta* = “a drop”

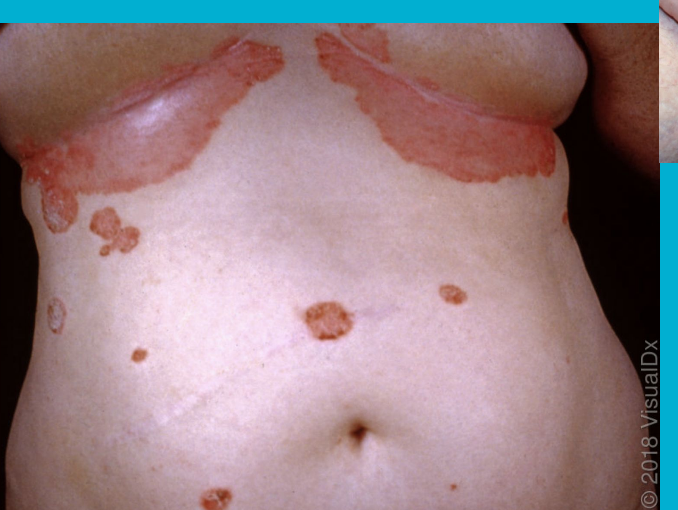




Inverse Psoriasis

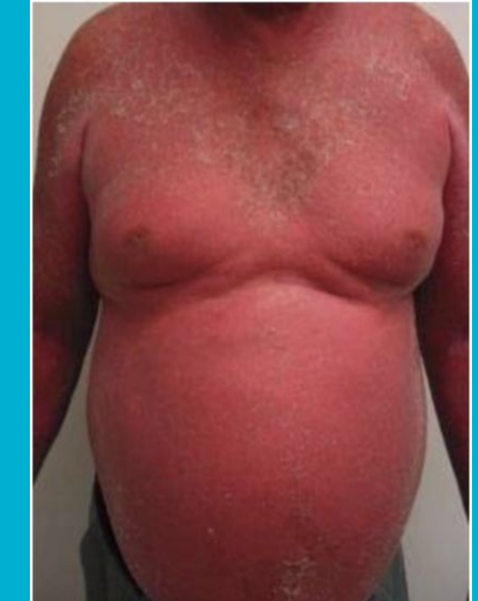
- Occurring in intertriginous areas and skin folds
- Often mistaken for fungal or candidal infection
- thin , erythematous, shiny patches with minimal scale

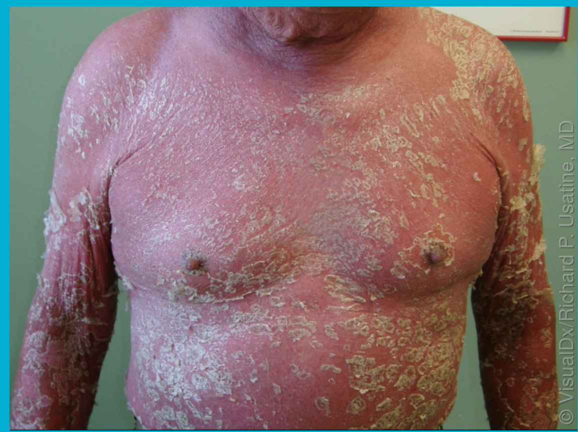




Erythrodermic Psoriasis

- Severe form of psoriasis presenting with full-body (>70-90% BSA) of erythema and scaling
- These patients often require hospitalization
- Can be triggered by environmental response or response to medications.
- Can occur in patients with psoriasis who were treated with systemic steroids (initial remission followed by severe rebound)
- DO NOT treat psoriasis with systemic steroids





Psoriatic Nails

- Affects 50-85% of psoriasis patients
- Associated with joint involvement (20%)
- Pitting on the nails
- Oil spots
- Onycholysis- separation of nail plate from nail bed

Comorbidities

- HTN
- Dyslipidemia
- Metabolic Syndrome
- Malignancy (lymphoma, NMSC)
- Non-alcoholic fatty liver disease (NAFLD) or NASH
- Depression
- Psoriatic Arthritis
- Diabetes
- Obesity
- Cardiovascular disease
- Inflammatory Bowel Disease
- CKD, OSA

Psoriasis – Management

- Symptom management, disease-control, reducing the risk for comorbidities, and optimizing QOL.
- Mild-Moderate Disease:
  - First line treatment TCS. Topical immunomodulators (TIMS) are often selected for face, axilla and groin
  - Calcipotriene (Vitamin D derivative) can be used as adjunctive therapy
  - Keratolytics (ie topical retinoids or urea) help thin the plaques of psoriasis and improve the penetration of TCS
- Moderate-severe disease: refer to dermatology

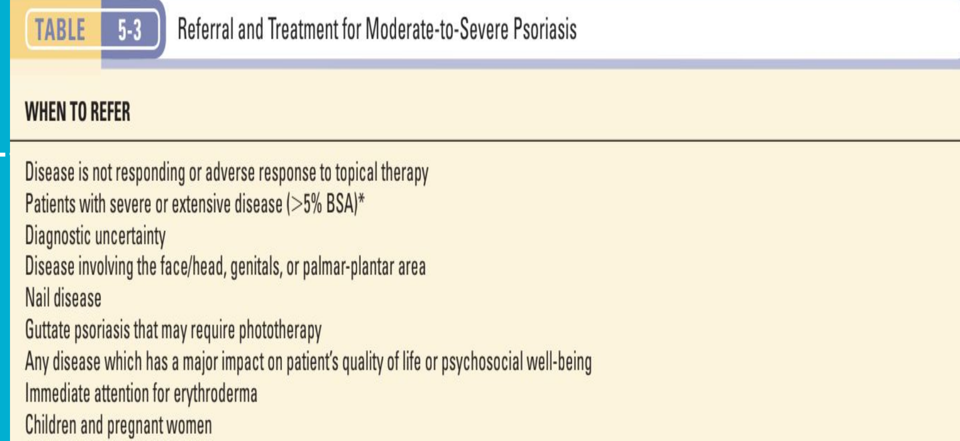


TABLE 5-3 Referral and Treatment for Moderate-to-Severe Psoriasis

WHEN TO REFER

Disease is not responding or adverse response to topical therapy
Patients with severe or extensive disease (>5% BSA)*
Diagnostic uncertainty
Disease involving the face/head, genitals, or palmar-plantar area
Nail disease
Guttate psoriasis that may require phototherapy
Any disease which has a major impact on patient's quality of life or psychosocial well-being
Immediate attention for erythroderma
Children and pregnant women

TREATMENT MODALITY	OPTIONS
Phototherapy	Narrow-band UVB, excimer laser, chemophototherapy (PUVA), home light box therapy
Systemic, biologic agents	TNF-α inhibitors adalimumab, etanercept, infliximab, interleukin-12 and -23 agonists (ustekinumab)
Systemic, oral agents (nonbiologic)	Methotrexate, retinoids (acitretin), immunosuppressants

Psoriasis - Management

TABLE 5-2 Topical Therapies for Psoriasis

CLASSIFICATION	AGENT/FORMULATION	DOSING	ADVERSE EVENTS	KEY CONSIDERATIONS
Topical corticosteroids (TCS) (see chapter 2 and TCS chart inside back cover)	Mild/moderate psoriasis or sensitive areas (face, eyelids, axillae, genitals): mild-to moderate-potency TCS Moderate/severe disease or thick skin areas: potent to very potent TCS	Apply thin film directly to lesions daily or b.i.d. for 2–4 wk	SE: acne, irritation, telangiectasias, xerosis, skin atrophy, striae, hypopigmentation, and rebound when discontinued. Increased risk of cataract and glaucoma Adrenal suppression if long term	Slows proliferation of keratinocytes and reduces inflammation Assess children after 2 wk and adults after 4 wk. Taper to 1–2 times a week if controlled. LIMIT the quantity and number of refills in to ensure patient follow-up Caution if using occlusion which increases potency and side effects
Topical immunomodulators (see chapter 3)	Calcineurin inhibitors: tacrolimus (Protopic)* ointment FDA approved: 0.1% for >16 yr and older; 0.03% for 2–15 yr of age	Apply thin film to lesions b.i.d.	May cause burning and irritation but usually subsides in first 2 wk	Anti-inflammatory Patient education regarding SE increases adherence. Can be used on face, eyelids, and flexural areas without risk of skin atrophy or telangiectasis
Vitamin D_3 analogs	Calcitriol (Vectical) Calcipotriene (Dovonex) Combination of calcipotriene and betamethasone propionate (Taclonex)	Apply thin layer q.d.-b.i.d. to affected areas for up to 8 wk Combination applied once daily	May cause irritation Can lower vitamin D levels (especially in children) Possible elevation of serum calcium level	Blocks hyperproliferation of keratinocytes and anti-inflammatory properties Safe for use on face and intertriginous areas Combination therapy (with TCS) is more effective and more expensive Mix with petrolatum to reduce irritation
Vitamin A analogs (retinoids)	0.05% and 0.1% tazarotene gel (Tazorac)	Apply at night, followed by mid- to high-potency TCS in a.m. Start with 0.05% can increase to 0.1%	May cause scaling and irritation Pregnancy category X (not be used by women considering pregnancy, who are pregnant or nursing)	Apply zinc oxide or moisturizer to healthy skin around the plaque to prevent irritation Optimal efficacy when used as combination rather than monotherapy
Tar preparations (OTC)	Many brands	Massage into scalp and leave on for 5–10 min, then rinse.	Can stain clothing, bathtubs, or skin Irritation and photosensitivity for up to 24 hr after application	Often used as adjunctive therapy Helpful for pruritus, especially the scalp
Keratolytic agents	Shampoos, lotions, creams, and gels containing salicylic acid, lactic acid, urea	Shampoos: apply to scalp, wait 5–10 min, then rinse Apply creams/lotions daily to plaques	Can cause nausea and tinnitus if used over large areas of the body Can cause atrophy of healthy skin	Softens thick plaques and removes scale Enhances penetration of other topicals EXCEPT salicylic acid inactivates vitamin D_3 analogs, so should not be used together.

New Psoriasis treatment: VTAMA

- Tapinarof cream 1% (VTAMA): topical prescription treatment approved by the FDA for adults with plaque psoriasis and is safe for regular, long-term use on all affected external skin areas, as demonstrated in clinical studies over 52 weeks

Psoriasis - Management

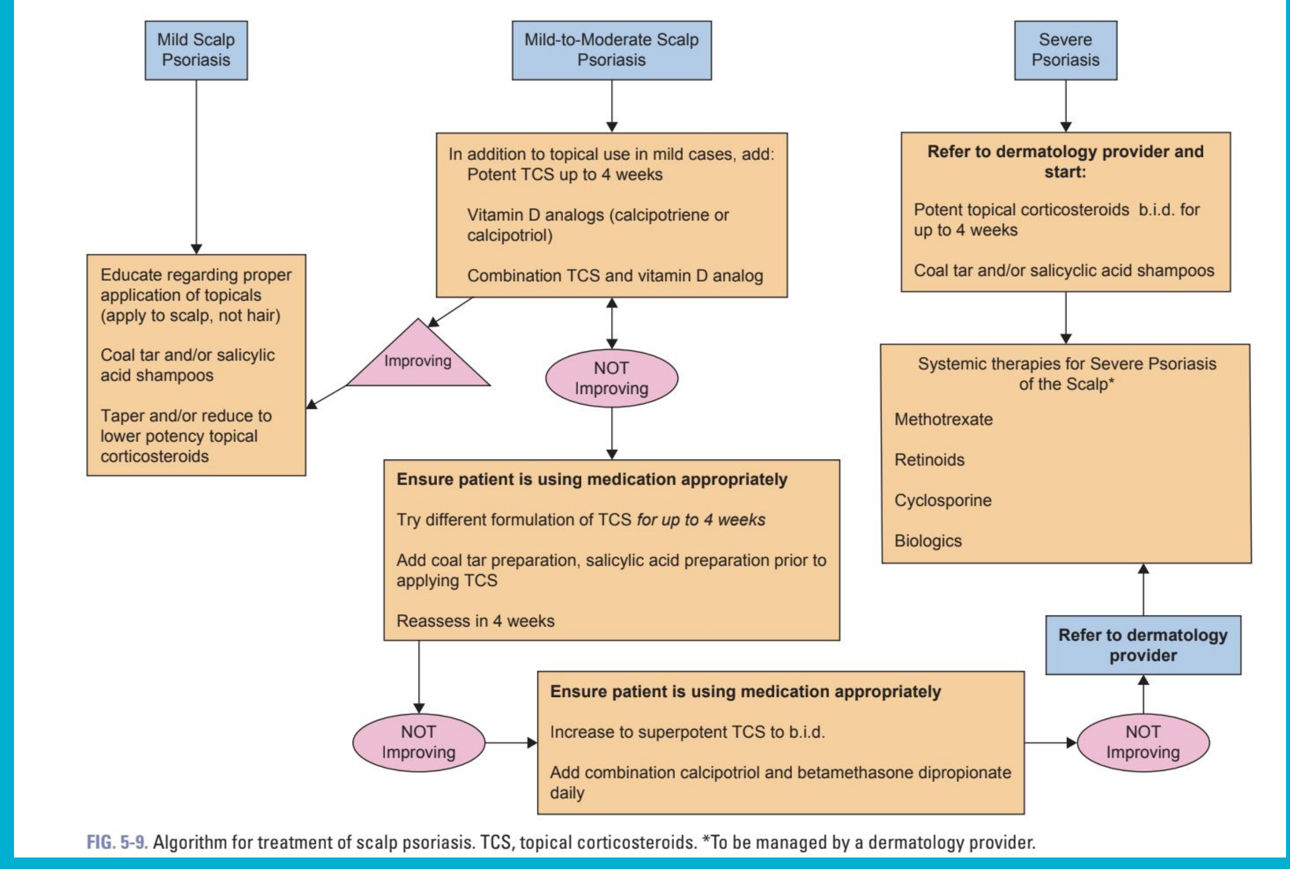


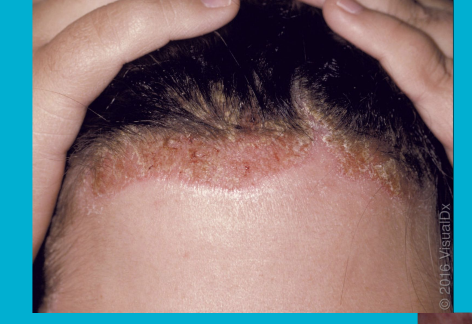
FIG. 5-9. Algorithm for treatment of scalp psoriasis. TCS, topical corticosteroids. *To be managed by a dermatology provider.

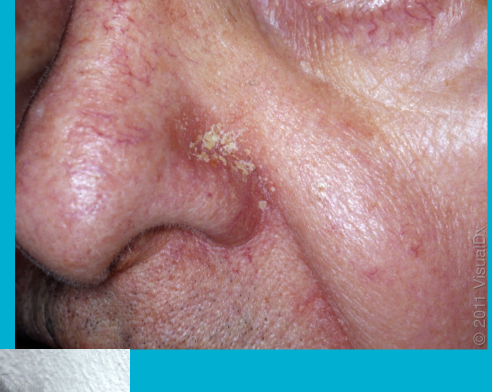
Seborrheic Dermatitis

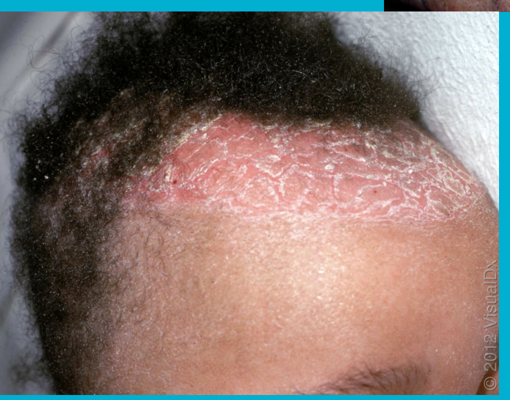
- Recurring, papulosquamous skin disorder that causes erythema and waxy, yellowish scale.
- Chronic with remissions and exacerbations
- 50% of the population
- Males slightly more than females
- Associated with the lipophilic yeast Malassezia, a normal inhabitant of the skin.
-

Seborrheic Dermatitis

- In adults commonly involves scalp, forehead, eyebrows, glabella, nasolabial folds, ears, and postauricular skin.
    - Less often, the axillae, inguinal folds, and trunk are involved, and distribution is often symmetric.
- In infants it exhibits as variable erythema with thin-white yellow scale
    - Diaper ares: lesions are more red and can have scale
    - Can resolve in 3-4 weeks w/o treatment
    - Mineral or baby oil overnight and remove scale with soft brush or toothbrush







Seborrheic Dermatitis

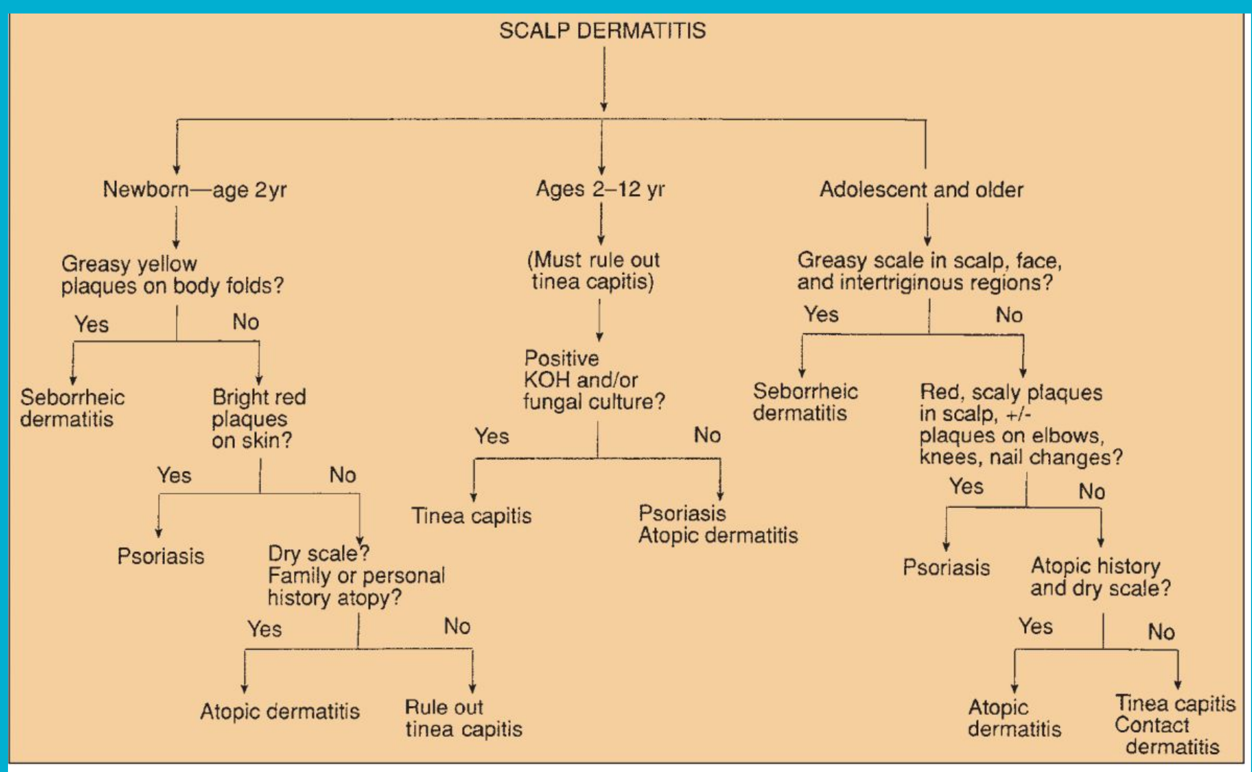


FIG. 6-5. Algorithm for diagnosis of a scaly scalp.

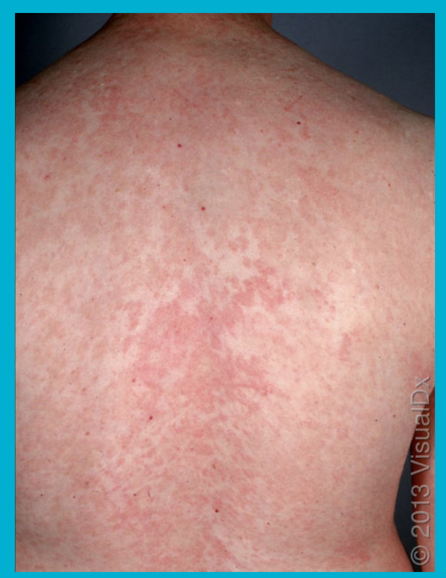
Seborrheic Dermatitis - Management

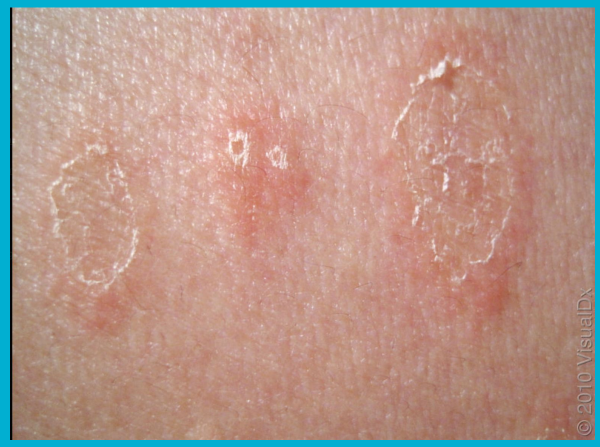
TABLE 5-4 Treatment for Seborrheic Dermatitis†

SEVERITY*	SELF-CARE	SHAMPOOS	TOPICAL AGENTS	COMMENTS
Mild	Shampoo daily (once weekly for African Americans) Antifungal or dandruff shampoo, OTC, or Rx products (apply to wet scalp, lather, wait 5 min, rinse) Facial cleansing to remove oil and scale (can use antifungal shampoo as wash) Apply a moisturizing or barrier cream	Ketoconazole 1%† or 2% (Nizoral) Ciclopirox 1% (Loprox) Selenium sulfide 2.5% (Selsun) Zinc pyrithione 1% and 2%† (Head & Shoulders)	Ketoconazole 2% C, G, F Ciclopirox 1% C, L Butenafine C, G Terbinafine C, G	If facial rash persists, consider adding a topical antifungal to the face b.i.d.
Moderate	Follow measures for mild disease P&S solution (leave on overnight, wash out in the morning)	*Keratolytic shampoos*: Salicylic acid 2% shampoo, tar shampoo, P&S shampoo†	*Corticosteroids—scalp:* Clobex‡ Sh, Capex‡ Sh Fluocinolone acetate 0.01% in peanut oil (Derma-Smoothe F/S) Fluocinolone solution 0 Fluocinonide 0.05% Betamethasone diproprionate 0.05% Clobetasol 0.05%, spray *Face and body topicals*: Metronidazole cream 0.75% b.i.d. Metronidazole gel 1.0% q.d. Azelaic acid 15% b.i.d. Sodium sulfacetamide lotion, gel wash, shampoo (Klaron, Ovace, Mexar) Promiseb b.i.d.—t.i.d. Hyaluronic acid 0.2% (Bionect) C, G, Sp *Corticosteroids—face and body:* Hydrocortisone 1 & 2.5%†, Desonide 0.05%† cream and lotion *Immunomodulators*: Tacrolimus ointment (Protopic)† # 0.03 and 0.1% Pimecrolimus cream (Elidel) †#	If there is thick, adherent scale on the scalp, use a keratolytic agent Low- to mid-potency topical corticosteroids may be applied to the scalp daily or b.i.d., 2–4 wk for scalp and 1–2 wk for face, then taper A combination of therapies may be most effective
Severe	Overnight Derma-Smoothe F/S scalp oil‡ at night with cap Apply antifungal in a.m. and another in p.m.	Follow measures for mild disease	If scalp scale persists despite frequent shampooing, increase the topical corticosteroid to mid to high potency (i.e., clobetasol b.i.d.) Consider other topical agents for facial eruption If necessary, use a mild anti-inflammatory lotion to the face such as Desonide 0.05%† b.i.d. to improve the redness, but only for short period	Reconsider diagnosis, conditions like rosacea and seborrhea often coexist In severe or recalcitrant cases, refer to dermatologist

Pityriasis Rosea

- Common self limiting self-limiting, papulosquamous dermatosis that usually affects young healthy individuals
- 10-35 years of age; F>M
- Viral etiology is suspected, remains controversial
- Herald patch:solitary 2- to 4-cm patch or plaque on the trunk, which can precede the typical rash by 1 to 2 weeks
- 25% % pruritus
- Resolves spontaneously in 6-8 weeks. Some cases can last up to 5 months





Adnexal Diseases

1. Acne
2. Rosacea

Acne

- Effects 85% of the population between ages 12-25 (40-50 million people in the US/year)
- Onset often correlates with puberty and can occur as early as 8-12yrs in females
- More severe and frequent in males than females. Females usually have longer chronicity
- Contributes to psychosocial issues regarding body image and self esteem
- Also occurs in neonates due to maternal androgen exposure
- Increased risk: PCOS, hyperandrogenism, Cushing syndrome, and precocious puberty
- Genetic predisposition

Acne

- Disorder of the pilosebaceous unit
- Multifactorial process: androgens, increased sebum production, altered follicular differentiation, enlargement of pores, and Cutibacterium acnes (formerly known as Propionobacterium acnes) colonization of the follicle
    - Development of microcomedo -> blocks the pore ->rupture of follicular wall -> formation of papules, pustules, and sometimes cysts

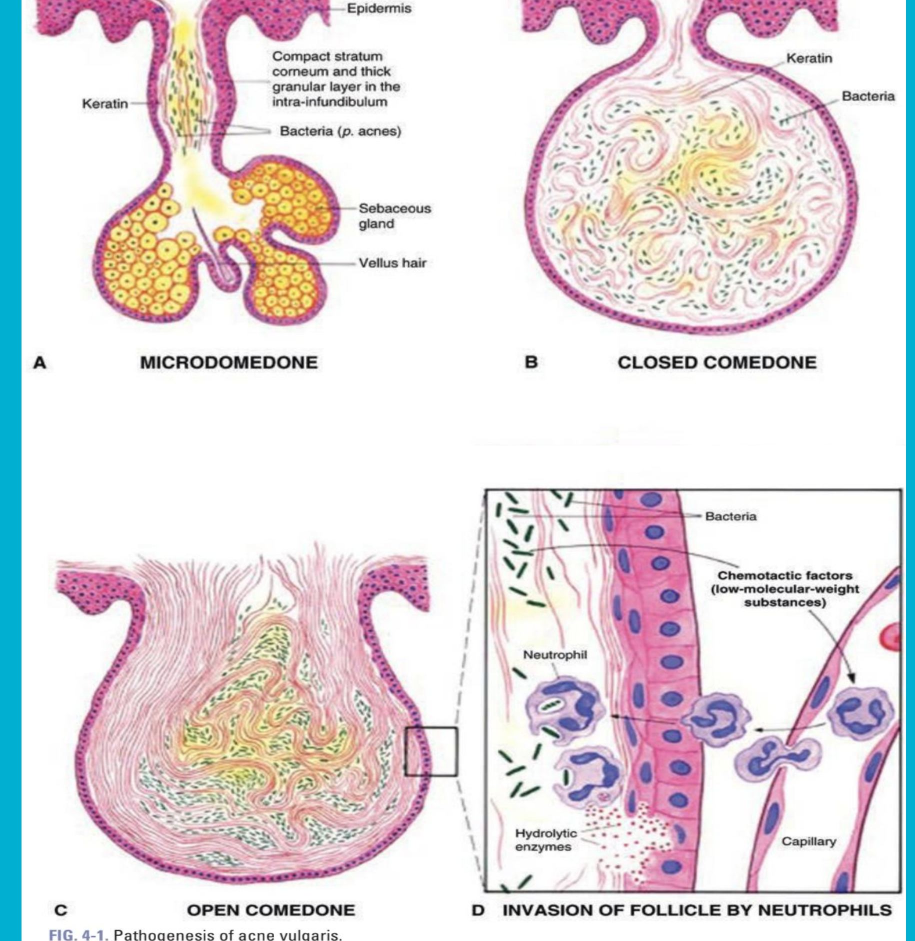
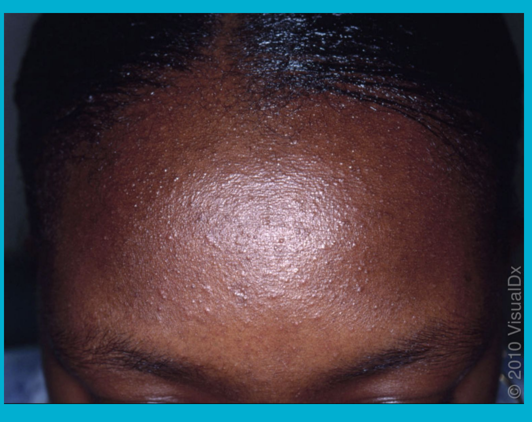


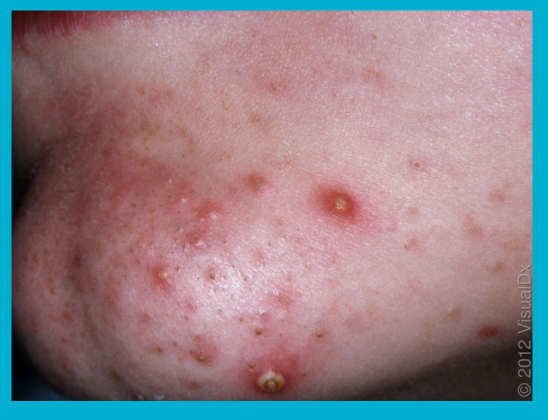
FIG. 4-1. Pathogenesis of acne vulgaris.

Acne Classifications

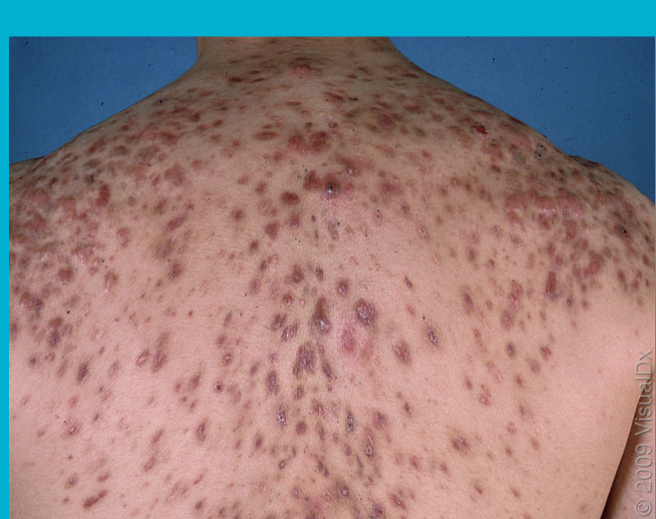
1. Neonatal and infantile acne
   a. Neonatal acne- begins in first few weeks of life and resolves by 6 months
   b. Infantile acne- Male:Female = 5:1. Starts 6-12 months
2. Mid-childhood acne - 18 months- 7 years (most concerning age group)
   a. Rare and often implies systemic problems (Cushing syndrome, premature adrenarche, congenital adrenal hyperplasia, gonadal/adrenal tumors, or true precocious puberty)
3. Preadolescent acne - 8-12 yrs
4. Adolescent acne - common
5. Acne conglobata- severe form of acne and typically arises in adolescent males
6. Acne fulminans- occurs uncommonly but with an explosive onset in the teenage male population

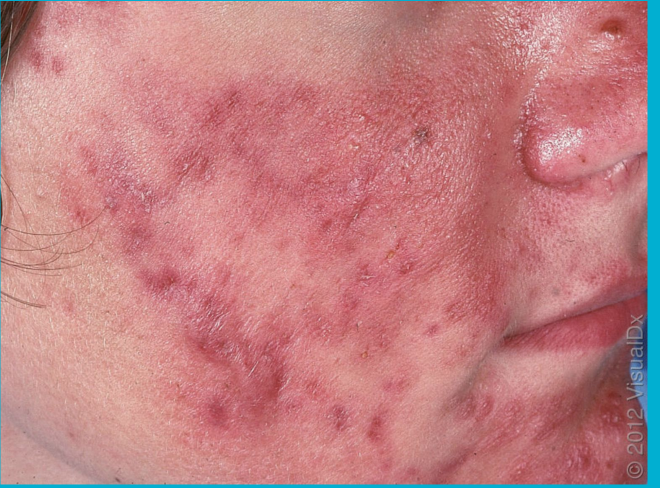
Acne Presentation





1. Noninflammatory lesions
    a. Open comedone (black heads)
    b. Closed comedones
2. Inflammatory lesions (face, chest, and back)
    a. Papules
    b. Pustules
    c. Nodules
    d. cysts





Acne Management

- Non pharmacological treatments:
  - Gently wash face twice a day using mild soap
  - Avoid oil based skin care, cosmetics and hair care products
  - For ethnic hair care – if using oil based hair care products, follow up by washing off skin along hairline
  - Avoid friction or scrubbing

Acne Management

TABLE 4-3 Acne Vulgaris: Treatment Matrix

LEVEL OF SEVERITY	FIRST LINE*	ALTERNATIVES*	NO OR LITTLE RESPONSE	EXAMPLE
Mild Open and closed comedones Facial involvement	*Treatment & Maintenance:* topical retinoids			
	Topical retinoids Mild cleanser	Change topical retinoid or d/c and start azelaic acid Consider topical antimicrobial, and/or salicylic acid	Check for adherence Increase to moderate-level therapy Refer to dermatologist for acne surgery, PDT, chemical peels	
Moderate Comedones plus inflammatory papules and pustules Involving face, chest and/or back Scarring on face, chest, or back escalates level of treatment	*Treatment & Maintenance:* topical retinoids and BPO			
	Topical retinoids, BPO *and* topical antibiotics (single agent or combination), *and/or* oral antibiotics	Consider alternative oral antibiotic In females, hormonal assessment, oral contraceptives, spironolactone	Assess in 8–12 wk Check for adherenceIf persistent inflammation, or evidence of scarring, refer to dermatologist for intralesional steroids, microdermabrasion, PDT, chemical peels, and oral isotretinoin	
Severe Comedones, inflammatory papules, pustules, nodules, cysts, and/or scarring	PCP should initiate treatment including topical retinoids, BPO, oral antibiotics, ± oral contraceptives *and* refer to a dermatologist.			

Acne Management - Topicals

TABLE 4-4 Topical Agents for Management of Acne

AGENT	GENERIC/BRAND	PREGNANCY CATEGORY	COMMENTS
Cleansers Keratolytic, anti-inflammatory, antimicrobial	Mild cleansers (nonabrasive)		Twice daily For dry/sensitive skin or irritation from treatment Antibacterials are drying
	BPO wash, creamy wash	C	Bleaches fabrics Keratolytic, anti-inflammatory, antimicrobial
	Salicylic acid 2%	C	Keratolytic
Antimicrobials Decreases bacterial count, prevents bacterial resistance, keratolytic, decreases free fatty acids Antimicrobial	BPO 2.5%–10% (OTC and Rx)	C	Daily wash or leave on gel Irritating Possible allergic contact dermatitis Bleaches fabric
	Sodium sulfacetamide (Plexion, Rosaderm)	C	Twice daily wash
	Azaleic acid 15% gel (Finacea) 20% Cream (Azelex) Once daily	B	Good for skin of color Also comedolytic Decreases hyperpigmentation
Antibiotics Anti-inflammatory Antimicrobial Attacks neutrophils to decrease inflammation	*Clindamycin 1% sol, lotion, gel, (Cleocin T, Clindagel, Evoclin)	B	Daily or twice daily Rare pseudomembranous colitis Bacterial resistance
	*Erythromycin 2% (Akne-Mycin Oint, Ery pads, and solution)	B	Daily or twice daily Good for sensitive or dry skin
	Dapsone (Aczone Gel)	C	Twice daily but not at same time as using BPO (orange skin) Decrease inflammation
Retinoids Keratolytic Comedolytic Anti-inflammatory	Tretinoin, c, g, (Retin A, Retin A Micro, Atralin gel 0.05%	C	Irritating, use on dry face Apply small amount at nighttime Start 2–3/wk and slowly increase Use as maintenance
	Adapalene (Differin 0.1%, L,G 0.3% Cream	C	
	Tazarotene (Tazorac 0.1% cream, gel)	X	

Acne Management – Systemics

TABLE 4-6 Systemic Therapy for Management of Acne

AGENT	GENERIC/BRAND	PREGNANCY CATEGORY	COMMENTS
Antibiotics (target *P. acnes*); anti-inflammatory, first-line therapy	Tetracycline 250–500 mg Doxycycline 50–100 mg Minocycline 50–100 mg Erythromycin 250–500 mg Sustained release Doxycycline (Oracea) 40 mg	X—not for use in pregnancy	Use with BPO to reduce drug resistance Do not take with calcium GI upset, photosensitivity Birth control failure risk Vaginal candidiasis Daily or twice daily
Antibiotic alternatives (not recommended for routine use)	Bactrim 200 mg	C	Daily or twice daily Use cautiously for severe refractory cases
	Amoxicillin 250–500 mg	C	Daily or twice daily GI symptoms, vaginal candida, hypersensitivity
	Cephalexin 500 mg	C	Twice daily GI upset, vaginal candida, hypersensitivity
Hormones	OCPs Combined estrogen/progesterone most effective	D	Drospirenone-containing OCP very effective for hormonal acne Drospirenone 3 mg = spironolactone 25 mg
	Spironolactone	C	Start 50 mg/day, increase to twice daily, maximum of 200 mg/day Consult if family history includes breast cancer Avoid use with K^+ sparing diuretics, ACE inhibitors, K^+ supplements, lithium Caution with use of OCP containing drospirenone, monitor for hyperkalemia
Retinoids	Isotretinoin; refer to dermatologist	X	

New Acne Medications

- Minocycline 4% topical foam approved 10/2019
- Clascoterone cream 1% (Winlevi) approved in 8/2020 androgen receptor inhibitor indicated for the topical treatment of acne vulgaris in patients 12 years of age and older.
  - First acne medication with a new mechanism of action that has been FDA approved in 40 years
- Seracycline (Saysara): Novel tetracycline antibiotic, indicated for the treatment of inflammatory lesions of non-nodular moderate to severe acne vulgaris in patients 9 years of age and older. Recommended for 12 weeks once daily
  - 60 mg for patients who weigh 33-54 kg,
  - 100 mg for patients who weigh 55-84 kg,
  - 150 mg for patients who weigh 85-136 kg.
-

Acne - Patient Education

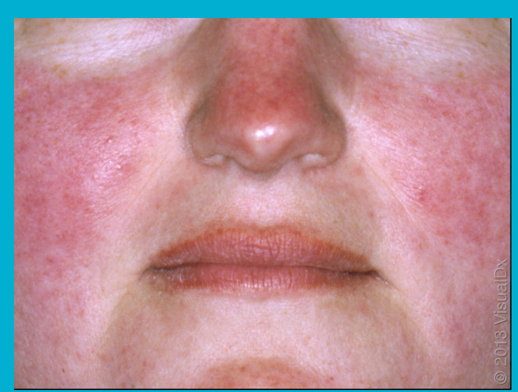
- Most acne treatments require at least 3 months of faithful use
- Can often be a chronic disease
    - Men get clear 20- 25yrs usually
    - Adult acne more common in women and can last up to 40s
- Relapse in common
- Reinforce compliance
- Refer to dermatology:
    - Patient fails 3-6 months of treatment
    - Evidence of scarring

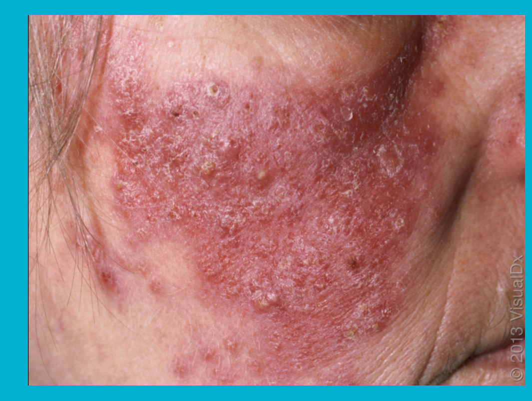
Rosacea

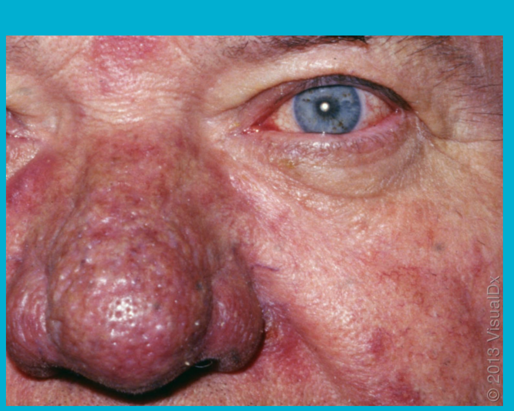
- >16 million people are affected by rosacea
- Onset 30-50yrs (has been reported in children and elderly)
- Earlier in women
- More severe in men
- The rhinophymatous subtype is almost exclusive to men.
- Rare in skin of color
- Etiology unknown

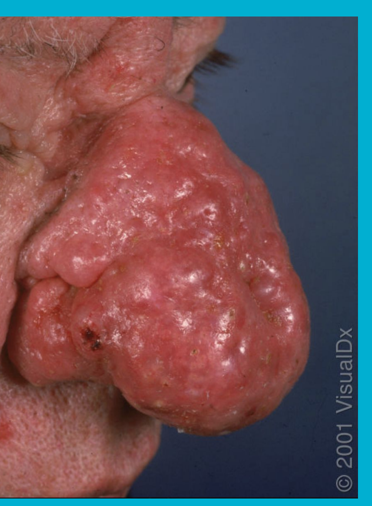
Rosacea

- Polymorphic presentation:
  - Facial erythema
  - Flushing
  - Papules and pustules
  - Mild edema
  - Telangiectasias
  - Ocular sx: burning and stinging
  - Rhinophyma: sebaceous hyperplasia and skin thickening
- Usually affects nose, centrofacial area, and forehead
- Subtypes:
  - erythematotelangiectatic type
  - papulopustular
  - phymatous
  - ocular









Rosacea Management

- Photoprotection: broad spectrum UVA/UVB
- Trigger Avoidance:
  - Spicy foods
  - Alcoholic beverages
  - Skin care products (astringents and exfoliants)
  - Emotional influences
  - Temperature or weather factors
- Demodex eradication:
  - Permethrin cream, lindane, BPO, or sulfur-based lotions