SKIN DISORDERS

* In dealing with a persistent skin problems that is not responding to treatment:
	+ Reconsider the diagnosis (e.g. eczema may be a fungal infection)
	+ Investigate or modify treatment (e.g. for acne)

Common Diagnoses

Eczema (Atopic Dermatitis)

* Hereditary relapsing immunologic hypersensitivity of skin producing pruritis (the rash is always itchy and itching makes it worse!)
1. Often have personal and family hx of atopy (asthma, hay fever, eczema)
* Usually presents in infancy on cheeks/scalp/extensor surfaces, kids in flexor creases/neck, adults on hands/flexor surfaces/eyelids
* O/E: dry flaky red areas with indistinct borders. Can have itchy papules, crusts, signs of 2º infxn, scales, excoriation, lichenification
* Dx: largely clinical, if not responding then consider serum IgE (usu high), patch/skin prick allergy testing for contact/envir allergens
* Variants: Asteatotic (d/t dry skin, esp in elderly during fall/winter), Dyshidrotic (papulovesicular lesions on hands/feet then cracks/fissures, Nummular (annular coin-shaped patches similar to tinea!), Contact (usually irritant: sharp borders on palms, rarely allergic: dorsum of hand, needs patch testing), Stasis (brown/red pigmentation, dry/scaling on lower legs assoc with venous insuff)
1. DDx: tinea, contact dermatitis, seborrheic dermatitis, drug reactions, psoriasis
* Tx: prevention: Glaxal base cream >3x/day esp after bathing. Avoid triggers eg. itching, foods, washing ++, stress, envir allergens
* Tx: Mild-moderate steroids OD-BID for flares: Hctz 1-2.5%, Betamethasone 0.05-0.1%. Consider referral if not effective. At that point consider topical calcineurin inhibitors BID: Tacrolimus (Protopic) 0.1% adults, 0.03% kids; Pimecrolimus (Elidel) 1%, b/c don’t cause atrophy. But have incr risk of Ca in animal models.
* Tx: PO antihistamines to control itch eg. Claritin/Reactine/Allegra (non-drowsy), Camphor (0.5%) and Menthol (0.5%) compounded in Rx cream also help soothe

Seborrheic Dermatitis

* Greasy red or yellow non-pruritic scaling plaques in areas rich in sebaceous glands (scalp, face, presternal area, body folds)
* Malassezia furfur and Pityrosporum ovale thought to play a role in pathogenesis
* O/E: infants: cradle cap, kids: scalp/flexor creases, adults: scalp, eyebrows/lashes, beard, face, behind ears, nasolabial folds, sternum. DDx: as for eczema (above.)
* Tx: face/body: Nizoral (Ketoconazole 2%) face/bodywash or cream OD + mild steroid cream OD-BID; scalp/body: Nizoral shampoo (or Steiprox, or Selsun Blue or Head & Shoulders) OD +/- Betamethasone 0.1% lotion OD; cradle cap: soak scale in any oil O/N, then brush out flakes, then wash with warm water and SUNLIGHT soap, if persists use Nizoral cream/shampoo or Hctz 1-2% cream.

Psoriasis

1. Plaque psoriasis is m/c; variants: guttate, pustular, erythrodermic, psoriatic arthritis
2. Multifactorial inheritance, with 2 peaks of onset: late teens/early 20’s, and 50-60’s
3. Chronic/recurrent condition, exacerbated by: trauma, stress, winter, drugs (B-blockers, ACEi, indomethacin, lithium, antimalarials)
4. Koebner phenomenon: induction of a new lesion d/t injury
5. Auspitz sign: tiny dots of bleeding when scale is removed
6. O/E: symmetrically distributed plaques on scalp, elbows, knees, and back. Plaques are erythematous with sharply defined margins that are raised above surrounding normal skin. Usu thick silvery scale, but recent bathing may remove it.
7. Dx: largely clinical, punch bx helpful if dx is unclear/lesions not responding to tx
8. DDx: atopic dermatitis, seborrheic dermatitis, tinea, cutaneous T-cell lymphoma
9. Tx: avoid triggers, topical tx is 1st line (if 5-10% body surface affected), if >10% affected or topical not effective use systemic tx)
10. Tx: Topical tx: options are OD-BID mid-high potency corticosteroids, vit D analogue calcipotrol (Dovonex), and retinoid tazarotene (Tazorac). Lotions or gels can be used for scalp lesions. Combo tx best eg. calcipotriol + betameth (Dovobet).
11. Tx: Systemic tx: UVB phototx with topicals, PUVA (Psolarens and long wave UVA phototx), methotrexate, cyclosporine
12. Tx: 3rd line tx is with biological agents eg. Remicade, Humira
13. Guttate: discrete scattered plaques often following Strep pharyngitis, Tx: throat swab (tx with Pen if GAS), topicals, UVB, time
14. Pustular: sudden onset of red papules that turn into pustules, generalized or just palms/soles, painful, Tx: topicals, UVB
15. Psoriatic arthritis: presents in 5 different patterns, commonly in DIPs

Tinea (fungal infection)

* Infection of skin/hair/nails by dermatophytes results in digestion of keratin causing scaly skin/broken hairs/crumbling nails
* Tinea capitus: infection of scalp/eyelashes/brows, usually in kids, round scaly patches of alopecia, a boggy kerion may form
* Tinea corporis (ringworm): itchy scaly round/oval plaque with red margin and central clearing on trunk/limbs/face
* Tinea cruris (jock itch): itchy scaly patch with well-defined curved border and central clearing on medial thigh (not scrotum)
* Tinea pedis (athletes foot): itchy scaling soles +/- maceration of web spaces, esp 4th
* Tinea unguium (onychomycosis): crumbling distally dystrophic nails, yellowish, opaque with subungal hyperkeratotic debris
* Dx: skin scrapings, hair/nail clippings analyzed with KOH prep to look for Hyphae
* DDx: atopic dermatitis, seb dermatitis, psoriasis, cutaneous T-cell lymphoma
* Tx: Topical tx is 1st line for tinea corporis/cruris/pedis/manuum: clotrimazole (Canesten-topical), ketoconazole (Nizoral), miconazole (Monistat-derm), terbinafine (Lamisil), or ciclopirox (Loprox) cream OD-BID 2-4wks (at least 1 wk after resolution); ciclopirox (Penlac) can be used for nails but not very effective, don’t use nystatin (only effective for Candidiasis)
* Tx: Systemic tx for onychomycosis or tinea capitus: terbinafine (Lamisil) is a CYP 2D6 inhibitor  liver toxicity so no EtOH, itraconazole (Sporanox) is a CYP 3A4 inhibitor so watch for interactions

Ulcers

* Assoc with venous insuff: commonly over medial malleolus
* Assoc with DM/peripheral neuropathy: at pressure points, painless, m/c at 1st MTP
* Assoc with arterial insuff: usually at tips of toes, painful, deep punched out appearance, feet are cold/pale with claudication/gangrene/decr pulses, ABI <0.9
* Often secondary bacterial infection
* Dx: physical exam, +/- swab if open, XR or bone scan if ?osteomyelitis
* Tx: prevention (rest/elevate legs, 30 mmHg support stockings, proper footware), antibiotics for infection (Cephalexin or Cloxacillin PO or may need IV abx), wound dressings, surgery may be indicated

Acne Vulgaris

* Inflammation of the pilosebaceous unit characterized by presence of comedones. In areas of increased sebum production eg. face/neck/chest/upper back/buttocks
* Onset usually 9-13 yo, due to corresponding rise in androgens, affects most teens
* Dx: clinical, classification depends on type and severity of lesions
	1. Mild: mostly comedones, may be a few inflammatory lesions, no scars
	2. Moderate: more papules and pustules, no deep cysts, few/no macroscopic scars
	3. Severe: cysts and/or nodules, or significant scarring
	4. Tx: Gentle cleansing using mild products eg. Spectro gel or Cetaphil
	5. Tx: Avoid exacerbating factors (eg. cosmetics, excoriating, stress)
	6. Tx: Mild acne: topical retinoic acid cream is best for comedones, benzoyl peroxide or topical abx (eg. Clindamycin) best for papules, combo even better eg. Benzaclin (start tx with lower concentration then increase or it will be too drying for skin)
	7. Tx: Moderate acne: add systemic tx to above topicals (eg. Minocycline or Doxycycline), consider OCP for females (eg. Yaz, Yasmin, Alesse, Diane 35), consider systemic retinoic acid Isotretinoin (Accutane) x5-6mos in refractory cases
	8. Tx: Severe acne: always use Accutane (0.5-1mg/kg/day divided BID) unless contraindicated. Complete remission in most pts for yrs but may need one repeat course. Must do Fasting lipids, LFTs, CBC, 2x neg preg test prior to initiating therapy. Two forms of contraception (1month pre, during, 1 month post). S/E: Teratogenic, transient dyslipidemia, increased transaminases, myalgias, often very drying to skin, rarely precipitates depression/SI.

Rosacea

* Chronic inflammatory acneiform disorder of facial pilosebaceous units, coupled with increased capillary reactivity
* Very common, affecting ~10% fair-skinned people. Onset 30-50yo, females (3:1)
* O/E: papulopustular lesions (NO comedones) with prominent facial flushing and telangiectasias, symmetrically distributed on central face (chin/forehead/nose/malar skin), can occur on neck/chest /back/scalp. Sebaceous hyperplasia and fibrosis in late stage dz (eg. rhinophyma). Can have ocular sx (eg. conjunctivitis, keratitis)
* DDx: acne, perioral dermatitis, folliculitis, seborrheic dermatitis, steroid acne, SLE
* Tx: avoid exacerbators (hot food/drinks, EtOH, sun, wind, hot envir, cosmetics)
* Tx: Metronidazole gel/cream (0.75% BID or 1% OD), consider oral abx (eg. minocycline, doxycycline), Accutane if refractory, laser ablation for telangiectasias

2. In a pt presenting with a skin lesion, distinguish b/w benign & serious pathology (e.g. Ca, pemphigus, cutaneous T-cell lymphoma) by P/E & approp invest eg. bx

Serious Diagnoses (Do Not Miss)

Basal Cell Ca (BCC)

* RFs: exposure to UV light (especially as child), radiation tx, immunosuppression
* Nodular: m/c, usu on face, well-circ pearly/translucent papule, telangiec, ulceration
* Sclerosing: yellow or whitish shiny plaque with less distinct margins
* Superficial: red/pink scaly plaque with slightly rolled border, often on back/chest
* Dx: punch, shave or excisional biopsy
* DDx: intradermal nevus, sebaceous hyperplasia, SCC, melanoma
* Tx: electrodessication/curettage, cryotx, excision +/- Mohs, radiation, Aldara
* Prognosis: 95% cure if <2cm lesion, slow growing with <0.1% mets, yearly f/u

Squamous Cell Ca (SCC)

* RFs: chronic exposure to UV light, radiation tx, immunosuppression, PUVA
* Actinic keratosis: (precursor lesion) well-circ pink scaly plaques, sun-exposed areas
* O/E: hyperkeratotic red nodule/plaque with scale/crust and eventual ulceration
* Dx: punch or excisional bx
* DDx: BCC, melanoma, psoriasis, nummular eczema, Bowen’s dz (SCC in situ)
* Tx: cryotx, Aldara (Imiquimod), Efudex (5-FU) for AKs
* Tx: excision +/- skin grafting for SCC, radiation only if surgery not feasible
* Prognosis: 75% control over 5 yrs, better if neg margins/small lesions, 5-10% mets

Malignant Melanoma

* RFs: fair skin types, multiple common or atypical nevi, immunosuppression, xeroderma, familial dysplastic mole syndrome, FmHx of melanoma
* O/E: Solitary lesions, usually in hard to see areas. M/c sites back (M), calves (F), but must check skin/nails/muc membr/eyes. Often found through ABCDE’s (asymmetry, irreg borders, colour variegation, diameter >6mm, enlargement). May also note bleeding, crusting, sensory change
* Superficial spreading: (60%) irregular red/white/blue enlarging plaques/papules
* Nodular: (30%) black/blue well-defined ulcerated nodule
* Lentigo maligna: (10%) flat light brown patch then turns dark brown/black/blue
* Acrolentiginous: (5%) dark brown/blue/black macule on palms/soles/subungal area
* Dx: excisional bx and exam of skin/LNs/liver/spleen with ROS for metastatic dz
* DDx: atypical nevus, BCC, SCC
* Tx: wide local excision +/- LN dissec, chemotx if stage II(deep) or stage III(LNs)
* Prognosis: often spreads to LNs (primary RF for recurrence/survival is sentinel node status), mets to lungs/liver/brain, needs regular self + clinical exams. Stage I (superficial) 90% 5yr survival, stage II 70%, stage II 40%, stage IV(mets) 10%.

Cutaneous T-cell Lymphoma (Mycosis fungoides)

* T cell lymphoma 1st manifested in skin, usually >50 yo
* DDx: often misdiagnosed as eczema, psoriasis, or tinea
* Premycotic and patch phase: red itchy, often scaly, patches anywhere on body
* Infiltrative plaque phase: patches become raised, thicker, darker, denser. Develop into horseshoe or bizarre patterns.
* Tumor phase: large mushroom-like lesions/ulceration, spread to LNs/liver/spleen
* Sezary Synd: pruritis, LAD, erythroderma, hair loss, WBC>20 with Sezary cells
* Dx: incisional bx, CBC/smear for Sezary cells, CXR ?hilar LAD, exam for LAD
* DDx: often misdiagnosed as nummular eczema or psoriasis
* Tx: PUVA/narrow band UVB, nitrogen mustard oint, electron beam RT, chemotx
* Prognosis: 5-15yr survival, only 2-3yr if tumors/LAD/extensive dz/erythroderma

Pemphigus

* Rare, acute or chronic autoimmune potentially fatal vesiculobullous diseases of the mucous membr and skin with flaccid non-pruritic epidermal bullae/vesicles on an erythematosus or normal skin base, many variants (some more serious than others)
* M/c in 40-60yo Asian/Jewish/Mediterranean, assoc with malignancy/MG/thymoma
* Vulgaris (PV): usu starts in mouth, spreads to face/scalp/axillae/groin, painful denuded, blisters +/- 2º infxn
* Foliaceosus (PF): more superficial blistering with red/scaling/crusting. Starts on face and scalp, spreads to back/chest, often more limited dz
* Dx: punch bx or shave bx, serum anti-desmoglein IgG Ab
* DDx: Bullous pemphigoid (pruritic with deeper bullae that don’t easily rupture)
* Nikolsky sign: lateral pressure applied to edge of bulla extends bulla laterally, suggesting epidermis detachment
* Tx: refer derm, if limited PF can try topical steroids first, usu req high dose prednisone 2-3 mg/kg/d until no new blisters, then 1-1.5 until clear, then taper.
* Tx: often concomitant immsuppr agents eg. MTX, cyclophosphamide, azathioprine
* Tx: if widespread dz then monitor fluids/lytes, can also apply wet dressings
* Prognosis: usually progresses from mouth to generalized over 6-12mos, lesions heal with hyperpigmentation but no scar, often fatal if no immunosuppressive tx

3. In a pt presenting with cutaneous manifestation of systemic disease or condition (e.g. Wegener’s, SLE, a drug rxn), consider the diagnosis of a systemic disease and confirm it with a thorough history, PE and appropriate investigations

Systemic Lupus Erythematous

* AI disease affecting connective tissues and blood vessels
* Skin lesions in 85% of SLE
	+ Malar/Butterfly rash: facial erythematous rash, spares nasolabial folds
	+ Discoid plaques: raised erythematous patches with keratotic scaling and follicular plugging
	+ Generalized erythematous papular/urticarial rash on face/dorsum of hands: spares skin overlying joints, typically on tips of fingers
	+ Photosensitivity
	+ Palpable purpura (vasculitic)
	+ Palmar erythema
	+ Alopecia
	+ Mucous membrane ulcers: 80% on palate
* Tx: sunscreen, steroids (topical or oral), immunosuppressants (azathioprine, methotrexate, cyclophosphaminde), thalidomide, antimalarials (hydroxychloroquine)

Wegener’s Granulomatosis

* Systemic vasculitis that affects upper airways, lungs, kidneys
* Skin lesions in 50%
	+ Ulcers: jagged, irregular, undermined borders
	+ Palpable purpura
	+ Mucous membrane ulcers
	+ Eyes: conjunctivitis, episcleritis, scleritis
* Tx: cyclophosphamide, prednisone, +/-rituximab, +/- antibiotics

Thyroid Disorders

Hyperthyroidism/Graves disease

* Skin lesions:
	+ Pretibial myxedema: pink/skin colored, firm, asymmetrical, nonpitting nodules and plaques progresses to confluent, smooth, “orange-peel” and possibly verrucous appearance.

Hypothyroidism

* Skin lesions:
	+ Myxedema: dull, expressionless face with puffy eyes. Skin is swollen, cool, waxy, course, pale
	+ Carotinemia: yellow-orange discoloration of palms/soles
	+ Alopecia
* Tx: regulate thyroid function

Sarcoidosis

* Granulomatous disease primarily affecting the lungs
* Skin lesions (can have almost any type of skin lesion):
	+ Papules: mostly on face, small skin-colored lesions, may have central depression of papules
	+ Nodules: superficial or subcutaneous, 1-2cm, flesh-colored or hyperpigmented, mildly tender or asymptomatic
	+ Plaques: brown/purple infiltrative plaques surrounding orifices on face (nose, mouth)
	+ Lupus pernio: diffuse violacious soft doughy infiltrations on nose, cheeks earlobes causing gross enlargement
	+ Maculopapular rash
	+ Scars: lesions localize around scars
	+ Erythema nodosum: painful nodules anterior surface of legs

Scleroderma

* Imflammatory, vascular and sclerotic changes of the skin and other organs (lungs, heart, gi)
* Skin lesions:
	+ Raynaud phenomenon: triphasic color changes with cold. Can be painful.
	+ Skin sclerosis: shiny, tight, stretched skin with loss of normal facial lines. Distal anhidrosis (loss of swear glands) and loss of hair on distal extremities
	+ Rat bite necrosis: painful ulcerations at fingertips
	+ Sclerodactyly: tapering of fingers
	+ Beak nose
	+ Talangectasia: on face
	+ Hyperpigmentation
	+ Cutaneous calcifications (aka calcinosis cutis)
	+ Mucous membranes
* Crest syndrome (calcinosis cutis + Reynauds + esophageal dysfunction + sclerodactyly + telangectasia)

Inflammatory Bowel Disease

Crohn’s disease/Ulcerative Colitis

1. Skin lesions:
	* Pyoderma gangrenosum: neutrophilic infiltration of skin and destruction of tissue causing a superficial, painful hemorrhagic pustule surrounded by erythematous halo. Proceeds to ulceration.
	* Erythema Nodosum: inflammatory/immunologic process causing painful nodules on the anterior surface of the legs.
	* Mucous membrane ulcers

Reiter Syndrome (reactive arthritis)

1. Post infectious reactive arthritis
2. Conjunctivitis, Urethritis, Arthritis (can’t see, can’t pee, can’t climb a tree)
3. Skin lesions:
	* Keratoderma blennorrhagicum: brown/red papules/vesicles and pustules with central erosions and peripheral crusting/scaling (look like mollusk shells) on feet
	* Circinate balanitis: shallow pustular erosions on penis
	* Eyes: conjunctivitis, uveitis
	* Mucous membrane: mouth ulcers

Drug Reaction

1. Can mimic any dermatological morphology (usually morbilliform or urticarial)
2. Usually within 2 weeks of beginning a new drug
3. Rash usually resolves within 7-14 days



1. Tx: antihistamines, topical steroids, topical antipruritics
2. Airway control and epinephrine for anaphylaxis

4. Diagnose and promptly treat suspected life-threatening dermatologic emergencies (e.g. SJS, invasive cellulitis, chemical or non-chemical burns).

Steven-Johnson Syndrome/Toxic Epidermal Necrolysis

* Mucocutaneous cytotoxic immune (T-lymphocyte) reaction characterized by extensive necrosis and detachment of the epidermis. Usually drug induced (allopurinol, antibiotics, antipsychotics, antiepileptics, NSAIDs) but can also be caused by chemicals, infections, systemic diseases, immunizations or idiopathic.
* SJS = <10% body surface, SJS/TEN overlap = 10-30%, TEN = >30% body surface
* Dx: clinical. usually occurs 1-3 weeks after introduction of new drug
* Often febrile prodrome followed by rash
* O/E: starts with target lesions +/-purpura or diffuse erythema and progresses to necrosis
* +mucous membrane/genital/conjunctival involvement
* DDx: erythema multiforme, toxic shock syndrome, erythematous drug reaction, scarlet fever, phototoxic eruption, GVDH, SSSS, exfoliative dermatitis, Kawasaki disease, paraneoplastic pemphigus
* Tx: stop offending drug, fluid/electrolyte replacement, burn unit/ICU, steroids controversial (generally only in adults with SJS, not in kids or TEN), IVIG controversial (generally beneficial), ophthalmology if eye involvement, monitor for infxn/sepsis, plasmapheresis controversial
* Prognosis: mortality rate 30% TEN, <5% SJS
* associated with shock, electrolyte abn, ATN, GI/RESP sloughing
* SCORTEN prognostic scoring system

Cellulitis

* RFs: disruption of skin barrier, inflammation (radiation/eczema), preexisting derm condition, edema/venous insufficiency
* Cellulitis affects deep dermis and subcut fat (vs. Erysipelas = superficial dermis and lymphatics, well demarcated, raised)
* Pathogens: usually beta-hemolytic strep (A,B, C, G, F) and MSSA/MRSA(especially if purulent) but other pathogens in immunocompromised/diabetic (pseudomonas)/neonatal (GBS) patients
* DDx: nec fasc, gas gangrene, TSS, bursitis, OM, HZV, abscess, dermatitis, DVT, gout, stings/bites, malignancy
* Cultures: only if anticipate atypical pathogens (diabetics, animal bites, water related injury, recurrent/persistent infection)
* Tx: elevation, compression, diuretics, antibiotics: oral if systemically well, IV if unwell or rapidly progressing

Necrotizing Cellulitis

* Clostridial cellulitis: clostridium perfringens – local trauma/recent surgery
* Crepitus in skin
* CK/CT/MRI can help differentiate from clostridial myonecrosis (involving muscle)
* Tx: IV antibiotics and surgical debridement

Necrotizing Fasciitis

* Infxn causing necrosis of subcutaneous fat/fascia but may spare skin.
* Type 1: mixed aerobic/anaerobic bacteria, mostly in diabetic/PVD patients or post-op
	+ Cervical nec fasc: usually from dental origin, can cause ludwig’s angina
	+ Fournier’s gangrene: perianal
	+ Surgical wound infxn
* Type 2: monomicrobial, usually group A strep, case reports of MRSA
* Tx: IV antibiotics and surgical debridement

Chemical burns

* Continue to cause damage as long as active component is in wound
* Acids cause coagulation necrosis, alkalines cause saponification of phospholipids membranes and cell death
* Eye exposure: irrigate with Morgan lens, r/o globe rupture, optho
* Tx: ABCs, Remove offending agent, brush off dry chemicals, copious water irrigation until neutral ph achieved (15-30 min for acid, >2h for alkali), fluid resuscitation, topical antibiotics
* Do not irrigate the following with water: lime, phenols, hydrochloric acid, sulfuric acid, elemental metals
* Specific antidote: hydrochloric acid – calcium gluconate gel

Thermal Burns

* Classification
	+ Superficial (sunburn): red, blanches, painful
	+ Superficial partial thickness (scald): blisters, red, weeping, blanches, painful
	+ Deep partial thickness (flame/oil/grease/scald): friable blisters, wet or waxy, does not blanche, not painful, only sensitive to pressure
	+ Full thickness (flame/steam/oil/grease/chemical/electrical/immersion): waxy/leathery/charred, dry, inelastic, does not blanche
* When to admit/transfer?
* 
* ABCs/ATLS
* Respiratory: early intubation and oxygen for any smoke inhalation (consider CXR, ABG, carboxyhemoglobin levels), many develop ARDS
* Fluids: (half of volume given over 8 h, then second half over following 16 h)
	+ Parkland formula: Ringers Lactate at 4mL/kg x % body burned
	+ Modified Brooke formula: 2mL/kg x % body burned – may reduce complications of over resuscitation without causing harm
	+ Peds: Galveston formula: 5000 mL/m2 x % body burned. Add 2000 mL/m2 per day for maintenance requirements
* Analgesia: opiates/benzos
* Tetanus prophylaxis
* Complications: infection, mesenteric constriction/ulcers/aspiration, scarring may require escharotomy
* Tx: wound care, topical antibiotics, fluid resuscitation, infection control, transfer to burn unit for major burns