

# Chapter 8

## Commonly Used Drugs and Medication Guidelines



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### Corticosteroids

**A. Topical Steroids** [1, 2] (Tables 8.1 and 8.2)

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TABLE 8.1 Indications for topical steroids [3]

<b>Category</b>	<b>Conditions</b>
Dermatitis	Atopic dermatitis Lichen simplex chronicus Seborrheic dermatitis Contact dermatitis Prurigo nodularis
Papulosquamous	Psoriasis Lichen planus
Vesiculobullous	Bullous pemphigoid Pemphigus foliaceus Cicatricial pemphigoid
Pigmentary	Vitiligo
Autoimmune	Cutaneous lupus Dermatomyositis Morphea
Others	Early stage CTCL

TABLE 8.2 Classes and formulations of topical steroids

<b>Generic name</b>	<b>Trade name</b>	<b>Formulation(s)</b>	<b>Available sizes</b>
<i>Class I (Super High Potency)</i>			
Betamethasone Dipropionate	Diprolene	0.05% gel and ointment	15, 50 g
Clobetasol propionate	Clobex	0.05% lotion	1, 2 oz
Clobetasol propionate	Olux	0.05% foam	50, 100 g
Clobetasol propionate	Temovate	0.05% cream, ointment, gel	15, 30, 45, 60 g
Clobetasol propionate	Temovate E	0.05% cream	15, 30, 60 g
Diflorasone diacetate	Psorcon	0.05% ointment	60 g

TABLE 8.2 (continued)

<b>Generic name</b>	<b>Trade name</b>	<b>Formulation(s)</b>	<b>Available sizes</b>
Halobetasol propionate	Ultravate	0.05% cream and ointment	15, 50 g
<i>Class II (High)</i>			
Amcinonide	Cyclocort	0.1% ointment	15, 30, 60 g
Betamethasone Dipropionate	Diprolene AF	0.05% cream	15, 50 g
Mometasone furoate	Elocon	0.1% ointment	15, 45 g
Fluocinonide	Lidex	0.05% cream, gel, ointment	15, 30, 60 g
Clobetasol propionate	Temovate	0.05% solution	50 ml
Desoximetasone	Topicort	0.25% cream and ointment, 0.05% gel	15, 60 g
<i>Class III (Medium-High)</i>			
Fluticasone propionate	Cutivate	0.005% ointment	15, 30, 60 g
Amcinonide	Cyclocort	0.1% cream and lotion	15, 30, 60 g; 20, 60 ml
Fluocinonide	Lidex-E	0.05% cream	15, 30, 60 g
Triamcinolone acetonide	Kenalog	0.5% cream, ointment	15 g
<i>Class IV</i>			
Clocortolone Pivalate	Cloderm	0.1% cream	45 g
Mometasone furoate	Elocon	0.1% cream	15, 45 g
Fluocinolone acetonide	Synalar	0.025% ointment	15, 60 g

(continued)

TABLE 8.2 (continued)

<b>Generic name</b>	<b>Trade name</b>	<b>Formulation(s)</b>	<b>Available sizes</b>
Triamcinolone acetonide	Kenalog	0.1% ointment	15, 30, 80, 454 g
Desoximetasone	Topicort LP	0.05% cream	15, 60 g
Hydrocortisone valerate	Westcort	0.2% ointment	15, 45, 60 g
<i>Class V</i>			
Fluticasone propionate	Cutivate	0.05% cream	15, 30, 60 g
Prednicarbate	Dermatop	0.1% cream	15, 60 g
Hydrocortisone butyrate	Locoid	0.1% cream	15, 45 g
Triamcinolone acetonide	Kenalog	0.1% cream	15, 30, 80, 454 g
Betamethasone valerate	Luxiq	0.12% foam	50, 100 g
Hydrocortisone valerate	Westcort	0.2% cream	15, 45, 60 g
<i>Class VI</i>			
Aclometasone dipropionate	Aclovate	0.05% cream	15, 45, 60 g
Fluocinolone acetonide	Synalar	0.025% cream 0.01% solution	15, 60 g 20, 60 ml
<i>Class VII</i>			
Hydrocortisone	Hytone	2.5% cream, lotion, ointment 1% cream, lotion, ointment	20, 30, 120 g 20, 30, 120 g

**Most Common Adverse Effects of Topical Steroids** (Table 8.3)

- Atrophic changes (easy bruising, purpura, striae, telangiectasias)
- Infection (e.g. tinea incognito)
- Contact dermatitis
- Acneiform eruption
- Delayed wound healing
- Periorificial dermatitis
- Systemic effects rare

**Topical Steroids in Pregnancy (pregnancy category c)**

- Appear to be safe in pregnancy, though some studies suggest increased risk of fetal growth restriction with potent/super potent topical corticosteroids
- Mild- to moderate-potency topical corticosteroids preferred over higher potency
- Avoid high- and super-potency topical corticosteroids if possible

**B. Oral Corticosteroids**

**Clinical Indications**

- Eczema/dermatitis
- Vesiculobullous disorders
- Cutaneous lupus
- Sarcoidosis
- Vasculitis

**General Guidelines for Steroid Treatment**

- Generally, higher dose prescribed initially (0.5–1 .5 mg/kg) with decrease after 2–4 weeks
- Risk of adverse effects increases with longer length of use and higher dosage
- Best if taken as single dose in AM to reduce suppression of HPA axis
- Short-term steroid treatment
  - Generally safe for acute dermatitis
  - No need for tapering if used for <1–2 weeks

TABLE 8.3 Adverse effects of long-term use of oral corticosteroids

Cutaneous	Infections (bacterial, fungal, viral) Atrophic changes (striae, purpura, skin fragility) Acne Hypertrichosis
Ocular	Glaucoma Posterior subcapsular cataracts
Cardiovascular	Hypertension Hyperlipidemia
Gastrointestinal	Peptic ulcer disease Fatty liver
Reproductive	Hirsutism Irregular menstruation
Musculoskeletal	Bone fracture Osteoporosis Avascular necrosis of the femur Myopathy
Neuropsychological	Mood changes Psychosis Insomnia
Metabolic	Hyperglycemia Cushing syndrome

- Long-term steroid treatment (See Table 8.3 for Adverse Effects of Oral Steroids)
  - Monitor blood pressure, weight and blood sugar
  - Consider bone density scan to evaluate for osteoporosis and/or bisphosphonate therapy
  - Taper slowly to avoid risk of acute adrenal insufficiency
  - Consider stress dose steroids if illness, trauma or surgical procedure

#### **Oral Steroids in Pregnancy/Lactation (pregnancy category c)**

- Not preferred for initial therapy
- Avoid in first trimester
- Use at lowest effective dose in second and third trimester

- Present in breastmilk
- Generally acceptable in usual doses, however monitoring of infant should be performed

## Antibiotics

### 1. Topical Antibiotics (Table 8.4)

#### Clinical Indications

- Acne vulgaris
- Treatment/prophylaxis of wound infections
- Impetigo
- MRSA nasal carriers

TABLE 8.4 Commonly used topical antibiotics

Medication	Indication	Comments	Pregnancy category
Clindamycin	Mild to moderate Acne Vulgaris	Bacteriostatic against P. acnes Use with Benzoyl Peroxide for reduced resistance	B
Erythromycin	Acne Vulgaris	Bacteriostatic against P. acnes Effectiveness decreases over time	B
Bacitracin ointment	Wound infections	Bacteriostatic against gram-positive and gram-negative organisms Increasing contact allergy	B

(continued)

TABLE 8.4 (continued)

<b>Medication</b>	<b>Indication</b>	<b>Comments</b>	<b>Pregnancy category</b>
Mupirocin 2% cream/ ointment	Wound infections Impetigo MRSA nasal carriage	Bactericidal MRSA- resistance increasing Not for use in children <2 months	B
Gentamicin 0.1% cream/ ointment	Minor skin infections (folliculitis, furunculosis, impetigo)	Bactericidal activity against gram-positive and gram- negative organisms	D

## 2. Oral Antibiotics

### Clinical Indications

- Acne Vulgaris (Table 8.5) [4, 5–7]
  - Moderate-severe inflammatory acne, resistant to topical treatments
  - Limit use to 3 months and re-evaluate
  - Avoid monotherapy – use with topical products including benzoyl peroxide and retinoid during and after antibiotic therapy
- Skin and Soft Tissue Infections [8] (Table 8.6)
  - Includes impetigo, ecthyma, erysipelas and mild cellulitis
  - Recommend culture and gram stain if possible
  - If no culture performed, treat with Dicloxacillin 500 mg QID PO for presumed MSSA unless MRSA suspected



TABLE 8.5 Commonly used antibiotics for acne vulgaris

<b>Antibiotic</b>	<b>Dosing (adult)</b>	<b>Contraindications</b>	<b>Adverse effects</b>	<b>Comments</b>
Doxycycline (hyclate and monohydrate)	50–100 mg daily to BID Also available in extended release tablets (brand name Doryx ®)	Children <8 Pregnancy (2nd/3rd trimester) Breastfeeding	GI upset, photosensitivity, esophagitis, ulceration	First line treatment, less photo-sensitizing than Minocycline Limit use to 3–4 months
Minocycline	50–100 mg daily or BID Also available in extended release tablets (brand names Solodyn ® and Ximino ®); dosing based on weight, 45–135 mg daily	Children <8 Pregnancy (2nd/3rd trimester) Breastfeeding	Vestibular symptoms (i.e. dizziness, tinnitus, vertigo), tissue hyperpigmentation, less commonly photo-sensitivity	First line treatment; rarely may cause autoimmune phenomena, DRESS, hepatotoxicity Limit use to 3–4 months

(continued)

TABLE 8.5 (continued)

<b>Antibiotic</b>	<b>Dosing (adult)</b>	<b>Contraindications</b>	<b>Adverse effects</b>	<b>Comments</b>
Erythromycin	250–500 mg daily or BID	Caution in patients with hepatic disease, altered cardiac conduction, myasthenia gravis	GI upset	Increasing bacterial resistance, use for short-term only
Azithromycin	Multiple pulse-dosing regimens (e.g. 500 mg daily × 4 days per month × 3 months)	Caution in patients with hepatic disease, altered cardiac conduction, myasthenia gravis	GI upset	
Trimethoprim	100 mg TID or 300 mg daily	Caution in patients with hepatic or renal disease	Drug eruptions, hematologic abnormalities, GI upset	May also use in combination with Sulfamethoxazole

TABLE 8.6 Commonly used topical/oral antibiotics for skin and soft tissue infection (SSTI)

<b>Infection/organism</b>	<b>Treatment (generally seven-day course)</b>
Limited impetigo	Retapamulin or Mupirocin topical ointment BID
Streptococci Alone	Penicillin VK 250–500 mg q6H PO Cephalexin 500 mg q6H PO
Methicillin-Sensitive Staph Aureus	Dicloxacillin 500 mg QID PO Clindamycin 300–450 mg QID PO
Methicillin-Resistant Staph Aureus	Linezolid 600 mg BID PO Clindamycin 300–450 mg QID PO Doxycycline/Minocycline 100 mg BID PO Trimethoprim-Sulfamethoxazole 1–2 DS tablets BID PO

## Antivirals [9] (Table 8.7)

TABLE 8.7 Commonly used antiviral medications

<b>Drug</b>	<b>Indication/dose</b>	<b>Monitoring</b>	<b>Adverse reactions</b>	<b>Comments</b>
Acyclovir	<b>Primary/recurrent HSV-1 or HSV-2:</b> 200 mg 5× daily for 10 days <b>HSV PPx:</b> 200–400 mg daily for up to 12 months <b>Primary VZV infections:</b> 800 mg 4× daily for 5 days <b>Shingles:</b> 800 mg 5× daily for 7–10 days	In select patients, can check creatinine at baseline for dosing purposes	GI, reversible nephropathy, weakness, headache, tremors, seizures	Pregnancy category B Minimal risk when used while breastfeeding Recommend starting within the first 72 h

Valacyclovir	<p><b>Oral HSV:</b> 2 g BID × 1 day  <b>Genital HSV:</b> 1 g BID × 10 days  <b>Recurrent HSV:</b> 500 mg BID × 3 days  <b>HSV PPx:</b> 500–1000 mg daily  <b>VZV:</b> 20 mg/kg TID × 5 days  <b>Shingles:</b> 1 g TID × 7 days</p>	In select patients, monitor creatinine	GI, headache, fatigue, depression, dizziness, LFT elevation, nasopharyngitis	<p>Pregnancy Category B          Minimal risk when used while breastfeeding          Caution with prolonged courses in elderly or patients with renal disease          Recommend starting within the first 72 h</p>
Famciclovir (Prodrug of penciclovir)	<p><b>Oral HSV:</b> 1500 mg × 1 dose  <b>Genital HSV:</b> 1000 mg BID × 1 day  <b>Shingles:</b> 500 mg TID × 7 days  <b>Prevent recurrent genital HSV:</b> 250 mg BID for up to 1 year</p>	Creatinine at baseline and on therapy as clinically indicated. CBC if given long-term	Headache, nausea, diarrhea Rare: Leukocytoclastic vasculitis	<p>Pregnancy category B          No adequate studies in breastfeeding women</p>

(continued)

TABLE 8.7 (continued)

<b>Drug</b>	<b>Indication/dose</b>	<b>Monitoring</b>	<b>Adverse reactions</b>	<b>Comments</b>
Foscarnet	<b>Acyclovir resistant HSV:</b> 40 mg/kg TID or 60 mg/kg BID for 14–21 days	Baseline: electrolytes, 24-h creatinine clearance, ECG CBC and electrolytes once a week	Renal impairment, seizures, headache, hypokalemia, hypocalcemia, GI, anemia, granulocytopenia, fever	Pregnancy Category C No adequate studies in breastfeeding women
Cidofovir	<b>Acyclovir-Resistant HSV:</b> 1% gel topically daily × 5 days; 5 mg/kg IV daily × 3 weeks, then q2 weeks × 3 doses	Creatinine and urine protein levels at baseline and after each dose CBC with differential before every dose	GI, renal dysfunction, Rare: Fanconi-type syndrome	Pregnancy category C No adequate studies in breastfeeding women

## Antifungals (Tables 8.8 and 8.9)

TABLE 8.8 Commonly used oral anti-fungal medications

<b>Name</b>	<b>Indications/dosing (adults)</b>	<b>Adverse effects</b>	<b>Contra-indications</b>	<b>Comments</b>
Griseofulvin	<b>Tinea capitis:</b> 500–1000 mg daily (microsize) for 4–6 weeks <b>Tinea corporis:</b> 500–1000 mg daily (microsize) for 2–4 weeks <b>Tinea pedis:</b> 500–1000 mg daily (microsize) for 4–8 weeks	GI, excessive thirst, hypersensitivity, headache Rare: photosensitivity, drug-induced SLE, TEN, serum sickness-like reaction, hepatotoxicity	Pregnancy category X Porphyria Liver failure	Prolonged Use: Check BUN/Cr, LFTs, CBC Poor efficacy for onychomycosis, candida, tinea versicolor or deep mycoses Better efficacy for M. Canis

(continued)

TABLE 8.8 (continued)

Name	Indications/dosing (adults)	Adverse effects	Contra-indications	Comments
Terbinafine	<p><b>Onychomycosis:</b> 250 mg daily × 6–12 weeks</p> <p><b>Tinea capitis (&gt;35 kg):</b> 250 mg daily × 6 weeks</p> <p><b>Systemic mycoses:</b> 500 mg BID, treat for 2–4 weeks after resolution</p>	<p>GI, taste disturbance, headache, rash, pruritus, elevated LFTs</p> <p>Rare: SLE/SLE, hepatotoxicity, EM, SJS/TEN, AGEP, alopecia, cytopenias</p>	<p>Pregnancy category B</p> <p>Caution in liver disease, renal impairment, SLE</p>	<p>Check baseline CMP/CBC, recheck after 6–8 weeks</p> <p>Severe liver disease can develop within 4–6 weeks, discontinue drug immediately</p> <p>Better efficacy for T. Tonsurans</p>
Itraconazole	<p><b>Onychomycosis (toenail):</b> 200 mg daily for 12 weeks or 200 mg BID for 1 week/month × 12 weeks</p> <p><b>Tinea versicolor:</b> 200 mg daily × 5–7 days</p>	<p>GI, rash, headache, elevated LFTs, cystitis</p> <p>Rare: anaphylaxis, SJS, peripheral neuropathy, QT prolongation, liver disease, neutropenia, CHF</p>	<p>Pregnancy category C</p> <p>CHF, ventricular dysfunction</p> <p>Caution in renal disease, liver disease</p>	<p>Check baseline LFTs, repeat after 1 month</p> <p>Azoles may increase serum levels/toxicity of drugs that are CYP3A4 substrates</p>



Fluconazole	<p><b>Cutaneous candidiasis:</b> 50 mg daily or 150 mg weekly for 2–4 weeks</p> <p><b>Tinea versicolor:</b> 150–300 mg/week for 2 weeks</p> <p><b>Candidal onychomycosis:</b> 50 mg daily/300 mg weekly for 6 weeks (finger nails) or 3 months (toe nails)</p>	<p>GI, headache, rash</p> <p>Rare: SJS/TEN, parasthesias, QT prolongation, cytopenias, agranulocytosis, elevated cholesterol</p>	<p>Pregnancy category D</p> <p>Severe liver disease</p> <p>Caution in renal disease, liver disease, dysrhythmias</p>	<p>Check periodic LFTs, Cr, K+ if long-term use</p> <p>Caution with CYP3A4 inhibitors/inducers (e.g. warfarin)</p>
Ketoconazole	<p><b>Systemic fungal infections (second line):</b> 200–400 mg daily until clear</p>	<p>GI, pruritus</p> <p>Rare: severe hepatotoxicity</p>	<p>Pregnancy category C</p> <p>Severe hepatotoxicity</p>	<p>LFTs at baseline and weekly, discontinue if elevated</p> <p>Caution with CYP3A4 inhibitors/inducers (e.g. warfarin)</p> <p>Use only when other effective antifungal therapy is not available or tolerated due to possibility of serious adverse events</p>

(continued)

TABLE 8.8 (continued)

<b>Name</b>	<b>Indications/dosing (adults)</b>	<b>Adverse effects</b>	<b>Contra-indications</b>	<b>Comments</b>
Voriconazole	<b>Cutaneous candidiasis:</b> <40 kg 100 mg BID, >40 kg 200 mg BID	Skin photosensitivity, vision disturbances, hallucination, hepatotoxicity	Teratogenic and embryotoxic Caution in arrhythmias, liver disease	Baseline CMP, weekly × 4 weeks and then monthly Severe photosensitivity associated with increased risk of cutaneous malignancy
Nystatin (suspension)	<b>Oral candidiasis:</b> 400,000–600,000u QID (swish and swallow)	GI	Pregnancy category C	

TABLE 8.9 Commonly used topical antifungal medications

<b>Generic name</b>	<b>Trade name(s)</b>	<b>Formulation(s)</b>	<b>Available sizes</b>
<i>Imidazoles</i>			
Clotrimazole	Clotrimazole	1% cream, solution	Cream: 15 g, 30 g, 45 g Solution: 10 ml, 30 ml
	Lotrimin AF	1% cream, lotion, solution	Cream: 12 g, 24 g Lotion: 10 ml
Econazole	Econazole	1% cream	15 g, 30 g, 85 g
Ketoconazole	Ketoconazole	2% cream, shampoo	Cream: 15 g, 30 g, 60 g Shampoo: 120 ml
	Extina	2% foam	100 g
	Nizoral	2% shampoo	120 ml
	Xolegel	2% gel	45 g
Oxiconazole	Oxistat	1% cream, lotion	Cream: 15 g, 30 g, 60 g Lotion: 30 ml
Sertaconazole	Ertaczo	2% cream	30 g
Sulconazole	Exelderm	1% cream, solution	Cream: 15 g, 30 g, 60 g Solution: 30 ml

(continued)

TABLE 8.9 (continued)

<b>Generic name</b>	<b>Trade name(s)</b>	<b>Formulation(s)</b>	<b>Available sizes</b>
<i>Allylamine</i>			
Naftifine	Naftin	1% cream, gel	Cream: 30 g, 60 g, 90 g Gel: 40 g, 60 g, 90 g
<i>Benzylamine</i>			
Butenafine	Mentax	1% cream	15 g, 30 g
<i>Polyenes</i>			
Nystatin	Nystatin	100,000 units/g cream, ointment, powder	Cream: 15 g Powder: 15 g Ointment: 15 g
	Mycostatin	100,000 units/g cream, ointment, powder	Cream: 15 g Powder: 15 g Ointment: 15 g
	Nyamyc	100,000 units/g powder	15 g, 30 g, 60 g
	Pedi-Dri	100,000 units/g powder	56.7 g
<i>Others</i>			
Ciclopirox	Ciclopirox	0.77% cream, gel, suspension; 8% solution	Cream: 15 g, 30 g, 90 g Suspension: 30 ml, 60 ml
	Loprox	0.77% cream, gel, suspension; 1% shampoo	Cream: 30 g, 90 g Gel: 30 g, 45 g, 100 g Shampoo: 120 ml
	Penlac nail Laquer	8% solution	6.6 ml

## Antihistamines [10] (Table 8.10)

TABLE 8.10 Commonly used anti-histamines

<b>Drug</b>	<b>Indication</b>	<b>Typical dose</b>	<b>Adverse reactions</b>	<b>Comments</b>
<i>First Generation H1 Blockers</i>				
Diphenhydramine ( <i>Benadryl</i> )	Allergic rhinitis or conjunctivitis Anaphylaxis Urticaria Chronic idiopathic urticaria	Oral form: 25–50 mg q 4–8 h Injection form: 10–50 mg	CNS Sedation Dizziness Tinnitus Blurry vision Impaired concentration Headache	Pregnancy category B Not recommended for insomnia in adults
Dimenhydrinate ( <i>Dramamine</i> )	Atopic dermatitis or contact dermatitis	Oral: 50–100 mg q 4–6 h Injection form: 50 mg q 4 h	GI Nausea, vomiting, diarrhea	Pregnancy category B
Chlorpheniramine ( <i>Chlor-Trimeton</i> )	Pruritus secondary to another condition	Short-acting oral form: 4 mg q 4–6 h Long-acting oral form: 12 mg twice daily	<i>Anticholinergic effects</i> Dry mucous membranes Constipation	Pregnancy Category B
Hydroxyzine ( <i>Atarax</i> )	Angioedema		Urinary retention	
	Insomnia [11] Motion sickness and nausea <sup>a</sup> Caution in patients 65 yrs. and older [15]	Pruritus: 25 mg 3–4× daily Nausea: 25–100 mg/dose Anxiety: 50–100 mg 4× daily Renal dosing: CrCl >50 mL/min: no adjustment CrCl ≤50 mL/min: 50% dosage reduction recommended	Postural hypotension Tachycardia, palpitations	Pregnancy Category C

(continued)

TABLE 8.10 (continued)

<b>Drug</b>	<b>Indication</b>	<b>Typical dose</b>	<b>Adverse reactions</b>	<b>Comments</b>
<i>Second Generation H1 Blockers</i>				
Loratadine ( <i>Claritin</i> )	Allergic rhinitis or conjunctivitis	10 mg once daily or 5 mg twice daily		Pregnancy Category B
Fexofenadine ( <i>Allegra</i> )	Anaphylaxis Urticaria	60 mg twice daily or 180 mg once daily		Pregnancy Category C
Cetirizine ( <i>Zyrtec</i> )	Chronic idiopathic urticaria	5–10 mg once daily		Pregnancy Category B
	Atopic dermatitis or contact dermatitis			
	Pruritus			
	secondary to another condition			
	Angioedema			
	Insomnia [11]			
	Motion sickness and nausea			

<sup>a</sup>With close monitoring of these medications, clinicians may choose to up-titrate the dosages to 2–4 times above dosing as necessary.

## Acne Medications [12] (Table 8.11)

TABLE 8.11 Commonly used acne medications

<b>Drug</b>	<b>Formulations/Typical dosage</b>	<b>Adverse reactions</b>	<b>Comments</b>
<i>Topical Medications</i>			
Salicylic acid	Cream: 6% Foam: 2%, 6% Gel: 2%, 3%, 5%, 6%, 17%, Lotion: 5% or 6% Shampoo: 2%, 3%, 5%, 6%	Nausea, vomiting, dizziness, headache, burning or irritation at site of application, desquamation, tinnitus, hyperapnea	Mild to moderate acne Pregnancy Category C Lack of consensus on breastfeeding Limit usage in children less than 12 yrs Salicylic acid 6% is contraindicated in children <2 years

(continued)

TABLE 8.II (continued)

<b>Drug</b>	<b>Formulations/Typical dosage</b>	<b>Adverse reactions</b>	<b>Comments</b>
Benzoyl peroxide	Benzacilin gel (5% BP, 1% clinda)	Contact dermatitis, erythema, desquamation, xeroderma	Mild acne (monotherapy) Moderate-Severe Acne (in combination) Prevents bacterial resistance for patients on topical or systemic antibiotics Preadolescent acne in children Pregnancy Category C
	Benzamycin gel (5% BP, 3% erythro)		
	Duac gel (5% BP, 1% clinda)		
	Epiduo (2.5% BP, 0.1% adapalene)		
	Acanya gel (2.5% BP, 1.2% clinda)		
Clindamycin	Topical (generic) 1%, gel, lot, sol	Xeroderma, erythema, burning, exfoliation, oiliness	Mild-moderate acne Use with benzoyl peroxide for decreased resistance Pregnancy Category B Caution in breast-feeding
	Evoclin 1% foam		
	Benzacilin gel (5% BP, 1% clinda)		
	Duac gel (5% BP, 1% clinda) Acanya gel (2.5% BP, 1.2% clinda)		



Azelaic Acid	Azelex (20% cream) Finacea (15% gel)	Pruritus, reythema, skin burning, tingling, stinging, contact dermatitis, desquamation, xeroderma Rare: hypopigmentation	Pregnancy Category B
Retinoids	Adapalene (Differin)	<i>Adapalene</i> : Dry skin, pruritus, skin irritation, desquamation, sunburn	Pregnancy Category Adapalene: C Tazarotene: X Tretinoin: C
	Tretinoin (Retin-A)	<i>Tazarotene</i> : Dry skin, pruritus, erythema, desquamation, burning of skin <i>Tretinoin</i> : Painful skin, skin irritation, pruritus, erythema, pharyngitis	Lack of consensus on breast- feeding Tazarotene: contraindicated in pregnancy or in women who may become pregnant
	Tazarotene (Tazorac)	micro 0.04%, 0.1% cream 0.025%, 0.05%, 0.1% gel 0.01%, 0.025%  micro 0.04%, 0.1% cream 0.025%, 0.05%, 0.1% gel 0.05%, 0.1%	

(continued)

TABLE 8.II (continued)

<b>Drug</b>	<b>Formulations/Typical dosage</b>	<b>Adverse reactions</b>	<b>Comments</b>
<i>Oral Medications</i>			
Spirolactone	<b>Hormonal acne, Hirsutism [13] (females):</b> 50–200 mg daily ( <i>Aldactone</i> )	Hyperkalemia, gynecomastia, GI upset (nausea, vomiting, diarrhea, abdominal cramps), irregular menses, dizziness, hypotension	If normal kidney function, no need for monitoring of potassium levels during therapy Pregnancy category C Do not use with eplerenone Do not give to men
Erythromycin	250–500 mg BID, then 250–500 mg daily	GI (nausea, vomiting, diarrhea), prolonged QT or ventricular arrhythmias, hepatitis, cholestatic jaundice, abnormal LFTs, fungal/bacterial superinfection	Pregnancy Category B Highest rate of resistance

Doxycycline	50–200 mg daily to BID	GI (nausea, vomiting, epigastric pain, esophagitis), pseudotumor cerebri, photosensitivity, hyperpigmentation	Pregnancy Category D Avoid long-term usage while breastfeeding given effects on tooth development and bone growth
Minocycline [14]	50–200 mg daily to BID	Pseudotumor cerebri, vertigo, dizziness, autoimmune conditions (hepatitis, lupus-like syndrome, serum sickness), hyperpigmentation	Do not use tetracyclines in children <8 yrs. of age Doxycycline: Take with food, do not take 30 min before lying down. Only tetracycline that can be given in renal failure, as excreted by GI tract

(continued)

TABLE 8.11 (continued)

<b>Drug</b>	<b>Formulations/Typical dosage</b>	<b>Adverse reactions</b>	<b>Comments</b>
Isotretinoin	<p><b>Severe recalcitrant acne:</b> 0.5–2 mg/kg/day, start low then increase as tolerated</p> <p>Goal total dose: 120–150 mg/kg (<i>Accutane</i>)</p>	<p>Dry eyes and lips, myalgias, headaches, vision changes, diarrhea, hepatitis, transaminitis, mood changes</p> <p>Rare: SJS/TEN, acute pancreatitis due to elevated triglycerides, worsening depression/suicidality</p> <p>Teratogenic</p>	<p>Requires consent and monitoring through the IPledge program due to teratogenicity</p> <p>Screen: Negative pregnancy test x2, CBC, CMP, lipids</p> <p>Monitoring: pregnancy test monthly, LFTs/Lipids at baseline and after 2 months and/or with dosage changes</p> <p>Pregnancy category X</p> <p>Women must be on 2 forms of contraception</p>

**Combination products (topical):** Duac®: benzoyl peroxide and clindamycin; Epiduo®: benzoyl peroxide and adapalene; Acanya®: benzoyl peroxide and clindamycin; Benzaclyn®: benzoyl peroxide and clindamycin; Ziana®: clindamycin and tretinoin

## Biologic Therapy (Table 8.12)

TABLE 8.12 Commonly used biologic medications

Medication	Indication/dose	Adverse reactions	Monitoring	Comments
<i>TNF Inhibitors</i>				
Etanercept (Enbrel®) <i>SC injection</i>	<b>Psoriasis/PsA:</b> 50 mg 2×/week × 12 weeks, then 50 mg/week	Injection site reactions, CHF exacerbation, infections/ reactivation of TB, CNS demyelination, lupus-like syndrome	Screen: CBC, CMP, hepatitis B/C serologies, quantiferon gold Monitoring: CBC/CMP q6 months, quant gold yearly	Pregnancy category B Avoid live vaccines
Adalimumab (Humira®) <i>SC injection</i>	<b>Psoriasis:</b> 80 mg day 1, 40 mg day 8, 40 mg q2 weeks <b>Hidradenitis</b> <b>Suppuritiva:</b> 160 mg day 1, 80 mg day 14, 40 mg weekly	Injection site reactions, CHF exacerbation, infections/ reactivation of TB, CNS demyelination, lupus-like syndrome	Screen: CBC, CMP, hepatitis B/C serologies, quantiferon gold Monitoring: CBC/CMP q6 months, quant gold yearly	Pregnancy category B Avoid live vaccines

(continued)

TABLE 8.12 (continued)

Medication	Indication/dose	Adverse reactions	Monitoring	Comments
Infliximab (Remicade®) <i>IV infusion</i>	<b>Psoriasis/PsA:</b> 5 mg/kg at 0, 2, and 6 weeks, then q6 weeks	Injection site reactions, CHF exacerbation, infections/ reactivation of TB, CNS demyelination, lupus-like syndrome Rare: acute liver failure, lymphoma	Screen: CBC, CMP, hepatitis B/C serologies, quantiferon gold Monitoring: LFTs q2 months, CBC/BMP q3-mos, yearly quantiferon gold	Pregnancy category B Avoid live vaccines Pre-mediate with Tylenol/benadryl
<i>T-Cell Inhibitors</i>				
Ustekinumab (Stelara®) <i>SC injection</i>	<b>Psoriasis:</b> ≤100 kg: 45 mg at week 0 and 4; then 45 mg q 12 weeks ≥100 kg: 90 mg at week 0, 4; 90 mg q 12 weeks	Infection, URI, nasopharyngitis, headache, malignancy (including nonmelanoma skin cancer), antibody formation, reversible posterior leukoencephalopathy	Screen: CBC, CMP, hepatitis B/C serologies, quantiferon gold Monitoring: CBC, CMP, q6 months, yearly quantiferon gold	Limited human data available in pregnant women, no observed toxicity in animal reproductive studies Avoid live vaccines

<p>Ixekizumab (Taltz®) <i>SC injection</i></p>	<p><b>Psoriasis:</b> 160 mg × 1 dose, 80 mg at week 2, 4, 6, 8, 10, 12, then 80 mg q 4 weeks</p>	<p>Neutropenia, antibody development, infection, injection site reaction, upper respiratory infection, onset/ exacerbation of IBD</p>	<p>Screen: CBC, CMP, hepatitis B/C serologies, quantiferon gold Monitoring: CBC, CMP, q3-6 months, yearly quantiferon gold</p>	<p>Increased risk of neonatal deaths observed in animal reproductive studies Avoid live vaccines</p>
<p>Secukinumab (Cosentyx®) <i>SC injection</i></p>	<p><b>Psoriasis:</b> 300 mg at weeks 0, 1, 2, 3, 4, then 300 mg every 4 weeks; 150 mg may be sufficient in some patients</p>	<p>Infection, nasopharyngitis, URI, diarrhea, IBD</p>	<p>Screen: CBC, CMP, hepatitis B/C serologies, quantiferon gold Monitoring: CBC, CMP, q3-6 months, yearly quantiferon gold</p>	<p>Limited human data available in pregnant women, no observed toxicity in animal reproductive studies Avoid live vaccines</p>

(continued)

TABLE 8.1.2 (continued)

Medication	Indication/dose	Adverse reactions	Monitoring	Comments
Brodalumab (Siliq®) <i>SC injection</i>	<b>Psoriasis:</b> 210 mg at weeks 0, 1, and 2, then 210 mg every 2 weeks	Infection, nasopharyngitis, URI, diarrhea, IBD, suicidal ideation/behavior associated in clinical trials	Screen: CBC, CMP; hepatitis B/C serologies, quantiferon gold Monitoring: CBC, CMP, q3–6 months, yearly quantiferon gold	Limited human data available in pregnant women, no observed toxicity in animal reproductive studies Avoid live vaccines Boxed warning about suicidal ideation and behavior; available only through Risk Evaluation and Mitigation Strategy (REMS) Program Contraindicated in patients with IBD
Dupilumab (Dupixent®)	<b>Atopic Dermatitis:</b> 600 mg × 1 dose, then 300 mg q 2 weeks	Injection site reaction, conjunctivitis/keratitis, oral herpes	No labs required; consider CBC, hepatic panel, pregnancy test	Limited human data available in pregnant women, no observed toxicity in animal reproductive studies Avoid live vaccines



## Miscellaneous medications (Table 8.13)

TABLE 8.13 Commonly used miscellaneous medications

<b>Medication</b>	<b>Indication/dose</b>	<b>Adverse reaction</b>	<b>Monitoring</b>	<b>Comments</b>
Methotrexate	<p><b>Psoriasis/Sezary</b></p> <p><b>Syndromes:</b> 5–25 mg PO once weekly; concomitant 1 mg folic acid supplementation daily (except day of MTX) reduces side effects</p> <p>*many additional off-label uses</p>	<p>Diarrhea, nausea/vomiting, alopecia, cytopenias, skin toxicity, pneumonitis, infections, acute LFT elevations, hepatotoxicity after prolonged use, lymphoma</p>	<p>Screen: HCG, CBC, LFTs, Hepatitis panel, BUN/Cr, HIV, quantiferon gold</p> <p>Monitoring: CBC &amp; LFTs q 2 weeks × 1 month (and 2 weeks after each dose increase), then q 3–4 months</p>	<p>Pregnancy category X</p> <p>Some recommend liver biopsy after cumulative dose of 3.5 grams</p> <p>Minimize alcohol use</p> <p>Avoid co-administration of Bactrim/NSAIDS</p>

(continued)

TABLE 8.13 (continued)

Medication	Indication/dose	Adverse reaction	Monitoring	Comments
Azathioprine (Imuran®)	<b>Atopic Dermatitis, Aphthous Stomatitis (off-label):</b> start at 0.5mg/kg/day; if no cytopenias by 6–8 weeks, increase by 0.5mg/kg/day q 4 weeks; goal dose of 2–3 mg/kg/day	Nausea, vomiting, cytopenias, infection, hepatotoxicity, severe myelosuppression if TPMT deficient	Screen: HCG, CBC, CMP, quantiferon gold, TMPT level (dose according to level) Monitoring: CBC weekly × 4 weeks, then q2 weeks for 8 weeks, then monthly or with dosage changes; CMP q3 months	Pregnancy Category D Reduce dose if on Allopurinol
Mycophenolate Mofetil (Cellcept®)	<b>Psoriasis, atopic dermatitis, bullous diseases, urticaria, connective tissue diseases (off-label):</b> 500–1000 mg BID; titrate up to 3–5 gram/day	GI, weakness, fatigue, insomnia, HA, tremor, infection, urinary urgency/frequency, dysuria	Screen: CBC, CMP Monitoring: CBC q2 weeks × 2–3 months then q1 month × 1 year; CMP at 1 month then q3 months	Pregnancy category D Take on empty stomach Antacids decrease absorption Discontinue therapy if WBC < 3.5–4.0

<p>Cyclosporine (Sandimmune®/ Neoral®)</p>	<p><b>Psoriasis/off-label: severe Atopic Dermatitis, Pyoderma</b> <b>Gangrenosum:</b> 2.5 mg/kg/day, increase by 0.5mg/kg/day if insufficient response after 4 weeks (max 4 mg/kg/day)</p>	<p>Hypertension, hyperlipidemia, nephrotoxicity, hypertrichosis, gingival hyperplasia, nausea, headache, tremor, electrolyte abnormalities, malignancy (including skin cancer)</p>	<p>Screen: Blood pressure, U/A, CBC, CMP, fasting lipids, Mg, random spot urine protein to creatinine ratio, quantiferon gold Monitoring: BP, CMP, Mg, fasting lipids, CBC, q 2 weeks for 2 months, then monthly; random urine protein: creatinine q3 months, annual quantiferon gold</p>	<p>Pregnancy category C Significant drug interactions; caution with nephrotoxic medications Avoid grapefruit juice as this increases concentration If Cr increases to &gt;30% baseline, repeat Cr in 2 weeks and decrease by 1 mg/kg x1 month if increase sustained, if decreases to &lt;30% baseline OK to continue, otherwise discontinue until Cr normalizes</p>
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(continued)

TABLE 8.13 (continued)

Medication	Indication/dose	Adverse reaction	Monitoring	Comments
Dapsone	<p><b>Dermatitis</b></p> <p><b>Herpetiformis:</b> Start at 50 mg daily and increase to 300 mg daily as needed</p> <p><b>Leprosy:</b></p> <p>Tuberculoid: 100 mg daily with rifampin for 12 months</p> <p>Lepromatous: 100 mg daily with rifampin and clofazimine for 24 months</p> <p>*Off label:</p> <p>Pemphigus Vulgaris, aphthous stomatitis</p>	<p>Hemolytic anemia, methemoglobinemia, hepatotoxicity, neuropathy</p> <p>Rare: blood dyscrasias, severe dermatologic reactions</p>	<p>Screen: G6PD, CBC, CMP, U/A</p> <p>Monitoring: CBC q1 week <math>\times</math> 1 mo; q2 weeks <math>\times</math> 2 mos; then q3 mos; CMP, retic count q3 months; MetHgb levels if symptomatic</p>	<p>Pregnancy category C</p> <p>Use with caution in patients with G6PD deficiency</p> <p>Many drug interactions, metabolized by CYP3A4</p> <p>Sulfa derivative (caution in sulfa allergic)</p>

<p>Hydroxychloroquine (Plaquenil®)</p>	<p><b>Lupus, DLE:</b> 200–400 mg daily; do not exceed 5 mg/kg/day or 400 mg *Off label: PMLE, PCT, dermatomyositis, sarcoidosis</p>	<p>GI, pre-maculopathy and retinopathy, blue-gray hyperpigmentation, headache, hemolysis with G6PD deficiency</p>	<p>Screen: ophthalm exam; CBC, G6PD, CMP Monitoring: ophthalm exam annually; CBC, CMP monthly × 3 months, then q 4 months.</p>	<p>No evidence of increased fetal ocular toxicity with maternal use</p>
<p>Acitretin (Soriatane®)</p>	<p><b>Psoriasis (pustular):</b> 10–50 mg daily (with largest meal) <b>Darier's disease, ichthyoses:</b> 25–35 g daily × 4 weeks, then adjust to maintenance of 10–50 mg daily</p>	<p>Dry mucous membranes, hair loss, elevated triglycerides, transaminitis, myopathy, IBD flares, leukopenia</p>	<p>Screen: 2 negative pregnancy tests, CBC, LFTs, BUN/Cr, lipids Monitoring: Lipid profile q2 weeks for 8 weeks, then, LFTs q2 weeks until stable, pregnancy tests monthly</p>	<p>Pregnancy category X Patients advised not to get pregnant × 3 years following discontinuation</p>

(continued)

TABLE 8.13 (continued)

Medication	Indication/dose	Adverse reaction	Monitoring	Comments
Rituximab (Rituxan®)	<b>Bullous disorders:</b> 1 g q2 weeks × 2 doses or 375 mg/m <sup>2</sup> weekly × 4 doses <b>Primary cutaneous</b> <b>B Cell Lymphoma:</b> 375 mg/m <sup>2</sup> IV weekly × 4 doses	Opportunistic infections, HBV reactivation, infusion reactions, cytopenias mucocutaneous reactions (SJS, TEN), renal toxicity	Baseline: Hep B/C serologies, CBC, CMP, quantiferon gold Monitoring: CBC weekly to monthly	Pregnancy category C Pretreatment with acetaminophen and antihistamine recommended
Gabapentin (Neurontin®)	<b>Pruritus,</b> <b>neuropathic pain:</b> 300 mg* TID, up-titrate to up to 1800 mg daily Dose adjustment for renal impairment *immediate-release	Dizziness, drowsiness	Baseline: renal function Monitoring: periodic renal function	Pregnancy category C

Doxepin (Sinequan®/ Silenor®)	<b>Chronic urticaria:</b> 10 mg TID or 10–30 mg QHS	Sedation, hypertension, nausea, gastroenteritis, mania/hypomania in patients with bipolar disorder	Evaluate mental status at initiation and with dosage changes	Pregnancy category C Use with caution in elderly patients
Amitriptyline (Elavil®)	<b>Neuropathic pain:</b> 10–25 mg QHS or divided, up-titrate up to 200 mg/day	Anticholinergic effects, sedation, bone marrow suppression, mania/hypomania in patients with bipolar disorder	Evaluate mental status at initiation and with dosage changes	Pregnancy category C Use with caution in elderly patients
Apremilast (Otezla®)	<b>Psoriasis:</b> 10 mg on day 1, increase by 10 mg day 2–5, then 30 mg BID CrCl<30: 30 mg daily	Diarrhea, nausea, URI, headache, weight loss, depression	Monitor: weight, mood changes	Pregnancy category C

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