

Common Dermatologic Medications

Medical Student Rotation Lecture Series
Department of Dermatology
University of Southern California

- Topical

- Papulosquamous disorders (e.g. psoriasis, lichen planus)
- Atopic Dermatitis
- Acne/Rosacea
- Skin Cancer

- Systemic

- Papulosquamous disorders (e.g. psoriasis, lichen planus)
- Atopic Dermatitis
- CTD (dermatomyositis, lupus, scleroderma/morphea)

Class 1

BRAND NAME	GENERIC NAME
CLASS 1 - Superpotent	
Clobex Lotion/Spray/Shampoo, 0.05%	Clobetasol propionate
Cormax Cream/Solution, 0.05%	Clobetasol propionate
Diprolene Gel/Ointment, 0.05%	Betamethasone dipropionate
Olux Foam, 0.05%	Clobetasol propionate
Psorcon Ointment, 0.05%	Diflorasone diacetate
Temovate Cream/Ointment/Solution, 0.05%	Clobetasol propionate
Ultravate Cream/Ointment, 0.05%	Halobetasol propionate
Vanos Cream, 0.1%	Fluocinonide

Class 2

CLASS 2 - Potent

Cyclocort Ointment, 0.1%	Amcinonide
Diprolene Cream AF, 0.05%	Betamethasone dipropionate
Diprosone Ointment, 0.05%	Betamethasone dipropionate
Elocon Ointment, 0.1%	Mometasone furoate
Florone Ointment, 0.05%	Diflorasone diacetate
Halog Ointment/Cream, 0.1%	Halcinonide
Lidex Cream/Gel/Ointment, 0.05%	Fluocinonide
Maxiflor Ointment, 0.05%	Diflorasone diacetate
Maxivate Ointment, 0.05%	Betamethasone dipropionate
Psorcon Cream 0.05%	Diflorasone diacetate
Taclonex Ointment, .064%	Betamethasone dipropionate and calcipotriene
Topicort Cream/Ointment, 0.25%	Desoximetasone
Topicort Gel, 0.05%	Desoximetasone

Class 3

CLASS 3 - Upper Mid-Strength

Aristocort A Ointment, 0.1%	Triamcinolone acetonide
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Cutivate Ointment, 0.005%	Fluticasone propionate
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Cyclocort Cream/Lotion, 0.1%	Amcinonide
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Diprosone Cream, 0.05%	Betamethasone dipropionate
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Florone Cream, 0.05%	Diflorasone diacetate
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Lidex-E Cream, 0.05%	Fluocinonide
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Luxiq Foam, 0.12%	Betamethasone valerate
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Maxiflor Cream, 0.05%	Diflorasone diacetate
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Maxivate Cream/Lotion, 0.05%	Betamethasone dipropionate
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Topicort Cream, 0.05%	Desoximetasone
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Valisone Ointment, 0.1%	Betamethasone valerate
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Class 4

CLASS 4 - Mid-Strength

Aristocort Cream, 0.1%	Triamcinolone acetonide
Cordran Ointment, 0.05%	Flurandrenolide
Elocon Cream, 0.1%	Mometasone furoate
Kenalog Cream/Ointment/Spray, 0.1%	Triamcinolone acetonide
Synalar Ointment, 0.025%	Fluocinolone acetonide
Uticort Gel, 0.025%	Betamethasone benzoate
Vestcort Ointment, 0.2%	Hydrocortisone valerate

Class 5

CLASS 5 - Lower Mid-Strength

Cordran Cream/Lotion/Tape, 0.05%	Flurandrenolide
Cutivate Cream, 0.05%	Fluticasone propionate
DermAtop Cream, 0.1%	Prednicarbate
DesOwen Ointment, 0.05%	Desonide
Diprosone Lotion, 0.05%	Betamethasone dipropionate
Kenalog Lotion, 0.1%	Triamcinolone acetonide
Locoid Cream, 0.1%	Hydrocortisone
Pandel Cream 0.1%	Hydrocortisone
Synalar Cream, 0.025%	Fluocinolone acetonide
Uticort Cream/Lotion, 0.025%	Betamethasone benzoate
Valisone Cream/Ointment, 0.1%	Betamethasone valerate
Westcort Cream, 0.2%	Hydrocortisone valerate

Class 6 & 7

CLASS 6 - Mild

Aclovate Cream/Ointment, 0.05%

Alclometasone dipropionate

Derma-Smoothe/FS Oil, 0.01%

Fluocinolone acetonide

DesOwen Cream, 0.05%

Desonide

Synalar Cream/Solution, 0.01%

Fluocinolone acetonide

Tridesilon Cream, 0.05%

Desonide

Valisone Lotion, 0.1%

Betamethasone valerate

CLASS 7 - Least Potent

Topicals with hydrocortisone 1, 2.5%, cexamethasone, methylprednisolone and prednisolone


2 Components

- Active compound
 - The medicine (e.g. clobetasol, triamcinolone)

- Vehicle
 - Delivers the medicine
 - Determines rate of absorption

FACTORS THAT AFFECT PERCUTANEOUS ABSORPTION

Characteristics of the patient/skin

- Patient age
 - Suboptimal skin barrier function in neonates, especially if premature (see [Table 129.7](#) )
- Diseases, physical injuries or chemical exposures that disrupt skin barrier function (e.g. Netherton syndrome)
- A thicker stratum corneum decreases absorption
- Skin hydration and/or occlusion increase absorption (e.g. in a skin fold)
- Anatomic location (approximate ratio of absorption compared to the forearm)
 - *Higher absorption*: scrotum (40), face (10), axilla (4), scalp (3)
 - *Intermediate absorption*: trunk (1.5), arm (1)
 - *Lower absorption*: palm (0.8), ankle (0.4), sole (0.1)

Properties of the medication/its application

- Drug/prodrug properties that increase absorption
 - Smaller molecular size and/or lower frictional coefficient
 - Increased lipophilicity
 - Increased concentration and/or solubility
- Vehicle composition
- Application under occlusion increases absorption (e.g. ointment, occlusive dressing)



Strength
Increasing

- Clobetasol 0.05% (I)
- Fluocinonide 0.05% (II)
- Triamcinolone 0.1% (IV)
- Westcort 0.1% (V) – not fluorinated
- Hydrocortisone 2.5% (VII)
- Hydrocortisone 1% - OTC

**Concentration has nothing to do with
potency**

- **Use the least potent topical steroid necessary for the shortest duration possible**
- Use a ladder approach
- All BID dosing
 - Can step-down to Qday dosing at patient improves
- Consider area of treatment
 - Never use anything stronger than class IV on the face/groin/axilla
 - Percutaneous absorption: Nail << palm/sole < trunk/extremities < face/scalp << scrotum
- Should never be used more than 3 weeks continuously
 - Use steroid-sparing agents

Drying ↑

- Solution – alcohol
 - Most useful on hair-bearing areas
- Gel – cellulose with alcohol/acetone
 - Greaseless
- Lotion – oil in water
- Cream – oil in water emulsion
 - Have preservatives → irritating
- Ointment – water in oil emulsion
 - Greasy
 - Many are preservative free

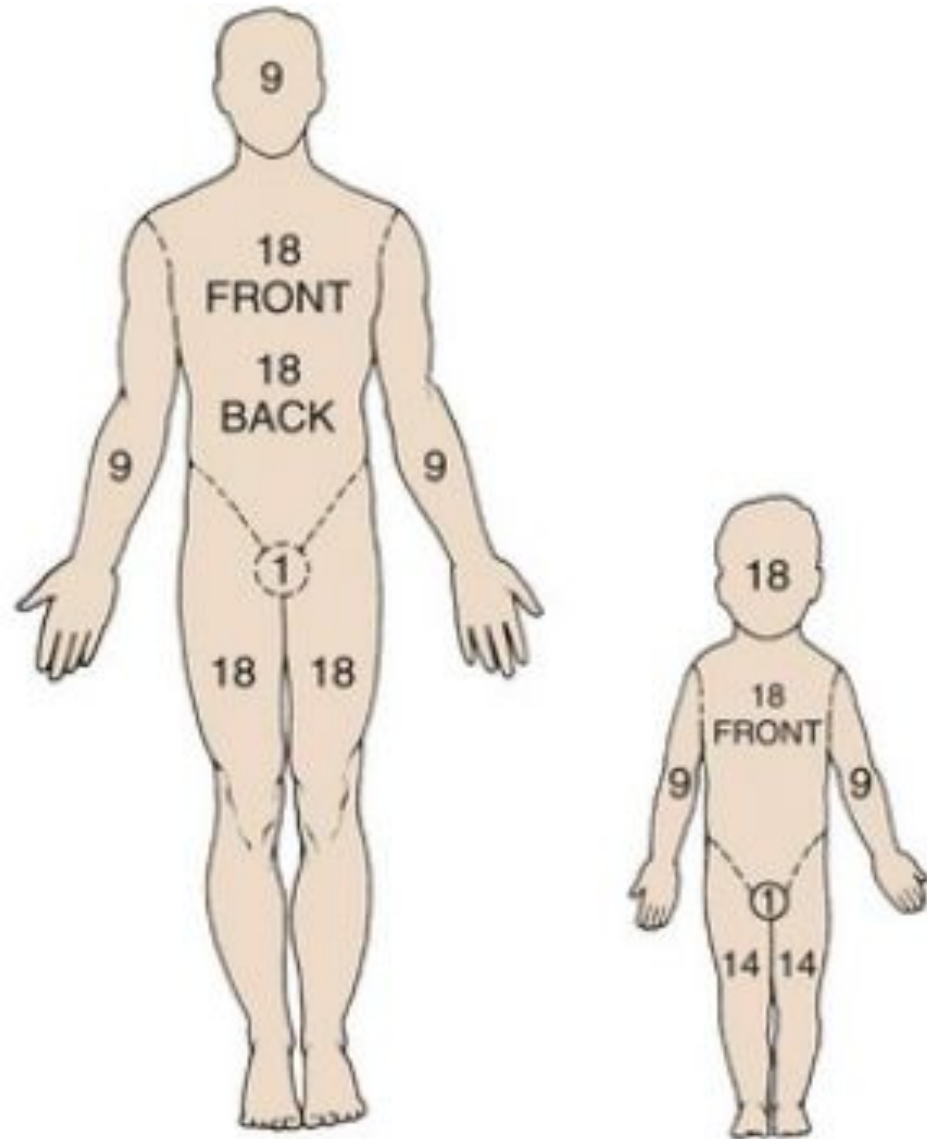
- Others: Foam, spray, oil, shampoo, paste, tape

Vehicle Rules

- If wet → use a drying vehicle
- If dry → use a moisturizing vehicle
 - ***Give the patient something that they will actually use
- Can occlude the medicine with saran wrap to increase the absorption and potency
- Ointments are inherently occlusive
 - More potent than corresponding creams

How Much to Use

- **FTU** = ointment from 5mm-diameter nozzle that stretches from distal crease to tip of finger = 0.5 g
- Approx **20g for entire body** → 250 g/week if used BID
- 1 lb = 454 g
- 0.25g = $\frac{1}{2}$ FTU = 1 flat palm = **1% BSA**
- **1 FTU = 2% BSA**



How Much to Use

Anatomical area	# of FTU required to cover	Amount for bid application (g)	Amount for 1 week of bid application (g)	Amount for 4 weeks of bid application (g)
Face and neck	2.5	2.5	17.5	70
Anterior <i>or</i> posterior trunk	7	7	49	196
Arm	3	3	21	84
Hand (both sides)	1	1	7	28
Leg	6	6	42	168
Foot	2	2	14	56

- Lower potency topical CS recommended
- Cutivate = Fluticasone propionate (V)
 - Safe in > 3 months of age for 4 weeks
- Avoid Group I/II in pre-pubertal children
- Use only group VI/VII in diaper area for 3-10 days
- Monitor growth parameters in children on chronic topical steroids

- Used for 30 years with excellent safety record
- Common
 - **Skin atrophy, striae, telangiectasias**
 - Rosacea/Perioral dermatitis/Acne/Folliculitis
 - Tachyphylaxis, Rebound
 - Hypopigmentation
- Less common
 - Allergic contact dermatitis
 - Impaired wound healing
 - Tinea/scabies incognito
 - Glaucoma, cataracts
 - Hypertrichosis
- Systemic absorption → HPA axis suppression
 - 1/3 of psoriatic w/ > 30% BSA involvement
 - 1/3 of atopics w/ > 20% BSA involvement: decreased barrier function

Topical Calcineurin Inhibitors

- **Tacrolimus 0.1% or 0.03% ointment (Protopic); 0.03% is used in pediatric population**
- **Pimecrolimus 1% cream (Elidel)**
- Indications: atopic dermatitis, psoriasis, vitiligo, seb derm, perioral dermatitis
- Steroid-sparing agents
 - Avoid atrophy, striae, dyspigmentation
 - Used on face frequently
- Adverse effects: burning, stinging upon application
- Ointment >>> occlusive than cream



- **Calcipotriene (Dovonex)**

- 0.005% cream, ointment
- Qday to BID



- Indication: psoriasis, vitili go, morphea
- Anti-inflammatory/anti-proliferative
- Inactivated by acidic pH
 - Don't use with ammonium lactate 12% lotion
- Degraded by UV light
 - Do not apply before phototherapy

Topical Retinoids

Drug Name	Adapalene	Tretinoin	Tazarotene
Indication(s)	Acne, hyperpigmentation, photo-aging		
Dosing	Qday 0.1, 0.3% crm, gel	QHS 0.025, 0.05. 0.1% crm	QHS 0.05, 0.1% crm, gel
Labs/Monitoring	None; monitor for compliance and A/E discussed below		
Adverse Effects	Dryness, redness, peeling, flaking, photosensitivity		
	Least	Moderate	Greatest
Application notes:	<ul style="list-style-type: none"> - Apply 10-15 minutes after washing face - Apply pea-sized amount to entire face (not spot treatment) - When starting or increasing strength titrate dose: use Q3nights x 1 week, Q2nights x 1 week, then Qnight <ul style="list-style-type: none"> - Use AM moisturizer with SPF 30+ - May use PM moisturizer 10-15mins after applying 		

- Topical Clindamycin 1%
 - Gel, lotion, solution, pledgets Qday - BID
 - Indications: Acne, folliculitis, HS
 - Resistance may develop, prevent with concomitant use of BP
 - A/E: dryness, sensitivity, gram-negative folliculitis
- Topical Benzoyl peroxide 2.5-10% (OTC)
 - Cream, gel, foam, wash, lotion, pads Qday - BID
 - Indications: Acne, folliculitis, HS
 - Washes are good for chest/back acne
 - A/E: dryness, irritation, esp when used with topical retinoid
 - Careful → will BLEACH hair, linens, and clothing

Topical Anti-Neoplastics

Drug Name	Imiquimod 5% cream (Aldara)	5-Fluorouracil 5% cream (Efudex)
Indication(s)	Genital warts, superficial BCC, AK, common warts, SCCis, molluscum	AK, actinic cheilitis, SCCis, superficial BCC, common and genital warts, porokeratoses
Dosing	Varies; most common M,W,F PM application, wash off in AM x 16 weeks	Qday - BID; length varies with diagnosis; frequently used qD for 4 weeks, BID for 2 weeks depending on patient preference
Initial Labs	None	None
Monitoring	No specific monitoring Check for appropriate response to treatment while minimizing A/E	
Adverse Effects	Erythema, pruritus, pain, burning, irritation, scaling, erosion/ulceration, flu-like symptoms in 1-2%	Erythema, pain, burning, irritation, scaling, erosion/ulceration, photosensitivity;

Systemic Retinoids

	Isotretinoin (Accutane)	Acitretin (Soriatane)
Indication(s)	Acne, rosacea, hidradenitis suppurtiva, pityriasis rubra pilaris, Darier's disease	Psoriasis, pityriasis rubra pilaris, hidradenitis suppurativa
Dosing	0.5-1.0mg/kg/day div BID or Qday Goal dose: 120-150mg/kg	Oral 10-25mg PO Qday, can titrate up
Labs/Monitoring	CBC, CMP, FLP Qmonth Females: 2 negative urine/serum preg test, 1 month apart *requires iPledge enrollment	CBC, CMP, FLP Qmonth
Adverse Effects	Xerosis, cheilitis , nasal dryness, dry eye, arthralgia/myalgia, HLD, hyperostosis, transaminitis , headache, pseudotumor, IBD?, depression?	Xerosis, cheilitis, hair loss, dry-eye, photosensitivity, HLD , transaminitis
Contraindications	Pregnancy Contraception 1 month after d/c Caution: IBD, psych, HLD, bone disease	Pregnancy Contraception 3 years after d/c Severe renal/hepatic dx, or HLD Alcohol use

TNFa-Inhibitors

	Adalimumab (Humira)	Etanercept (Enbrel)	Infliximab (Remicaide)
Indication(s)	Psoriasis, psoriatic arthritis	Psoriasis, psoriatic arthritis	Psoriasis, psoriatic arthritis
Dosing	80mg SC day1; 40mg SC day 8, then 40mg SC q2wk	50mg SC BID x 3 months; then Qwk	3-5mg/kg IV at 0, 2, 6, 8 wks
Initial Labs	CBC, CMP, PPD/quant gold, Hep B/C panel		
Monitoring	CBC, CMP Q6-12mo PPD/quant gold Qyear		
Adverse Effects	Common: Injection site reaction/infusion reaction Uncommon: malignancy, demyelinating disease (GBS), CHF exacerbation, infection, new-onset psoriasis, auto-immunity		
Contraindications	Active infection Chronic infection FHx of demyelinating disease (i.e. MS) Active/latent Hep B		

Other Biologics

Drug Name	Ustekinumab (Stelara) IL 12/23 antagonist	Secukinumab (Cosentyx) IL-17	Dupilumab (Dupixent) IL-4/13 inhibitor
Indication(s)	Psoriasis, psoriatic arthritis	Psoriasis, psoriatic arthritis; superior to Stelara and Etanercept in PASI 75 scores	Atopic dermatitis; approved for adults and children
Dosing	45 or 90mg SQ (weight based dosing) on day 1; repeat in 4 weeks; then Q3 months Injection given during clinic visit	Loading dose of 300 mg and 150 mg every 4 weeks	Initial dose of 600 mg then 300 mg Q2 weeks
Labs/Monitoring	CBC, CMP Q6-12mo, Hep B/C panel PPD/quant gold Qyear	CBC, CMP Q6-12mo, Hep B/C panel PPD/quant gold Qyear	None
Adverse Effects	Common: Injection site reaction Uncommon: infection, malignancy, reversible posterior leukoencephalopathy syndrome	Nasopharyngitis, injection site reactions, headaches, candidiasis and HSV	Keratoconjunctivitis, increased risk of HSV infection
Contraindication	Active infection (i.e. TB) Chronic/recurrent infection	Active infection (i.e. TB) Chronic/recurrent infection	None

Immunosuppressants

Drug	Indications	Labs/Monitoring	Adverse Effects	Notes
Azathioprine (Imuran) - Oral; inhibits DNA synthesis	Immunobullous disease, vasculitis, CTD, AD, photo-dermatoses	TPMT level CBC, CMP PPD/quant gold Hep B/C	Myelosuppression Malignancy Infection Teratogen GI, transaminitis	Many drug interactions
Cyclosporine - Oral; calcineurin inhibitor → inhibits T-cells	Psoriasis, AD, pyoderma gangrenosum	BP, CBC, CMP, FLP, U/A, Mg PPD/quant gold, Hep B/C	Renal dysfunction HTN, HyperK HLD, NMSC	2-5mg/kg Qday Max 3-6 mos MANY drug interactions
MTX - Oral; Inhibits folic acid pathway → interferes with DNA synthesis	Psoriasis, sezary syndrome, atopic dermat, bullous dx	5mg test dose, check CBC; then 5-25mg PO Qwk, CBC, CMP, Hep B/C, PPD/quant, HIV; folic acid QD	Stomatitis, LFTs, alopecia, N/D, anemia, BUN/Cr, lymphoma, pneumonitis, infection	Liver bx after 1-1.5gm to eval for hepatic fibrosis NO alcohol
Mycophenolate Mofetil (Cellcept) - Oral; Inhibits purine synthesis	Psoriasis, AD, bullous, CTD, vasculitis	CBC, CMP, PPD/quant, Hep B/C	Diarrhea, GU, infection, cytopenia, malignancy	T and B cells preferentially effected

Immunosuppressants

	Prednisone
Indication(s)	Bullous, CTD, vasculitis, papulosquamous, contact dermatitis, etc.
Dosing	Varies ; 1mg/kg daily tapered over 3-4 weeks, but largely varies based on diagnosis <ul style="list-style-type: none">• No taper needed if < 2 weeks PPx : Ca/Vit D, PPI/H2 blocker, alendronate
Labs/Monitoring	Baseline PPD/quant, fasting glucose, TG, K, BP, weight, eye exam (cataracts) DEXA/Ophtho exam Qyear
Adverse Effects	Endocrine (adrenal, DM, Cushing syndrome), GI (ulcer), MSK (osteoporosis), Psych (depression, anxiety, psychosis), ID (infection), cardiac (HTN), ocular (cataract, glaucoma)
Contraindications	Active systemic infection (fungal, HSV keratitis), others are relative contraindications

- **Dapsone**
 - Neutrophilic dermatoses
 - Check CBC, CMP G6PD at baseline
 - CBC Q1-2 weeks at initiation/increase in dose
 - A/E: methemoglobinemia, motor neuropathy
- **Plaquenil**
 - SLE, DLE, SCLE
 - Labs: CBC, CMP, G6PD
 - Ophtho exam within first 12 months retinopathy
 - CBC, LFTs Q6-12 months
 - A/E: Retinopathy; blue-gray pigmentation on shins, face, palate, nails, hepatic damage, myopathy, neuropathy, psychosis, BM suppression
- **Intravenous Immunoglobulin (IVIG)**
 - Dermatomyositis, other CTD, TEN, immunobullous disease, inflammatory dermatoses
 - IV infusion, dosing varies depending on diagnosis
 - Labs: CBC, CMP, IgA levels, RF, cryoglobulins, HIV, Hep B/C
 - A/E: Infusion reaction, thromboembolism, neutropenia, hemolysis

- Patient education
 - Discuss risks, benefits, alternatives
 - Importance of routine labs and clinic follow-up
 - Topicals → Stress appropriate use to the patient
 - Frequency and location are key!
 - Draw on body-map for patient
 - Write/type instructions
 - Document in your note

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- Wolverton SE. *Comprehensive dermatologic drug therapy*. Edinburgh: Saunders/Elsevier,; 2013.