



Steroids, Topical Therapeutic Class Review (TCR)

February 8, 2022

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MANAGEMENTSM

FDA-APPROVED INDICATIONS

Drug	Manufacturer	Indications
Low Potency		
alclometasone dipropionate ¹	generic	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
desonide (Desonate®) ²	generic, Bayer/Leo	Treatment of mild to moderate atopic dermatitis in patients 3 months of age and older
desonide (Desowen®) ³	generic, Galderma	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
desonide (Tridesilon™) ⁴	Encore Dermatology	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
desonide (Verdeso®) ⁵	Almirall	Treatment of mild to moderate atopic dermatitis
fluocinolone acetonide (Capex® Shampoo) ⁶	Galderma	Treatment of seborrheic dermatitis of the scalp
fluocinolone acetonide (Derma-Smoothe-FS®) ⁷	generic, Royal	Body oil: treatment of atopic dermatitis in adults; moderate to severe atopic dermatitis in patients 3 months and older for up to 4 weeks Scalp oil: treatment of psoriasis of the scalp in adult patients
fluocinolone acetonide (Synalar®) ^{8,9}	generic, Medimetriks	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
hydrocortisone (Anti-Itch, Aquanil™ HC, Aquaphor Itch Relief, Beta HC, Cortaid®, Cortizone-10®, Cortizone-10 Plus, CVS Anti-Itch, Dermarest® Eczema, EQL Anti-Itch, GS Anti-Itch, Noble Formula HC, Preparation H, QC Anti-Itch, RA Anti-Itch, Scalacort®, Scalp Relief, Scalpicin®, Soothing Care, Vanicream HC™) ^{10,11,12}	generic, Derm Ventures, Perrigo, Salix, Person & Covey, Beta, Valeant/Bausch, Chattem, CVS, Insight/Medtech, Equaline, Goodsin, Sebel, Ontos, Chain Drug, Avidas, Walgreens, Reckitt, Pharm Spec	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
hydrocortisone/aloe vera (Cortizone-10®, CVS Cortisone with Aloe, EQ-Hydrocortisone-Aloe, Nucort™, QC Anti-Itch with Aloe, SM Hydrocortisone Plus) ^{13,14,15}	generic, Chattem, CVS, Walmart, Gentex/Marnel, Chain Drug, Chattem Cons, Sunmark	For the temporary relief of itching associated with minor skin irritations, inflammation, and rashes due to eczema, insect bites, poison ivy, poison oak, poison sumac, soaps, detergents, cosmetics, jewelry, seborrheic dermatitis, psoriasis, and external anal/genital itching.

FDA-Approved Indications (continued)

Drug	Manufacturer	Indications
Medium Potency		
betamethasone dipropionate cream, lotion ^{16,17,18}	generic	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses in patients 13 years and older
betamethasone dipropionate (Sernivo®) ¹⁹	Encore/Primus	Treatment of mild to moderate plaque psoriasis in patients 18 years of age or older
betamethasone valerate (Luxiq®) ²⁰	generic, Mylan,	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses of the scalp
betamethasone valerate ²¹	generic	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
clocortolone pivalate (Cloderm®) ²²	generic, Promius/EPI	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
fluocinolone acetonide (Synalar) ²³	generic, Medimetriks	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
flurandrenolide (Cordran®) ^{24,25}	generic, Almiral	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
flurandrenolide (Cordran® Tape) ²⁶	Almiral	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
fluticasone propionate (Cutivate®) ^{27,28,29}	generic, Sandoz	Cream, Ointment: Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses and atopic dermatitis Lotion: Relief of the inflammatory and pruritic manifestations of atopic dermatitis in patients 3 months of age and older
hydrocortisone butyrate (Locoid®, Locoid Lipocream®) ^{30,31}	generic, Bausch	Treatment of mild to moderate atopic dermatitis in patients 3 months to 18 years of age
hydrocortisone probutate (Pandel®) ³²	Pharmaderm/Sand	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses in patients 18 years of age and older
hydrocortisone valerate ³³	generic	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses in adult patients
mometasone furoate ³⁴	generic	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses in patients 2 years of age or older
prednicarbate cream, ointment ^{35,36}	generic	Relief of the inflammatory and pruritic manifestations of corticosteroid responsive dermatoses
triamcinolone acetonide (Kenalog®) ³⁷	generic, Ranbaxy/Sun	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses

* Available as authorized generic (AG).

FDA-Approved Indications (continued)

Drug	Manufacturer	Indications
High Potency		
amcinonide ³⁸	generic	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses in patients 13 years and older
betamethasone dipropionate ointment ³⁹	generic	
betamethasone dipropionate augmented cream ⁴⁰	generic	
clobetasol propionate (Impoysz™) ⁴¹	Encore	Treatment of moderate to severe plaque psoriasis in patients 18 years of age and older
desoximetasone (Topicort®) ^{42,43}	generic, Taro	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
diflorasone diacetate cream (Apexicon® E, Psorcon®) ^{44,45}	Sandoz, Taro	Fluocinonide (Vanos) are indicated for use in patients 12 years and older
fluocinonide ⁴⁶	generic	
fluocinonide (Vanos®) ⁴⁷	generic, Bausch	Topicort topical spray is only approved for treatment of plaque psoriasis in patients 18 years of age or older
halcinonide (Halog®) ^{48,49}	generic, Sun	
triamcinolone acetonide ⁵⁰	generic	

FDA-Approved Indications (continued)

Drug	Manufacturer	Indications
Very High Potency		
betamethasone dipropionate augmented gel, lotion, ointment (Diprolene®) ^{51,52,53}	generic, Merck	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses in patients 13 years of age and older.
clobetasol propionate (Clobex®, Clodan®) ^{54,55}	generic, Galderma, Medimetrix,	Lotion: Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses Shampoo: Treatment of moderate to severe forms of scalp psoriasis Spray: Treatment of moderate to severe plaque psoriasis affecting up to 20% of body surface area
clobetasol propionate (Temovate®) ^{56,57,58}	generic, Sandoz, Valeant	Cream, emollient, gel, ointment: Short-term treatment of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses Solution: Short-term treatment of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses of the scalp
clobetasol propionate (Impeklo®) ⁵⁹	Mylan Specialty	Relief of the inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses in patients 18 years of age or older
clobetasol propionate (Olux®, Olux-E®) ^{60,61}	generic, Prestium/Mylan	Short-term treatment of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses of the scalp and short-term treatment of mild to moderate plaque psoriasis of non-scalp regions
clobetasol propionate (Tovet™) ⁶²	Medimetriks	Treatment of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses in patients 12 years and older
diflorasone diacetate ointment ⁶³	generic	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
halobetasol propionate cream, ointment ^{64,65}	generic, Ranbaxy/Sun	Relief of inflammatory and pruritic manifestations of corticosteroid-responsive dermatoses
halobetasol propionate foam (Lexette®) ^{66,67}	generic*, Mayne	Topical treatment of plaque psoriasis in patients 12 years of age and older.
halobetasol propionate lotion (Bryhali®) ⁶⁸	Bausch	Topical treatment of plaque psoriasis in adults
halobetasol propionate lotion (Ultravate®) ⁶⁹	Sun	Topical treatment of plaque psoriasis in patients 12 years of age and older

* Available as authorized generic (AG).

Products that are available as convenience kits are not included in this Therapeutic Class Review.

OVERVIEW

Topical corticosteroids are used for a variety of inflammatory skin conditions.

Atopic dermatitis (AD) is a chronic, inflammatory dermatologic condition. The skin becomes pruritic and inflamed, causing swelling, cracking, weeping, crusting, and scaling. AD is often referred to as eczema. It commonly occurs in patients affected by asthma and/or allergic rhinitis and is associated with elevated serum IgE levels. Usually diagnosed before the age of 5 years, AD can occur at any age, but occurs most frequently in children.⁷⁰

Psoriasis is another inflammatory skin condition. Plaque psoriasis is the most common type of psoriasis which appears as patches of raised, reddish skin covered by silvery-white scales. These plaques or scales, frequently form on the elbows, knees, and scalp. Controlling the signs and symptoms typically requires lifelong therapy.^{71,72}

Seborrheic dermatitis is an inflammatory disorder affecting areas of the head and trunk, where sebaceous glands are most prominent. Scalp seborrhea varies from mild dandruff to dense scales, while facial and trunk seborrhea is characterized by a powdery or greasy scale in skin folds and along hair margins.^{73, 74}

Pharmacotherapy choices for these conditions typically include emollients and topical corticosteroids.⁷⁵ Emollients remain the cornerstone of any AD pharmacotherapeutic regimen; they restore the skin barrier function. Topical corticosteroids are the standard of care to which other treatments are compared. The selected medication and potency should depend on medication efficacy, severity of disease, location, surface area of affected skin, intended duration of treatment, medication vehicle, patient preference, and the age of the patient. For short-term durations of treatment, high potency medications have greater efficacy when compared to less potent medications. However, highly potent topical corticosteroids do have an increased risk of side effects. Dermatologic effects such as striae, atrophy, and tachyphylaxis, as well as potential non-dermatologic effects on linear growth rate, bone density, and hypothalamic-pituitary-adrenal (HPA) axis suppression, limit the long-term use of these agents. Additionally, the increased incidences of adverse dermatologic effects are positively correlated with the medication's frequency and duration of use. The true efficacy and risk of long-term topical corticosteroid use is unknown since most clinical trials only involving short-term studies. Furthermore, the American Academy of Dermatology (AAD) recommends that continued therapy be supervised by the prescriber, and once a clinical response is demonstrated, a gradual reduction in utilization is appropriate.⁷⁶ Topical corticosteroids are recommended for the treatment of plaque psoriasis not involving intertriginous areas. Alternating the use of topical corticosteroids with non-corticosteroids or steroid-sparing agents (e.g., vitamin D analogs, tazarotene, calcineurin inhibitors) is also recommended as a means of mitigating the potential side effects of topical corticosteroids. Topical steroids may also be combined with emollients, salicylic acid, anthralin, and coal tar as well as biologics and other systemic agents. Non-pharmacologic therapies, such as irritant avoidance and dietary intervention, have also been recommended, but these measures have not demonstrated consistent and beneficial results.

PHARMACOLOGY⁷⁷

Topical corticosteroids mimic compounds that are secreted by the adrenal cortex. Their anti-inflammatory, antipruritic, and vasoconstrictive effects make them effective treatments in dermatological conditions. The exact mechanisms of action for the topical corticosteroids are not completely understood. Corticosteroids are thought to induce phospholipase A2 inhibitory proteins, or lipocortins, which control the biosynthesis of mediators of inflammation, such as prostaglandins and leukotrienes, by inhibiting the release of arachidonic acid. Substitution of a fluorine atom, an acetonide group, omission of the hydroxyl group, or esterification of a hydroxyl group in certain positions on the cortisol molecule increases anti-inflammatory activity. Based on this, corticosteroids are classified by potency. In this review, low, medium, high, and very high classifications are used to differentiate among the corticosteroids. Notably, there are differing compendia listings for corticosteroid potencies.

PHARMACOKINETICS⁷⁸

The extent of topical absorption of corticosteroids is dependent on factors such as drug vehicle, skin integrity, use of occlusive dressings, use of more potent corticosteroids, use over large areas, and prolonged use. Areas where the stratum corneum is thin, such as the eyelids, genitalia, and face, also increase the risk for further absorption. The presence of skin disease processes, such as inflammation, may increase cutaneous absorption. Systemically absorbed corticosteroids are primarily metabolized in the liver and excreted by the kidneys. Some corticosteroids and their metabolites are excreted into the bile.

CONTRAINDICATIONS/WARNINGS^{79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114}

Corticosteroids are contraindicated in patients who have known hypersensitivities to any active or inactive ingredient in their prescribed preparation.

Hypothalamic-pituitary-adrenal (HPA) axis suppression, manifestations of Cushing's syndrome (high blood levels of cortisol), hyperglycemia, glucosuria, and growth retardation in children can result from the systemic absorption of topical corticosteroids. If these effects are seen, the medications should be discontinued, applied less frequently, or substituted for a less potent topical corticosteroid. Patients who apply corticosteroids to a large surface area should periodically be evaluated by cortisol or adrenocorticotropic hormone (ACTH) stimulation tests. Recovery of the HPA axis is generally prompt and complete upon discontinuation of the corticosteroid.

Topical corticosteroids should not be used in the treatment of rosacea or perioral dermatitis. They also should not be used on the face, groin, or in the axillae because those areas are more prone to atrophic changes during corticosteroid therapy. Increased intraocular pressure, cataracts, and glaucoma have been reported in patients who use topical corticosteroids near the eyes. Topical corticosteroids should be discontinued if irritation develops; local adverse reactions may occur.

Allergic contact dermatitis may occur with corticosteroids.

Fluocinolone acetonide (Derma-Smoothe-FS) contains 48% refined peanut oil NF and should be used with caution in peanut-sensitive patients. Therapy should be immediately discontinued if signs of hypersensitivity are present, or disease exacerbations occur.

When appropriate, antifungals or antibacterials should be applied to dermatological infections. If a response is not seen in a reasonable amount of time, specific to the drug being used, the topical corticosteroid should be discontinued until the infection is controlled.

Foam and aerosol products are flammable; patients should avoid fire, flame, or smoking during and immediately following application.

Any visual symptoms or visual adverse effects should be reported, and referral to an ophthalmologist for evaluation is recommended.

DRUG INTERACTIONS^{115,116,117,118,119,120,121,122,123,124,125,126,127,128,129,130,131,132,133,134,135,136,137,138,139,140,141,142,143,144,145,146,147,148,149,150,151,152,153}

Drug interactions are not typically addressed in labeling of topical corticosteroids. However, in general, the risk of drug interactions with topical corticosteroids is low.¹⁵⁴ To avoid the potential for reduced effectiveness and potential interactions, administration of other topical agents should be separated from the topical corticosteroid.

ADVERSE EFFECTS^{155,156,157,158,159,160,161,162,163,164,165,166,167,168,169,170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,186,187,188,189,190,191,192,193,194,195,196,197,198,199,200,201,202,203,204,205,206}

Drug	Burning	Dryness	Folliculitis	Itching	Irritation
Low Potency					
alclometasone dipropionate	1-2	2	nr	1-2	2
desonide (Desonate)	1	reported	reported	< 1	reported
desonide (Desowen)	reported	nr	nr	reported	reported
desonide (Tridesilon)	≈ 1	reported	≈ 1	nr	≈ 1
desonide (Verdeso)	3	nr	nr	nr	reported
fluocinolone acetonide (Capex Shampoo)	nr	nr	nr	nr	nr
fluocinolone acetonide (Derma-Smoothe-FS)	5 (body oil) 5.2 (scalp oil)	nr	2 (body oil) 1.7 (scalp oil)	5 (body oil) 5.2 (scalp oil)	5 (body oil) 5.2 (scalp oil)
fluocinolone acetonide (Synalar)	reported	reported	reported	reported	reported
hydrocortisone (Anti-Itch, Aquanil HC, Beta HC, Cortaid, Cortizone-10, CVS Anti-Itch, Dermarest Eczema, Dermolate, EQ Anti-Itch, EQL Anti-Itch, GS Anti-Itch, Noble Formula HC, QC Anti-Itch, RA Anti-Itch, Scalacort, Scalp Relief, Scalpicin, Soothing Care, Vanicream)	reported	reported	reported	reported	reported
hydrocortisone/aloe vera (Cortizone-10, CVS Cortisone with Aloe, EQ-Hydrocortisone-Aloe, Nucort, QC Anti-Itch with Aloe, SM Hydrocortisone Plus)	reported	reported	reported	reported	reported

Adverse effects data are reported as percentages and are obtained from prescribing information, therefore should not be considered comparative data or all-inclusive. nr = not reported

Adverse Effects (continued)

Drug	Burning	Dryness	Folliculitis	Itching	Irritation
Medium Potency					
betamethasone dipropionate (Sernivo)	4.5	reported	< 1	6	reported
betamethasone valerate (Luxiq)	2-44	reported	reported	2-44	reported
betamethasone valerate	reported	reported	reported	reported	reported
clocortolone pivalate (Cloderm)	reported	reported	reported	reported	reported
fluocinolone acetonide (Synalar)	reported	reported	reported	reported	reported
flurandrenolide (Cordran)	reported	reported	reported	reported	reported
flurandrenolide (Cordran Tape)	reported	reported	reported	reported	reported
fluticasone propionate (Cutivate)	0.6-2	0.5-7	0.5-1	1-2.9	1-2.9
hydrocortisone butyrate (Locoid, Locoid Lipocream)	nr	nr	nr	2	1
hydrocortisone probutate (Pandel)	1.8	reported	reported	reported	reported
hydrocortisone valerate	reported	2	reported	2-6	1
mometasone furoate	1.6	nr	nr	1.6	nr
prednicarbate	reported	reported	reported	reported	reported
triamcinolone acetonide (Kenalog)	reported	reported	reported	reported	reported
High Potency					
amcinonide	reported	reported	reported	reported	reported
betamethasone dipropionate	reported	reported	reported	reported	reported
betamethasone dipropionate augmented	reported	reported	< 1	< 1	reported
clobetasol propionate (Impoz)	nr	reported	nr	nr	reported
desoximetasone (Topicort)	< 1	reported	< 1	reported	reported
desoximetasone (Topicort Topical Spray)	nr	2.7	< 1	2	2.7
diflorasone diacetate cream (Apexicon E, Psorcon)	nr	nr	nr	nr	nr
fluocinonide	nr	nr	reported	reported	nr
fluocinonide (Vanos)	1.8-2.3	reported	nr	reported	reported
halcinonide (Halog)	nr	nr	nr	nr	nr
triamcinolone acetonide	reported	reported	reported	reported	reported

Adverse effects data are reported as percentages and are obtained from prescribing information, therefore should not be considered comparative data or all-inclusive. nr = not reported

Adverse Effects (continued)

Drug	Burning	Dryness	Folliculitis	Itching	Irritation
Very High Potency					
betamethasone dipropionate augmented gel, ointment (Diprolene AF)	reported	reported	reported	reported	reported
clobetasol propionate (Clobex)	reported; 40 (spray)	1-2	reported	0.5-3	1
clobetasol propionate (Clodan shampoo)	reported	reported	reported	reported	reported
clobetasol propionate (Temovate)	0.5-10	reported	< 2	< 2	< 2
clobetasol propionate (Impeklo)	reported	1%	reported	nr	1.3
clobetasol propionate (Olux, Olux-E)	10	< 1	nr	< 2	< 2
diflorasone diacetate ointment	nr	nr	nr	nr	nr
halobetasol propionate (Ultravate)	1.6-4.4	reported	reported	4.4	nr
halobetasol propionate (Bryhali)	reported	reported	nr	reported	reported
halobetasol propionate foam (Lexette)	12	nr	nr	nr	reported

Adverse effects data are reported as percentages and are obtained from prescribing information, therefore should not be considered comparative data or all-inclusive. nr = not reported

Local adverse effects occur more frequently with the use of occlusive dressings and may be more likely to occur with prolonged use or higher potency agents.

Additionally, adverse effects are reported with the general use of topical corticosteroids and may occur more frequently with the use of occlusive dressings and include burning, itching, irritation, dryness, folliculitis, hypertrichosis, perioral dermatitis, allergic contact dermatitis, hypertrichosis, acneiform eruptions, hypopigmentation, secondary infection, skin atrophy, striae, telangiectasia, and miliaria. While product-specific adverse event rates may not be available, these events are known to occur with topical corticosteroids. These may be irreversible.

Corticosteroids in gel formulations can cause dryness and irritation to the skin. Their use is usually limited to the scalp and beard areas.

SPECIAL POPULATIONS^{207,208,209,210,211,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,228,229,230,231,232,233,234,235,236,237,238,239,240,241,242,243,244,245,246}

Pediatrics

Pediatric patients may be susceptible to higher incidences of corticosteroid-induced hypothalamic-pituitary-adrenal (HPA) axis suppression, Cushing's syndrome, and increased intracranial pressure because of a larger skin surface area to body weight ratio.

Pediatric Age	Drug
≥ 3 months	desonide (Desonate, Verdeso); fluocinolone acetonide (Derma-Smoothe-FS body oil); fluticasone (Cutivate) cream/lotion; hydrocortisone butyrate (Locoid/ Lipocream)
≥ 1 year	alclometasone
≥ 2 years	mometasone
≥ 12 years	fluocinonide (Vanos); halobetasol (Lexette foam, generic, Ultravate lotion, generic cream and ointment); clobetasol (Temovate, Olux)
≥ 13 years	betamethasone dipropionate (Diprolene AF)

Safety and efficacy of mometasone furoate 0.1% cream in children (greater than 2 years old) beyond 3 weeks have not been established. Clocortolone (Cloderm), desoximetasone (Topicort, Topicort Topical Spray), flurandrenolide (Cordran, Cordran Tape) use in pediatrics should be limited to the least amount compatible with an effective therapeutic regimen. Hydrocortisone butyrate (Locoid/Locoid Lipocream) is not approved for pediatric use with the corticosteroid-dermatoses indication.

The safety and effectiveness of all other products have not been established in pediatric patients.

Pregnancy

All topical corticosteroid products are Pregnancy Category C. Halobetasol propionate lotion (Bryhali, Ultravate), halobetasol propionate foam (Lexette), clobetasol propionate cream (Impoyz), and clobetasol propionate lotion (Impeklo) have not been assigned a Pregnancy Category, but there are no data on these agents in pregnant women. The labeling for betamethasone dipropionate (Diprolene, Diprolene AF, Sernivo), clobetasol foam (Olux, Olux-E), clobetasol spray (Clobex), desonide (Verdeso), desoximetasone foam (Topicort), and diflorasone (Psorcon) were updated to comply with the Pregnancy and Lactation Labeling Rule (PLLR) and advises that there are not available data for use in pregnant women to inform of a drug-related adverse effects on the fetus. Topical corticosteroids should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

DOSAGES ^{247,248,249,250,251,252,253,254,255,256,257,258,259,260,261,262,263,264,265,266,267,268,269,270,271,272,273,274,275,276,277,278,279,280,281,282,283,284,285,286,287,288,289,290,291,292,293,294,295,296,297,298,299,300}

Drug	Dose	Dosage Forms
Low Potency		
alclometasone dipropionate	Apply to affected skin 2 or 3 times daily; treatment should be limited to 3 weeks	0.05% cream, ointment
desonide (Desonate, DesRx)	Apply to affected skin twice daily; treatment should not exceed 4 weeks (DesRx, Verdeso) Desonide cream and ointment can be applied 2 to 4 times daily and the lotion can be applied 2 to 3 times daily (Tridesilon should not be used for more than 2 weeks, unless directed by a physician)	0.05% gel
desonide (Desowen)		0.05% cream 0.05% lotion (generic only) 0.05% ointment (generic only)
desonide (Tridesilon)		0.05% cream
desonide (Verdeso)		0.05% foam
fluocinolone acetonide (Capex Shampoo)		Apply 1 ounce to scalp daily for 5 minutes, then rinse
fluocinolone acetonide (Derma-Smoothe-FS)	Body oil: Adults: Apply thin film to the affected areas 3 times daily Pediatric: Apply thin film to moistened skin twice daily for up to 4 weeks Scalp oil: Dampen hair and then apply to scalp and cover overnight or a minimum of 4 hours before washing off	0.01% body oil, scalp oil
fluocinolone acetonide (Synalar)	Applied to the affected skin as a thin film from 2 to 4 times daily depending on the severity of the condition.	0.01% cream (generic only) 0.01% solution
hydrocortisone (Ala-Cort*, Ala-Scalp*, Anti-Itch, Aquanil HC, Aquaphor Itch Relief, Beta HC, Cortaid, Cortizone-10, CVS Anti-Itch, Dermarest Eczema, Dermolate, EQ Anti-Itch, EQL Anti-Itch, GS Anti-Itch, Noble Formula HC, Proctocort*, QC Anti-Itch, RA Anti-Itch, Scalacort, Scalp Relief, Scalpicin, Soothing Care, Texacort*, Vanicream)	Apply to affected skin 2 to 4 times daily Cleansing Shampoo: Massage moderate amount into a wet scalp and leave on scalp 2 to 3 minutes or apply liberally to all areas of the body and lather; then rinse thoroughly	0.5% cream, ointment (OTC) 1% cream, gel, lotion, spray, ointment, solution (OTC) 2% lotion 2.5% cream, lotion, ointment, solution
hydrocortisone/aloe vera (Cortizone-10, CVS Cortisone with Aloe, EQ-Hydrocortisone-Aloe, Nucort, QC Anti-Itch with Aloe, SM Hydrocortisone Plus)	For itching of skin irritation, inflammation, and rashes (adults and children 2 years of age and older): Apply to affected area not more than 3 to 4 times daily For external anal and genital itching (adults): Clean the affected area with mild soap and warm water and rinse thoroughly gently dry by patting or blotting with toilet tissue or soft cloth before applying apply to affected area not more than 3 to 4 times daily	0.5% cream (OTC) 1% cream (OTC) 2% lotion (Nucort)

*Branded generic product

Dosages (continued)

Drug	Dose	Dosage Forms
Medium Potency		
betamethasone dipropionate	Apply to affected skin once or twice daily	0.05% cream
betamethasone dipropionate	Apply to affected skin twice daily	0.05% lotion
betamethasone dipropionate (Sernivo)	Apply to affected skin twice daily; treatment beyond 4 weeks is not recommended	0.05% spray/pump
betamethasone valerate (Luxiq)	Apply to scalp twice daily; occlusive dressings should not be used unless directed by physician	0.12% foam
betamethasone valerate	Apply to affected skin 2 to 4 times daily	0.1% cream, lotion, ointment
clocortolone pivalate (Cloderm)	Apply to affected skin 3 times daily	0.1% cream
fluocinolone acetonide (Synalar)	Apply to affected skin 2 to 4 times daily	0.025% cream, ointment
flurandrenolide (Cordran, Nolix™*)	Apply to affected skin 2 to 3 times daily	0.025% cream (Cordran only) 0.05% cream, lotion, ointment
flurandrenolide (Cordran Tape)	Apply tape to affected skin every 12 to 24 hours	4 mcg/cm ² tape
fluticasone propionate (Beser*, Cutivate)	Ointment: Apply to affected skin twice daily Cream: Apply to affected skin once or twice daily Lotion: Apply to affected skin once daily Treatment should be limited to 4 weeks	0.005% ointment (generic only) 0.05% cream, lotion
hydrocortisone butyrate (Locoid, Locoid Lipocream)	Apply to affected skin 2 to 3 times daily; treatment should be limited to 2 weeks	0.1% cream (Lipocream) 0.1% lotion 0.1% ointment, solution (generic only)
hydrocortisone probutate (Pandel)	Apply to affected skin once or twice daily; if no improvement is seen within 2 weeks, reassessment of diagnosis may be necessary; occlusive dressings should not be used unless directed by physician	0.1% cream
hydrocortisone valerate	Apply to affected skin 2 to 3 times daily; occlusive dressings should not be used unless directed by a physician	0.2% cream, ointment
mometasone furoate	Apply to affected skin once daily; treatment should be limited to 3 weeks	0.1% cream 0.1% ointment, solution
prednicarbate	Apply to affected skin twice daily	0.1% cream (emollient) 0.1% ointment
triamcinolone acetonide (Kenalog, Trianex*, Tritocin*)	Apply to affected skin 2 to 4 times daily	0.025% cream, lotion, ointment (generic only) 0.05% ointment (Trianex, Tritocin) 0.1% cream 0.1% lotion, ointment (generic only) 0.147 gm/1 gm topical spray (Kenalog)

*Branded generic product

Dosages (continued)

Drug	Dose	Dosage Forms
High Potency		
amcinonide	Apply to affected skin 2 to 3 times daily	0.1% cream, lotion
betamethasone dipropionate	Apply to affected skin once to twice daily	0.05% ointment
betamethasone dipropionate augmented	Apply to affected skin once or twice daily; total dose should not exceed 50 g or mL per week; treatment should be limited to 2 weeks; occlusive dressings should not be used	0.05% cream
clobetasol propionate (Impoyz)	Apply a thin layer to affected areas twice daily for up to 2 consecutive weeks. Do not exceed 50 g per week.	0.025% cream
desoximetasone (Topicort*)	Apply to affected skin twice daily	0.05% cream*, gel*, ointment 0.25% cream, ointment*
desoximetasone (Topicort Spray)	Plaque psoriasis: apply as a thin film to the affected skin twice daily; rub in gently; occlusive dressings should not be used unless directed by a physician. Treatment beyond 4 weeks is not recommended.	0.25% spray
diflorasone diacetate (Apexicon E, Psorcon)	Apply to affected skin twice daily Apply to affected skin 1 to 3 times daily (Apexicon E)	0.05% cream
fluocinonide	Apply to affected skin 1 to 4 times daily	0.05% cream, gel, ointment, solution 0.05% cream in emollient base
fluocinonide (Vanos)	Apply to affected skin once or twice daily; total dose should not exceed 60 g per week; treatment should be limited to 2 weeks	0.1% cream
halcinonide (Halog)	Apply to affected skin 1 to 3 times daily	0.1% cream 0.1% ointment (brand only) 0.1% solution (brand only)
triamcinolone acetonide (Triderm*)	Apply to affected skin 2 to 3 times daily	0.5% cream 0.5% ointment (generic only)

* Branded generic product

Dosages (continued)

Drug	Dose	Dosage Forms
Very High Potency		
betamethasone dipropionate augmented (Diprolene)	Apply to affected skin once or twice daily; total dose should not exceed 50 g or mL per week; treatment should be limited to 2 weeks; occlusive dressings should not be used	0.05% gel, lotion (generic only) 0.05% ointment
clobetasol propionate (Clobex, Clodan shampoo)	Apply lotion or spray to affected skin twice daily; total dose should not exceed 50 g or 1.75 ounces per week; treatment should be limited to 2 weeks (4 weeks for moderate to severe plaque psoriasis); apply shampoo to dry scalp once daily and rinse after 15 minutes	0.05% lotion (generic only) 0.05% shampoo, spray
clobetasol propionate (Temovate)	Apply to affected skin twice daily; total dose should not exceed 50 g or mL per week; treatment should be limited to 2 weeks	0.05% cream, ointment 0.05% emollient (generic only) 0.05% gel, solution (generic only)
clobetasol propionate (Impeklo)	Apply to affected skin twice daily; do not exceed 50 g per week; do not use > 10 pump actuations per application twice daily or 20 pump actuations per day for > 7 days; use should generally be limited to 2 consecutive weeks; however, up to 2 additional weeks may be used for localized lesions; discontinue once control is achieved	0.05% lotion
clobetasol propionate (Tovet*)	Foam: apply a thin layer to affected areas twice daily for up to 2 consecutive weeks; do not exceed 50 g per week	0.05% foam
clobetasol propionate (Olux/Olux-E)	Apply to affected skin twice daily; total dose should not exceed 50 g per week; treatment should be limited to 2 weeks	0.05% foam
diflorasone diacetate	Apply to affected skin twice daily	0.05% ointment
halobetasol propionate (Ultravate)	Cream, Ointment: Apply to affected skin once or twice daily; Lotion: Apply a thin layer to affected areas twice daily Total dose for any formulation should not exceed 50 g per week; treatment should be limited to 2 weeks; occlusive dressings should not be used	0.05% cream, ointment (generic only) 0.05% lotion (brand only)
halobetasol propionate (Bryhali)	Apply a thin layer to affected areas once daily; Treatment beyond 8 weeks is not recommended, and the total dosage should not exceed approximately 50 g per week; Discontinue treatment if control is achieved before 8 weeks; Do not use with occlusive dressings unless directed by a physician	0.01% lotion
halobetasol propionate (Lexette)	Apply to affected skin twice daily, rubbing in gently; total dose should not exceed 50 g per week; treatment should be limited to 2 weeks	0.05% foam

* Branded generic product

Once atopic dermatitis is stabilized with daily treatment, studies have shown that intermittent therapy with more potent topical corticosteroids can be as effective as daily therapy with a mild topical corticosteroid.^{301,302} During intermittent treatment, use of emollients is recommended on days that steroids are not applied.

CLINICAL TRIALS

Search Strategy

Articles were identified through searches performed on PubMed and review of information sent by manufacturers. Search strategy included the FDA-approved use of all drugs in this class. Randomized, controlled, comparative trials are considered the most relevant in this category. Studies included for analysis in the review were published in English, performed with human participants, and randomly allocated participants to comparison groups. In addition, studies must contain clearly stated, predetermined outcome measure(s) of known or probable clinical importance, use data analysis techniques consistent with the study question, and include follow-up (endpoint assessment) of at least 80% of participants entering the investigation. Despite some inherent bias found in all studies including those sponsored and/or funded by pharmaceutical manufacturers, the studies in this therapeutic class review were determined to have results or conclusions that do not suggest systematic error in their experimental study design. While the potential influence of manufacturer sponsorship and/or funding must be considered, the studies in this review have also been evaluated for validity and importance.

alclometasone dipropionate versus hydrocortisone butyrate (Locoid)

In a double-blind, parallel-group trial, alclometasone dipropionate 0.05% cream or hydrocortisone butyrate 0.1% cream were applied twice daily for 2 weeks to 40 children (5 to 11 years old) with atopic dermatitis.³⁰³ Improvement in erythema, induration, and pruritus averaged 76% for alclometasone dipropionate and 70% for hydrocortisone butyrate. Two patients in the alclometasone dipropionate group and 1 in the hydrocortisone butyrate group reported mild stinging.

clobetasol propionate (Temovate) versus betamethasone dipropionate (Diprolene)

A double-blind study compared the effectiveness of clobetasol propionate 0.05% ointment and betamethasone dipropionate 0.05% ointment twice daily in 130 patients with moderate to severe signs of psoriasis for 2 weeks.³⁰⁴ Both drugs were well tolerated. Significantly more patients showed greater improvement when treated with clobetasol propionate. Follow-up evaluation 2 weeks after the treatment period showed longer remissions with clobetasol propionate use ($p < 0.001$).

fluocinolone acetonide (Synalar) versus betamethasone dipropionate (Diprolene)

In a double-blind, randomized study, 62 patients with psoriasis or eczema were treated with betamethasone dipropionate 0.05% cream or fluocinolone acetonide 0.025% cream twice daily for 3 weeks.³⁰⁵ Both preparations were effective, well tolerated, and cosmetically acceptable. Of the patients treated with betamethasone dipropionate, 57% were rated as being “much better” in the overall assessment of response at the end of the trial period compared to only 25% of fluocinolone acetonide patients.

fluticasone propionate (Cutivate) versus betamethasone dipropionate (Diprolene)

A randomized, double-blind, parallel-group study compared the safety, tolerability, and efficacy of fluticasone propionate 0.005% ointment and betamethasone dipropionate 0.05% ointment twice daily in 92 patients with moderate to severe eczema.³⁰⁶ Statistically significant improvement in the severity of signs and symptoms was found as early as 2 weeks following treatment initiation in both groups. There was no significant difference between the treatments following 2 or 4 weeks of therapy regarding almost all efficacy variables. Both treatments were well tolerated and showed minimal suppression of the hypothalamic-pituitary-adrenal (HPA) axis as evidenced by morning plasma cortisol concentration determinations.

The efficacy, safety, and tolerability of fluticasone propionate 0.005% ointment and betamethasone dipropionate 0.05% ointment were compared in a 12-week, randomized, double-blind, parallel-group study of 74 patients with moderate to severe psoriasis.³⁰⁷ Fluticasone propionate was not significantly different from betamethasone dipropionate at day 15 ($p=0.147$), at the end of treatment analysis ($p=0.245$), or after 4 weeks ($p=0.154$). Neither medication resulted in any abnormal laboratory values, including plasma cortisol levels, over the 12-week safety study period. Both medications were well tolerated.

fluticasone propionate (Cutivate) versus hydrocortisone butyrate (Locoid)

In a randomized, double-blind, parallel-group study involving 120 patients, the safety and tolerability of fluticasone propionate 0.05% cream and hydrocortisone butyrate 0.1% cream in the treatment of moderate to severe eczema were compared.³⁰⁸ Fluticasone propionate was found to be similar in efficacy to hydrocortisone butyrate after 4 weeks. One hydrocortisone butyrate patient's eczema was severely exacerbated by drug therapy over the 12-week safety study, but the drugs were otherwise well tolerated. Plasma cortisol monitoring revealed minimal HPA axis suppression.

The efficacy and safety of fluticasone propionate 0.005% ointment and hydrocortisone butyrate 0.1% ointment twice daily were compared in 113 adult patients with moderate to severe psoriasis in a double-blind, randomized, parallel study.³⁰⁹ Efficacy assessments were made at weekly intervals for up to 4 weeks. Fluticasone propionate was found to be therapeutically superior to hydrocortisone butyrate, as well as safe and well tolerated. Its onset of action was rapid, and no systemic adverse effects occurred.

fluticasone propionate (Cutivate) versus hydrocortisone butyrate (Locoid) versus hydrocortisone

Two randomized, parallel-group, double-blind studies in children ages 2 to 14 years old evaluated fluticasone propionate 0.05% cream with either hydrocortisone 1% cream ($n=137$) or hydrocortisone butyrate 0.1% cream ($n=129$) for both acute and maintenance treatment of moderate to severe atopic dermatitis.³¹⁰ Treatments were applied twice daily for 2 to 4 weeks, and thereafter as needed for up to 12 weeks. The primary outcome measure, Total Atopic Dermatitis Score, showed improvement in disease severity following treatment with fluticasone propionate compared with either hydrocortisone or hydrocortisone butyrate for acute treatment ($p<0.001$ versus hydrocortisone; $p=0.042$ versus hydrocortisone butyrate) and maintenance treatment ($p=0.006$ versus hydrocortisone; $p=0.042$ versus hydrocortisone butyrate). In both studies, treatments were equally well tolerated with no visible signs of skin atrophy.

halobetasol propionate versus betamethasone dipropionate (Diprolene)

In a double-blind, parallel-group, comparative trial, 104 patients with severe, localized plaque psoriasis were given halobetasol propionate 0.05% ointment or betamethasone dipropionate 0.05% ointment.³¹¹ Halobetasol dipropionate demonstrated an 88.7% success rate assessed as “healed” or “marked improvement” compared to 78.5% for betamethasone dipropionate ointment. Healing was observed within 24 days of the start of treatment in 40% and 25% of the patients who received halobetasol propionate and betamethasone dipropionate ointments, respectively. Tolerability was acceptable for both agents after 4 weeks of treatment. Patients preferred halobetasol propionate ointment over betamethasone dipropionate ointment based on cosmetic acceptability and ease of application.

halobetasol propionate versus clobetasol dipropionate (Temovate) versus betamethasone dipropionate (Diprolene)

In 2 double-blind, parallel-group, multicenter trials, halobetasol propionate 0.05% cream was compared with clobetasol propionate 0.05% cream and betamethasone dipropionate 0.05% cream in 264 patients with acute severe exacerbations of atopic dermatitis.³¹² The efficacy of halobetasol propionate and betamethasone dipropionate was similar with regard to the success rate, as indicated by ratings of “healed” and “marked improvement” (88% versus 90%, respectively) and by an onset of therapeutic effect within 3 days of the start of treatment (40% versus 39%). The efficacy of halobetasol propionate and clobetasol propionate was also similar regarding success rates (89% versus 93%, respectively) and an onset of therapeutic effect within 3 days of the start of treatment (41% versus 38%). Dryness of the skin and itching at the site of application were the reported adverse effects, but the creams were all well tolerated.

halobetasol propionate versus betamethasone valerate (Beta-Val)

In a double-blind, parallel-group comparative trial, 84 patients with severe, localized plaque psoriasis were given halobetasol propionate 0.05% ointment or betamethasone valerate 0.1% ointment.³¹³ Halobetasol propionate proved significantly superior to betamethasone valerate with respect to the success rate, as indicated by ratings of “healed” or “marked improvement” (88.1% versus 64.3%; $p=0.02$). The therapeutic effect was observed within 5 days of the initiation of treatment in 76% and 67% of the patients treated with halobetasol propionate and betamethasone valerate, respectively. Both ointments were well tolerated.

hydrocortisone butyrate (Locoid) versus hydrocortisone

A randomized, double-blind study compared the efficacy of hydrocortisone butyrate 0.1% cream with hydrocortisone 1% cream in 40 children suffering from atopic dermatitis.³¹⁴ The medications were applied twice daily for a maximum of 4 weeks. Complete clearance of skin symptoms was found in 36% of the hydrocortisone butyrate patients and in 23% of the hydrocortisone patients following 2 weeks of therapy and in 60% and 30%, respectively, after 4 weeks of treatment, a statistically significant difference. No serious adverse events were reported during the study.

hydrocortisone butyrate (Locoid) versus fluticasone dipropionate (Cutivate), prednicarbate (Dermatop) versus and mometasone furoate

A randomized, double-blind clinical trial involving 89 subjects with atopic dermatitis compared the safety, efficacy, and cosmetic acceptability of hydrocortisone butyrate 0.1% cream, fluticasone propionate 0.05% cream, prednicarbate 0.1% cream, and mometasone furoate 0.1% cream.³¹⁵ Treatments were self-administered twice daily for 2 weeks. Investigator ratings of signs and the patient ratings of signs and symptoms indicated comparable efficacy of all 4 treatments.

halobetasol propionate lotion (Bryhali) versus halobetasol propionate cream

In a multicenter, double-blind, parallel-group, phase 2 clinical trial the safety, tolerability, and efficacy of halobetasol propionate lotion was compared to halobetasol propionate cream in 150 adult patients.³¹⁶ All participants had moderate-to-severe plaque psoriasis, defined as an investigator global assessment (IGA) score of 3 or 4 and covering $\geq 3\%$ to $\leq 12\%$ of BSA, excluding the face, scalp, palms, soles, groin, axillae, and intertriginous areas. Patients were randomized to halobetasol lotion (n=60), halobetasol cream (n=57), vehicle lotion (n=17), or vehicle cream (N=16), which were applied once daily for 2 weeks. Halobetasol lotion demonstrated Class 1 clearance of plaque psoriasis at 8 weeks. At week 2, halobetasol lotion delivered similar clearance with 80% less halobetasol exposure compared to halobetasol cream. As measured by a percentage of the applied dose, halobetasol lotion was also found to penetrate the skin 3 times more efficiently than halobetasol cream.

SUMMARY

Topical corticosteroids are effective in the treatment of dermatoses. Clinical data suggest that the efficacy of the topical corticosteroids is relative to their potency and individual agents within a potency category are not distinguishable from each other. Once the disease is under control, it may be possible to decrease the frequency of application of these agents to avoid long-term adverse effects.

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129 Mometasone furoate [package insert]. Melville, NJ; Fougera; July 2018.
130 Diprolene AF [package insert]. Whitehouse Station, NJ; Merck; May 2019.
131 Capex Shampoo [package insert]. Fort Worth, TX; Galderma; December 2015.
132 Derma-Smoothe-FS Scalp Oil [package insert]. Manasquan, NJ; Royal; January 2014.
133 Derma-Smoothe-FS Body Oil [package insert]. Manasquan, NJ; October 2013.
134 Dermarest Eczema [package insert]. Terrytown, NY; Insight; January 2020.
135 Vanos [package insert]. Bridgewater, NJ; Valeant; May 2017.
136 Halog [package insert]. Princeton, NJ; Ranbaxy; May 2018.
137 Clobex [package insert]. Fort Worth, TX; Galderma; February 2018.
138 Temovate [package insert]. Melville, NY; PharmaDerm; January 2018.
139 Clobetasol propionate 0.1% solution [package insert]. Hawthorne, NY; Taro; October 2019.
140 Impeklo [package insert]. Morgantown, WV; Mylan; May 2020.
141 Olux [package insert]. Morgantown, WV; Mylan; April 2018.
142 Halobetasol propionate cream [package insert]. Melville, NY; Fougera; January 2020.
143 Momexin [package insert]. Charleston, SC; JSJ; December 2011.
144 Sernivo [package insert]. San Antonio, TX; Encore; March 2020.
145 Ultravate lotion [package insert]. Ferndale, MI; Sun; September 2020.
146 Tridesilon [package insert]. Malvern, PA; Encore; April 2016.

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- 147 Ellzia Pak. San Fernando, CA; PureTek; December 2016.
- 148 Impoyz [package insert]. San Antonio, TX; Promius; November 2017.
- 149 Halobetasol propionate topical foam [package insert]. Greenville, NC; Mayne; May 2021.
- 150 Bryhali [package insert]. Bridgewater, NJ; Bausch; June 2020.
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- 158 Verdeso [package insert]. San Antonio, TX; Almirall; April 2019.
- 159 Capex Shampoo [package insert]. Fort Worth, TX; Galderma; December 2015.
- 160 Derma-Smoothe-FS Scalp Oil [package insert]. Manasquan, NJ; Royal; January 2014.
- 161 Pediaderm HC [package insert]. Raleigh, NC; Arbor; October 2013.
- 162 Pediaderm TA [package insert]. Raleigh, NC; Arbor; January 2011.
- 163 Luxiq [package insert]. Morgantown, WV; Mylan; April 2018.
- 164 Betamethasone valerate [package insert]. Melville, NY; Fougera; June 2021.
- 165 Cloderm [package insert]. Charleston, SC; Epi Health; November 2018.
- 166 Synalar cream [package insert]. Fairfield, NJ; Medimetriks; November 2016.
- 167 Synalar solution [package insert]. Fairfield, NJ; Medimetriks; June 2018.
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- 169 Cordran Cream and Ointment [package insert]. Corona, CA; Aqua; May 2017.
- 170 Cordran Lotion [package insert]. Corona, CA; Aqua; July 2016.
- 171 Cordran Tape [package insert]. Exton, PA, MN; Almirall; July 2019.
- 172 Cutivate [package insert]. Pittsburgh, PA; PharmaDerm; February 2019.
- 173 Dermarest Eczema [package insert]. Terrytown, NY; Insight; January 2020.
- 174 Locoid [package insert]. Bridgewater, NJ; Bausch; October 2019.
- 175 Pandel [package insert]. Duluth, GA; PharmaDerm; August 2020.
- 176 Hydrocortisone valerate [package insert]. Hawthorne, NY; Taro; June 2021.
- 177 Mometasone furoate [package insert]. Melville, NY; Fougera; July 2018.
- 178 Amcinonide [package insert]. Melville, NY; Fougera; March 2019.
- 179 Diprolene ointment [package insert]. Whitehouse Station, NJ; Merck; June 2020.
- 180 Diprolene AF [package insert]. Whitehouse Station, NJ; Merck; June 2020.
- 181 Topicort [package insert]. Hawthorne, NY; Taro; September 2015.
- 182 Topicort Topical Spray [package insert]. Hawthorne, NY; Taro; September 2021.
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- 184 Vanos [package insert]. Bridgewater, NJ; Valeant; May 2017.
- 185 Halog [package insert]. Princeton, NJ; Ranbaxy; May 2018.
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- 187 Clobex [package insert]. Fort Worth, TX; Galderma; February 2018.
- 188 Cloderm [package insert]. Charleston, SC; Epi Health; November 2018.
- 189 Temovate [package insert]. Melville, NY; Pharmaderm; January 2018.
- 190 Clobetasol propionate 0.1% solution [package insert]. Hawthorne, NY; Taro; October 2019.
- 191 Clobetasol propionate emollient [package insert]. Melville, NY; July 2021.
- 192 Impeklo [package insert]. Morgantown, WV; Mylan; May 2020.
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- 194 Psorcon [package insert]. Hawthorne, NY; Taro; May 2018.
- 195 Halobetasol propionate cream [package insert]. Melville, NY; Fougera; January 2020.
- 196 Sernivo [package insert]. San Antonio, TX; Encore; March 2020.
- 197 Ultravate lotion [package insert]. Ferndale, MI; Sun; September 2020.
- 198 Tridesilon [package insert]. Malvern, PA; Encore; April 2016.
- 199 Ellzia Pak. San Fernando, CA; PureTek; December 2016.
- 200 Impoyz [package insert]. San Antonio, TX; Promius; November 2017.
- 201 Halobetasol propionate topical foam [package insert]. Greenville, NC; Mayne; May 2021.
- 202 Cortisone Plus Aloe Maximum Strength [package insert]. Woonsocket, RI; CVS. November 2019.
- 203 Bryhali [package insert]. Bridgewater, NJ; Bausch; June 2020.
- 204 Betamethasone valerate [package insert]. Melville, NY; Fougera; June 2021.
- 205 Halobetasol propionate cream [package insert]. Melville, NY; Fougera; January 2020.
- 206 Halobetasol propionate ointment [package insert]. Allegan, MI; Perrigo; November 2015.
- 207 Alclometasone [package insert]. Mahwah, NJ; Glenmark Pharmaceuticals; February 2021.
- 208 Desonate [package insert]. Wayne, NJ; Bayer; July 2019.
- 209 Verdeso [package insert]. San Antonio, TX; Almirall; April 2019.
- 210 Luxiq [package insert]. Morgantown, WV; Mylan; April 2018.
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211 Cloderm [package insert]. Charleston, SC; Epi Health; November 2018.
212 Synalar [package insert]. Fairfield, NJ; Medimetriks; April 2017.
213 Cordran/SP [package insert]. Corona, CA; Aqua; May 2017.
214 Cordran Tape [package insert]. Exton, PA, MN; Almirall; July 2019.
215 Cutivate [package insert]. Pittsburgh, PA; GlaxoSmithKline; February 2019.
216 Locoid [package insert]. Bridgewater, NJ; Bausch; October 2019.
217 Pandel [package insert]. Duluth, GA; PharmaDerm; August 2020.
218 Topicort [package insert]. Hawthorne, NY; Taro; September 2015.
219 Hydrocortisone valerate [package insert]. Hawthorne, NY; Taro; June 2021.
220 Mometasone furoate [package insert]. Melville, NJ; Fougera; July 2018.
221 Diprolene AF [package insert]. Whitehouse Station, NJ; Merck; June 2020.
222 Topicort [package insert]. Hawthorne, NY; Taro; September 2015.
223 Capex Shampoo [package insert]. Fort Worth, TX; Galderma; December 2015.
224 Derma-Smoothe-FS Scalp Oil [package insert]. Manasquan, NJ; Royal; January 2014.
225 Derma-Smoothe-FS Body Oil [package insert]. Manasquan, NJ; October 2013.
226 Vanos [package insert]. Bridgewater, NJ; Valeant; May 2017.
227 Halog [package insert]. Princeton, NJ; Ranbaxy; May 2018.
228 Clobex [package insert]. Fort Worth, TX; Galderma; February 2018.
229 Temovate [package insert]. Melville, NY; Pharmaderm; January 2018.
230 Clobetasol propionate 0.1% solution [package insert]. Hawthorne, NY; Taro; October 2019.
231 Impeklo [package insert]. Morgantown, WV; Mylan; May 2020.
232 Olux [package insert]. Morgantown, WV; Mylan; April 2018.
233 Halobetasol propionate cream [package insert]. Melville, NY; Fougera; January 2020.
234 Momexin [package insert]. Charleston, SC; JSJ; December 2011.
235 Topicort Topical Spray [package insert]. Hawthorne, NY; Taro; September 2021.
236 Sernivo [package insert]. San Antonio, TX; Encore; March 2020.
237 Ultravate lotion [package insert]. Ferndale, MI; Sun; September 2020.
238 Tridesilon [package insert]. Malvern, PA; Encore; April 2016.
239 Ellzia Pak. San Fernando, CA; PureTek; December 2016.
240 Impoyz [package insert]. San Antonio, TX; Promius; November 2017.
241 Halobetasol propionate topical foam [package insert]. Greenville, NC; Mayne; May 2021.
242 Bryhali [package insert]. Bridgewater, NJ; Bausch; June 2020.
243 Betamethasone valerate [package insert]. Melville, NY; Fougera; June 2021.
244 Ultravate Lotion [package insert]. Cranbury, NJ; Sun; September 2020.
245 Halobetasol propionate cream [package insert]. Melville, NY; Fougera; January 2020.
246 Halobetasol propionate ointment [package insert]. Allegan, MI; Perrigo; November 2015.
247 Derma-Smoothe-FS Scalp Oil [package insert]. Manasquan, NJ; Royal; January 2014.
248 Derma-Smoothe-FS Body Oil [package insert]. Manasquan, NJ; Royal; October 2013.
249 Synalar solution [package insert]. Fairfield, NJ; Medimetriks; June 2018.
250 Synalar cream [package insert]. Fairfield, NJ; Medimetriks; November 2016.
251 Betamethasone dipropionate cream [package insert]. Parsippany, NJ; Actavis; September 2019.
252 Betamethasone dipropionate lotion [package insert]. South Plainfield, NJ; G & W Labs; May 2018.
253 Sernivo [package insert]. San Antonio, TX; Encore; March 2020.
254 Topicort Topical Spray [package insert]. Hawthorne, NY; Taro; September 2021.
255 Psorcon [package insert]. Hawthorne, NY; Taro; May 2018.
256 Alclometasone [package insert]. Mahwah, NJ; Glenmark Pharmaceuticals; February 2021.
257 Desonate [package insert]. Wayne, NJ; Bayer; July 2019.
258 Verdeso [package insert]. San Antonio, TX; Almirall; April 2019.
259 Proct-Med HC [package insert]. Fairfield NJ, Leading. December 2017.
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262 Luxiq [package insert]. Morgantown, WV; Mylan; April 2018.
263 Cloderm [package insert]. Charleston, SC; Epi Health; November 2018.
264 Synalar ointment [package insert]. Fairfield, NJ; Medimetriks; November 2016.
265 Cordran/SP [package insert]. Corona, CA; Aqua; May 2017.
266 Cordran Tape [package insert]. Exton, PA, MN; Almirall; July 2019.
267 Nolix Cream [package insert]. Austin TX; Artesa; August 2017.
268 Dermarest Eczema [package insert]. Terrytown, NY; Insight; January 2020.
269 Nolix Lotion [package insert]. Austin TX; Artesa; March 2018.
270 Cutivate [package insert]. Pittsburgh, PA; PharmaDerm; February 2019.
271 Pandel [package insert]. Duluth, GA; PharmaDerm; August 2020.
272 Topicort [package insert]. Hawthorne, NY; Taro; September 2015.
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274 Hydrocortisone valerate [package insert]. Hawthorne, NY; Taro; June 2021.

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- 276 Diprolene AF [package insert]. Whitehouse Station, NJ; Merck; June 2020.
- 277 Capex Shampoo [package insert]. Fort Worth, TX; Galderma; December 2015.
- 278 Vanos [package insert]. Bridgewater, NJ; Valeant; May 2017.
- 279 Halog [package insert]. Princeton, NJ; Ranbaxy; May 2018.
- 280 Halog solution [package insert]. Cranbury, NJ; Sun; July 2019.
- 281 Clobex [package insert]. Fort Worth, TX; Galderma; February 2018.
- 282 Temovate [package insert]. Melville, NY; Pharmaderm; January 2018. .
- 283 Clobetasol propionate 0.1% solution [package insert]. Hawthorne, NY; Taro; October 2019.
- 284 Impeklo [package insert]. Morgantown, WV; Mylan; May 2020.
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