

Choosing a topical treatment for patients with chronic plaque psoriasis

KEY PRACTICE POINTS:

- Finding a treatment that works for patients may require trial and error
- First-line topical medicines include emollients, potent or very potent topical corticosteroids, topical calcipotriol, or a combination of these medicines
- Keratolytics such as topical salicylic acid or products containing coal tar may reduce scaling and be beneficial for patients who have responded poorly to other topical medicines

Treatment needs to be both a science and an art

The appropriate treatment for patients with chronic plaque psoriasis will depend on the location and characteristics of the plaques, as well as the patient's response and tolerance, so can require trial and error. Patient preference is an important factor to consider when selecting topical medicines as treatments that are used regularly are more likely to be successful.

Emollients are recommended as the basis of treatment for all patients with psoriasis (Table 1). There is little evidence, however, to guide the choice of emollient or optimal frequency of application.^{1,2} In practice, patients can be prescribed the

product they prefer. Prescribing an emollient dispensed in a pump bottle may reduce the risk of bacterial contamination of the emollient.

Potent topical corticosteroids, topical calcipotriol or both medicines in combination significantly improve the symptoms of patients with chronic plaque psoriasis. A recommended order for trialling these medicines is shown in Figure 1.

Selecting an appropriate topical formulation

Emollients, topical corticosteroids, topical calcipotriol and the combination of topical corticosteroid + calcipotriol are available in a variety of formulations.* Creams, gels and lotions are useful for spreading over larger plaques.² Scalp preparations are typically liquid solutions to enable the product to spread between hair follicles. Ointments are generally more effective for patients with trunk or limb psoriasis and thick scale, however, patients may find them less cosmetically appealing on exposed skin and less convenient as they may stick to clothing on covered skin. Patients may prefer applying an ointment overnight rather than during the day.³

* N.B. Topical calcipotriol is currently subsidised as a scalp solution, cream and ointment; from 1 April, 2017 the scalp solution and cream formulations will be delisted due to discontinuation of supply.

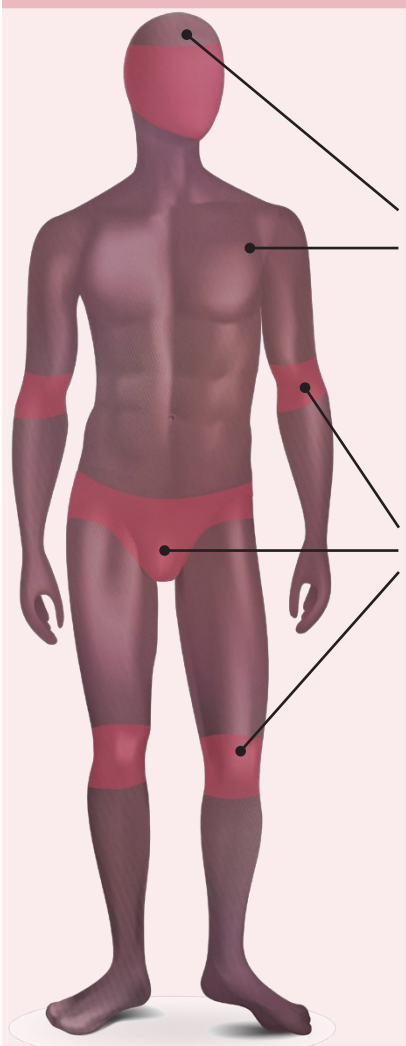
Table 1. Fully subsidised emollients.⁴

	Product (Ingredients)		Subsidised product sizes	Subsidised brands
Creams	Aqueous cream BP (SLS free)	●	500 g jar	AFT
	Sorbolene with glycerine (Cetomacrogol aqueous cream + glycerol)	●	500 g pump bottle	Pharmacy Health
		●	1 kg pump bottle	Pharmacy Health
	Non-ionic cream (Cetomacrogol wax-emulsifying + paraffin liquid + paraffin soft white + water purified) *	●	500 g jar	HealthE
	Fatty emulsion (Cetostearyl alcohol + paraffin liquid + paraffin soft white)*	●	500 g jar	O/W Fatty Emulsion
	Urea cream	●	100 g tube	HealthE
Ointments†	Emulsifying ointment (Paraffin liquid + paraffin soft white + wax-emulsifying) *	●	500 g jar	AFT

* Paraffin-based emollients may be a fire hazard, especially when used in large quantities. See NZF for further information: www.nzf.org.nz/nzf_6237

† Paraffin soft white is currently only subsidised when used in combination with a dermatological galenic or as a diluent for a proprietary topical corticosteroid

● Fully subsidised



	1st or 2nd line*	3rd line
Scalp, trunk or limbs	<p>Potent topical corticosteroid Once daily For up to 8 weeks^{§†}</p> <p>OR</p> <p>Combined topical corticosteroid + calcipotriol † Once daily For up to 4 weeks</p>	<p>Topical calcipotriol alone Once or twice daily</p> <p>Additional option for scalp psoriasis: Use coal tar, sulfur and salicylic acid in coconut oil. e.g. Coco-Scalp, applied to scaly plaques for one hour longer prior to shampooing hair</p>
Face, flexures or genitals	<p>1st line</p> <p>Mild or moderate potency topical corticosteroid Once or twice daily For up to 2 weeks</p>	<p>2nd line</p> <p>Topical pimecrolimus (unapproved indication, unsubsidised) Twice daily For up to 4 weeks</p>

* Both treatment options have similar efficacy and rates of adverse events; either can be trialled depending on patient preference. If symptoms are ongoing the alternative 1st or 2nd line treatment option can be trialled, and topical calcipotriol alone used as a 3rd line option

§ Mild to moderate potency topical corticosteroids may be effective for thinner, less scaly plaques. Consider prescribing 2–5% topical salicylic acid or an alternative keratolytic for very scaly plaques if the improvement has not been sufficient after four weeks; see: “Topical products to remove scale may improve the effectiveness of topical corticosteroids”

† A four week interval is recommended between treatment courses of potent or very potent topical corticosteroids

Figure 1. Suggested prescribing order for topical medicines for the treatment of mild chronic plaque psoriasis.^{2,4,5}

Topical corticosteroids alone or in combination with calcipotriol are the first-line addition to emollients

Topical corticosteroids alone can be used as a first-line treatment for chronic plaque psoriasis affecting any part of the body (Figure 1). A range of topical corticosteroids are available partly or fully subsidised in New Zealand (Table 2).

Safe prescribing of topical corticosteroids: maximising benefit and minimising risk

Topical corticosteroids should be used intermittently, with short courses of two to eight weeks, depending on location of use and potency (Figure 1). Prolonged use of potent to very potent topical corticosteroids is associated with an increased risk of skin atrophy, striae and adrenal suppression.^{1,2} In addition, ongoing use of topical corticosteroids can paradoxically result in poor control of psoriasis.² Applying topical corticosteroids to widespread areas, e.g. 10% or more of the body, is not recommended due to the increased potential for systemic absorption; patients with psoriasis this widespread should be referred to a dermatologist as treatment with oral medicines is likely to be necessary.*

The use of emollients, bath oils and products containing salicylic acid may improve the response to topical corticosteroids (see below).²

Topical corticosteroids combined with antibacterial and antifungal medicines should not be routinely used as they provide no additional benefit for the majority of patients with psoriasis.

* The area covered by the patient's palm with outstretched fingers (a "handprint") is approximately equal to 1% of their body surface area.⁸

Combination topical corticosteroid + calcipotriol is also an appropriate first-line treatment

Calcipotriol is a topical vitamin D analogue indicated for the treatment of psoriasis. Combination treatment with both topical corticosteroids and topical calcipotriol is an appropriate first-line option for patients with psoriasis on the scalp, trunk or limbs (Figure 1).² Combination treatment can be prescribed either as a pre-mixed formulation containing betamethasone dipropionate, available as a gel or ointment (Table 2), or topical calcipotriol (available fully subsidised as an ointment**) and a topical corticosteroid can be prescribed separately for concurrent use; there is not clear evidence whether the pre-mixed combination formulation or use of each product separately gives better results.⁶

The combination product requires one application per day as opposed to two applications when these medicines are prescribed separately. However, prescribing separately enables a different potency of topical corticosteroid to be selected if required, e.g. if a potent topical corticosteroid is stepped down

to a mild or moderate potency topical corticosteroid as plaques improve.

The use of calcipotriol is associated with local adverse effects (see below), however, combining treatment with a topical corticosteroid results in less adverse effects than the use of calcipotriol alone.⁵

** N.B. Calcipotriol scalp solution and cream are also currently subsidised but will be discontinued after 1 April, 2017

Calcipotriol alone is effective but associated with high rates of local adverse effects

Calcipotriol alone can be considered as a treatment for psoriasis on the scalp, trunk or limbs, applied once or twice daily to affected areas (Figure 1).⁴ However, local adverse effects such as burning, pruritus, peeling, dryness or erythema may be experienced by up to 35% of patients using calcipotriol.³ These typically reduce with ongoing use so patients can be encouraged to persist with treatment if tolerable. Use on the face is not recommended, and calcipotriol is more likely to irritate the flexures and groin than topical corticosteroids.^{11,12} Patients should wash their hands after applying calcipotriol to prevent inadvertent application to other areas, such as the face.

Systemic effects from vitamin D analogues, such as hypercalcaemia and altered parathyroid hormone levels, are rare unless patients have renal disease or impaired calcium metabolism, or are applying more than 100 g per week, i.e. one tube of calcipotriol ointment or approximately three tubes of calcipotriol + betamethasone dipropionate gel or ointment per week.^{3,4} There are no studies on the safety of calcipotriol during pregnancy, however, expert opinion is that use on localised areas during pregnancy or breastfeeding is unlikely to result in harm from systemic absorption.¹²⁻¹⁴

Emollients containing urea or salicylic acid may reduce the effectiveness of topical calcipotriol and should be applied at different times.⁹ If patients are undergoing phototherapy, calcipotriol should be applied after treatment sessions as phototherapy inactivates calcipotriol.¹⁰

Topical products to remove scale may improve the effectiveness of topical corticosteroids

For patients with thick scale, the use of a keratolytic, such as topical salicylic acid or urea, a coal tar preparation (Table 3), or oils such as olive oil or coconut oil, may soften plaques prior to application of topical corticosteroids.^{1,2} Coco-Scalp ointment (containing coal tar) and topical salicylic acid or urea can be prescribed fully subsidised (see: "Prescribing topical salicylic acid").

Coal tar products left on the skin may cause staining of clothes or skin.⁵ Patients may find coal tar products used during bathing, such as bath oils or shampoos, more convenient.

Table 2. Subsidised topical corticosteroids and vitamin D analogues for patients with chronic plaque psoriasis.^{2,4}

Product		Formulations				
		Brand name				
		Scalp applications (lotion, ointment)	Gels or creams Useful for widespread psoriasis	Ointment Useful for areas with thick adherent scale		
Topical corticosteroids						
Mild (2–25 × as potent as hydrocortisone)	Hydrocortisone 1% (Stat dispensing, three month quantities)	●	DP-HC lotion: 250 mL	DermAssist cream*: 30 g Pharmacy Health cream*: 100 g, 500 g	Hydrocortisone 1% in white soft paraffin can be prepared by a pharmacy	
	Moderate (2–25 × as potent as hydrocortisone)	Clobetasone butyrate 0.05%	○		Eumovate cream: 30 g	
	Triamcinolone acetonide 0.02%	●		Aristocort cream: 100 g	Aristocort ointment: 100 g	
Potent (100–150 × as potent as hydrocortisone)	Betamethasone dipropionate 0.05%	●		Diprosone cream: 15 g, 50 g	Diprosone ointment: 15 g, 50 g	
	Betamethasone valerate 0.1%	●	Betnovate lotion: 50 mL Beta Scalp application: 100mL	Beta cream: 50 g	Beta ointment: 50 g	
	Diflucortolone valerate 0.1%	○		Nerisone cream: 50 g	Nerisone fatty ointment: 50 g	
	Hydrocortisone butyrate 0.1%	●	Locoid Scalp Lotion: 100 mL Locoid Crelo topical emulsion: 100 mL	Locoid Lipocream: 30 g, 100 g	Locoid ointment: 100 g	
	Methylprednisolone aceponate 0.1%	●		Advantan cream: 15 g	Advantan ointment: 15 g	
	Mometasone furoate 0.1%	●	Elocon lotion: 30 mL	Elocon cream: 15 g, 50 g	Elocon ointment: 15 g, 50 g	
Very potent (up to 600 × as potent as hydrocortisone)	Betamethasone dipropionate 0.05% (optimised vehicle [OV]) [†]	●		Diprosone OV cream: 30 g	Diprosone OV ointment: 30 g	
	Clobetasol propionate 0.05% (Stat dispensing, three month quantities)	●○	● Dermol Scalp: 30 mL application	○ Clobetasol (BNM) cream: 30 g (will be delisted 1 March, 2017) ● Dermol cream: 30 g	○ Clobetasol (BNM) ointment: 30 g (will be delisted 1 March, 2017) ● Dermol ointment: 30 g	
Topical vitamin D analogue						
	Calcipotriol 0.005%	●	Daivonex Scalp solution: 30 mL (will be delisted 1 April, 2017)	Daivonex cream: 30 g, 100 g (will be delisted 1 April, 2017)	Daivonex ointment: 100 g	
Combined topical vitamin D analogue + corticosteroid						
	Calcipotriol 0.005% + betamethasone dipropionate 0.05% (standard rather than OV formulation)	●		Daivobet gel: 30 g	Daivobet ointment: 30 g	

● Fully subsidised; ○ Partly subsidised;

* Stat dispensing, three month quantities

† Optimised vehicle (OV) refers to a modified formulation which increases skin penetration of betamethasone dipropionate resulting in a preparation much more potent than the standard one

Table 3. Coal tar products for patients with psoriasis. All products shown are available over-the-counter.

	Subsidy	Proportions of coal tar and other ingredients	Product sizes
Coco-Scalp ointment *	●	Coal tar 12% + salicylic acid 2% + sulphur 4%	40 g
EgoPsoryl TA gel**	●	Coal tar solution + sulfur-precipitated + phenol	30, 75 g
Scytera foam	○	2% coal tar	12, 100 g
Polytar bath oil	○	Tar 7.5% + cade oil 7.5% + coal tar 2.5% + arachis oil extract of coal tar 7.5%	350 mL
Ionil-T shampoo	○	Coal tar 4.25% + salicylic acid 2%	200 mL
Neutrogena T/Gel shampoo	○	Coal tar 0.5%	200 mL
Polytar plus shampoo	○	Coal tar 4%	150 mL
Sebitar shampoo	○	Coal tar solution 1% + tar 1% + salicylic acid 2%	15, 250, 500 mL

● Fully subsidised; ○ Unsubsidised

* Coco-Scalp can be left on the scalp for an hour or longer, e.g. overnight, and then washed off ⁴

** Use with caution on face and flexures. Do not use under occlusion.

Prescribing topical salicylic acid

Subsidised topical salicylic acid may be prepared in the pharmacy, with prescribers specifying the concentration (recommended at 2–5%) and base. Salicylic acid is also present in coal tar combination products (Table 3) and in many unsubsidised over-the-counter skincare products. Subsidised topical salicylic acid can be prescribed in two ways:

1. Added to a proprietary topical corticosteroid formulation (Table 2).*
2. Added to an emollient, e.g. salicylic acid powder 5% in white soft paraffin, 100 g; patients can apply this preparation to soften plaques before applying a topical corticosteroid.² There is no evidence regarding how long the interval should be between applications.

* If salicylic acid is added to a diluted corticosteroid, the prescription must be endorsed by a dermatologist for subsidy


Topical salicylic acid should:

- Not be prescribed to:¹⁵
 - Women who are pregnant, due to the potential for systemic absorption

■ Be used with caution in:

- Patients using topical calcipotriol: salicylic acid may reduce the effectiveness of topical calcipotriol and these medicines should be applied at different times of the day.^{4,9}
- Children aged under five years: topical salicylic acid use is recommended only in small patches and in concentrations of 0.5% or less.¹⁶
- Patients with widespread psoriasis or significant hepatic or renal impairment: the potential for toxicity, i.e. salicylism, is increased.^{3,4}

Patients should be aware that a sudden onset of symptoms such as difficulty breathing, swelling in the face or feeling faint may indicate acute hypersensitivity, although this is uncommon.¹⁷

 For further information on prescribing topical products prepared in the pharmacy, see “Section C: Extemporaneously compounded products and galenicals”, in the Pharmaceutical Schedule: www.pharmac.govt.nz/healthpros/Schedule

Acknowledgement: Thank you to **Dr Amanda Oakley**, Honorary Associate Professor and Dermatologist, Waikato District Health Board for expert review of this article.

References:

1. Scottish Intercollegiate Guidelines Network (SIGN). Guideline 121: Diagnosis and management of psoriasis and psoriatic arthritis in adults. 2010. Available from: www.sign.ac.uk/guidelines/fulltext/121/index.html (Accessed Jan, 2017).
2. National Institutes for Health and Care Excellence (NICE). Psoriasis: assessment and management. 2012. Available from: www.nice.org.uk/guidance/cg153 (Accessed Jan, 2017).
3. Menter A, Korman NJ, Elmets CA, et al. Guidelines of care for the management of psoriasis and psoriatic arthritis. Section 3. Guidelines of care for the management and treatment of psoriasis with topical therapies. *J Am Acad Dermatol* 2009;60:643–59. doi:10.1016/j.jaad.2008.12.032
4. New Zealand Formulary (NZF). NZF v54. 2016. Available from: www.nzf.org.nz (Accessed Dec, 2016)
5. Mason AR, Mason J, Cork M, et al. Topical treatments for chronic plaque psoriasis. *Cochrane Database Syst Rev* 2013;3:CD005028. doi:10.1002/14651858.CD005028.pub3
6. Samarasekera EJ, Sawyer L, Wonderling D, et al. Topical therapies for the treatment of plaque psoriasis: systematic review and network meta-analyses. *Br J Dermatol* 2013;168:954–67. doi:10.1111/bjd.12276
7. Nguyen S, Bahakeem H, Alkhalifah A, et al. Topical corticosteroids application in the evening is more effective than in the morning in psoriasis: results of a prospective comparative study. *J Eur Acad Dermatol Venereol* 2016; [Epub ahead of print]. doi:10.1111/jdv.14027
8. Finlay AY. Current severe psoriasis and the rule of tens. *Br J Dermatol* 2005;152:861–7. doi:10.1111/j.1365-2133.2005.06502.x
9. Nast A, Boehncke W-H, Mrowietz U, et al. S3 - Guidelines on the treatment of psoriasis vulgaris (English version). Update. *J Dtsch Dermatol Ges* 2012;10 Suppl 2:S1-95. doi:10.1111/j.1610-0387.2012.07919.x
10. Menter A, Korman NJ, Elmets CA, et al. Guidelines of care for the management of psoriasis and psoriatic arthritis: Section 5. Guidelines of care for the treatment of psoriasis with phototherapy and photochemotherapy. *J Am Acad Dermatol* 2010;62:114–35. doi:10.1016/j.jaad.2009.08.026
11. Clarke P. Psoriasis. *Aust Fam Physician* 2011;40:468–73.
12. Leo Pharma Ltd. New Zealand Data Sheet. Daivonex scalp solution. 2016. Available from: www.medsafe.govt.nz/profs/datasheet/d/Daivonexscalplot.pdf (Accessed Jan, 2017).
13. Murase JE, Heller MM, Butler DC. Safety of dermatologic medications in pregnancy and lactation: Part I. Pregnancy. *J Am Acad Dermatol* 2014;70:401. e1-14. doi:10.1016/j.jaad.2013.09.010
14. Butler DC, Heller MM, Murase JE. Safety of dermatologic medications in pregnancy and lactation: Part II. Lactation. *J Am Acad Dermatol* 2014;70:417. e1-10. doi:10.1016/j.jaad.2013.09.009
15. Bae Y-SC, Van Voorhees AS, Hsu S, et al. Review of treatment options for psoriasis in pregnant or lactating women: from the Medical Board of the National Psoriasis Foundation. *J Am Acad Dermatol* 2012;67:459–77. doi:10.1016/j.jaad.2011.07.039
16. Sticherling M, Augustin M, Boehncke W-H, et al. Therapy of psoriasis in childhood and adolescence - a German expert consensus. *J Dtsch Dermatol Ges* 2011;9:815–23. doi:10.1111/j.1610-0387.2011.07668.x
17. Medsafe. A topical issue - serious hypersensitivity and burning reactions. Prescriber Update, March 2015. Available from: www.medsafe.govt.nz/profs/PUArticles/March2015HypersensitivityAndBurningReactions.htm (Accessed Jan, 2017).