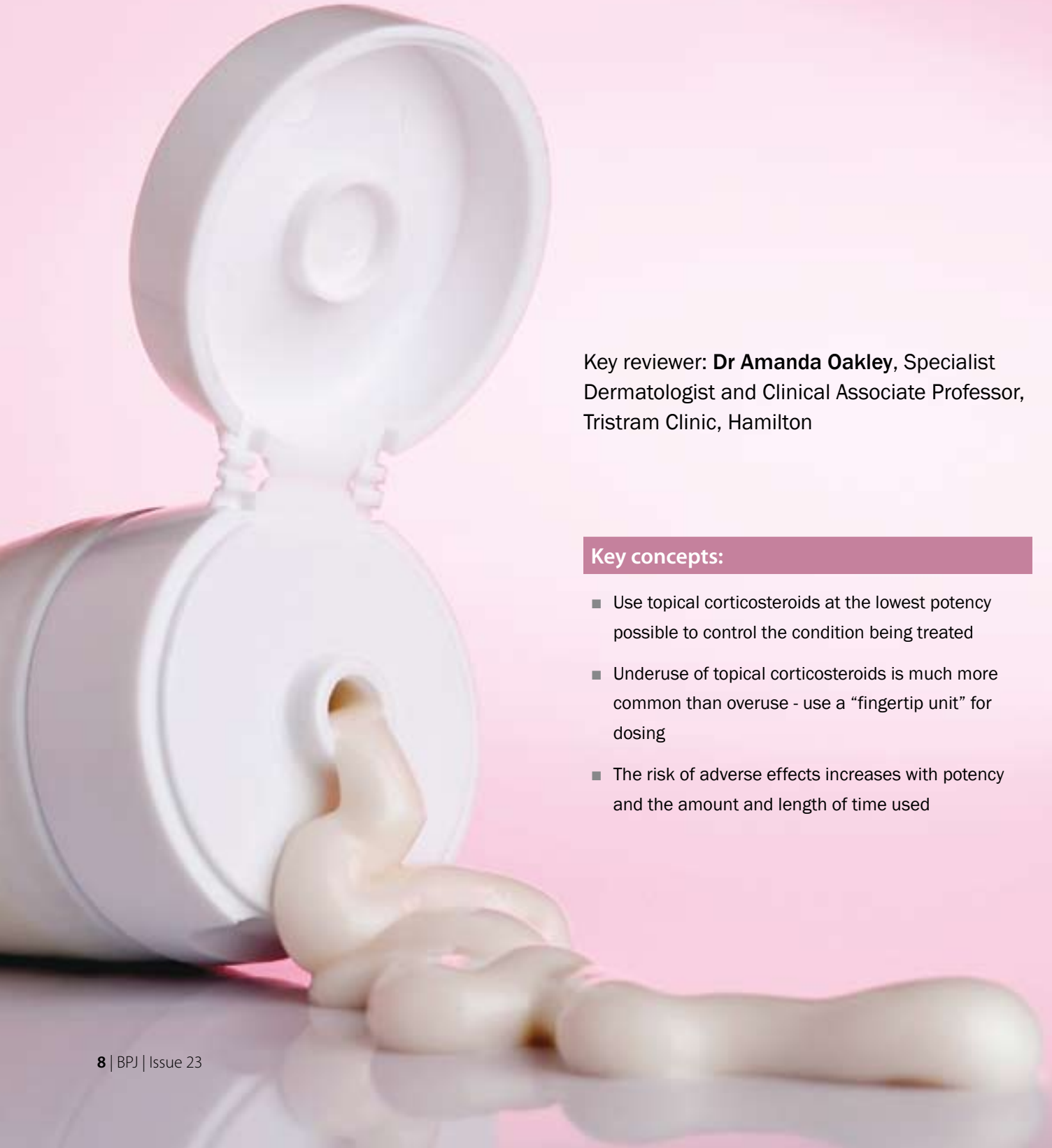
Topical corticosteroid treatment for skin conditions



Key reviewer: **Dr Amanda Oakley**, Specialist Dermatologist and Clinical Associate Professor, Tristram Clinic, Hamilton

Key concepts:

- Use topical corticosteroids at the lowest potency possible to control the condition being treated
- Underuse of topical corticosteroids is much more common than overuse - use a “fingertip unit” for dosing
- The risk of adverse effects increases with potency and the amount and length of time used

Topical corticosteroids are used for many skin conditions (Table 1). They suppress the inflammatory reaction and relieve symptoms however they are not curative and when they are discontinued symptoms can recur.[1]

Topical corticosteroids should not be used for rosacea or acne vulgaris. They may worsen ulcerated or secondarily infected lesions.[1]

Which potency do I choose?

In general use topical corticosteroids at the lowest potency possible to control the condition.

Low potency corticosteroids are typically used when treating large areas or for longer term application. They are also more suitable for use on children or areas of thinner skin such as the face, groin or axilla.[2]

More potent corticosteroids are suitable for severe conditions and for use on areas of the body that have thicker skin such as the palms of the hands and soles of the feet. They should generally not be used under occlusion or on areas of thinner skin.[2]

Occlusion increases the absorption of topical corticosteroids by increasing the hydration of the skin and therefore enhancing penetration. This needs to be considered when selecting corticosteroid potency. Occlusive materials include polyethylene gloves, plastic film (e.g. Gladwrap) or occlusive dressings.[3] Irritation, folliculitis and infection are more likely to occur under occlusion.[2] Corticosteroid related adverse effects are also more likely, especially if occlusion is prolonged, because of increased absorption.

Which formulation do I choose?

Choice of formulation depends on a number of factors, including the type of skin lesion to be treated and its location. Patient preference is important to consider because it can affect compliance.

Table 1: Conditions that may respond to topical corticosteroids[2]

Moderate - high potency corticosteroids	Low - moderate potency corticosteroids
Alopecia areata	Perianal inflammation (severe)
Atopic dermatitis	Asteatotic eczema
Contact dermatitis (severe)	Atopic dermatitis
Discoid lupus	Dry nummular (discoid) eczema
Hyperkeratotic eczema	Intertrigo (short-term)
Lichen planus	Scabies (after scabicide)
Lichen sclerosus	Seborrhoeic dermatitis
Lichen simplex chronicus	**Low potency corticosteroids**
Exudative nummular (discoid) eczema	Dermatitis (face, eyelids, napkin area)
Psoriasis	Intertrigo
Severe hand eczema	Perianal inflammation
Stasis dermatitis	

Ointments are greasy and remain on the skin after they are applied. They are particularly suitable for use on dry, thick or lichenified skin. The potency of a corticosteroid can be affected by its formulation e.g. for any given strength of corticosteroid, an ointment formulation will be more potent than a cream. This is because the occlusive nature of an ointment enhances absorption of the corticosteroid.[2]

Creams are often preferred by patients especially for use on exposed areas such as the face because they vanish when rubbed into the skin.[1, 4] They are suitable for moist or weeping lesions. Creams contain more preservatives and excipients than ointments and so are more likely to cause hypersensitivity or irritation.[4]

Lotions have a thin consistency, making them easier to apply to hairy areas such as the scalp.[1] They contain alcohol and have a drying effect on exudative lesions, but may sting on application.

How much do I prescribe?

Underuse of topical corticosteroids is much more common than overuse. An acute or severe condition that is likely to respond to topical corticosteroids should be treated generously, aiming to get control promptly.

Regularly review patients with chronic skin conditions e.g. atopic dermatitis, to monitor use of topical corticosteroids – they may be using excessive potency or frequency or quantities where a milder preparation or an emollient would be more suitable. Conversely, the patient may be underusing topical corticosteroids because of perceived lack of efficacy, or fear of adverse effects – generous intermittent applications of potent products should be encouraged e.g., "weekend pulse therapy".

Dose using fingertip units

A fingertip unit is a guide to how much corticosteroid to apply to a particular area and describes the amount of product squeezed onto the top third of the finger (see Figure 1).[5]

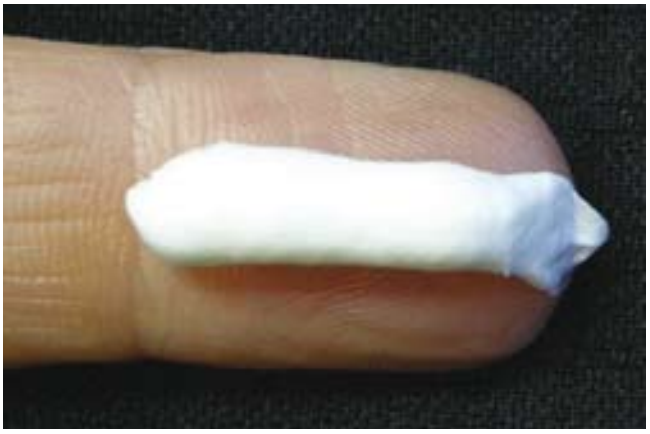


Figure 1: Fingertip unit. Picture supplied by DermNet NZ.

Table 2: Number of fingertip units per body part [5]

Body part	Fingertip units	Approximate quantity to prescribe*
One hand	1	15 g
One arm	3	30 g
One foot	2	15 g
One leg	6	50 g
Face and neck	2.5	30 g
Trunk, front and back	14	100 g
Entire body	~ 40	300 g

* for single daily application for an adult for two weeks

One fingertip unit is equivalent to approximately 0.5 g for a male and 0.4 g for a female. Infants and children should use one quarter to one third of the adult amount.

The number of fingertip units needed varies with the area of skin requiring treatment (Table 2 and Figure 2).

The amount of cream required daily can be used to calculate the correct amount needed on a prescription.

For example: If an adult female applies cream to both arms and hands once daily, she will need 3.2 g per day (i.e. eight fingertip units × 0.4 g = 3.2 g per day) and 22.4 g per week. A 50 g tube should last approximately two weeks, but if she applies it twice daily it will be finished in approximately one week.

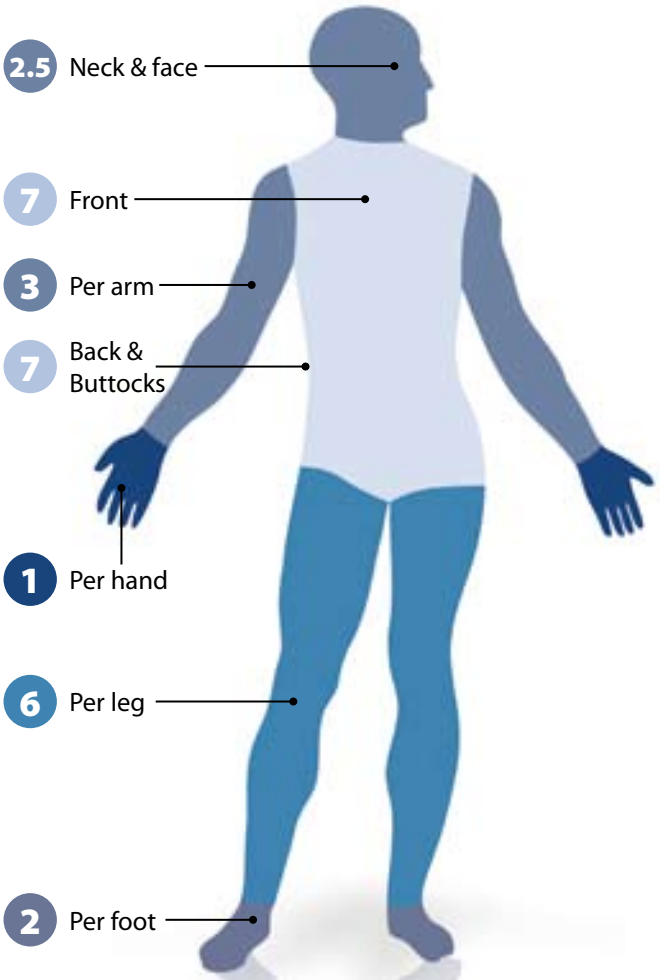


Figure 2: Fingertip units for different areas of the body

How often should topical corticosteroids be applied?

Application of topical corticosteroids is usually recommended once or twice daily depending on the condititon being treated.[6] For the treatment of atopic eczema, applying topical corticosteroids more often than once daily has not been shown to produce significantly better results and may adversely affect patient compliance.[7]

Best practice tip: Prescribe moderate, potent or very potent topical corticosteroids for once daily use only.

How long can topical corticosteroids be used?

Long term use of topical corticosteroids can induce tachyphylaxis (tolerance to the vasoconstrictive action of topical corticosteroids). Adverse effects are uncommon when using mild to potent corticosteroids for less than three months, except when used on the face and neck, in intertriginous areas (skin folds), or under occlusion. However, very potent corticosteroids should not be used continuously for longer than three weeks.[2] If longer use of very potent corticosteroids is required, they should be gradually tapered to avoid rebound symptoms and then stopped for a period of at least one week after which treatment can be resumed.[2]

Should topical corticosteroids be applied before or after emollients?

There are a lack of controlled studies investigating the best order of application of topical corticosteroids and emollients.

The NICE guideline[6] for managing eczema in children advises that if both are applied, an interval of several minutes should be left between the application of a topical corticosteroid and an emollient. Which to use first is debatable – however one guideline suggests that emollients should be applied first because:[8]

- Topical drugs may be more effective when used after emollients
- Corticosteroids may be diluted or transferred to areas that do not require treatment if emollients are applied immediately on top of them

What adverse effects are likely to occur?

The risk of adverse effects increases with potency, the amount of topical corticosteroids used and occlusion. While systemic adverse effects are rare, local adverse effects are more common and include skin atrophy, telangiectasia (especially on the cheeks), acne and corticosteroid or preservative-induced contact dermatitis.[9]

Systemic adverse effects, including adrenal suppression, growth retardation, Cushing's syndrome and hypertension may occur with the use of topical corticosteroids but are

Topical corticosteroids available in New Zealand (prescription only) [10]

Potency class	Products	Plain formulations	Combination formulations
Low	Hydrocortisone (1%)	Hydrocortisone BP cream (PSM) S Lemnis Fatty Cream HC S DP Lotion-HC 1% (+ wool fat, mineral oil) S	Micreme H (+ miconazole) S Pimafucort cream/ ointment (+ neomycin, natamycin) S
Moderate (2–25 times as potent as hydrocortisone)	Clobetasone butyrate (0.05%)	Eumovate cream PS	
	Triamcinolone acetonide (0.02%)	Aristocort cream/ointment S	
Potent (50–100 times as potent as hydrocortisone)	Betamethasone valerate (0.1%)	Beta cream/ointment/ scalp application S Betnovate lotion S	Betnovate C ointment/ cream (+ clioquinol) PS Fucicort (+ fusidic acid 2%) PS
	Betamethasone dipropionate (0.05%)	Diprosone cream/ointment PS Diprosone OV cream/ ointment PS	
	Diflucortolone valerate (0.1%)	Nerisone cream/ointment/ fatty ointment PS	Nerisone C cream (+ chlorquinaldol 1%) NS
	Hydrocortisone 17-butyrate (0.1%)	Locoid cream/lipocream/ ointment/scalp lotion/ crelo topical emulsion S	Locoid C (+chlorquinaldol 3%) S
	Mometasone furoate (0.1%)	Elocon cream/lotion/ ointment S	
	Methylprednisolone aceponate (0.1%)	Advantan cream/ointment S	
	Triamcinolone acetonide (0.1%)		Viaderm KC cream/ ointment (+ neomycin, nystatin, gramicidin) PS
Very potent (up to 600 times as potent as hydrocortisone)	Clobetasol propionate (0.05%)	Dermol cream/ointment S	

Key: S fully subsidised; PS partially subsidised; NS not subsidised

N.B. 0.5%–1% (restricted to ≤ 30 g) hydrocortisone products are available over-the-counter.

very rare. Cataracts and glaucoma have been reported in some cases when topical corticosteroids, including hydrocortisone, have been used for long periods in the periorbital area.[3]

Adverse effects are more likely when topical corticosteroids are used:

- In infants and children
- For prolonged periods
- At high-potency
- Over large areas and under occlusion

References:

1. British National Formulary 56 ed. London: British Medical Association and the Royal Pharmaceutical Society of Great Britain, 2008.
2. Ference JD, Last AR. Choosing topical corticosteroids. Am Fam Phys 2009;79(2):135.
3. Lee M, Marks R. The role of corticosteroids in dermatology. Australian Prescriber 1998. Available from: http://www.australianprescriber.com/ (Accessed June 2009).
4. National Prescribing Service. Using topical corticosteroids in general practice. MeRec Bulletin 1999;10(6):21-24.
5. DermNet NZ. Fingertip unit 2006. Available from: http://dermnetnz.org (Accessed June 2009).
6. National Institute for Clinical Excellence (NICE). Atopic eczema in children: management of atopic eczema in children from birth up to the age of 12 years. 2007. Available from www.nice.org.uk (Accessed June 2009).
7. Williams HC. Established corticosteroid creams should be applied only once daily in patients with atopic eczema. BMJ 2007;334:1272.
8. Dermatology UK. Best practice in emollient therapy: a statement for healthcare professionals. Dermatology UK Ltd 2007. Available from: www.dermatology-uk.com (Accessed June 2009).
9. Clinical Knowledge Summaries. Eczema - atopic 2008. Available from: http://cks.library.nhs.uk/eczema_atopic/ (Accessed June 2009).
10. DermNet NZ. Topical corticosteroids 2007. Available from: http://dermnetnz.org/ (Accessed June 2009).