




Childhood eczema: improving adherence to treatment basics

Emollients form the basis of treatment for all patients with eczema. Emollients and topical corticosteroids are effective at preventing and treating flares of eczema and can reduce *Staphylococcus aureus* colonisation. Poor adherence, however, often reduces their effectiveness.

KEY PRACTICE POINTS

- Regular use of emollients is likely to reduce the risk of eczema flares and the need for topical corticosteroids. Treatment adherence can be improved by prescribing simple regimens and ensuring patients and caregivers know how to follow them.
- For children with widespread eczema, prescribe at least 250 g of their preferred emollient per week for use as a leave-on product. Older children, e.g. those aged over ten years, with widespread eczema may need up to 500 g of emollient per week.
- The funded formulations of aqueous cream and emulsifying ointment do not contain sodium lauryl sulphate (SLS – a known skin irritant) and can be used as a leave-on emollient as well as a soap substitute
- Advise patients to keep fingernails trimmed, avoid irritants, e.g. soaps, and to wear cotton rather than woollen clothing next to their skin
- Use the lowest potency topical corticosteroid needed to control the patients symptoms; avoid the term “use sparingly” and encourage appropriate use
- For children with frequent flares, e.g. two flares per month, “weekend treatment” with topical corticosteroids may reduce the frequency of flares and overall corticosteroid use

 For information on the use of topical corticosteroids in childhood eczema, see the companion article: **“Topical corticosteroids for childhood eczema: clearing up the confusion”**.

This is a revision of a previously published article.
What's new for this update:

- Content updates in line with the Eczema – primary care management guidelines (2019), Starship Child Health:
 - Following a skin infection, discard the current tub of emollient and replace with a new tub
 - The optimal frequency of bathing in children with eczema has been previously debated; the Starship guideline recommends that children bathe once or twice daily, with warm water for no more than 10 – 15 minutes
 - If antibiotic treatment is required, antibiotic choice should be guided by local antibiotic resistance patterns where available
 - Updated criteria on when to refer a child with eczema to secondary care services
- The funded brand of emulsifying ointment is now SLS-free which means it can be used as a leave-on emollient as well as a soap substitute
- Changes to calcineurin inhibitor funding status:
 - Topical pimecrolimus is now funded with Special Authority approval for treatment of eczema affecting the eyelid if topical corticosteroids cannot be used
 - Tacrolimus ointment is now an approved medicine in New Zealand for people aged ≥ 16 years and will be funded with Special Authority approval from October, 2021, for eczema affecting the face if topical corticosteroids cannot be used

Childhood eczema is common and disproportionately affects Māori and Pacific children

Eczema is characterised by dry skin (xerosis), reduced skin barrier function, cutaneous inflammation with increased susceptibility to irritants, and higher rates of *Staphylococcus aureus* colonisation and skin and soft tissue infection.^{1, 2} Recurrent flares of eczema can adversely affect a child's sleep, focus at school and social interactions.

Eczema affects approximately 15 – 20% of all children, but the prevalence and severity is generally worse among Māori and Pacific children.²⁻⁴ Eczema typically improves as children move into their teens, although the prevalence in people aged up to 26 years is still between 5 – 15%.²

Emollients and topical corticosteroids are effective at preventing and treating flares of eczema and can reduce *S. aureus* skin colonisation. Poor adherence, however, often reduces their effectiveness.^{1, 5, 6}

Emollients are the cornerstone of treatment for all patients with eczema

Emollients (moisturisers) are topical formulations that reduce transepithelial water loss and hydrate the skin to improve barrier function.¹ These form the basis of treatment for patients with all degrees of eczema severity.⁵ They are also used alongside topical corticosteroids to treat active inflammation.⁶

Appropriate use of emollients:^{5, 7}

- Reduces the amount of topical corticosteroids required
- Improves symptoms
- Reduces flares or relapses
- Improves sleep and quality of life

Types of emollient

A range of funded emollients are available (Table 1).

Lotions have a higher water content than creams or ointment and can evaporate quicker requiring more frequent application.⁸ They are not generally recommended for use in children with eczema.⁶













Creams are more effective than lotions and are usually more cosmetically acceptable than ointments as they are absorbed faster into the skin.⁶ Additives such as glycerol and urea attract and hold water. Creams are preferred to ointment if skin is weeping or oozing (see below).⁹

Ointments form an occlusive layer that prevents evaporation of water from the outer layers of the skin. Ointments are greasier and thicker and may be less cosmetically acceptable, but are more effective at preventing evaporation.⁶ They are more difficult to wash off, with the exception of emulsifying ointment which can be used as a soap substitute. Ointments may be more suitable than creams for patients with more severe symptoms, e.g. dry, scaly areas of skin, but may cause a build-up of exudate if used on skin that is weeping or oozing.

Emollients or soap substitutes that contain fragrances can cause irritant dermatitis. In addition, care should be taken when using topical applications that contain sodium lauryl sulphate (SLS) as this is a skin irritant and can worsen eczema symptoms.⁸ Products containing SLS should not be used as leave-on emollients but can be used as soap substitutes.⁶ The currently funded brands of aqueous cream and emulsifying ointment are SLS-free and can therefore be used as leave-on emollients. Some unfunded brands of aqueous cream and over-the-counter emollients contain SLS and should not be used as leave-on emollients for children with eczema.

Table 1. Fully funded emollients suitable for children with eczema as of July, 2021.^{10, 11}

N.B. Some products have multiple brands currently listed due to supply issues and some of these brands will subsequently be delisted. Check the **PHARMAC medicines notices**, **Pharmaceutical schedule** or **the NZF** for up to date information on supply issues and funded brands of medicines. Lotions are not included in this table as they are not generally effective for children with eczema.⁵

	Product/ingredients	Funded product sizes	Funded brands
Creams	Aqueous cream (SLS free)	 500 g tub	<ul style="list-style-type: none"> ■ Boucher (to be delisted 1 April, 2022) ■ Basic AquaCream (to be delisted 1 April, 2022) ■ Medco (to be delisted 1 April, 2022) ■ Topiderm (to be delisted 1 September, 2021) ■ GEM* (to be listed 1 November, 2021)
	Cetomacrogol aqueous cream + glycerol	 500 g tub	■ Boucher
		 500 mL bottle	■ ADE
		 500 mL pump bottle	<ul style="list-style-type: none"> ■ Kenkay ■ Pharmacy Health
		 1000 g tub	■ Boucher
		 1000 mL bottle	■ ADE
	Cetomacrogol	 500 g tub	<ul style="list-style-type: none"> ■ healthE (to be delisted 1 May, 2022) ■ AFT* (to be listed 1 December, 2021)
	Cetomacrogol wax-emulsifying + paraffin liquid + paraffin soft white + water purified†	 500 g tub	■ healthE
	Cetostearyl alcohol + paraffin liquid + paraffin soft white†	 500 g tub	■ Boucher & Muir
	Paraffin liquid + paraffin soft white†	 500 g tub	■ healthE
Urea cream 10%	 100 g tube	■ healthE	
Ointments	Emulsifying ointment (SLS-free) – paraffin liquid + paraffin soft white + wax-emulsifying	 500 g tub	■ ADE


* Brand currently has Principal Supply Status or will have Principal Supply Status following the delisting of the other brands


† Paraffin-based emollients can represent a fire hazard, especially when used in large quantities.¹⁰ See NZFC for further information: www.nzfchildren.org.nz/nzf_6237

A patient-centred approach should be taken when prescribing emollients

Large quantities of emollients are required to manage eczema effectively and therefore fully funded products are likely to be preferred by many families. There is no clear evidence as to which emollient is most effective, so patients should be prescribed their preferred option to improve treatment adherence.⁷ Patients or caregivers may need to trial different products to find an emollient that is tolerated and effective. A different emollient may be required for specific body areas or during times of an acute flare.¹⁰ For example, creams can assist with inflammation, as the evaporation of water cools the skin, whereas greasy ointments are more suitable for dry skin.⁹

To reduce wastage, a prescription for a limited period, e.g. one week can be given while trialling different products.

 For further information on how to write trial prescriptions, see: www.bpac.org.nz/BPJ/2015/August/pills.aspx

 Talk to your local pharmacist about having a selection of emollients available in the practice to demonstrate their consistency and application to patients.

Plant oils as emollients: There are few studies evaluating whether plant oils are beneficial for people with eczema; although further investigation is required, some positive results have been reported for coconut oil and sunflower seed oil.¹² In contrast, there is evidence that olive oil may worsen eczema symptoms.¹²

Most patients do not use enough emollients

Although the required amount of emollient varies according to the patient's body size, patients or caregivers generally apply too little emollient.¹³ Starship guidelines recommend that:^{5,6}


- Emollients should be used liberally and regularly; apply them several times per day to the entire body and continue even when the eczema has cleared, i.e. during both symptomatic and asymptomatic periods
- For widespread eczema prescribe at least 250 g per week, for application at least two to three times per day. Older children, e.g. those aged over ten years with widespread eczema, may need up to 500 g of emollient per week.
- An additional quantity of emollient should also be prescribed as a soap substitute for use when bathing (see: "Prescribe emollients as a soap substitute")

Other factors to consider when handling and applying emollients. Emollients ideally should be removed from tubs with a clean spoon or spatula to minimise the risk of bacterial contamination; following a skin infection, discard tub being used and replace with a new tub.⁵ Pump bottle dispensing of

emollients also reduces risk.⁵ Advise caregivers to check the expiry date, as contamination risk is increased when products are used beyond this date. When applying emollients, they should be smoothed (not rubbed) in the direction of hair growth and can be allowed to soak in.⁵

Prescribe emollients as a soap substitute


Patients with eczema should avoid soaps and use emollients such as emulsifying ointment and aqueous cream as soap substitutes when bathing.⁵ For a simple regimen, the same emollient can be prescribed as a soap substitute and leave on moisturiser. The use of an emollient bath oil (not funded – search for "bath oil" on NZFC for options) may help to moisturise skin,⁵ but there is limited evidence of benefit. Care needs to be taken when bathing with soap substitutes and oils as these can make surfaces slippery.⁵

 **Best Practice Tip:** Emulsifying ointment can be made into a creamy soap consistency by mixing three to four large spoonfuls with a small amount of very hot water and allowing to cool before use. Instructions can be included on the prescription label.

Recommend daily bathing

Starship guidelines recommend that children with eczema have a warm bath or shower once or twice daily for no more than 10 – 15 minutes.^{5,6} It has been previously thought that bathing should be limited to a few times per week as it could worsen eczema, but this is now not considered to be the case as soaking in warm water followed by application of an emollient is the best way to replace moisture in the skin. When drying the skin after bathing, it should be patted rather than rubbed.^{5,6}


Starship guidelines also recommend that adding dilute sodium hypochlorite (bleach) or triclosan bath oil (not funded) to the bath twice weekly may reduce Staphylococcal carriage and improve the control of eczema.^{5,6} N.B. Do not use fragranced bleach. Although there is inconsistent evidence of benefit of this practice, many guidelines still recommend bleach baths in children with active flares of eczema as they are generally well tolerated; clinician discretion is advised.

 Information for caregivers on how to prepare a bleach bath is available from: <https://media.starship.org.nz/bleach-baths-2019/bleach-baths-2019.pdf>

Escalate treatment during flares


Topical corticosteroids should be applied on all areas of active eczema, no matter how severely inflamed, and stopped once the eczema has cleared (unless following "weekend treatment", see below).⁵ Once daily application may be

sufficient, especially if treatment is initiated when symptoms first develop.⁶ The potency of the topical corticosteroid should be appropriate for the area of the body being treated, the age of the patient and their symptom severity, e.g. mildly inflamed eczema in infants aged less than 12 months or patients with eczema on the face and neck will typically require only a mild potency steroid.⁵ Encourage caregivers to continue emollient use during flares; topical corticosteroids can be applied before or after emollients.⁵

 For further information on topical corticosteroids, see: <https://bpac.org.nz/2021/topical-corticosteroids.aspx>

Topical pimecrolimus (a calcineurin inhibitor) is a second-line treatment option for patients with eczema if the use of topical corticosteroids is contraindicated, e.g. periorificial dermatitis or a documented allergy to topical corticosteroids, or inappropriate, e.g. for long-term use on body areas such as the face, neck and groin.⁵ Pimecrolimus is funded with Special Authority approval for treatment of eczema on the eyelids if a corticosteroid cannot be used; patients may choose to self-fund treatment for other indications. Pimecrolimus may be as effective as mild to moderate potency topical corticosteroids for the treatment of eczema, but is more likely to cause a burning sensation and pruritus.^{10, 14} A possible association between topical calcineurin inhibitor use and increased risk of lymphoma has been examined in a recent systematic review and meta-analysis.¹⁵ Analyses did find an association, however, the overall risk is very small.¹⁵


N.B. Tacrolimus ointment 0.1%, also a calcineurin inhibitor, is now approved in New Zealand for use in people aged 16 years and over, and will be funded (Special Authority criteria apply) from 1 October, 2021, for the treatment of facial eczema in people unable to use topical corticosteroids.¹⁶

 For further information on assessing the severity of eczema symptoms, see: www.bpac.org.nz/BPJ/2015/April/eczema.aspx

Maintenance treatment with topical corticosteroids can reduce the frequency of flares

Eczema is traditionally managed reactively, where topical corticosteroids are initiated during a flare and stopped when symptoms resolve.⁵ This approach is still appropriate for many patients.

Children with frequent flares, e.g. two per month, may benefit from a proactive approach, where topical corticosteroids are applied twice per week during periods of remission, i.e. between flares.⁵ This is often referred to as “weekend treatment”, however, treatment can occur on any two consecutive days in the week.⁵

 For further information on weekend treatment, see: **“Topical corticosteroids for childhood eczema: clearing up the confusion”**.

Use oral rather than topical antibiotics for infected eczema


Antibiotic treatment of infected eczema is not always necessary. If antibiotic treatment is needed, oral antibiotics are preferred over topical antibiotics due to increasing rates of fusidic acid resistance in New Zealand.

A watch and wait approach may be appropriate for patients with mild to moderately infected eczema; oral antibiotics can be reserved for patients with worsening or severe infection.⁶ A double-blind randomised controlled trial in primary care in the United Kingdom found that for children with mild to moderately infected eczema, the use of topical or oral antibiotics had no effect on symptom severity or made eczema symptoms worse.¹⁷ Children with severe infection were excluded from this study.

If antibiotic treatment is required, the antibiotic choice should be guided by local antibiotic resistance patterns if available, and ideally be active against *S. aureus* and *Streptococcus* bacteria.⁵ In general, a suitable first-line oral regimen for a child is:⁶

- Flucloxacillin 12.5 mg/kg/dose, four times daily, for five to seven days (maximum 500 mg/dose)

Flucloxacillin capsules can be prescribed for older children who are able to swallow them. Alternative oral antibiotic choices include erythromycin, trimethoprim + sulfamethoxazole or cefalexin depending on local antibiotic resistance patterns where available.

 Dosing regimens are available from: https://www.nzfchildren.org.nz/nzfc_2893


For patients with recurrent infected eczema, the focus should be on managing the eczema effectively. Appropriate use of topical corticosteroids and emollients can improve the skin microbiota of people with eczema and reduce *S. aureus* skin colonisation.⁶

There is little evidence to suggest topical corticosteroids worsen the course of bacterial or viral skin infection, and they may improve skin barrier function.¹⁸ Topical corticosteroids can continue to be used on excoriated skin and eczema with bacterial or viral infection. However, topical corticosteroids should be stopped in patients with fungal infections as they may exacerbate the infection.^{6, 18}

Antihistamines may benefit children with severe symptoms

Although not routinely recommended, a sedating antihistamine may be trialled to aid sleep during an acute eczema flare in children aged over six months if other sleep optimisation methods have not been successful.⁶


N.B. Use of sedating antihistamines in children aged under two years is unapproved and Medsafe has issued a recommendation against the use of oral sedating antihistamines for sedation of children.¹⁹

 For choices and dosing recommendations, see: www.nzfchildren.org.nz/nzf_1826

When to refer

Children should be discussed with or referred to a paediatric dermatologist or other relevant specialist if they:⁵

- Have ongoing symptoms despite optimal topical corticosteroid use
- Have infected eczema which does not resolve with antibiotic treatment
- Have recurrent skin infections and/or require repeated hospital admissions
- Show symptoms and signs of eczema herpeticum, e.g. fever and small, grouped, circular blisters with a central depression which become crusted and eroded
- Have significant psychosocial issues, e.g. missing school, bullying

 For further information on when to refer, see: <https://www.starship.org.nz/guidelines/outpatient-primary-care-management-of-childhood-eczema/>


Reduce barriers to adherence

Reducing obstacles to treatment adherence is a priority in eczema management. Caring for a child with eczema can be challenging for parents and caregivers as it requires daily attention to manage effectively.

Strategies to support whānau/families caring for a child with eczema include:²⁰

Simple treatment regimens

Prescribe the simplest effective treatment regimen.²⁰ Provide caregivers and older children with written instructions, so they know what treatments to use when, on which parts of the body and in what quantities.

 For an example of an eczema care plan, see: media.starship.org.nz/eczema-pictorial-care-plan/Eczema_Action_Plan_March_2020.pdf

Improving understanding about the causes of eczema and treatment options


- Re-enforce the need for proactive management.

Many families want to find a cause of the child's eczema, e.g. a food intolerance, with the expectation that once identified, the condition could be cured. This belief can lead families to focus on exclusion of potential triggers at the expense of controlling symptoms through frequent emollient and appropriate topical corticosteroid use.¹³ To reduce the risk of flares, patients with eczema require ongoing maintenance treatment even during asymptomatic phases; while avoiding triggers can help, proactive management with frequent emollient use is key.
- Consider an education session for parents and caregivers. Education sessions delivered by a general practitioner, nurse or pharmacist that cover the causes of eczema, application of emollients, and the appropriate use of topical corticosteroids can improve parents' or caregiver's knowledge and confidence about treating their child's eczema.⁵ Some DHBs have dedicated eczema nurses who can offer educational support; improved adherence and treatment efficacy has been shown following education from an eczema nurse.⁵
- Discuss that dietary modifications are typically unnecessary.

Allergy is not recognised as a major cause of childhood eczema and there is no evidence to support widespread use of dietary modifications or food exclusions.²¹ However, children with eczema are at higher risk of developing immediate hypersensitivity reactions to foods; if a child has suspected immediate food hypersensitivity, refer to a paediatrician.⁶ The possibility of food allergy should be considered where young children have immediate reactions to a food, particularly if accompanied by urticaria, angioedema, colic or vomiting. The exclusion of foods is often complicated, does not result in significant symptom improvements and can lead to a loss of tolerance which could exacerbate eczema when re-introduced.^{6, 8} Discussions about the role of food allergy can also be used as a prompt to reinforce healthy eating messages.

Further education and information for patients and caregivers:

- Instructional videos on the use of moisturisers, bathing and topical corticosteroids: www.kidshealth.org.nz/eczema-children
- Printable information sheets: www.starship.org.nz/health-professionals/child-and-youth-eczema-clinical-network/
- Information on introducing solids for children with eczema: www.kidshealth.org.nz/eczema-food-allergy-fast-facts

 To read the full guideline, see: www.starship.org.nz/guidelines/outpatient-primary-care-management-of-childhood-eczema

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