



# Childhood eczema: improving adherence to treatment basics

## What do health professionals need to know?

- 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 subsidised formulation of aqueous cream no longer contains sodium lauryl sulphate (SLS – a known skin irritant) and can be used as a leave-on emollient as well as a soap substitute. Emulsifying ointment contains SLS and should not be used as a leave-on emollient, it is however, an effective 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”.

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.<sup>1, 2</sup> Recurrent flares of eczema can adversely affect a child’s sleep, focus at school and social interactions. Eczema typically improves as children move into their teens, although research suggests half continue to experience some symptoms at age 20 years.<sup>3</sup>

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.<sup>2, 4, 5</sup>

The prevalence (approximately 20%) and severity of eczema is higher in Māori and Pacific children compared to children of European ethnicity (14%), therefore these families may benefit from additional support.<sup>6</sup>

## Emollients are the cornerstone of treatment for all patients with eczema

Emollients (moisturisers) are topical formulations which reduce transepithelial water loss and hydrate the skin to improve barrier function. These form the basis of treatment for patients with all degrees of eczema severity.<sup>1, 2</sup> They are also used alongside topical corticosteroids to treat active inflammation. Appropriate use of emollients:<sup>1, 7</sup>

- 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 subsidised emollients are available (Table 1).








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

**Creams** are more effective than lotions and are usually more cosmetically acceptable than ointments as they are absorbed faster into the skin.<sup>2</sup> Additives such as glycerol and urea attract and hold water. Creams are preferred to ointment if skin is weeping or oozing (see below).<sup>9</sup>

**Ointments** form an occlusive layer which 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. 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 which contain fragrances they cause irritant dermatitis. In addition, care should be taken when using topical applications which contain sodium lauryl sulphate (SLS) as this is a skin irritant and can worsen eczema symptoms. Products containing SLS should not be used as leave-on emollients but can be used as soap substitutes, e.g. emulsifying ointment.<sup>10</sup> The subsidised aqueous cream BP is SLS-free and can therefore be used as a leave-on emollient. Some unsubsidised brands of aqueous cream and over-the-

**Table 1:** Fully subsidised emollients suitable for children with eczema.<sup>1, 13</sup>

	Product (Ingredients)		Subsidised product sizes	Subsidised brands
<b>Creams</b>	Aqueous cream BP (SLS free)		500 g tub	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 tub	HealthE
	Fatty emulsion (Cetostearyl alcohol + paraffin liquid + paraffin soft white)*		500 g tub	O/W Fatty Emulsion
	Urea cream		100 g tube	HealthE
<b>Ointments +</b>	Emulsifying ointment (Paraffin liquid + paraffin soft white + wax-emulsifying)		500 g tub	AFT

\* Paraffin-based emollients can represent a fire hazard, especially when used in large quantities.<sup>2</sup> See NZFC for further information: [www.nzfchildren.org.nz/nzf\\_6237](http://www.nzfchildren.org.nz/nzf_6237)

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

counter emollients contain SLS and should not be used as leave-on emollients for children with eczema.


### Selecting an appropriate emollient


Large quantities of emollients are required to manage eczema effectively and therefore fully-subsidised products are likely to be preferred by many families. Patients may need to trial different products to find an emollient which is acceptable and effective. There is no clear evidence as to which emollient is most effective, so patients should be prescribed their preferred option to improve treatment adherence.<sup>1</sup> If a particular emollient irritates the skin, patients should trial a different product. Caregivers of very young children should watch for signs of discomfort or increased skin irritation when using a new emollient.

There are few studies evaluating whether plant oils are beneficial for patients with eczema, but some positive results have been reported for specific products, such as coconut oil.<sup>11,12</sup>

Patients may need different emollients for different body areas and symptomatic areas of skin may require treatment with different emollients during flares. For example, creams can assist with inflammation, as the evaporation of water cools the skin, whereas greasy ointments are more suitable for dry skin.<sup>1,2</sup>

To reduce unnecessary wastage, consider giving caregivers a trial prescription for a limited period, e.g. one week.

 For further information on how to write trial prescriptions, see: [www.bpac.org.nz/BPJ/2015/August/pills.aspx](http://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 to their consistency and application to patients.

### Most patients do not use enough emollients

Apply emollients during both symptomatic and asymptomatic periods. The appropriate amount of emollient varies according to the patient's body size and the area of skin affected (Table 2). Most patients use too little emollient.<sup>14-16</sup>

- 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.<sup>1</sup>
- An additional quantity of emollient should also be prescribed as a soap substitute for use when bathing
- Apply emollients in the direction of hair growth<sup>1</sup>

Emollients ideally should be removed from tubs with a clean spoon or spatula to minimise the risk of bacterial contamination.<sup>2</sup> Pump bottle dispensing of emollients also reduces risk. Advise caregivers to check the expiry date of the emollient, as contamination risk is increased when products are used beyond this date.


### 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. To provide patients with a simple treatment regimen, prescribe an emollient suitable for use as a soap substitute and a leave on moisturiser. The use of bath oil (unsubsidised) once to twice daily during periods of active eczema is thought to be beneficial.<sup>13</sup> Care needs to be taken when bathing with soap substitutes and oils as these can make surfaces slippery. There is no clear evidence as to whether showering or having a bath is better for controlling symptoms. The optimal frequency of bathing is also unknown.<sup>8</sup> When drying the skin after bathing, it should be patted rather than rubbed.


**Table 2:** Approximate quantities of emollient for children with eczema depending on patient age and area of body affected, adapted from NZFC.<sup>17</sup>

		Quantity of emollient per week*			
Patient age		3 months to 2 years	3 – 5 years	6 – 10 years	10 – 18 years
<b>Area of the body:</b>					
Both arms or legs		30 – 50 g	50 g	50 – 100 g	100 – 200g
Trunk		50 – 100g	150 g	200 g	400 g

\* The amounts shown above are usually suitable for twice daily application for one week. If emollients are used more frequently, larger amounts will be required. Additional amounts will be required for use as a soap substitute.


 Emulsifying ointment cleans and moisturises the skin and can be made into an effective soap substitute with easy-to-use consistency by mixing three to four large spoonfuls with very hot water to achieve a creamy soap consistency. Once cool, this can be used in the shower or bath and more prepared as required. Instructions for preparation can be included on the prescription label.

Many patients find bleach baths beneficial, however, recent studies suggest that evidence is mixed as to whether bleach baths improve symptoms.<sup>18–21</sup> Caregivers should avoid using fragranced bleach.

 Information on how to prepare a bleach bath is available from: [www.bpac.org.nz/BPJ/2015/April/eczema.aspx](http://www.bpac.org.nz/BPJ/2015/April/eczema.aspx)


### 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). Once daily application may be sufficient, especially if treatment is initiated when symptoms first develop.<sup>2</sup> 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 on the hands will typically need a potent steroid for treatment to be effective.

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

Encourage caregivers to continue emollient use during flares. Either emollients or topical corticosteroids can be applied first with only a short interval needed between applications.<sup>1</sup> The practice of waiting up to 45 minutes between applications is not evidence-based and can reduce adherence.<sup>22</sup>


Topical pimecrolimus (unsubsidised), a calcineurin inhibitor, is a second-line treatment option for patients with eczema if the use of topical corticosteroids is contraindicated or inappropriate, e.g. for long-term use on body areas such as the face, neck and groin.<sup>1</sup> 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.<sup>23</sup> Concerns regarding a possible association between topical calcineurin inhibitor use and increased risk of lymphoma have been raised based on studies in animals, however, studies in humans have not established an increased risk of malignancy.<sup>24, 25</sup>

 For further information on the use of topical pimecrolimus, see: [www.bpac.org.nz/BPJ/2015/April/eczema.aspx](http://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. 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 a week during periods of remission, i.e. between flares.<sup>1</sup> This is often referred to as “weekend treatment”, however, treatment can occur on any two consecutive days in the week.<sup>1</sup>

 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. Recently released data show that 21–46% of community acquired *S. aureus* infections were fusidic acid resistant in 2014.<sup>26</sup>

Studies suggest 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.<sup>27</sup> 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. Children with severe infection were excluded from this study.

If antibiotic treatment is required, a suitable first-line oral regimen is:<sup>28</sup>

- Flucloxacillin 12.5 mg/kg/dose, four times daily, for five 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, co-trimoxazole or cephalexin.

 Dosing regimens are available in the bpacnz antibiotic guide: [www.bpac.org.nz/Supplement/2013/July/antibiotics-guide.aspx](http://www.bpac.org.nz/Supplement/2013/July/antibiotics-guide.aspx)

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.<sup>4, 5, 20, 29, 30</sup>

There is little evidence to suggest topical corticosteroids worsen the course of bacterial or viral skin infection, and they may improve skin barrier function.<sup>31</sup> 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.<sup>2,31</sup>

### Antihistamines may benefit children with severe symptoms

Antihistamines are not routinely used in children with eczema, but a bedtime dose of a sedating antihistamine can be trialled to aid sleep in children aged over two years during an eczema flare.<sup>2, 13</sup> see NZFC, [www.nzfc.org.nz](http://www.nzfc.org.nz), for dosing recommendations.

### When to refer


Children should be referred to secondary care if they:<sup>1,2</sup>

- Have ongoing symptoms despite appropriate topical corticosteroid use
- Have recurrent skin infections
- Have infected eczema which does not clear with antibiotic treatment
- 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 symptoms which substantially reduce their quality of life, such as eczema which results in frequent waking at night, reduces school attendance or which causes social problems

### Reduce obstacles to adherence

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

Steps which can improve adherence include:<sup>32</sup>


- **Simple treatment regimens**  
Prescribe the simplest effective treatment regimen.<sup>32</sup>  
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 examples of simple take-home care plans, see: [www.starship.org.nz/media/269759/caring\\_for\\_your\\_child\\_s\\_eczema\\_june\\_2014.pdf](http://www.starship.org.nz/media/269759/caring_for_your_child_s_eczema_june_2014.pdf)
- **Improving understanding about the causes of eczema and treatment options**
  - Eczema education highlights 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.<sup>33</sup> 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, practice nurse or pharmacist which 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.<sup>14,34</sup> Some DHBs have dedicated eczema nurses who can offer educational support.
- 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.<sup>35</sup> However, children with eczema are at higher risk of developing immediate hypersensitivity reactions to foods. 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. A short trial of food exclusions, supervised by a dietitian, could be considered in children with moderate to severe eczema and ongoing symptoms which do not improve with adherence to appropriate treatment.<sup>1</sup> Discussions about the role of food allergy can also be used as a useful springboard to reinforce healthy eating messages.

### Further education and information for parents:

- Instructional videos on the use of moisturisers, bathing and topical corticosteroids: [www.kidshealth.org.nz/eczema](http://www.kidshealth.org.nz/eczema)
- Printable parent information sheets: [www.starship.org.nz/for-health-professionals/new-zealand-child-and-youth-clinical-networks/child-and-youth-eczema-clinical-network/family-information-and-handouts/](http://www.starship.org.nz/for-health-professionals/new-zealand-child-and-youth-clinical-networks/child-and-youth-eczema-clinical-network/family-information-and-handouts/)
- Information on introducing solids for children with eczema: [www.kidshealth.org.nz/food-recommendations-infants-risk-allergy](http://www.kidshealth.org.nz/food-recommendations-infants-risk-allergy)

 Additional information is available from the Goodfellow Unit:

- [www.goodfellowunit.org/podcast/childhood-eczema-paul-jarrett](http://www.goodfellowunit.org/podcast/childhood-eczema-paul-jarrett)
- <https://youtu.be/EMCV-LPvecM>

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