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Waitemata District Health Board
Te Wai Awhina

ECZEMA IN CHILDREN - A TOPICAL ISSUE

- USE SOAP SUBSTITUTES
- EMOLLIENTS ARE ESSENTIAL
- USE CORTICOSTERIODS APPROPRIATELY
- IDENTIFY AND MANAGE UNDERLYING TRIGGERS IF POSSIBLE
- REFER IF NECESSARY

Eczema is a chronic relapsing itchy inflammation of the skin affecting 20% of New Zealand children and 1 to 3% of adults.[1,2] Onset can be at any age, but is most common before the age of 5 years. Often there is a family history of eczema, asthma or hayfever.[3]

Skin with eczema has altered integrity and an increased risk of infection with bacteria (eg staphylococcus and streptococcus) and viruses (eg herpes and molluscum). Genetic abnormalities in the skin barrier proteins have recently been identified in patients with eczema, suggesting that abnormal skin barrier function is a key determinant of eczema.[4,5]

General management principles include: daily moisturising, appropriate use of topical steroids, avoidance of possible irritants, and education about signs of infection to ensure prompt treatment.

USE SOAP SUBSTITUTES

Soaps can be drying and irritating to the skin, so 'soap-free' washes should be used.[6] Funded options include aqueous cream and emulsifying ointment which can be applied before the bath and then washed off. However, many people find the non-funded options easier to use e.g. Cetaphil, Dermasoft, Aveeno, QV wash. Lukewarm baths of 10-20 minutes are best;[5,7] avoid very hot water which can cause pruritus via vasodilation, and potentially damage the skin barrier by scalding. Small amounts of bath oils may be used to increase hydration; take care with younger children, as these agents can make the bath very slippery.[5]

To reduce staphylococcal colonisation and reduce infective flares, antiseptic baths can be used two to three times per week. These baths can be prepared by adding half a cup (125mL) of bleach (e.g. Janola) to a 15cm-deep full sized bath,[6,7] however they should not be used if there are extensive areas of broken skin. Antiseptic bath oils are available (Oilatum Plus or QV Flare Up Oil) but these are not subsidised.[7]

EMOLLIENTS ARE ESSENTIAL

Emollients are the mainstay of therapy but are often underused; they should be applied even when the condition is well controlled.[7] Adequate skin hydration preserves the stratum corneum barrier, minimising the effects of irritants and allergens and maximising topically applied therapies. This will potentially decrease the need for topical steroids.[6]

After bathing, advise to lightly pat the skin with a towel to remove excess moisture, rather than complete drying. Then liberally apply an occlusive emollient over the entire skin surface to retain moisture in the epidermis. It is recommended to apply this within three minutes of leaving the bath to avoid evaporation which may cause excess drying of the skin.[5] If steroid creams are needed, apply these first for maximum absorption, then the emollient 30 minutes later, if practical.[7] NICE guidelines endorse the provision of large quantities of emollients to children with eczema, and recommend prescribing 250-500g each week to encourage sufficient supply for daily moisturising, bathing and washing.[8] Ointments are preferred for dry skin, creams for flexures, face and exudative skin, and lotions are useful over hairy areas.

Ideally emollients should be hydrophobic and ointment-based (e.g. emulsifying ointment) however these agents are very greasy, so cream-based alternatives may be used (e.g. cetomacrogol), although they are slightly less effective. Oily creams (e.g. HealthE fatty cream) are in between ointments and creams and usually acceptable.[4] **Note**: Aqueous cream contains sodium lauryl sulphate and is no longer recommended as a leave-on emollient due to high rates of irritation and damage to the skin barrier.[9]

Table 1 Emollients

SUBSIDISED EMOLLIENTS	PARTIALLY SUBSIDISED EMOLLIENTS*
Emulsifying ointment (AFT)	Hydroderm lotion
Fatty cream (HealthE)	DP lotion
Cetomacrogol cream	

*This is not an exhaustive list; please refer to the on-line PHARMAC schedule for the most up-to-date information.

USE CORTICOSTERIODS APPROPRIATELY

Most parents worry about steroid related side effects and they should be reassured that when used appropriately, with potency of the topical steroids tailored to the skin thickness, that the benefit will outweigh the harm. Topical corticosteroids reduce inflammation and pruritus during acute exacerbations.[10]

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ECZEMA IN CHILDREN

The absorption of topical steroids is increased through hydrated skin and the benefits are optimal if applied soon after bathing.

The most occlusive preparations are ointments which are best for very dry skins, followed by gels, creams and lotions.[5] Systemic steroids are not recommended in the treatment of eczema.

Facial and flexural eczema should be treated with a low potency topical steroid in all age groups. Moderate potency topical steroids can be used as a second line treatment for short periods of less than two weeks.

For eczema on the body (trunk, arms and legs), infants under one year of age can usually be managed with a low or occasionally moderate potency topical steroid. Preschoolers may require a moderate or potent topical steroid and school age children usually require a potent topical steroid. An effective topical steroid will result in improvement within one to two weeks, allowing the steroid to be stopped.[10] In general, short bursts of more potent topical steroids are more effective and have fewer side effects than long term use of lower potency agents.[7]

If there is no benefit within one to two weeks then consideration should be given to other causes of treatment failure (e.g. bacterial infection, poor adherence, contact allergy, need for a more potent topical steroid or that eczema is not the correct diagnosis). Referral for a dermatologist opinion should be considered with recurrent treatment failure. **Note**: once daily dosing may be as effective as twice daily and is often more convenient.[11]

Table 2 Topical corticosteroids

POTENCY	SUBSIDISED EXAMPLES
MILD	
Hydrocortisone 1%	Hydrocortisone BP cream (Pharmacy Health) DP Lotion-HC 1%
MODERATE (25x hydrocortisone 1%)	
Triamcinolone acetonide (0.02%)	Aristocort cream/ointment
POTENT (50-100x hydrocortisone 1%)	
Betamethasone valerate (0.1%)	Beta cream/ointment Betnovate Lotion
Hydrocortisone 17-butyrate (0.1%)	Locoid lipocream/ointment/ crelo (milky emulsion)
Mometasone furoate (0.1%)	Elocon lotion, m-Mometasone cream/ointment
Methylprednisolone aceponate (0.1%)	Advantan cream/ointment

Table adapted from Oakley A. BPJ 2009;23:9-13

Note: Very potent steroids (e.g. Dermol, clobetasol propionate 0.05%) should not be used for childhood eczema.

Make sure adequate amounts of topical steroid are used; suboptimal use early on can lead to poor control of symptoms and potentially discontinuation or non-compliance.[12]

Use the fingertip unit (FTU) to measure the amount of medication. One FTU is the amount of cream that will cover an adult index finger from the tip to the metacarpophalangeal joint; it is approximately 0.5g.[10]

Table 3 Approximate number of adult FTUs needed for children

	6 months old	12 months old	5 years old	10 years old
Arm and Hand	1	1.5	2	2.5
Leg and Foot	1.5	2	3	4.5
Trunk	1.5	2	3	3.5

Table adapted from Long CC et al. Br J Dermatol 1998; 138:293-6

Table 4 provides approximate weights of steroid cream required for a once daily application to cover the entire body.[13]

Table 4 Approximate weight required of topical corticosteroids

Topical steroid	6 months old	12 months old	5 years old	10 years old
Daily (g)	5g	6g	10g	15g
Weekly (g	35g	40g	70g	100g

Table adapted from Long CC et al. Br J Dermatol 1998; 138:293-6

Always give instruction on which areas to avoid (e.g. the face). Encourage the continued use of emollients during acute flares.[10]

IDENTIFY UNDERLYING TRIGGERS IF POSSIBLE

To reduce the frequency and severity of irritant-induced flares advise to avoid any likely irritants that may trigger the itch-scratch-itch cycle (e.g. soaps, detergents, chemicals, abrasive clothing and extremes of temperature).[5] Skin prick testing may be helpful if it is necessary to identify specific allergens. The following advice may help:

- Avoid topical products containing alcohol or other astringents
- Wash new clothes before use to remove formaldehyde and other chemicals
- Use mild liquid detergents (rather than powders) and a second rinse cycle to remove residual detergent
- Shower after swimming in chlorinated pools and apply moisturiser
- Always choose fragrance-free hypoallergenic products for "sensitive skin"
- Dress children in loose cotton clothing, avoiding wool and synthetics next to the skin if possible

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Frequent follow-up is needed early in the course to assess response to therapy and compliance. Be mindful that infection or contact dermatitis to a medication, e.g. preservatives in steroid preparations, could be a contributing factor.[5]

REFER IF NECESSARY

If the condition is severe, involves eyelids/hands or is refractory to first-line treatments, consider further assessment by either a nurse specialist or paediatrician or consultation with a dermatologist.[6]

The following conditions should be referred:

- Erythroderma or extensive exfoliation
- Serious infectious complications e.g. eczema herpeticum, and recurrent infective exacerbations
- Ocular complications
- Eczema requiring hospitalization or systemic immunosuppressants
- Eczema causing persistent loss of sleep, school absenteeism or inability to enjoy activities
- Eczema causing significant psychosocial impact
- Eczema requiring persistent topical steroids with risk of localised cutaneous effects e.g. striae
- Uncertain diagnosis

Eczema has multiple triggers and it is not usually possible to identify and exclude them all. Anaphylactic reactions to food proteins do occur in children with eczema, and food can be a trigger for eczema - especially in children with early onset (before 6 months) generalised eczema. Skin prick testing and RAST (radioallergosorbent) testing can have high rates of false positives in eczema and results need to be interpreted with caution. Indiscriminate food exclusion has not been shown to be helpful in eczema management and carries a risk of nutritional deficiency. Referral for assessment by a paediatrician or paediatric immunologist or dermatologist should be considered if food is thought to be a significant trigger.

Keep in mind that many children 'outgrow' eczema, however in around a third it can persist into adult life.

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