The education of patients and their carers on avoiding trigger factors, using emollients effectively and adopting a stepped management plan is essential for successful treatment of eczema

Atopic eczema management

By Christine Clark, PhD, FRPharmS

Atopic eczema is a relapsing and remitting disease. Managing the condition focuses on reducing the number of relapses (also known as “flares”) and ensuring their prompt treatment when they occur.

Some aspects of management, in particular the use of emollients, will also be relevant to the management of other types of eczema. However, a full discussion of the management of other types of eczema is beyond the scope of this article.

Principles of management

Managing atopic eczema in primary care involves:

- Identification and avoidance of trigger factors
- Implementation of a stepped-care plan where treatment is tailored to disease severity (treatment is stepped up if there is deterioration and stepped down once a flare is under control)
- Referral for specialist care when conventional measures are ineffective

Avoidance of trigger factors

The first step in eczema management is avoiding, as much as possible, factors that can trigger a flare. Helping people to identify their own or their children’s trigger factors is an important part of supporting self-management (see Box 1).

Emollients

Emollients are the mainstay of eczema treatment. They restore the integrity of the skin barrier and should be used to keep the skin in good condition, even when it is clear of eczema. If used correctly, emollients can help maintain or restore the suppleness and pliability of the skin, reduce corticosteroid requirements and improve cosmetic appearance. Emollient products include creams, ointments, lotions, bath additives and soap substitutes.

Although there is a lack of good quality evidence to support the use of emollients for the treatment of eczema, there can be little doubt about their usefulness. An emollient forms an oily layer over the skin that prevents water evaporation. The water, trapped in the stratum corneum, passes into the corneocytes, which swell, closing intercellular gaps.

Emollients can also penetrate deep into the stratum corneum and mimic the barrier effects of deficient lipids.

Box 1: Trigger factors for atopic eczema

<table>
<thead>
<tr>
<th>FACTOR</th>
<th>EXAMPLE</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irritation</td>
<td>Soaps and detergents</td>
<td>Removal of lipids from skin and activation of skin proteases</td>
</tr>
<tr>
<td>Abrasive clothing</td>
<td></td>
<td>Direct physical irritation because of scratchy texture</td>
</tr>
<tr>
<td>Extremes of temperature or humidity</td>
<td></td>
<td>Drying effect on skin</td>
</tr>
<tr>
<td>Psychological stress</td>
<td>Psychological stress caused by life events</td>
<td>Some people respond with habitual scratching, which exacerbates eczema</td>
</tr>
<tr>
<td>Food hypersensitivity</td>
<td>Cow’s milk, eggs, soya, wheat, fish, nuts</td>
<td>Only likely to be a factor in about 10% of children, mainly under three years of age</td>
</tr>
<tr>
<td>Allergens</td>
<td>House dust mite</td>
<td>Allergens in house dust mite faeces</td>
</tr>
<tr>
<td>Animal dander</td>
<td>Allergens in animal saliva</td>
<td></td>
</tr>
<tr>
<td>Toiletries and cosmetics</td>
<td>Allergens include perfumes and preservatives</td>
<td></td>
</tr>
<tr>
<td>Moulds and pollens</td>
<td>Plant or mould allergens</td>
<td></td>
</tr>
</tbody>
</table>

The stepped-care model involves identifying the severity of a patient’s eczema at any particular time and providing treatment as appropriate. Mild atopic eczema can usually be managed with emollients alone or in combination with topical corticosteroids. Moderate eczema may require the addition of immunotherapeutic medicines such as topical tacrolimus. Systemic immunosuppressants might be needed for severe atopic eczema.

Step-care plan

The National Institute for Health and Clinical Excellence guidance for atopic eczema in children recommends the use of a stepped-care plan (see Figure 1), similar to that recommended for the management of asthma. Although the NICE guidance is for children, the principle of stepped care is equally applicable to adults.

Emollients

Emollients are the mainstay of eczema treatment. They restore the integrity of the skin barrier and should be used to keep the skin in good condition, even when it is clear of eczema. If used correctly, emollients can help maintain or restore the suppleness and pliability of the skin, reduce corticosteroid requirements and improve cosmetic appearance. Emollient products include creams, ointments, lotions, bath additives and soap substitutes.

Although there is a lack of good quality evidence to support the use of emollients for the treatment of eczema, there can be little doubt about their usefulness. An emollient forms an oily layer over the skin that prevents water evaporation. The water, trapped in the stratum corneum, passes into the corneocytes, which swell, closing intercellular gaps.

Emollients can also penetrate deep into the stratum corneum and mimic the barrier effects of deficient lipids.

Complete emollient therapy

To be effective, emollients need to be applied often and generously. Many dermatologists recommend “complete emollient therapy” (see Box 2).

This involves the frequent application of emollient creams or ointments, the use of bath oil when bathing or showering and routine use of an emollient soap substitute. Regular soaps and detergents (especially bubble baths)
Lanolin is a good emollient and, contrary to popular belief, is a weak contact sensitiser. Large studies have shown that the true incidence of lanolin sensitivity is very low. Modern lanolin-containing products use highly purified, hypoallergenic lanolin that is well tolerated. One new product (Evolve) contains highly purified lanolin in a spray form, which may be useful for those who dislike the feel of creams.

In addition to the basic ingredients, many emollient products also contain other therapeutically active substances.

Humectants attract water from the dermis into the epidermis. They can improve epidermal barrier function and increase hydration of the stratum corneum. Emollients that contain humectants are particularly useful for rehydrating dry, flaky skin. Commonly used humectants include urea, glycerin, polyethylene glycol and lactic acid.

Colloidal oatmeal is added to emollients (eg, Aveeno) for its soothing and antipruritic properties. Lauromacrogols, also antipruritic, are contained in products such as Balneum Plus and E45 Itch.

Adding antiseptics to emollients is said to be helpful in controlling flares. Such products (eg, Oilatum Plus) do not replace specific treatment for infected eczema.

Some emollients contain potential irritants (eg, benzyl alcohol) that can exacerbate eczema; a list of sensitising excipients is available in the British National Formulary.

Aqueous cream is unsuitable as a leave-on emollient for many people because it contains the anionic surfactant sodium lauryl sulphate, which has well documented irritant effects. It also contains chlorocresol or phenoxyethanol, which can contribute to the irritation further. Despite this, aqueous cream can be used as a wash-off product (ie, as an emollient soap substitute).

Patients should always test a new product on a small area of skin before using it on large or sensitive areas.

### Box 2: Complete emollient therapy

Emollient cream or ointment should be:
- Used liberally (500g per week for an adult is not unusual)
- Applied gently but quickly with clean hands
- Applied at least half an hour before any topical corticosteroid to avoid dilution of the corticosteroid or its spread to unaffected areas
- Warmed before use if more easy application is required (by standing it in the airing cupboard)
- Cooled before use if itch is a problem (by storing it in the fridge)
- Applied frequently: after washing or bathing (to replace the natural oils lost); and several times during the day (at least twice a day, but ideally three to four times). Additional emollient should be applied in extreme weather

Emollient soap substitute should be:
- Used for washing instead of conventional soaps and wash products (which can be drying). Ordinary soap, “moisturising” soap or bubble bath should never be used
- Applied to dry skin then rinsed off with water. Although these products do not lather like soap, they cleanse the skin effectively

Emollient bath oil should be:
- Used as another means of moisturising — they leave a fine film of emollient on the skin after bathing
- Added to a warm bath (but not too hot since this exacerbates itching); 15ml should be added to an adult bath and 5ml to a baby bath. After bathing skin should be patted dry (not rubbed, because this can also exacerbate itch)

Lanolin is a good emollient and, contrary to popular belief, is a weak contact sensitiser. Large studies have shown that the true incidence of lanolin sensitivity is very low. Modern lanolin-containing products use highly purified, hypoallergenic lanolin that is well tolerated. One new product (Evolve) contains highly purified lanolin in a spray form, which may be useful for those who dislike the feel of creams.

In addition to the basic ingredients, many emollient products also contain other therapeutically active substances.

Humectants attract water from the dermis into the epidermis. They can improve epidermal barrier function and increase hydration of the stratum corneum. Emollients that contain humectants are particularly useful for rehydrating dry, flaky skin. Commonly used humectants include urea, glycerin, polyethylene glycol and lactic acid.

Colloidal oatmeal is added to emollients (eg, Aveeno) for its soothing and antipruritic properties. Lauromacrogols, also antipruritic, are contained in products such as Balneum Plus and E45 Itch.

Adding antiseptics to emollients is said to be helpful in controlling flares. Such products (eg, Oilatum Plus) do not replace specific treatment for infected eczema.

Some emollients contain potential irritants (eg, benzyl alcohol) that can exacerbate eczema; a list of sensitising excipients is available in the British National Formulary.

Aqueous cream is unsuitable as a leave-on emollient for many people because it contains the anionic surfactant sodium lauryl sulphate, which has well documented irritant effects. It also contains chlorocresol or phenoxyethanol, which can contribute to the irritation further. Despite this, aqueous cream can be used as a wash-off product (ie, as an emollient soap substitute).

Patients should always test a new product on a small area of skin before using it on large or sensitive areas.
Emollients and corticosteroids

Correct emollient use can reduce a patient’s requirement for topical corticosteroids (ie, steroid-sparing effect). It can be helpful to point this out to people who are apprehensive about using corticosteroids. As a general rule, patients should use about 10 times as much emollient as topical corticosteroid preparation.

Topical corticosteroids

Flares of eczema should be treated with topical corticosteroids, which inhibit the production and action of inflammatory mediators, reducing inflammation and itch.

The least potent corticosteroid to produce the required effect should be prescribed. However, this does not mean that treatment should be started with the weakest topical corticosteroid — the strength selected should match disease severity. In general, a short burst of treatment with a potent or moderate corticosteroid is preferable to protracted under-treatment.

Where the skin is thin, such as on the face, genitals and flexures, a mild corticosteroid (eg, hydrocortisone) should be used. Mild-to-moderate eczema in other areas of the body can be treated for one to two weeks with a moderate corticosteroid (eg, clohetasone butyrate). Potent corticosteroids (eg, mometasone furoate) are required for moderate-to-severe eczema and for areas where the skin is thick (eg, scalp, palms of hand and soles of feet). Infants younger than one year of age should only be treated with a mild potency preparation such as hydrocortisone ointment 1%. It is important to remember that the potency of a topical corticosteroid depends on both the formulation and the corticosteroid itself. A full list of the relative potencies of topical corticosteroid preparations is available in the British National Formulary.

Topical corticosteroids should be applied once or twice a day. Ointments are suitable for dry, thick or scaly lesions, whereas creams are more appropriate when the skin is oozing or infected (because the area should not be occluded).

Community pharmacists can provide over-the-counter topical corticosteroids for eczema as described below:

- Hydrocortisone 1% creams and ointments can be provided to treat mild-to-moderate atopic eczema. These products are useful to treat flares, but should not be used for more than one week without medical advice. Patients who have not previously been diagnosed with atopic eczema should be referred to their GP, as should patients whose condition is widespread or severe. It is inappropriate to supply topical hydrocortisone for children under 10 years of age or for pregnant women (unless it has been recommended by a GP or other doctor, who has not provided a prescription for it).

![Figure 1: Model of stepped care adapted from the NICE guidance for the management of atopic eczema in children.](image-url)
Clobetasone butyrate 0.05% cream can be provided over the counter for the short-term treatment and control of small patches of atopic eczema for patients over 12 years of age.

The possible local and systemic side effects of corticosteroids are well recognised but often exaggerated. Side effects usually only occur after using potent corticosteroids for a long time. The incidence and severity of side effects are determined by the area treated, thickness of the skin, potency of the preparation and duration of treatment. Greater absorption occurs where the skin is damaged and raw.

Important counselling points for topical corticosteroids include:

- The importance of not using topical corticosteroid preparations as emollients.
- The difference between potency and concentration.
- The amount of topical corticosteroid to apply. To cover an area twice the size of the flat of the patient’s hand, the patient should be instructed to use one “fingertip unit” (that is the amount of cream that covers from the tip of the index finger to the first crease of the finger when squeezed from the tube).

Pharmacists should always take care not to confuse clobetasol (very potent) with clobetasone (moderate). Mix-ups with these products can also arise on computer-generated prescriptions.

**Anti-infective agents**

Prompt treatment of infected eczema is important when managing flares. Moderate-to-severe bacterial infection with Staphylococcus aureus (identified by weeping or broken skin) should be treated using oral antibiotics such as flucloxacillin or erythromycin. Oral antibiotics should only be used for a short period (about seven days) to minimise the risk of resistance and sensitisation.

There is no evidence that topical antibiotic and corticosteroid combination products are any more effective than topical corticosteroids alone and, given the risk of bacterial resistance developing, they are not recommended.

**Sedating antihistamines**

Sedating antihistamines can be helpful for some patients. They are taken at night and are reported to provide benefit by reducing itching and allowing the patient to have a good night’s sleep.

Neither promethazine nor alimemazine is licensed for use in children under two years of age. However, hydroxyzine is licensed for use for babies of six months of age and older.

**Severe atopic eczema**

People with atopic eczema that fails to respond to emollients, topical steroids and avoidance of trigger factors should be referred to a specialist for ongoing management.

**Topical immunomodulators**

In recent years, topical immunomodulators (tacrolimus and pimecrolimus) have been used for the treatment of atopic eczema. These medicines can be helpful when there is a risk of serious side effects with topical corticosteroids or when eczema is not controlled with topical corticosteroids. Topical pimecrolimus is used to treat mild-to-moderate atopic eczema, whereas topical tacrolimus is used for the treatment of moderate-to-severe atopic eczema.

Tacrolimus and pimecrolimus are both inhibitors of calcineurin phosphatase, a key enzyme in the activation of T cells and propagation of the inflammatory response.

NICE guidance suggests that tacrolimus may be used in three situations:

- As an alternative to potent corticosteroids that would be inappropriate on sensitive areas such as the face.
- When potent corticosteroids would otherwise be needed most of the time.
- When there is evidence of corticosteroid-induced skin damage.

Tacrolimus is also approved for maintenance treatment (applied twice a week) for up to 12 months to prevent flares.

The main side effect of tacrolimus and pimecrolimus is a burning sensation in the skin. Patients should be advised to persevere with treatment because this effect usually only lasts a few days.

**Systemic immunosuppression**

For the treatment of severe atopic eczema, ciclosporin, azathioprine, methotrexate and systemic corticosteroids can be used. Most published data relate to ciclosporin.

In general, the doses used are lower than those used after organ transplantation and, for this reason, it is sometimes described as immunomodulatory treatment (rather than immunosuppression). Patients receiving these treatments must be closely supervised and monitored by specialists. Before starting treatment with azathioprine, a patient’s thiopurine methyltransferase enzyme activity should be measured (deficiency increases the risk of myelosuppression).
**Phototherapy** Phototherapy involves controlled exposure to ultraviolet (UV) light; UVA or UVB can be used. Because UVA alone has little effect, it is always administered in combination with a psoralen photosensitiser. The mechanism of action for phototherapy is not fully understood but it is believed to involve immunosuppression. Long-term UV exposure is associated with an increased risk of skin cancer and so this type of treatment is reserved for the most severely affected patients and should be given by specialists with close supervision and monitoring. Tanning beds cannot provide the same controlled exposure and are not suitable for treatment of severe eczema.

**Wet-wrapping** Wet-wrapping is an approach that is used for extensive and severe eczema in young children. It involves the application of a generous layer of emollient or mild topical corticosteroid cream, which is then covered with a wet cotton tubular bandage. This bandage is then over-wrapped with a dry bandage. The bandages can be applied over the whole body, apart from the scalp, and can be left in place overnight. Close supervision is required when a topical corticosteroid is used because the occlusion increases the likelihood of absorption and the risk of systemic adverse effects.

**Behavioural therapy** Behavioural therapy using a variety of techniques (including hypnotherapy, cognitive behavioural therapy and autogenic training) has also been used as an adjunct to conventional treatment for eczema, often with good results.

**Patient education** NICE guidance recommends that all healthcare professionals should spend time educating people with atopic eczema (and children’s parents or carers) about the condition and its treatment. The information should be reinforced at each consultation, especially addressing factors that affect adherence.

To ensure prompt and appropriate treatment of flares, education must contain information about:

- How to recognise a flare (increased skin dryness, itching, redness, swelling and, for infants, general irritability)
- How to manage a flare according to the stepped-care plan
- The importance of starting treatment for flares as soon as signs and symptoms appear and the need to continue treatment for approximately 48 hours after symptoms subside

Pharmacists can help to educate patients and their carers about atopic eczema and how it is treated. Details of patient support groups can also be provided where appropriate (see Box 3).

**References**


**Box 3: Pharmacy checklist**

Pharmacists should consider providing all patients with eczema written and verbal information on the following:

- Choice of emollients
- The use of emollients for moisturising and bathing
- Application technique for topical treatments
- Appropriate use of treatments (ie, how much, how often and when to step up and step down)
- Identification and management of eczema flares
- Identification and management of trigger factors
- Recognising infected atopic eczema
- Details of patient support groups (eg, for the National Eczema Society)

Topical corticosteroid products should be labelled with a description of their potency. Children and carers may require separate (small) original packs for school or nursery use.