

Eczema and its Management

A Guide for Healthcare Professionals



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Eczema and its Management – a Guide for Healthcare Professionals

Introduction

Nurses, midwives, health visitors, school nurses and community nurses are in an ideal position to promote the care of skin and to educate and support those with skin disease and their carers. This booklet gives a broad overview of current practice and knowledge in the management of eczema.

What is eczema?

Eczema is a common inflammatory, dry skin condition which can affect anyone from early infancy to old age. Another name for eczema is dermatitis – 'derma' means skin, and 'titis' means inflammation. Both terms are used interchangeably. Dry skin is a key feature of all types of eczema. Dry skin is itchy skin, and scratching sets off the itch-scratch cycle, triggering

an inflammatory response and causing eczema flares.

Atopic eczema is the most common and usually the most persistent form of eczema. In the UK it affects 1–2% of adults and 15–20% of schoolchildren, accounting for 30% of dermatological consultations in general practice and 10–20% of all referrals to dermatologists. Many children with atopic eczema improve as they get older, but they are usually left with dry and sensitive skin. Other children continue to have eczema as an adult, or eczema can return at any age, particularly after 60 years, due to physiological changes in ageing skin. There is no way to predict the natural course of atopic eczema.

In other types of eczema and dermatitis, the skin barrier becomes faulty when the skin is inflamed (for example, in contact dermatitis, irritants will cause this inflammation).

Causes of eczema

To understand what eczema is and what causes it, it helps to know something about the differences between healthy skin and skin affected by eczema.

Skin is made up of a thin, protective outer layer (the stratum corneum), a small layer containing skin cells (the



epidermis), a middle layer (the dermis), and a fatty layer at the deepest level (the adipose tissue). Each layer contains skin cells, water and fats, all of which help to maintain and protect the condition of the skin.

Healthy skin cells are plumped up with water, forming a protective barrier against damage and infection. Fats and oils in the skin help to retain moisture, maintain body temperature and prevent harmful substances or bacteria from entering our bodies. As we get older, the glands responsible for keeping our skin soft and supple become less efficient.

One way of picturing how the skin works is by thinking of it as a brick wall. The outer skin cells are like bricks, while fats and oils are like the mortar that keeps everything together and acts as a seal. The skin cells attract and keep water inside, and the fats and oils also help to keep the water in.

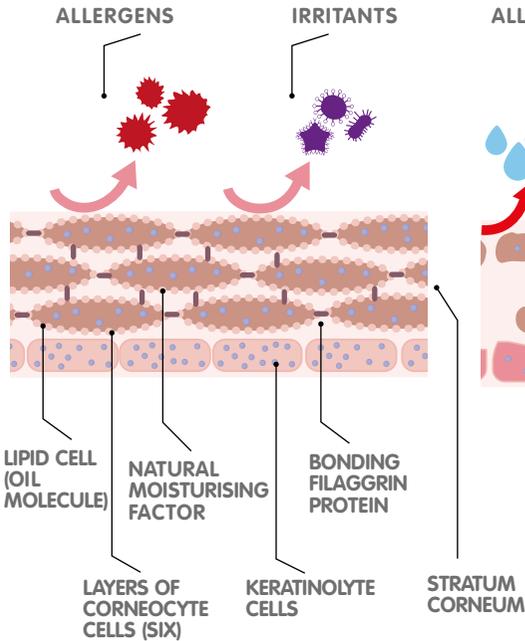
In many people with eczema there are genetic reasons for the skin being so dry. Research has identified genetic mutations leading to a number of changes in the structure of the skin: first, eczematous skin does not produce as much fat and oil as normal skin and there is a lack of natural moisturising factors; second, there is often a deficiency of filaggrin, a structural protein which acts to tie skin cells together in the top layer of skin (the stratum corneum) – filaggrin deficiency

has been found in 56% of people with moderate to severe eczema and in 15% of those with mild eczema; third, some skin cells (corneocytes) have an irregular shape. Together, these structural differences result in gaps opening up between the skin cells and an altered skin barrier, which then offers insufficient protection, allowing entry to bacteria, irritants and allergies and facilitating increased trans-epidermal water loss (see diagram opposite).

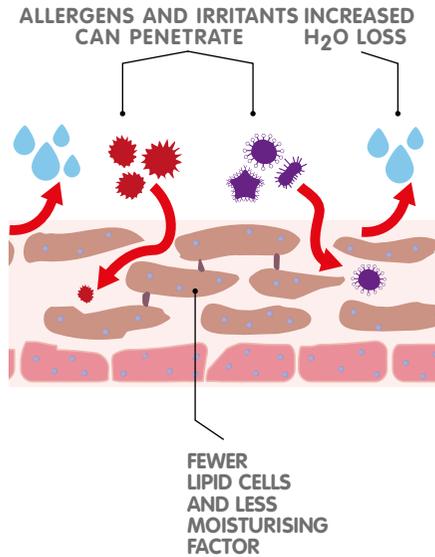
Some everyday substances contribute to further breaking down the skin. Soap, bubble bath and washing-up liquid, for example, have a high pH and will remove oil from anyone's skin. In people with eczema the skin is especially prone to drying out and will break down more easily than normal skin. This means it can quickly become cracked and inflamed on contact with substances that are known to irritate or cause an allergic reaction.

If the skin is not moisturised, it can become flaky, itchy and sore. This is often most noticeable on exposed parts of the body, such as the face, hands and lower legs. It can be particularly problematic during the winter months as the skin becomes drier due to environmental triggers such as central heating, lack of humidity, wind and cold, and moving between different temperatures.

NORMAL SKIN



ECZEMA SKIN



Types of eczema

Atopic eczema

WHAT IS ATOPIC ECZEMA?

Atopic eczema is the most common form of eczema, especially in children.

'Atopic' is a term used to describe a tendency to develop eczema, asthma or hay fever. Atopic eczema is multifactorial with a genetic and environmental component. Atopic eczema, asthma and hay fever often occur together. Atopic eczema usually develops first, followed by asthma and then hay fever, although patients do not necessarily have all three and there is no test to predict this. It is also common for people with atopic eczema to have

other family members affected by atopic eczema, asthma or hay fever. The genetic component in eczema affects the epidermal barrier and its ability to bind water within it. Filaggrin deficiency occurs in the majority of people with atopic eczema.





Faces are a common site for atopic eczema in babies, with cheeks often the first place to be affected.



Flexural atopic eczema on the back of a three-year-old's knees.



Lichenification (increased skin markings) on an adult arm, caused by chronic rubbing.



In Asian, Black Caribbean and Black African patients, atopic eczema can affect the extensor surfaces rather than the flexures.



Hyperpigmentation (dark patches) and chronic changes in Asian skin following inflammation.



Post-inflammatory hyperpigmentation (dark) and hypopigmentation (light). It may take 6–12 months or longer for normal skin colour to return.

WHAT DOES IT LOOK LIKE?

The clinical features of atopic eczema often have age-specific patterns: for example, flexural eczema in children and hand eczema in adults. Eczema symptoms are similar for all ages, with acute and chronic patterns. There will be periods of flare and remission. Other factors will influence the appearance, such as infection, treatments and ethnic origin.

WHO GETS IT?

- 1–2% of adults and 20% of infants and children

HOW IS IT TREATED?

- Emollients
- Topical corticosteroids
- Topical calcineurin inhibitors (TCIs)
- Antibiotics if eczema is infected
- Phototherapy
- Systemic drugs for severe eczema

Seborrhoeic dermatitis

WHAT IS SEBORRHOEIC DERMATITIS?

Seborrhoeic dermatitis is a common, harmless, scaly rash affecting the face, scalp and other areas. There are two types: infantile and adult.

Seborrhoeic dermatitis in infants usually presents as cradle cap or napkin dermatitis and is due to developing sebum glands.

Adult seborrhoeic dermatitis is believed to be an inflammatory reaction related to a proliferation of normal skin inhabitants – species

of *Malassezia* yeasts. The yeasts are part of the normal skin flora but for an unknown reason they trigger seborrhoeic dermatitis in certain individuals.

Seborrhoeic dermatitis is not contagious or related to diet, but it may be aggravated by illness, psychological stress, fatigue, change of season and a general deterioration of health. Those with immunodeficiency (especially infection with HIV), heavy alcohol intake, and neurological disorders such as Parkinson's disease and stroke are particularly prone to it. It may or may not be itchy and can vary from day to day.

WHAT DOES IT LOOK LIKE?

Infantile: Commonly the scalp is affected (known as cradle cap) and is characterised by yellow, waxy scales, which are thick and confluent on the scalp and hair and are difficult to remove. In addition, it can appear as non-itchy, salmon-pink, flaky patches on the scalp, eyebrows, forehead, temples, nasolabial folds and behind the ears. The nappy area can also be affected. Very rarely, infantile seborrhoeic dermatitis can become generalised.



Infantile seborrhoeic dermatitis (known as cradle cap on the scalp) is a patchy, greasy, scaly and crusty skin rash seen in babies.

Adult: Seborrhoeic dermatitis appears as faintly red areas of inflamed skin with a greasy-looking white or yellowish scale on the surface, especially on more exposed areas. On the face it typically affects the nasolabial folds and eyebrows, sometimes the eyelids (blepharitis) and even the cheeks. The ears, chest, axillae, groin and upper back can also be affected.



Patches of adult seborrhoeic dermatitis, involving the forehead, eyebrows, eyelids and nasolabial folds.

On the scalp it can range from mild flaking (dandruff) to red and scaly areas all over the scalp, which can sometimes weep. It can sometimes affect flexural areas, where the scale may be absent and the skin can look glazed. Seborrhoeic dermatitis can be itchy and, if more severe, sore.



Seborrhoeic dermatitis on the adult scalp appears as a patchy, greasy, scaly and crusty rash.

WHO GETS IT?

Infants: Infants aged 3–8 months may be affected.

Adults: The condition affects 1–3% of the adult population and is more common in males than females. The adult form of seborrhoeic dermatitis can develop from puberty but more usually occurs in adulthood – prevalence rises sharply over the age of 20, with a peak at 30 years for men and 40 years for women.

HOW IS IT TREATED?

Infants:

- Emollients or mineral oil (for the scalp)
- Topical corticosteroids with an antifungal (for the body)

Adults:

- Antifungal (anti-yeast) shampoo
- Topical corticosteroids with salicylic acid (for the scalp)
- Topical antifungals (may be combined with topical corticosteroids)
- Oral antifungal treatment (in severe cases)

Contact dermatitis

WHAT IS CONTACT DERMATITIS?

Contact dermatitis is caused by substances coming into contact with the skin. Many different substances can cause contact dermatitis, including common things in the home or work environment. Contact dermatitis can be divided into two types:



Irritant hand dermatitis with a glazed surface, redness and scaling.



Contact dermatitis develops in places where the irritant or allergen (in this case nickel-containing metal) is touching the skin.

Irritant contact dermatitis is very common, accounting for over three-quarters of cases of contact dermatitis. It occurs from exposure to an acute toxic insult (e.g. exposure to acids) or by cumulative damage from irritants (e.g. water, soaps, detergents, solvents and diluted acids or alkalis). These substances irritate the skin. Examples include excessive hand-washing, dribble rashes and nappy rash. Irritant contact dermatitis often occurs under rings. Patch testing will confirm whether a rash is irritant or caused by allergy (see below).

Allergic contact dermatitis is a type IV (cell-mediated or delayed) hypersensitivity. This means that the first contact with a substance

causes no immediate problems. Over a period of time, however, the allergen entering the skin sets up an immune response, with further subsequent exposures resulting in an inflammatory eczematous reaction. Common sensitisers (allergens) are nickel, chromate, rubber and fragrances. Allergic contact dermatitis accounts for the majority of occupational skin disease.

WHAT DOES IT LOOK LIKE?

Both irritant contact dermatitis and allergic contact dermatitis can be localised or generalised.

Irritant contact dermatitis is a well-demarcated rash with a glazed surface, but there may be redness, itching, swelling, blistering and scaling of the damaged area.

Allergic contact dermatitis has a variable presentation and shape, including redness (erythema), blistering (vesicles or bullae), oedema, dryness, scaling, fissuring, lichenification and pigmentary changes. Excoriations, crusting and pustules may also be evident. Generally, eczema is seen in the area of exposure to the allergen but it can also be more generalised, depending on the allergen, or may appear in unexpected areas – for example, on the neck/face in the case of a nail varnish allergy (i.e. if varnished nails touch the neck/face or due to an airborne allergy from drying nail varnish).

WHO GETS IT?

Contact dermatitis is more common in adults but can occur in children and young people. It is often related

to occupation, especially in people who work with chemicals or do wet work (e.g. healthcare professionals, hairdressers, cleaners, chefs, construction and industrial factory workers).

Patients with atopic eczema have an increased susceptibility to both irritant and allergic contact dermatitis.

HOW IS IT TREATED?

- Avoidance of irritants and allergens
- Emollients
- Topical corticosteroids
- Oral steroids
- Alitretinoin (Toctino) as an oral treatment for adult severe chronic hand eczema that has not responded to potent topical corticosteroids

Varicose/gravitational/ stasis eczema

WHAT IS VARICOSE/GRAVITATIONAL/ STASIS ECZEMA?

Varicose eczema (also known as gravitational or stasis eczema) is a common type of eczema related to increased pressure in the veins of the legs.

WHAT DOES IT LOOK LIKE?

Varicose eczema affects the lower legs. The skin becomes thin, fragile, shiny, inflamed, itchy and flaky. The eczema can arise as discrete patches or affect the leg all the way around, often with exudating areas around the ankles. This type of eczema is often accompanied by other manifestations of venous hypertension, including dilation or varicosity of superficial veins, oedema, purpura,



Varicose/gravitational/stasis eczema on the leg of an elderly patient.

haemosiderosis (causing brown staining) and ulceration (venous leg ulcers).

WHO GETS IT?

Varicose eczema is most common in adults who have varicose veins, or who have a history of leg ulcers or deep vein thrombosis in the legs. However, some people develop increased pressure in their leg veins without ever having had varicose veins, leg ulcers or blood clots. Other risk factors include being overweight or spending a lot of time standing up. Varicose eczema is more common in women than men because female hormones and pregnancy both increase the risk of developing the condition.

WHAT TESTS SHOULD BE DONE?

- Doppler using the ankle brachial pressure index (ABPI) – a simple non-invasive method of identifying arterial insufficiency within a limb
- Patch testing if contact allergy is suspected

HOW IS IT TREATED?

- Emollients
- Topical corticosteroids

- Graduated compression stockings/ socks
- Avoidance of standing for long periods
- Regular exercise
- Elevation of legs
- Weight loss
- Surgery for varicose veins

Discoid/nummular eczema

WHAT IS DISCOID/NUMMULAR ECZEMA?

Discoid eczema (also known as nummular eczema) is a common type of eczema in which there are round or oval, blistered or dry skin lesions. The exact cause of discoid eczema is not known.

WHAT DOES IT LOOK LIKE?

Several red, round lesions appear, usually on the lower legs, trunk or forearms. At first, these patches are slightly raised, but after a few days they may develop raised papules or vesicles which start to ooze. Later on, the surface of the discs becomes scaly with a clear centre. Discoid eczema can be very inflamed, itchy, crusted and infected.

WHO GETS IT?

Discoid eczema affects males and females equally. It can occur at any age, including childhood, but tends to affect women in early adulthood, whereas male onset is more common in older age groups. Discoid eczema is more likely in people with atopy and those with infected eczema and allergic contact dermatitis.



Discoid/nummular eczema with round or oval, blistered or dry skin lesions.

WHAT TESTS SHOULD BE DONE?

In most cases, no investigations are necessary but the following may be appropriate:

- Bacterial swabs for possible infection
- Skin scraping for mycology to exclude a fungal infection
- Patch testing if a contact allergy is suspected

HOW IS IT TREATED?

- Emollients
- Topical corticosteroids
- Antibiotics if infected
- Phototherapy or systemic immunosuppressive drugs for severe cases or if generalised

Pompholyx/dyshydrotic/vesicular eczema

WHAT IS POMPHOLYX/DISHYDROTIC/VESICULAR/ECZEMA?

Pompholyx (also known as dyshydrotic or vesicular) eczema is a common type of eczema affecting the hands and feet.

The exact cause is not known, but it is sometimes aggravated by heat and stress or could be the result of contact with irritants or allergens.

WHAT DOES IT LOOK LIKE?

Initially, tiny blisters (vesicles) appear deep in the skin of the palms, fingers, instep or toes. They are intensely itchy, or the patient may complain of a burning feeling. The condition has both an acute and chronic presentation with some dryness, erythema, peeling, blistering (vesicles and bullae), fissuring and crusting. The condition may be mild with only a little peeling, or very severe with large blisters, cracks and nail involvement. If only one hand/foot is affected, the problem may be a fungal infection.

WHO GETS IT?

Pompholyx probably affects about 1 in 20 people who have eczema on their hands. 50 percent of people with the condition have atopic eczema or a family history of atopic eczema. Pompholyx eczema can occur at any age but is more common before the age of 40.

WHAT TESTS SHOULD BE DONE?

- Skin scraping for mycology to exclude a fungal infection
- Patch testing if a contact allergy is suspected

HOW IS IT TREATED?

- Emollients
- Topical corticosteroids
- Antibiotics if infected
- Systemic immunosuppressive drugs or light therapy for severe cases



In pompholyx eczema, vesicles (tiny blisters) are commonly seen on the fingers and palms or sides and soles of the feet, and are intensely itchy.

- Potassium permanganate soaks (under supervision) for exudating hand and foot eczema

Neurodermatitis (lichen simplex)

WHAT IS NEURODERMATITIS (LICHEN SIMPLEX)?

Lichen simplex is a localised area of eczema caused by repeated rubbing or scratching. The trigger to scratch may be an existing skin condition such as atopic eczema or psoriasis, or a compressed nerve leading to the skin (neuropathic itch or pruritus), or scratching may occur at times of stress and worry. Neurodermatitis tends to be very persistent and recurring.

WHAT DOES IT LOOK LIKE?

Neurodermatitis presents as a localised demarcated plaque more than 5cm in diameter, with scaling, excoriations and lichenification. Common sites are the ankle, calf, elbow, back of the neck, and genitalia (vulva or scrotum).

WHO GETS IT?

It occurs in 12% of the population and is more common in mid- to late adulthood, peaking between the ages of 30 and 50 years.



Neurodermatitis/lichen simplex presents as a very itchy and thickened single patch. Ankles are a common site.

WHAT TESTS SHOULD BE DONE?

- Pruritus screen to exclude underlying cause of itching (see Box 1, page 14)

HOW IS IT TREATED?

- Emollients
- Topical corticosteroids
- Paste bandages or occlusive treatments to stop the itch–scratch cycle

Eczema craquelé/ asteatotic eczema

WHAT IS ECZEMA CRAQUELÉ/ ASTEATOTIC ECZEMA?

Eczema craquelé (also known as asteatotic eczema) is a type of eczema associated with very dry skin. It occurs most commonly in people over the age of 60 years. Elderly people living in dry, heated rooms or those exposed to winter weather, or excessive bathing or showering are all at risk of developing this type of eczema.

WHAT DOES IT LOOK LIKE?

Asteatotic eczema most often affects the shins, but sometimes involves other areas such as the thighs, arms and back. The skin becomes rough and scaly. Affected areas may show a criss-cross pattern of

cracks that look like crazy-paving or a dried-up river bed.

The cracks only affect the very top layers of the skin but can look very red and feel sore or itchy. It is uncommon to see blistering or thickening of the skin in this type of eczema.

WHO GETS IT?

Generally the elderly are affected.

WHAT TESTS SHOULD BE DONE?

- Pruritus screen (see Box 1, page 14) to exclude the underlying cause of itching

HOW IS IT TREATED?

- Emollients
- Topical corticosteroids



Eczema craquelé/asteatotic eczema has a distinctive crazy-paving appearance.

Quality of life

Eczema is often considered to be a trivial condition, which can easily be treated by creams alone. People with all types of eczema know that this is not the case! The psychological and emotional effects of eczema should not be underestimated. Sleep loss and itch are common themes, which impact on all aspects of life, including school, work and social activities. The appearance of the skin can make patients anxious about exposing their skin and forming

relationships. Having an understanding of how eczema impacts on the quality of life for our patients is an important aspect of a holistic patient assessment. Several tools are available to help assess the effects of eczema on quality of life. These are listed in the professional resources section on page 38.

Diagnosis and history

It is important that the diagnosis is correct, so that the right treatment and lifestyle advice can be given and potential wider implications can be discussed.

All types of eczema are generally diagnosed by history and clinical examination, observing symptoms. If there is diagnostic doubt, further investigation may be necessary: skin scraping, for example, may be done to detect fungal infection; skin swabs may be taken to diagnose bacterial infection (this is not routine, as skin infection is usually diagnosed on clinical appearance); a skin biopsy may be required to detect other skin conditions or to make a firm eczema diagnosis.

If itch is a major symptom in adults, and an eczema diagnosis is uncertain, a pruritic screen can be taken to exclude other causes of underlying itch (see Box 1, page 14)

There are no specific tests for trigger factors (see Box 2, page 14), unless allergy is suspected. Trigger factors are diagnosed on patient history.



Contact allergic dermatitis is diagnosed by patch tests (see Box 3, page 14). If allergy is suspected to food or other triggers, specific IgE blood tests will be taken (see Box 4, page 15).

The history-taking should include the following questions and identify any trigger factors:

- **Onset:** When did the eczema first start?
- **Duration:** How long has the condition been present?
- **Site:** What areas are affected?
- **Pruritus (itch):** How great is the degree of pain, itching and soreness associated with the eczema? What measures are used to cope with this, and how does it impact on the patient's life? For older patients complaining of pruritus, consider further screening.
- **Family history:** Is there, or has there been, anyone else in the family with skin disease, eczema, asthma or hay fever?
- **Occupation:** What types of products does the patient use? What kinds of protection are used at work (e.g.

clothing, gloves and barrier creams)? Does the skin improve when the patient is not at work?

- **Hobbies and leisure time:** What types of hobbies does the patient have? Do they have contact with particular materials and substances, animals and plants or exposure to sunlight?
- **Clothing:** What types of clothing fabrics are usually worn and which fabrics flare/irritate the eczema?
- **Jewellery:** What types of watches and jewellery are worn?
- **Impact on quality of life:** How are school, work, family and relationships affected by the patient's eczema?
- **Skin care:** What everyday products (e.g. shampoo, soaps, wipes) are used? What skin-care products have been and are being used? What types of make-up, perfumes and after-shave are used?
- **Medication:** What medicines are taken regularly? What topical medicaments are used? (Ask about prescribed and over-the-counter products.)
- **Allergies:** Does the patient have any known allergies to medicines or products that come into contact or are applied to the skin?
- **Diet:** Is there anything in the environment that makes the skin worse? Is the patient affected by seasonal changes? In particular for children under 2 years, does the parent think their child is affected by diet? (See diet section on pages 35–36.)

Skin examination and clinical presentation of eczema

The clinical presentation of eczema varies depending on the type of eczema, site affected and skin type. In Asian, Black Caribbean and Black African patients, atopic eczema can affect the extensor surfaces rather than the flexures, and discoid (circular), papular (small bumps) or follicular (around hair follicles) patterns with lesions may be more common. In white skin these are red or brown, but are black or purple in pigmented skin. Redness (erythema) in pigmented skin may be masked completely, and post-inflammatory hypopigmentation (reduced) and hyperpigmentation (increased) may persist after the eczema has settled (see images on page 4).

When assessing the skin, ensure that all the areas are examined and document using a body chart. Clinically, eczema can be classified as follows:

- **Acute:** The skin is erythematous (red), inflamed, and oedematous with dryness and flakiness. There may be vesicles (small fluid-filled blisters), which may coalesce to form large bullae (blisters) which ooze and crust.
- **Sub-acute:** The skin shows features of acute and chronic eczema but with less inflammation.
- **Chronic:** The skin is lichenified (thickened) (see page 4) with accentuated skin markings from repeated trauma (i.e. scratching, picking and rubbing). It is often darker than the surrounding skin, and fissures (splits and cracks) may be present.

Tests and triggers

BOX 1 PRURITUS SCREEN

- Detailed history of pruritus; skin lesions, severity
- Constitutional symptoms: weight loss, fatigue, fever, malaise
- Recent emotional stress
- Drug history
- Evidence of primary skin condition
- General physical examination
- If the duration is longer than two weeks and no other cause has been established, laboratory investigations and screens will be required: chest x-ray, full haematological screening and other tests dependent on assessment.

To exclude: Metabolic and endocrine conditions, haematological disease, malignant neoplasms, hepatic disease, drug-induced cause, infestations, primary skin disease or psychogenic cause

BOX 2 TRIGGER FACTORS

Irritants: soaps, detergents, fabric conditioners, wool, synthetic clothing, chlorine

Overheating: after exercise (sweat), direct heat

Climate: extremes of temperature, humidity, sunlight and seasonal variations

Airborne: house-dust mite, animal dander, tree/grass pollens and mould

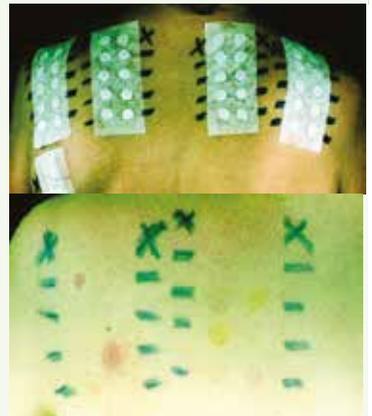
Contact allergens: preservatives in topical treatments, perfumes, metals, latex

Other environmental factors: smoking, traffic pollution

Infections: bacterial and viral

BOX 3 PATCH TESTING

Patch testing involves the reproduction of allergic contact dermatitis under the patches in an individual sensitised to a particular antigen or antigens. It involves the application of the antigen to the skin at standard concentrations in an appropriate vehicle and under occlusion for 48 hours before removal, with a final reading at 96 hours. The reading will assess whether the reaction is a true allergic reaction or an irritant reaction.



These tests look at allergen-specific IgE. However, the results should not be interpreted in isolation. An allergy diagnosis is based on an allergy-focused history, assessment of the eczema and response to treatment. The presence of allergen-specific IgE only indicates that sensitisation has occurred; it does not diagnose the allergy.

Eczema and infections

All types of eczema can become infected. Infections can be bacterial or viral.

Bacterial infection is often related to persistent scratching and damage to the skin. Viral infections are due to the person with eczema being infected by a virus (e.g. by herpes simplex, the causative virus for eczema herpeticum).

Patients should be made aware of signs of infection. If their skin flares and does not respond to their prescribed treatments, they should contact their nurse or GP for a review. If they feel febrile or their skin is becoming confluent or erythematous (widespread redness), they should seek advice immediately.

The most important factor is to identify the cause/type of infection and initiate the correct treatment.

Bacterial infections

Staphylococcus aureus (*S. aureus*) is the main bacteria which causes secondary infections in eczema. *S. aureus* can be found on the skin in 5–20% of people without eczema, but usually in low amounts. However, in people with inflamed eczema (particularly atopic

eczema), it can be found in over 90% of patients. It is one of the commonest causes of secondary skin infection and eczema flares.

Signs of infection, including an acute flare of the eczema with vesicles, pustules, oozing and golden crusting, can affect areas of eczema or the whole body. Other bacterial infections include folliculitis, impetigo and cellulitis.

Bacterial infection with *S. aureus* is diagnosed by clinical signs. If there is diagnostic doubt, skin swabs should be taken to identify the causative organism and sensitivity to antibiotics. The decision on whether to treat with topical or oral antibiotics depends on several variables: whether the size of the infected area is greater or less than 5% (the size of 2 palms), whether there are multiple sites of infection, and previous history.

For small, localised areas, topical antibiotics or antibacterial corticosteroid combinations (e.g. Fucibet or Synalar C or N) can be used, generally for up to 14 days (see Box 9, page 28).

If the infection is not cleared by these topical treatments within a 14-day period (one would expect a response



An acute flare with inflamed, red, and sometimes blistered and weepy patches indicates a secondary bacterial infection.



A bacterial infection (staphylococcal) with oozing and crusting on an adult's lower legs.

within 5 days), it will be necessary to switch to oral antibiotics. Systemic antibiotics should be prescribed for 7 days in line with local antibiotic guidelines and then reviewed.

Other interventions include emollients with antimicrobial ingredients (see Box 5, page 20, and Box 6, page 22), using creams rather than ointments as they are easier to apply on wet skin, and potassium permanganate soaks.

Note: Topical antibiotics, often in combination products such as topical corticosteroids, are frequently used to treat eczema flares in children with milder eczema. However, the

CREAM study (see further reading, page 38) has shown that even if there are signs of infection, children with milder eczema are unlikely to benefit from topical antibiotics, and their use can promote resistance and allergy or skin sensitization, so should be used with caution. The use of topical corticosteroids or stepping up their potency, in addition to applying emollients, should therefore be the main focus in the care of milder clinically infected eczema flares.

Bleach baths (using diluted Milton) are an emerging antimicrobial intervention for people with infected eczema. More research is required to understand how this potential adjunctive treatment option can reduce bacterial burden and, potentially, bacterial skin infections.

Viral infections

ECZEMA HERPETICUM

Cold sores (caused by the cold sore virus, herpes simplex) are very common in otherwise healthy individuals, especially around the mouth. In people without eczema, cold sores usually remain localised in a small area of skin and clear up by themselves over a week or two.

However, if the surrounding skin is inflamed and damaged from eczema (especially atopic eczema), the cold sore virus can spread very rapidly, causing an infection known as eczema herpeticum. Although rare, it is very important to be able to recognise eczema herpeticum as it can be serious and potentially fatal. Eczema herpeticum needs immediate treatment with antiviral tablets and may require hospital admission for



Eczema herpeticum requires immediate antiviral treatment and an appropriate referral (dermatology/ophthalmology), as it is one of the few dermatological emergencies.

IV aciclovir. Eczema herpeticum is a medical emergency that requires prompt, same-day treatment.

In the early stages, vesicles (small blisters filled with clear fluid), surrounded by a bright red halo, appear on the surface of the skin. These vesicles can leave punched-out erosions on the skin surface that can spread very quickly, especially across the face. The area may become very painful, and the patient will feel generally unwell with the skin feeling sore and tender rather than itchy.

Patients and parents need to ensure that there is no skin-to-skin contact between anyone with a cold sore and the patient with eczema. If eczema herpeticum is suspected, the patient should seek same-day advice from a dermatologist, ophthalmologist (if near eyes), GP or A & E doctor so that treatment can be given promptly.

MOLLUSCUM CONTAGIOSUM

Molluscum contagiosum is a harmless virus caused by the pox virus. Molluscum develops as small, skin-coloured or pink,

shiny bumps (papules) (1–6mm) on the skin, which often form little clusters, with a small depression or dent in the middle of the bump (umbilicated). They can occur anywhere on the body including the face and genital area. They typically affect children between the ages of 4–8 years, but anyone – including adults – can get them.

Although molluscum is extremely common in all school-age children, they are more common in people who suffer from atopic eczema. They usually clear spontaneously with time, which can vary from 6 to 18 months. As they resolve, they may become inflamed, crusted or scabby. Molluscum often causes eczema in the affected areas, and an itchy rash may sometimes appear on distant sites (an immunological reaction or 'id' to the virus).

Generally, molluscum is not treated (the papules will gradually disappear of their own accord although this may take several months). However, if a child with eczema has molluscum over a large area and it is affecting them psychologically, there are some topical hydrogen peroxide treatments available. Cryotherapy is sometimes used but is painful.

VIRAL WARTS

Warts are caused by the human papilloma virus (HPV), and there are many types, affecting a variety of body sites. Most warts are harmless and clear up without treatment. The length of time it takes for a wart to disappear will vary from person to person. They are common in children.

Fungal and yeast infections

Fungal and yeast infections occasionally cause secondary infection in people with eczema.

Yeast infections such as *candida* (thrush) can secondarily infect eczema in warm, moist sites, such as under the breasts or in the genital area.

Fungal infections (*tinea*) can develop, and discoid eczema is often misdiagnosed as ringworm. *Tinea pedis* (athlete's foot) is a common fungal infection on the feet, and other tinea infections are named based on their site on the body.

If a fungal infection is suspected, skin scrapings, and hair and nail samples should be taken for mycology to identify the fungi. Treatment will be based on the site of the body – treatment for fungal infection is usually topical but fungal scalp and nail infections do not respond to topical treatments and should be treated with oral therapies.



Round or oval red scaly patches, often less red and scaly in the centre, are a common presentation of ringworm.

Eczema management

It is important to spend time with patients and their carers to discuss the cause of their condition, the diagnosis and to provide practical, realistic advice in order for them to manage their condition.

Signposting patients to disease- and age-specific information is important (see Further information and support from the National Eczema Society on page 39). The consultation should be supported by a practical demonstration of the treatments, including where and when to use them and when to seek additional support if infection is suspected. Ask if you can provide emollient testers in the clinic, for patients to try, prior to prescribing, explaining the differences between them and their role in treating eczema. This demonstration should be supported with an individualised written plan and a follow-up date booked to review progress, adjust the plan and reinforce education. Templates of individual plans for adults and children can be downloaded from www.eczema.org

Washing and bathing

Cleansing the skin is an integral aspect of eczema care. A daily bath or shower is recommended and it is very important to always use an emollient for washing. Soap, cosmetic washing products, wipes and any product containing bubbles should be avoided as they contain detergent and fragrance, and are alkaline

- all of these things have the potential to dry and irritate the skin.

SOAP SUBSTITUTES

Soap substitutes are used instead of soap bars or liquid soap to cleanse the skin, in the bath or shower and also for washing hands. There are various washing products available (see Box 5, page 20) and the patient may have to try several before finding one they like. They can use an emollient product designed specifically for washing, or their usual leave-on emollient as a soap substitute (see Box 6, page 22).

Soap substitutes can be applied to the entire body, including the face, prior to the bath or shower and rinsed off in the water; alternatively, they can be used in the bath or shower like a normal soap bar or liquid.

Cleansing the skin with emollients removes surface dirt and debris (dried blood and skin scales), which could cause infection, helps to repair the skin barrier by trapping moisture, reduces itching, removes and prevents build-up of previous treatments, and prepares the skin for the application of further treatments such as topical corticosteroids.

BATH AND SHOWER

A daily bath or shower is recommended, using emollient to wash with (NB plain water without emollient will dry out the skin). Bath additives added to the bath water, or applied directly to the skin in the shower, are no longer recommended as there is evidence (the BATHE study – see further reading, page 38) that these additives provide minimal or no

additional benefits if also using leave-on emollients and emollient as a soap substitute. These products are still available to buy but they are unlikely to be prescribed.

After bathing or showering, leave-on emollient should be applied. It is very important that adequate quantities of leave-on emollient are prescribed and that patients are encouraged to use it additionally as a soap substitute.

Advise the patient not to have the water too hot (ideally it should be at body temperature (37°C)). Heat makes the capillaries in the skin dilate as the skin tries to cool itself, and evaporates more water from the skin surface, making the skin drier.

Hard water can be drying and irritating to the skin so, if the patient lives in a hard water area, it is even more important to use emollients for washing, showering and bathing. Water softeners have been shown not to be of benefit in the management of eczema.

Examples of bath and shower products are shown in Box 5, page 20. A leave-on emollient can be used as a soap substitute (see Box 6, page 22) – with the exception of liquid and white soft paraffin 50%/50%. For optimum benefit, the patient should be encouraged to soak in the bath for a maximum of 15–20 minutes. However, if the skin is cracked and painful, this may not be possible. Emollient wash products may contain additional therapeutic ingredients with anti-itch and anti-microbial properties. It is important that patients are aware of this as many people tend just to tip

BOX 5 BATH AND SHOWER PRODUCTS

Bath

Aveeno bath oil®
Balneum bath oil®
Cetraben emollient bath additive®
Diprobath bath oil®
E45 emollient bath oil®
Hydromol bath additive®
Oilatum Junior emollient bath additive®

Shower

Doublebase emollient shower gel®
Oilatum shower emollient®
Wash products
Aquamax Wash 250g
E45 Emollient Wash Cream 250ml
Eucerin Replenishing Body Wash 450ml
QV Gentle Wash 250ml, 500ml

Additional properties

Antimicrobial

Dermol 200 shower emollient® (antibacterial)
Dermol Wash 200ml
Dermol 600 bath emollient®
Emulsiderm liquid emulsion®
Oilatum Plus bath additive®

Anti-itch

Balneum Plus bath oil®

This is a selection of products available. The list is not exhaustive. Please see the National Eczema Society's factsheet on Emollients. Alternatively, please visit BNF (www.bnf.org), eMC (www.medicines.org.uk) and MIMS (www.mims.co.uk) for prescribing guidance and a full list of available products.

Note: The prescribing of some emollient products, especially bath additives, will be discretionary, as the BATHE study concluded that bath additives provided minimal or no additional benefit in the management of eczema. There is, however, a sound evidence-base for the use of emollients as leave-on products and soap substitutes, and these can be prescribed or bought.

them into the water and not measure them appropriately, which increases the risk of causing an irritant effect and making things worse. Patients who do not have access to bath or shower facilities should be encouraged to sluice down using emollient oils, or wash with their emollient soap substitute.

SHAMPOOS

For infants with atopic eczema under 1 year, shampoos are not recommended – an emollient wash-product should be used instead. If a shampoo is used, it should not contain perfume or nut oils and must be suitable for eczema.

Hair-washing should be performed separately from bathing or showering to reduce the risk of the suds irritating the rest of the skin. It may be necessary to use medicated shampoo.

Some people with eczema find that tar-based shampoos suit them. However, there is limited evidence for their effectiveness and they can be smelly and sometimes cause orange/ brown staining. For others, a non-tar-based shampoo may be preferable – for example, E45 Dry Scalp Shampoo, or if the scalp is scaly, Dermax shampoo is helpful.

Emollients – leave-on preparations

Emollients are first-line eczema treatments, used every day to repair the skin barrier. They act by providing an occlusive layer to the skin, which reduces water loss, and some contain humectants (propylene glycol, lactic acid, urea and glycerol), which draw water into the epidermis from the dermis. Emollients soothe, soften, hydrate and protect the skin. They have an anti-inflammatory, antipruritic and corticosteroid-sparing effect, and help to repair the damaged skin barrier.

They come in tubes, tubs and pump dispensers, and are available in several formulations (see Box 6, page 22). The recommended quantity to prescribe is at least 500g for adults and 250g for children. More may be needed if the eczema is very severe or the skin is very dry.

Creams are less greasy than ointments and are easy to spread, are absorbed easily into the skin and are good for use during the daytime. Creams can be used on weeping eczema. Ointments are most suitable for very dry skin.

Humectant emollient creams mimic or comprise the same molecules as natural moisturising factors (e.g. urea,

glycerol and isopropyl myristate). These emollients have been shown to prevent trans-epidermal water loss for considerably longer than simple lotion and cream formulations.

Patients will often need a choice, alternating between a couple of emollient creams/ointments – for example, a lighter one during the day and in the summer, and a greasier one at night and in the winter. The patient may have to try several emollients before finding one that suits their skin.

Occasionally, emollient creams may sting when they are first applied to very dry skin, but this usually settles down after a few days. If stinging persists, it may be due to a reaction to an ingredient in the cream, and an alternative should be tried.

Emollients should be applied regularly throughout the day or whenever the skin feels dry, and also after washing. Emollients should be applied with clean hands thinly and evenly to the entire body, and smoothed onto the skin so that the skin just glistens. To minimise folliculitis, emollients should be applied gently in a soothing downward motion following the direction of the hair growth. (See Box 7, page 23 for tips on applying emollients safely.)



Decanting emollient before use to avoid contaminating the tub.



Applying emollient following the direction of the hair growth.

BOX 6 EMOLLIENTS				
PRODUCT NAME	Lighter Emollient	Moderate Emollient	Heavy Emollient	Humectant
Aveeno® cream				
Aveeno® lotion				
Balneum® cream				
Balneum® Plus cream (anti-itch)				
Cetraben® cream				
Dermol® cream (anti-microbial)				
Dermol® 500 lotion (anti-microbial)				
Diprobase® cream				
Diprobase® ointment				
Doublebase® gel				
Emollin® spray				
Epaderm ointment®				
Eucerin® intensive 10% cream				
Eucerin® intensive 10% lotion				
E45® cream				
E45® Itch Relief cream				
Hydromol® cream				
Hydromol® ointment				
Imuderm				
Liquid Et white soft paraffin (50%/50%) BP				
Oilatum® cream				
QV® cream				
Unguentum® M cream				
White soft paraffin BP				

These are examples and the list is not exhaustive. Products are usually specified under local prescribing guidelines. Please see the National Eczema Society's factsheet on emollients (www.eczema.org).

Alternatively, please visit BNF (www.bnf.org), eMC (www.medicines.org.uk) and MIMS (www.mims.co.uk) for prescribing guidance and a full list of available products.

BOX 7 EMOLLIENT SAFETY

Correct application: Demonstrate correct use (thinly, gently, frequently, and in a downward motion following the direction of the hair growth to prevent folliculitis).

Pots versus pumps: If pots or tubs of emollient are used, advise using a clean spoon or spatula to decant from the pot to prevent infections from contaminated pots. Emollients in pumps or tubes reduce this risk. New supplies should be prescribed at the end of treatment for infected atopic eczema.

Slipping: Care should be taken when using emollients in the bath, shower or on a tiled floor as there is a risk of slipping. Protect the floor with a towel or sheet. After bathing or showering, the bath/shower should be washed with hot water, and washing-up liquid, rinsed well and dried with kitchen towel. This has several benefits: it prevents a build-up of emollient and skin debris, and reduces the risk of infection and slipping. Also, it helps to clear the drains and the build-up of grease.

Fire hazard: Bandages, dressings and clothing in contact with paraffin-based products (for example, White Soft Paraffin, White Soft Paraffin plus 50% Liquid Paraffin) are easily ignited with a naked flame or cigarette. So please take care when near naked flames.

MHRA alert: Aqueous cream

Recent evidence about the use of aqueous cream and the role of sodium lauryl sulphate (SLS), an ingredient, has shown that it causes burning, stinging, itching and redness especially in children with atopic eczema, and has a detrimental effect on the skin barrier. Dermatologists do not recommend its use as a wash or leave-on product; there are better emollient formulations available which have a positive effect on skin barrier function.

NOTE: Emulsifying ointment also contains sodium lauryl sulphate (SLS).

Topical corticosteroids

Topical corticosteroids are the most common treatment for inflammation in eczema. They do not cure eczema but act by reducing the inflammation that makes eczematous skin red, itchy and sore, and by reducing the itch sensation.

Topical corticosteroids are divided into four potency groups in the UK: mild, moderate, potent and very potent (see Boxes 8 and 9, pages 26–9) to assist in choosing the appropriate corticosteroid for the severity of the inflammation, the extent and location of the eczema and the age of the patient. Potency classification is primarily determined by reference to the amount of vasoconstriction that is produced. However, potency of a topical corticosteroid also depends on the formulation, i.e. the salt it contains (dipropionate and butyrate salts are stronger than valerate salts). In addition, the presence of other ingredients (e.g. salicylic acid or urea) and occlusion may increase absorption and so potency.

Topical corticosteroids are prescribed by taking into account the patient's age (children have a greater body-surface to weight ratio), the severity of their eczema, any other treatments used and the part of the body affected.

Mild or moderate corticosteroids are usually used for the genital area and the face, where the skin is thinner, whereas in thicker areas of skin (e.g. the soles of the feet and the palms of the hands) potent or very potent may



Always leave a gap of 20–30 minutes between application of emollient and topical corticosteroid.

be used. It is important to remember that potency increases under occlusion (i.e. bandages and dressings), so here a lower potency should be used.

On other parts of the body, adults with moderate to severe eczema will usually be prescribed moderate to potent corticosteroids, with very potent prescribed by an experienced GP or dermatology specialist for very severe flares.

Mild topical corticosteroids are generally used for babies and children with mild to moderate eczema. Depending on the part of the body being treated, children with more severe eczema will usually be prescribed moderate to potent corticosteroids for short periods and under supervision.

NICE recommends that topical corticosteroids are applied once a day for children under 12 years. For older children and adults, corticosteroids are usually prescribed once or twice a day.

Topical corticosteroids are generally used for short treatment bursts when the eczema is flaring. Unless the eczema is being managed by a mild

corticosteroid, NICE advocates a stepped approach to management, with the topical corticosteroid treatment tailored to the severity of the treatment and the age of the patient. In practice, this means that if the eczema is flaring on the body of an older child or adult, a potent corticosteroid may be used for a week to 'hit' the flare, and then stepped down to every other day or to a moderate corticosteroid until the eczema has settled. NICE recommends a similar approach to treating facial eczema but with weaker potencies of corticosteroids.

Some patients with more persistent flares may use what is termed 'weekend therapy' (i.e. using corticosteroids on 2 consecutive days per week) for more long-term management until the eczema settles down and emollients only can be used. When stepping up and down with topical corticosteroids, emollients should be used at all times, even when the eczema is clear.

Written information is essential to support the verbal discussion. It should outline the emollient therapy and topical corticosteroids to be used, stating the potency and site to be treated. See www.eczema.org for individualised plan templates for adults and children.

It is important for both the patient and the healthcare professional to have regular reviews to build a therapeutic relationship, and to gain knowledge about the effectiveness of the treatments.

Adverse reactions to topical corticosteroids do worry patients, and so it is essential to give balanced advice to encourage adherence with treatment plans. Patients are often very concerned about using topical corticosteroids due to skin thinning. This means that patients are either too scared to use them on their own or their child's skin or do not use them as prescribed. Topical corticosteroids need to be used correctly, with support and education on the right amounts to apply so that side effects can be avoided or reduced. In brief:

- Topical corticosteroids are matched to the severity of the eczema, the age of the patient and the area of the body treated.
- Topical corticosteroids should be stepped up and down to treat eczema.
- Sometimes 'weekend' therapy (or use on 2 consecutive days per week) may be advised by a healthcare professional for maintenance.



Appropriate supervision of topical corticosteroids is required.

BOX 8 TOPICAL CORTICOSTEROIDS

Trade name (This is the name chosen by the manufacturer – it is in big print on the tube)	Generic name (This is the official name of the corticosteroid – it is usually written in smaller print on the tube)	Strength (Potency)
Dermacort®	Hydrocortisone 0.1%	Mild
Dioderm®	Hydrocortisone 0.1%	Mild
Hc45®	Hydrocortisone 1%	Mild
Hydrocortisone 0.5%	Hydrocortisone 0.5%	Mild
Hydrocortisone 1%	Hydrocortisone 1%	Mild
Lanacort®	Hydrocortisone 1%	Mild
Mildison Lipocream®	Hydrocortisone 1%	Mild
Synalar 1 in 10®	Fluocinolone acetonide 0.0025%	Mild
Betnovate-RD®	Betamethasone valerate 0.025%	Moderate
Eumovate®	Clobetasone butyrate 0.05%	Moderate
Haelan®	Fludrocortide 0.0125%	Moderate
Modrasone®	Alclometasone dipropionate 0.05%	Moderate

Synalar 1 in 4®	Fluocinolone acetonide 0.00625%	Moderate
Ultralanum Plain®	Fluocortolone hexanoate 0.25%	Moderate
Betnovate®	Betamethasone valerate 0.1%	Potent
Cutivate®	Fluticasone propionate 0.005%	Potent
Diprosone®	Betamethasone dipropionate 0.05%	Potent
Elocon®	Mometasone furoate 0.1%	Potent
Locoid®	Hydrocortisone butyrate 0.1%	Potent
Metosyn®	Fluocinonide 0.05%	Potent
Nerisone®	Diflucortolone valerate 0.1%	Potent
Synalar®	Fluocinolone acetonide 0.025%	Potent
Dermovate®	Clobetasol propionate 0.05%	Very potent
Nerisone Forte®	Diflucortolone valerate 0.3%	Very potent

This is not an exhaustive list. Please also see the National Eczema Society's factsheet on topical corticosteroids (www.eczema.org). Alternatively, please visit BNF (www.bnf.org), eMC (www.medicines.org.uk) and MIMS (www.mims.co.uk) for prescribing guidance and a full list of available products.

BOX 9 TOPICAL CORTICOSTEROIDS WITH ADDED ANTIMICROBIAL EFFECTS

Trade name

(This is the name used by the manufacturer – it is in big print on the tube)

Generic name

(This is the official name of the corticosteroid – it is usually written in smaller print on the tube)

Canesten HC®	Hydrocortisone 1%
Daktacort®	Hydrocortisone 1%
Fucidin H®	Hydrocortisone 1%
Nystaform HC®	Hydrocortisone 0.5%
Timodine®	Hydrocortisone 0.5%
Trimovate®	Clobetasone butyrate 0.05%
Aureocort®	Triamcinolone acetonide 0.1%
Betnovate-C®	Betamethasone valerate 0.1%
FuciBET®	Betamethasone valerate 0.1%
Lotriderm®	Betamethasone dipropionate 0.064%
Synalar C®	Fluocinolone acetonide 0.025%
Synalar N®	Fluocinolone acetonide 0.025%

Main antimicrobial effect (which type of infection it is used in)	Added antimicrobials	Strength (Potency)
Antifungal	Clotrimazole	Mild
Antifungal	Miconazole nitrate	Mild
Antibacterial	Fusidic acid	Mild
Antibacterial Antifungal	Nystatin Chlorhexidine	Mild
Antibacterial Antifungal	Benzalkonium chloride Nystatin	Mild
Antibacterial Antifungal	Oxytetracycline Nystatin	Moderate
Antibacterial	Chlortetracycline hydrochloride	Potent
Antibacterial	Clioquinol	Potent
Antibacterial	Fucidic acid	Potent
Antifungal	Clotrimazole	Potent
Antibacterial	Clioquinol	Potent
Antifungal	Neomycin sulphate	Potent

These topical corticosteroids are sometimes used for short bursts if infection is suspected. They are not usually used for continuous long-term eczema treatment.

Please visit BNF (www.bnf.org), eMC (www.medicines.org.uk) and MIMS (www.mims.co.uk) for prescribing guidance and a full list of available products.

There are circumstances when topical corticosteroids can cause harm. Clear discussion and understanding between the healthcare professional and patient are essential, with appropriate intervention and supervision. Thinning of the skin and telangiectasia (broken blood vessels) can occur if the potency of the corticosteroid is too strong for the severity and location of the eczema, and the age of the patient, and if no emollient therapy is used.

SUMMARY

- Topical corticosteroids can suppress symptoms of skin infections, so it is essential that the patient is educated in identifying other signs.
- Topical corticosteroids are available as creams, lotions, ointments, gels and foams.
- Creams are helpful on wet eczema, and ointments are more suitable for dry eczema.
- Creams have more additives to bind the elements together, and ointments are more occlusive.
- Corticosteroids should be applied to the affected skin only.

APPLICATION TECHNIQUE

- Topical corticosteroids are usually applied to moisturised skin. It is important to leave a gap of



20–30 minutes between applying emollient and applying topical corticosteroid in order to avoid diluting the corticosteroid and spreading it to areas that don't need it.

- Topical corticosteroids can be applied immediately after a bath or shower, as an emollient soap or bath oil will have been used to help moisturise the skin.
- The topical corticosteroid should be applied with clean hands.
- The corticosteroid should be applied to all affected skin in smooth strokes so that the skin glistens.
- A fingertip unit (FTU) will treat an area of eczema about the size of two flat adult hands with the fingers together. An FTU is measured by squeezing a strip of ointment or cream along the length of the end joint of the forefinger. See the National Eczema Society's factsheet on topical corticosteroids at www.eczema.org for further information.
- Any unused cream should be discarded and the hands rewashed (unless there is eczema on the fingers).
- Ask the patient to keep a record of the size and number of tubes used as this is a good indicator of over- or under-use

Topical calcineurin inhibitors or immunomodulators (TCIs)

TCIs are topical preparations that have been developed for atopic eczema. A calcineurin inhibitor modulates the

immune system by blocking one of the skin chemicals that cause atopic eczema, working in a different way to topical corticosteroids.

There are two types available: tacrolimus (Protopic) ointment for moderate to severe eczema, and pimecrolimus (Elidel) cream for mild to moderate eczema. They are both used for treating eczema flares in adults and children and are often initiated by a dermatologist, specialist nurse or GP with a special interest in dermatology. They can be prescribed in primary care by independent prescribers who have experience in managing eczema, as a second-line treatment after topical corticosteroids. In addition, Protopic and Elidel can be used twice weekly on a long-term basis as a maintenance treatment to prevent flares.

The main known side-effects are skin irritation and a burning sensation when first applied. This generally resolves after a few applications. TCIs do make the skin more sensitive to the sun, so care should be taken in sunlight. They should not be used if there is infection.

Tacrolimus and pimecrolimus have different user instructions, so please refer to the summary of product characteristics (SPC), the electronic Medicines compendium (eMC) or the British National Formulary (BNF). They may also need to be stopped prior to immunisations, so please refer to specific guidance for each product.

Bandaging

Bandaging is a useful adjuvant to eczema treatments. Covering the eczema with bandages can help with the itch-scratch cycle and flare ups. It prevents damage to the skin from scratching, aids healing and enhances the absorption of topical therapies (emollients, and topical corticosteroids used with caution). There are two types commonly used:

- **Impregnated paste bandages** can be useful for treating eczema of the limbs, especially chronic and/or lichenified eczema.



Paste bandages are applied using pleats to allow more freedom of movement and to compensate for shrinkage as the bandage dries out.



Tubular viscose bandages can be used for wet wrapping.

- **Wet-wraps** are ideal for treating extensive eczema that is not controlled by conventional treatments. These should be initiated by healthcare professionals with experience in wet-wrapping eczema, and support may be required in primary care (especially at the beginning of treatment).

In both instances, it is crucial that the patient and parent of a child with eczema receive a practical demonstration and ongoing support, and that a follow-up plan is implemented. The healthcare professional initiating this form of treatment must review it on a regular basis.

No occlusive dressing should be applied if the skin is infected. It is essential that you reassess techniques, and your knowledge of the condition if control is not being achieved, before embarking on wet-wrapping.

For further information, see the National Eczena Society's booklet *Paste Bandages and Wet Wraps*.

Antihistamines

Antihistamines are commonly used to treat urticaria (hives), allergic reactions and hay fever. They do not help the itch in eczema but may be used for their sedative effect to aid sleep for the patient and to treat any other associated allergic reactions. Their continued use should be reviewed and monitored.

Oral antihistamines should not be used routinely for children with atopic eczema.

Children with severe atopic eczema or children with mild or moderate eczema where there is severe itching or urticaria can be given a one-month trial of a non-sedating antihistamine. If successful, treatment can be continued while symptoms persist, and reviewed every three months.

Children over 6 months old having an acute flare and significant sleep disturbance can be given a 7–14-day trial of a sedating antihistamine, which can be used for subsequent flares if helpful.

Complementary treatments

Eczema is a multifactorial disease and, due to the impact on quality of life and the amount of time it takes on a daily basis to carry out skin care, patients and their families may begin to explore alternative therapies such as homeopathy, herbalism and acupuncture.

If a patient asks for advice about complementary treatments, there are some important points to raise:

- Few complementary or alternative treatments have been scientifically tested.
- Just because a therapy is natural, it does not mean that it is safe.
- Eczema can spontaneously improve and it is tempting to attribute this to the latest treatment tried.
- Anybody can set themselves up as a practitioner of alternative or complementary medicine. It is important to check that the practitioner is registered with a professional body,

but even if they are, it does not mean that the treatment is valid for eczema.

- Any medicine – systemic or topical – should be supplied with instructions and an ingredients list, with monitoring blood tests as necessary (e.g. if Chinese herbs are used).
- There are treatments for eczema available from around the world. Many of these (including herbal creams) can be bought openly in markets and on the internet and can cause long-term damage. For example, corticosteroids or immunosuppressives have been found in a number of herbal treatments that claim to be natural. You should ensure the patient/carer understands that the responsibility for the monitoring of these preparations belongs to the prescribing or supplying practitioner and is NOT your responsibility.
- If the patient has their heart set on trying a complementary treatment, they should continue to use their emollient and discuss their treatment with their doctor to ensure that no drug interaction occurs.

Managing the itch

Patients will often tell you that it is the itching that causes most distress, and they are often desperate for help to combat it. This is very difficult, but some factors that influence a degree of itching can be identified and resolved:

- Dry skin tends to be itchy – frequent application of emollients should be encouraged.



- Hot skin tends to be itchier, so baths should be warm, and hot environments should be avoided.
- Cotton next to the skin is the coolest option.
- Anxiety, stress and tiredness can aggravate eczema. Encourage rest and relaxation – this may be achieved through a relaxing bath, or finding a distracting game or hobby.
- Exposed skin is easier to scratch and damage. The skin should be covered with loose cotton clothing. This is particularly beneficial at night when more protection may be needed.

The itch–scratch–damage cycle

Itching is a sensation and our natural behaviour is to scratch, so this can become a habit. Eczema is very itchy and there is nothing more frustrating to a patient than to be told not to scratch! However, the more friction or damage there is to the skin, the more irritated and itchy it becomes,

and with chronic scratching the skin can thicken, known as lichenification.

The itch in eczema is complex and not yet fully understood. It is partly driven by histamine release (which is relieved by scratching), but whereas in other skin conditions that are histamine-mediated (e.g. urticaria, drug reactions and insect bites) the histamine directly stimulates the H1 receptors, in eczema the H3 and probably the H4 receptors are involved as well. Antihistamines only target the H1 receptor antagonists. This is why non-sedating antihistamines should only be prescribed where itch is suspected to be partly urticarial as well as due to the eczema. Sedating antihistamines taken at night can be useful even where there is no urticarial involvement as they may help to restore sleep patterns.

Emollient therapy and topical treatment is crucial for the management of dry skin

and eczema flares, to prevent and reduce itching, but the behavioural pattern of patients who learn to scratch as a response to generalised triggers should also be considered. If acute episodes are managed well, damage to skin, such as lichenification, will be reduced and the habit of scratching can be minimised.

Eczema can be helped by using a combined approach of emollients, topical corticosteroids, education and behaviour modification (through raised awareness using a tally counter and then adapting behaviour). The process known as 'habit reversal', which follows the self-care model, is offered by some dermatology departments.

There is a website run by Dr Chris Bridgett for access by patients and healthcare professionals who are interested in behaviour modification: www.atopicskindisease.com



Eczema in children

Caring for a child with eczema can impose a huge burden on a family, and it should be recognised that they may be in need of a great deal of support. The main carer of the child may find it exhausting and – despite putting in lots of time and effort – there is often little reward. Treatments tend to be time-consuming and monotonous, and motivation is crucial.

The parent must be encouraged to develop and adhere to a consistent skin-care regimen for their child. This can prove difficult at times if little or no improvement in the child's eczema is perceived. Additional support may be indicated if the child rebels against the skin care.

Skin care

Encourage parents to make bath time as pleasurable as possible, allowing the child to play with suitable toys in the bath. Parents should try not to get into conflict with the child over bathing. It may be necessary to negotiate, especially if the child has suffered discomfort in the bath at some time.

Encourage children to apply their own emollient from 3 years old by using play (e.g. dot-to-dot, or making shapes/smiley faces/worms before stroking emollients over the skin in a downwards action). Use sticker charts to reward a child, decorate emollient pots with favourite characters so making the emollient 'special', or introduce a toy with eczema which the child learns to care for.

Ensure that parents are aware of the rationale for not using any scented child-care products, including baby wipes.

Persistent under-treatment of a child by parents or carers, resulting in unnecessary discomfort or pain to the child, may need to be discussed with your named child-protection nurse for further advice.

Immunisation

Overall, the advice is consistent and clear that parents of children with eczema are not putting them at increased risk by following the normal immunisation programme.

Healthcare professionals should allow parents to discuss concerns about immunisation. All immunisation advice related to eczema should be evidence-based and from the Green Book – see www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book

However, nurses should allow parents to discuss their concerns about immunisation. They should get advice from their own health visitor or GP regarding any general concerns around immunisations.

Dietary treatment

Parents are often given confusing and conflicting information on the causes of eczema, and many are led to believe that food – especially cow's milk – is the cause. In fact, diet is only quite rarely a trigger – particularly in children over 2 years – and it is

almost never the sole trigger. When a food allergy develops, it triggers an immune reaction on each exposure to the allergen. In general, food allergy presents from around 3 months old and below 2 years. There are two types of food allergy: Type 1 is IgE-mediated and produces an immediate reaction; Type 2 is mediated by cellular mechanisms, without the involvement of IgE, and occurs more than 2 hours after exposure. The vast majority of food allergy is caused by nine food groups: egg, peanut, milk, sesame, soya, wheat, tree nuts, shellfish and kiwi fruit. With the exception of nuts in particular, most children grow out of their food allergies.

It is good to listen to parents' concerns and advise that food allergy can certainly play a part in childhood atopic eczema. However, parents should be discouraged from manipulating a child's diet without proper supervision. If an elimination diet is medically indicated, it is generally dairy and egg products that are avoided. However, any dietary manipulation must only be undertaken with medical and dietetic support as there are also risks in eliminating main food groups.

The World Health Organization recommends exclusive breastfeeding for the first six months of life if this is possible. First foods that should be given are baby rice, puréed vegetables and fruits (not citrus). Eggs, wheat and dairy products should not be given until after the child's first birthday. Dietary advice should be obtained from the health visitor. If the parents

feel the child's eczema has worsened since the introduction of solids, it is advisable to refer to a paediatric dermatologist/allergist.

Support in primary care

Support from healthcare professionals in primary care is invaluable, both for assessment and to work out a practical routine for the family. Eczema is erratic and no two people will be the same, therefore an individualised treatment regime needs to be devised. Parents should be encouraged to discuss the child's eczema and any problems they may experience. Be aware that caring for a child with eczema can undoubtedly lead to extra strain and tension within the family, and additional advice and support may be needed.

Nursery and school

Nursery and school should not present problems for most children with eczema if time is taken to ensure that the teachers and nursery nurses have access to both verbal and written information and an understanding of what managing the condition entails. Parents should approach these establishments and explain that the child has eczema and what measures can be taken to ensure optimum comfort for the child. This should be done well before the term starts, and written care plans put in place.

When choosing where to sit in the classroom, the teacher and child need to be aware of where the radiators are in relation to their desk, and avoid sitting in direct sunlight by a window.

Air conditioning will also dry out the skin, and sitting on dirty/dusty carpets may cause problems.

Where appropriate, children should be encouraged to apply emollients at break times to avoid interrupting classroom sessions. Help may be needed at younger ages. All children will need a private place to apply their emollients (not in the toilets!). It may be necessary for the child to wear protective gloves during certain activities such as painting. It is important that the child is encouraged to lead as normal a life as possible so that they do not stand out from their peers.

A child with eczema may well need an individual health plan which clarifies what help the child needs at school. This plan is drawn up by the school and the child's parents with additional help from healthcare professionals, if required. See the National Eczema Society's school pack 'All About Eczema' for more information – available at www.eczema.org

Laundry

Perfumed detergents should be avoided as they can irritate sensitive skin. Also, many people with eczema prefer non-biological. Most people will do better without fabric conditioner though some can tolerate unperfumed varieties. Laundry should be well rinsed and patients may need to be advised to give an extra rinse to ensure that all detergent is removed from the laundry. The machine should not be overloaded. Clothes and linen should be washed frequently as creams and ointments can

stain them. Many people with eczema are allergic to the droppings of the house-dust mite, and washing laundry at 60°C or above will kill the mites.

Clothes and bedding

Loose 100% cotton clothing is preferable for comfort. Cotton scratch mitts or gloves may help to prevent skin damage from scratching. All-in-one sleep suits are recommended for babies and children and these can be worn by day if the child is particularly itchy. Other fabrics for clothing, such as silk, can be helpful as nightwear or to create a barrier between irritating fibres and the skin.

Ideally, bed linen should also be cotton as this is kinder to the skin. It can be washed at 60°C or above to kill the house-dust mite. As the mite and its droppings will be found in abundance in mattresses, you might recommend using anti-house-dust mite mattress and pillow protectors, especially for children and those with facial eczema. Minimising the use of soft furnishings and cuddly toys may help. Hot water bottles and electric blankets should not be used as overheating leads to dryness and itchiness.



Additional help

Referral and specialist advice

Patients (children and adults) with moderate to severe eczema who do not respond to first-line treatments and interventions will require a referral where more specialist drugs and interventions will be available.

Professional resources and guidance

British Association of Dermatologists:
www.bad.org.uk

British Dermatological Nursing Group:
www.bdng.org.uk

Centre of Evidence Based Dermatology:
www.nottingham.ac.uk

DermNet NZ (the website of the New Zealand Dermatological Society):
<http://dermnetnz.org>

Eczema Written Action Plan:
www.bristol.ac.uk/primaryhealthcare/researchthemes/apache/ewap

GREAT (Global Resources for Eczema Trials) (a comprehensive collection of detailed information on systematic reviews and randomised controlled trials of eczema treatments):
www.greatdatabase.org.uk

Habit Reversal:
www.atopicskindisease.com

Medicines Org: www.medicines.org.uk

NHS Choices: www.nhs.uk

NICE: www.nice.org.uk

NICE Clinical Knowledge Summaries:
<http://cks.nice.org.uk/eczema-atopic>

Patient UK: www.patient.co.uk

Primary Care Dermatology Society:
www.pcdds.org.uk

Quality of Life Support: <http://sites.cardiff.ac.uk/dermatology/quality-of-life/>
<http://skinsupport.org.uk>

Royal College of Nursing:
www.rcn.org.uk

Prescribing resources

MIMS: www.mims.co.uk

eMC (electronic Medicines Compendium): www.medicines.org.uk

BNF (British National Formulary):
www.bnf.org

Further reading

CREAM study: Francis NA, Ridd MJ, Thomas-Jones E, Butler CC, Hood K, Shepherd V, et al. (2017) 'Oral and topical antibiotics for clinically infected eczema in children: A pragmatic randomized controlled trial in ambulatory care.' *Ann Fam Med* 15:124-130. <https://doi.org/10.1370/afm.2038>.

BATHE study: (2018) 'Emollient bath additives for the treatment of childhood eczema (BATHE): Multicentre pragmatic parallel group randomised controlled trial of clinical and cost effectiveness.' *BMJ* 361. doi: <https://doi.org/10.1136/bmj.k1332>

National Institute for Health and Care Excellence (2007) *Atopic Eczema in Children: Management of Atopic Eczema in Children from Birth up to the Age of 12 Years*. Clinical guideline No. 57. NICE, London. <http://publications.nice.org.uk/atopic-eczema-in-children-cg57>

New Zealand Dermatology Society:
<http://dermnetnz.org>

Further information and support from the National Eczema Society

More information than can be given in a booklet of this size is available from the National Eczema Society. We have other booklets including:

- **Childhood Atopic Eczema**
- **Itching and Scratching**
- **A Guide for Teenagers with Eczema**
- **Living with Eczema**

Booklets can be ordered from our website or from our Helpline.

Website: www.eczema.org

Helpline: Telephone* **0800 089 1122**
(Monday to Friday 8am to 8pm)

* Calls are free from UK landlines.
Charges vary from mobiles.

Email: helpline@eczema.org

We are proud of the wealth of information available on our website and recommend you visit it whenever you need information. It is updated frequently.

Our confidential telephone and email Helpline is at the heart of our work, providing information, support and reassurance to thousands of people

struggling to cope with eczema. We are not medically qualified and do not diagnose, prescribe, give medical advice or opinions on treatments prescribed by your healthcare professional.

We do, however, offer a wealth of practical information about the day-to-day management of eczema and the different treatment options available.

The Helpline is open to all UK residents who are affected by eczema. Please allow five working days for us to reply to you if using email. We are not able to answer queries from non-UK residents as terminology, healthcare systems and treatments may differ in your country of residence, which may cause confusion.

In addition, the National Eczema Society publishes Exchange, a quarterly magazine packed with:

- articles on eczema management
- features by people with eczema sharing their experiences
- treatment and research news
- experts' replies to your questions.

You can subscribe to Exchange for £20 p.a. at www.eczema.org or by calling our membership team on **020-7281 3553**.

Healthcare professionals

Healthcare professionals can request bulk copies of National Eczema Society publications to give out to patients.

Please email professional@eczema.org or call us on 020-7281-3553 to request copies.





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