# Atopic Eczema Information Sheet

for patients and carers

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## What is eczema?

Atopic eczema, also known as atopic dermatitis, is a chronic (long-term) skin condition that causes itchy and inflamed skin. It most commonly affects infants and young children, but occasionally occurs for the first time in adulthood.

In infants, atopic eczema affects the cheeks, neck, and torso, usually appearing as red patches that sometimes ooze and crust. As children grow older, the appearance of the rash and the areas that are affected begin to change. In toddlers, atopic eczema commonly affects the elbow creases and behind the knees, and skin changes associated with scratching start to appear. Many children grow out of atopic eczema. Some may continue to experience the condition as adults, while others may just have dry, sensitive, easily irritated skin.

The appearance of the rash caused by atopic eczema can change over time and with how much scratching has taken place. There will be times when the skin looks and feels normal, but at other times the skin can be intensely itchy, red, weeping and crusted. With prolonged scratching and rubbing the skin can become thickened or leathery and the skin markings look more obvious. When the skin is better the skin can be left with some colour change (paler or darker colour) especially in people with naturally coloured skin. If the skin is otherwise normal (not red, dry, or itchy), the colour change can settle by itself, but this takes time (many months).

People with severe atopic eczema can have other health problems like hay fever, asthma, and food allergies. Atopic eczema is not contagious; it is not caused by a germ that can be spread to others.

## Why does it happen?

One of the many functions of the skin is to act as a barrier. A barrier is important because it helps keep moisture in and it keeps germs and other things from the outside world out. In atopic eczema, the skin is unable to act well as a barrier. Because of this, water/moisture can leave the skin, which then becomes dry very easily. Dry skin causes itch, and scratching breaks down the barrier even further, leading to a vicious cycle.

Another result of the 'leaky' barrier is more exposure of the body's immune system to substances from the outside world. Over time, the immune system starts to recognise and react to these substances (which it would normally tolerate). This is thought to be the reason why patients with atopic eczema are at higher risk of developing allergy, asthma, and hay fever.

We also know that the types of bacteria normally found on the skin are different in atopic eczema. There is less variety, and the proportion of *Staphylococcus aureus* ("Golden Staph") bacteria is increased, resulting in more inflammation.

Thus, atopic eczema is caused by a combination of personal and environmental factors. Personal factors include the genes (DNA) that we are born with that determine skin sensitivity. Environmental factors include irritants (things that irritate our skin like heat, dryness, chemicals, soaps, pollution, air conditioning, prickles), allergens (things that affect our immune system like dust, pollens, animal fur) and other stresses.

### Role of Diet

Patients and their families often wonder what role their diet may play in managing atopic eczema. Many internet websites list foods to avoid or "healing ingredients" touted to cure atopic eczema, but much of this advice is unscientific, unproven, and can be dangerous. For most people, taking out specific foods from their diet will not improve eczema, but instead can be harmful.

Most atopic eczema is not related to food allergy. For people who do have food allergy, it usually begins as a child, and they usually experience problems (flushing, blotchy rash, itching all over, vomiting etc) within one hour of having the food so keeping a diary of what happens around meals can help. For patients who have a proven food allergy (e.g. to eggs) confirmed by testing, excluding that food from the diet may benefit their skin. However, this should be done only on the advice of a specialist who can keep an eye on things. Unsupervised elimination, "elemental", or "few foods" diets may not have enough nutrition and cause more harm than good.

## How is it diagnosed?

Atopic eczema is usually easily recognised by the way it looks by medical professionals. In some cases, blood and skin tests may be recommended.

## How is it treated?

There is no cure for atopic eczema, but there are treatments that can help reduce both itch and rash so many people can achieve normal looking skin most of the time. Treatment of atopic eczema should be thought of as an ongoing commitment: we all have to look after our skin.

### Avoid triggers

There are several things that can make atopic eczema worse. Most of these break down the skin's natural barrier. The first step in treating atopic eczema is avoiding these aggravating factors:

- Rubbing and scratching
- Skin irritants including sweat, soaps, detergents, and prickly clothes. Soaps should be avoided even when atopic eczema gets better; a soap substitute (soap-free wash) should be used instead.
- Long hot showers remove the natural oils from the skin and cause moisture loss. They may feel soothing at the time but will make matters worse overall. It is better to have short, lukewarm (around 32°C) showers.
- Winter is a bad time of year for atopic eczema. Indoor heating dries out the air and skin and coarse, rough clothing can irritate the skin. Keep the air conditioning at a maximum of 18°C. It is important to check that children are not dressed too warmly.
- If there are known allergies, it is important to avoid or minimize exposure as much as possible. For example, for those with known dust mite allergy, some people think that regular hot washing of bed linens and hypoallergenic dust mite covers may be helpful, but not all studies show this. Read more at: https://www.allergy.org.au/patients/allergy-treatment/allergen-minimisation

### Repair the skin barrier

The next step in treating atopic eczema is to restore the skin barrier. This can be achieved by regular use of a moisturiser. A moisturiser may not seem like a flashy treatment, but they are great at preventing and treating flares of atopic eczema and should be applied every day, even when the skin looks normal. It is possible that regular application of moisturiser may even prevent problems like food allergy, asthma, and hay fever so people are researching this. Putting on moisturiser should form part of your daily routine, like brushing your teeth or

taking a (short!) shower. The best time to apply a moisturiser is straight after bathing, and you should ideally apply 2 – 3 times per day. The best moisturiser is one that you don't mind using frequently, but in general thicker, greasier moisturizers will provide more barrier protection that lighter ones. Some moisturisers contain extra ingredients that may help the skin like "ceramides", which are compounds that provides additional repair of the skin barrier and like "postbiotics" or "prebiotics", which are compounds that may reduce inflammation.

## Treating active atopic eczema

Finally, it is most important to treat any itchy rashes of atopic eczema as soon as they come up.

### Topical Treatments

Topical treatments refer to any cream, lotion, gel, or ointment that is applied directly to the skin. Ointments are usually preferred as they help dry atopic eczema the most, but may not be suitable if someone finds them too greasy. Topical treatments are always the first step in managing atopic eczema and most people do not need any other type of treatment. Most topical treatments are available commercially, but some require specialised mixing (called "compounding") and are only available from compounding pharmacies.

Topical steroids (also known as topical corticosteroids or topical cortisone) are a great treatment for atopic eczema. They work for most patients and have very few side effects when used as prescribed. Topical steroids are used when atopic eczema flares and the skin is inflamed (red, itchy, rough). Topical steroids work by soothing this inflammation, reducing the itch, and allowing the skin to heal. Weaker steroids are usually used for sensitive skin (face, groin) and stronger ones for stronger skin (body, limbs). If you still need to use these to the same area, most days of the week, after a month, please consult your doctor for personalised advice.

Topical calcineurin inhibitors (e.g. Elidel® or compounded topical tacrolimus) and topical PDE4 inhibitors (crisaborole – Staquis® or Eucrisa®) are sometimes used as alternatives to topical steroid creams. They also work by reducing inflammation in the skin.

When skin is inflamed (red, hot, itchy) the medicine is put on until the skin becomes normal when the medicine is then stopped. This may take a few days or a couple of weeks. In areas where atopic eczema keeps coming back ('hotspots') we may use the medicine just a couple of times a week for a little longer after it clears (like a couple more weeks), to keep the atopic eczema from coming back before totally stopping the medicine. Follow guidance from your health care professional. Even when the skin looks healthy, moisturiser use is still advised to keep the skin healthy.

### Light Treatment

Light treatment (phototherapy) refers to exposure to a specific wavelength of ultraviolet radiation, which mimics the beneficial effect of sunlight on atopic eczema. It involves visiting a treatment centre with a phototherapy machine two to three times per week. It is used for patients who have moderate to severe atopic eczema who are not responding to topical treatments alone.

### Oral Treatments

Oral treatments are medications that are taken by mouth. These medications are only given to patients whose atopic eczema is not responding to topical treatments. The reason for this is because there is a greater risk of side effects with oral medications.

Antihistamines are often recommended for patients with atopic eczema, but in fact, they usually do not help much. They may help to decrease itch or flares in the minority of patients who have allergies, but do not really help atopic eczema itself. Sometimes sedating antihistamines are prescribed to help with sleep disturbance

caused by itch, but they can have side effects especially on thinking and learning so are not generally recommended. Rather than using antihistamines, treating atopic eczema properly is the best way to help sleep.

Treatment with an antibiotic or antiviral medication from the doctor might be necessary if the skin becomes infected. Bacterial infections are the most common, when atopic eczema can develop a smelly, yellow liquid discharge with crusts or pus heads, usually from *Staphylococcus aureus* ("Golden Staph") infection. Viral infections (including *Herpes simplex* of the skin) are also possible and rarely can be severe enough to require treatment in hospital.

Most oral treatments for atopic eczema work by dampening down the immune system. As a result, one of the main side effects is the increased risk of infections. Oral corticosteroids (sometimes referred to as oral steroids or oral cortisone) (Solone®, Panafcortelone®) are the most common oral treatment for atopic eczema in general practice, but *unlike* topical steroids, they are best avoided, especially in children. They do not help atopic eczema in the long term, can have significant side effects and when they are reduced, atopic eczema often just flares up again. They should only rarely be considered, only for a short treatment period (days or weeks rather than months), and only if the doctor is planning to change to something else that will help long term control. Side effects with long-term oral corticosteroids include high blood pressure, high blood glucose, brittle bones, and weight gain.

Other oral medications for more severe atopic eczema include mycophenolate mofetil (CellCept®, Myfortic®), methotrexate (Methoblastin®), cyclosporine (Neoral®), and azathioprine (Imuran®). These treatments are very serious and can have side effects on body organs and so are usually prescribed only by specialists who can keep an eye on things with regular blood tests.

## Biologic Treatments

These are very new injectable medications that have been specifically developed to target atopic eczema. These medications are used only in severe cases of atopic eczema because of financial cost. They have not been around for as long as the oral treatments mentioned above and so long term experience is limited, but so far, they have overall shown to be more effective and to require less safety blood tests than the oral treatments.

Dupilumab (Dupixent®) is the only biologic treatment that is currently undergoing an approval process to be subsidised by the Australian government on the Pharmaceutical Benefits Scheme (PBS). Clinical trials and real world data since 2017 from overseas have so far confirmed the effectiveness and safety of dupilumab. It is a treatment option for patients with severe atopic eczema. The patient learns to administer an injection into the skin once every two weeks. Potential side effects include conjunctivitis (sore, red eyes), headache, sore throat, runny nose, reactivation of cold sores, and skin reactions at the site of injection.

## Special techniques – dilute bleach baths and wet wraps (wet dressings)

Bleach baths are exactly what they sound like. A small, precise amount of bleach is added to the bathwater, which sounds daunting but is perfectly safe. Bleach baths are sometimes recommended in atopic eczema when there are frequent bacterial infections. This technique is even used for very young babies. For more information and instructions of how to do it you should refer to the Royal Children's Hospital Fact Sheet (https://www.rch.org.au/uploadedFiles/Main/Content/derm/eczema-bath-information.pdf).

Wet wraps involve applying a topical steroid followed by a moisturiser to the skin, and then putting wet bandages or clothes over the top. This is sometimes used when there are widespread areas of inflamed atopic eczema especially of limbs and is helpful in breaking the itch-scratch cycle. For more information and instructions on how to apply them see the Royal Children's Hospital Fact Sheet (https://www.rch.org.au/uploadedFiles/Main/Content/derm/Wet_dressings_eczema.pdf) and the Monash Health Eczema Management: Wet dressings video (https://www.youtube.com/watch?v=SKGtW4Pwtd4)

## Steroid safety

There is significant fear in the community about using steroid creams, particularly when treating children. The source of this fear is partly due to large amounts of misinformation about steroid creams. Parents may be concerned about several side effects including permanent skin thinning, stretch marks, or skin colour changes. This has led to people not using enough steroid cream to treat their atopic eczema, and unnecessary prolongation of flares. While topical steroids can cause the side effects mentioned above, this only occurs when very strong steroids have been applied to **normal**, non-inflamed skin in delicate areas (e.g. eyelids or groin) for a very long time. As mentioned above, poor control of atopic eczema may increase the risk of developing other health problems as well as impacting quality of life.

Your pharmacist may give you advice to use steroid cream sparingly. This advice is well-intentioned, but it is based on dated recommendations. You should use as much cream as is required to cover the amount of skin that is inflamed.

To work out how much of a topical treatment to apply to a certain area, you can use your fingertip as a guide. If you squeeze it out of the tube from the tip of your finger to the first crease, this is one fingertip unit (see Figure 1). **One fingertip unit is enough to cover the front and back of your hand.** You can measure out fingertip units for your children with your own finger.

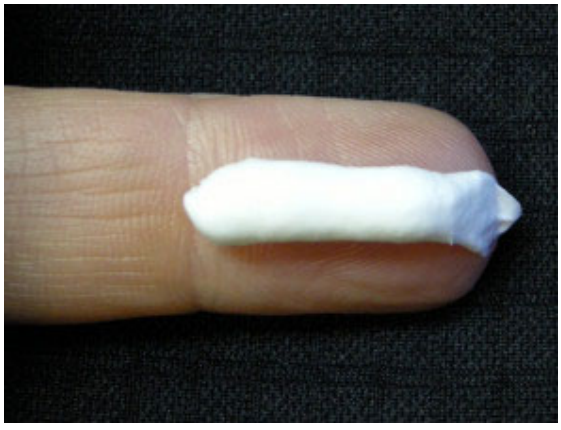

FIGURE 1: ONE FINGERTIP UNIT. SOURCE: DERMNETNZ WITH PERMISSION (CREATIVE COMMONS ATTRIBUTION-NONCOMMERCIAL-NODERIVS 3.0 NEW ZEALAND).

| | Number of adult fingertip units to apply | | | | |
|---|---|---|---|---|---|
| Age of patient | Face and neck | Entire arm and hand | Entire leg and foot | Front of chest and abdomen | Back and buttocks |
| 3-12 months | 1 | 1 | 1 ½ | 1 | 1 ½ |
| 1-3 years | 1 ½ | 1 ½ | 2 | 2 | 3 |
| 3-6 years | 1 ½ | 2 | 3 | 3 | 3 ½ |
| 6-10 years | 2 | 2 ½ | 4 ½ | 3 ½ | 5 |
| >10 years (including adults) | 2 ½ | 4 | 8 | 7 | 7 |

(From: https://resources.amh.net.au/public/fingertipunits.pdf)

Remember, you only need to apply topical steroid to red **itchy skin**, thus you may not need the amounts listed above. After applying topical steroid to inflamed skin, it is important to apply moisturizer all over, even to normal skin. Once the inflammation has gone away and skin is healthy, topical steroids are no longer needed; instead, you only need to continue applying moisturiser.

You can safely apply a topical steroid even if the skin has been scratched or irritated. Topical steroids have now been used safely by dermatologists for several decades. The side effects are well known and occur in a predictable manner.

# Where to get help

As a first port of call, your general practitioner (GP) is a good source of advice regarding atopic eczema. Some people with difficult-to-control atopic eczema may need to see a skin specialist (dermatologist). If there are concerns regarding allergies (environmental allergies or food allergies), an allergist/ immunologist may also be involved. Depending on the problems, other specialists like psychologists, paediatricians, eye doctors etc may be required also.

Support groups include:

- The Eczema Association Australasia (https://www.eczema.org.au).
- Eczema Support Australia (https://www.eczemasupport.org.au/)

# FAQs

**Question**
Can I lead a normal life?

**Answer**
Yes, you can work, go to school, and participate in sports like everyone else. If you are young and prone to severe atopic eczema, you may want to choose a career that does not involve excess handwashing or exposure to chemicals – office work is ideal. For sports, loose breathable clothing is advisable. If you like to swim, it is important to moisturize beforehand and, after swimming, to immediately shower then reapply moisturizer.

If atopic eczema is affecting your mood, or your ability to work or go to school, please seek help from your GP or specialist.

**Questions**
Are vaccinations safe to have? Will they make atopic eczema worse?

**Answer**
There is no evidence that vaccinations cause or worsen atopic eczema, and vaccinations are safe to administer in most circumstances. If you are taking a tablet medication for atopic eczema, there are some types of vaccinations (usually “live” vaccinations) that may not be suitable and need to be checked with a specialist before they can be given.

**Question**
Am I allergic to a certain food? If I avoid it, will my atopic eczema go away?

**Answer**
Most patients with atopic eczema do not have food allergies. Even for the minority of patients that do, avoiding that food entirely (which is advisable!) may not necessarily make atopic eczema disappear entirely. Similarly, environmental allergies (e.g. to dust mite, pollens, and animal dander) are common in people with atopic eczema, but these allergens are difficult to completely avoid. Unfortunately, desensitisation for dust-mite allergy has not been proven to be greatly beneficial for atopic eczema. Thus, although allergies may make atopic eczema worse, they are not the only or main driving factor.

Sometimes certain foods can be irritating to the skin, rather representing a true allergy. For example, tomatoes, strawberries, and citrus fruit, which are acidic, can irritate the skin around the mouth and cause a flare of atopic eczema there.

It is important for people with atopic eczema to maintain a healthy and balanced diet. It is best to avoid foods with a high glycaemic index (high GI foods). If you have a young baby or toddler with severe atopic eczema and you are concerned about allergies, please see a GP or specialist.

**Question**
Am I allergic to a cream? If I avoid it, will my atopic eczema go away?

**Answer**
Sometimes as soon as you put on a topical medication, it stings and burns the skin. This is typically caused by white-coloured creams and gels rather than greasy ointments, and represents an irritant reaction than a true allergy. It is more likely to occur on scratched and broken skin. Switching to an ointment-based medication will help.

Sometimes certain topical medications e.g. topical calcineurin inhibitors (Elidel® or Tacrolimus) or Staquis® can sting for the first few days of use; this usually abates with time and again, represents irritation rather than allergy.

However, there is a special form of allergy called “allergic contact dermatitis”, which can be caused by preservatives, fragrances and other chemicals that come into contact with the skin. This is a delayed-onset type of allergy, also known as a type 4 hypersensitivity reaction (food and environmental allergies are typically immediate-onset type 1 hypersensitivity reactions). Some patients (usually adults) with atopic eczema can be affected by allergic contact dermatitis. Certain patterns of eczema like severe hand dermatitis are more likely to be at least partly caused by allergic contact dermatitis. The diagnosis of allergic contact dermatitis is a complex process; if you are concerned about this please speak to your specialist.

It is important to remember that even though avoiding the allergen in allergic contact dermatitis is important and may make the eczema better, there may still be some underlying eczema that may not completely go away.



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