Eczema Training

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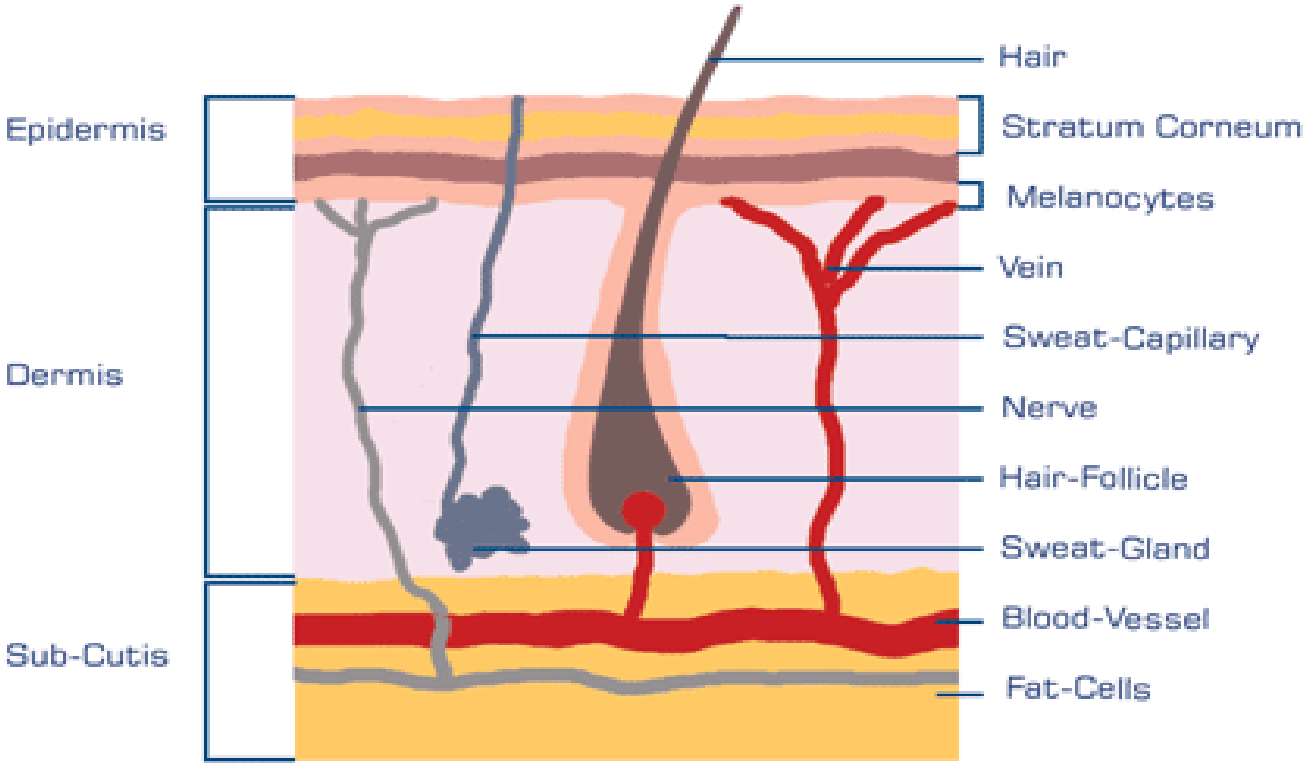
Dermatology

* **Dermatology** is the branch of medicine dealing with the skin and its diseases.
* We are going to look briefly at the skin and concentrate on the principles of managing Atopic Eczema (AE)/ Atopic Dermatitis (AD), in relation to the NICE Guidelines.

The Skin
The largest Organ of the body

Weight	10-12 Pounds
Area	20 Square feet
Thickness	0.5-4.5mm
PH	4.2-5.6

Anatomy of the skin



The role of the skin

* Protects the body from the harmful external environment and it assists to maintain the internal environment.

1. Protects from UV radiation- increase in melanin production

2. Temperature control - heat dispersed by dilation of blood vessels and sweat is produced; heat retained by constriction of blood vessels and erection of hair

3. Sensation of touch, pain and warmth these are auto Reponses

4. Response to itch - histamine release, triggers itch for insect bit; in eczema itching causes damage to skin

- EACH function involves a complex biochemical/physical pathway and each pathway is potentially an open door for something to go wrong

- The fact that the skin in most people behaves normally is itself is a wonder!

- Defects in any one or more of skin structures can lead to many dermatological conditions.

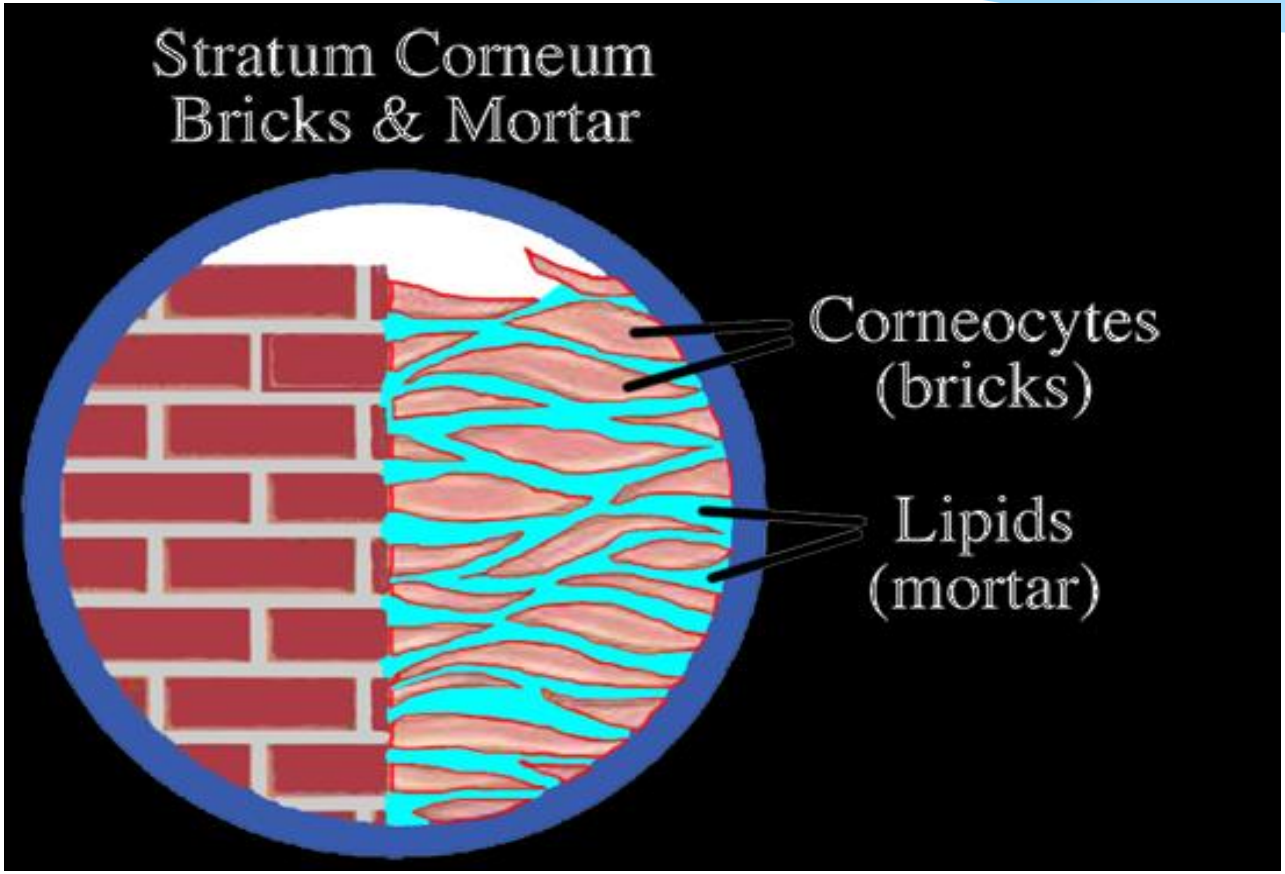
The Skin Barrier

* In Atopic Eczema, genetic coding produces Keratinocytes, that become known as Corneocytes, as they lose their nuclei and migrate to the stratum corneum/ horny layer.

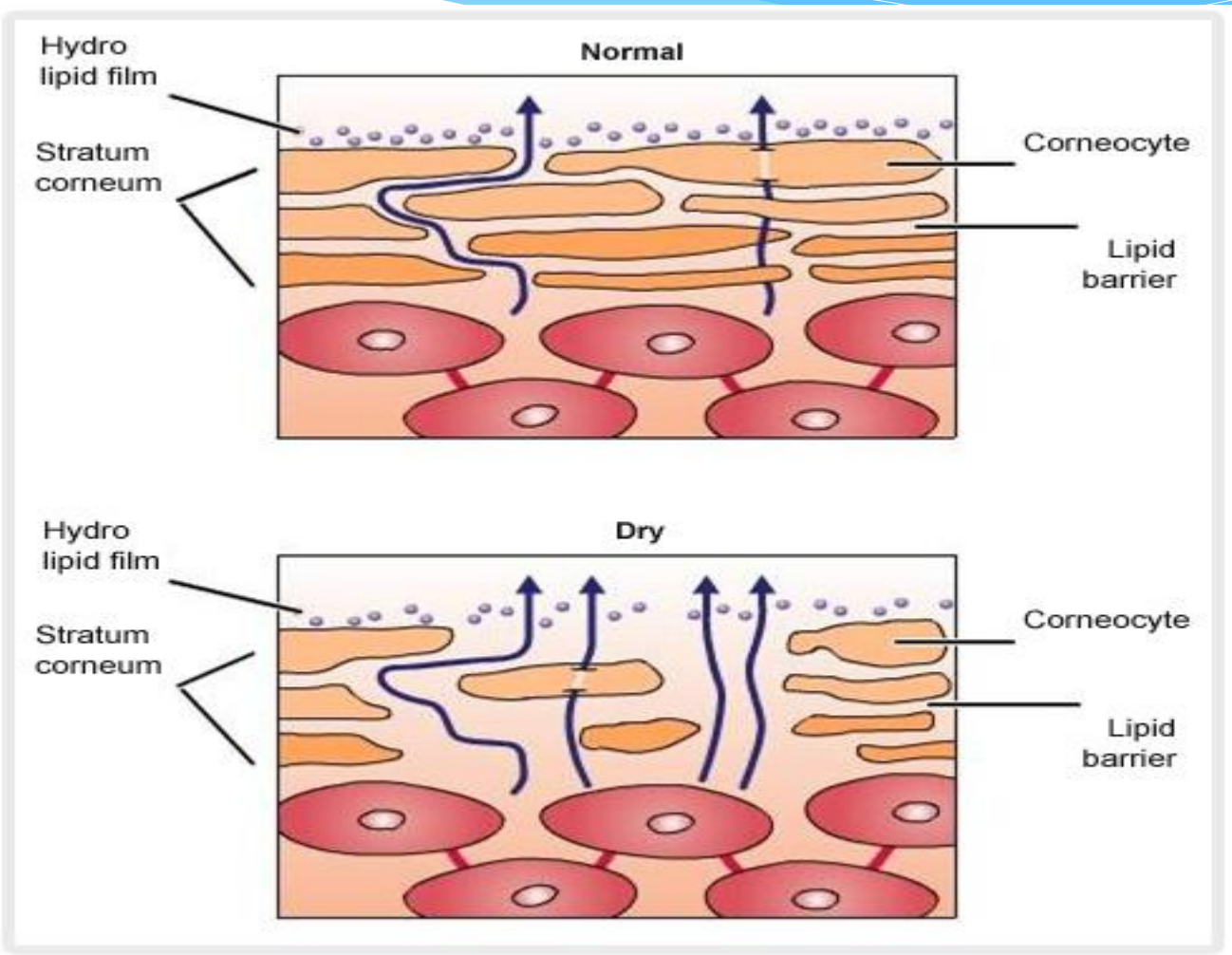
* In Eczema they do not produce sufficient natural moisturising factor. This means that individual keratinocytes, and the skin as a whole, lose more water than normal, and allows penetration of allergens into the skin.

* In addition, the immune system is imbalanced as a result of a similar genetic miscoding. This imbalance produces hyperactivity and inflammation of the skin.

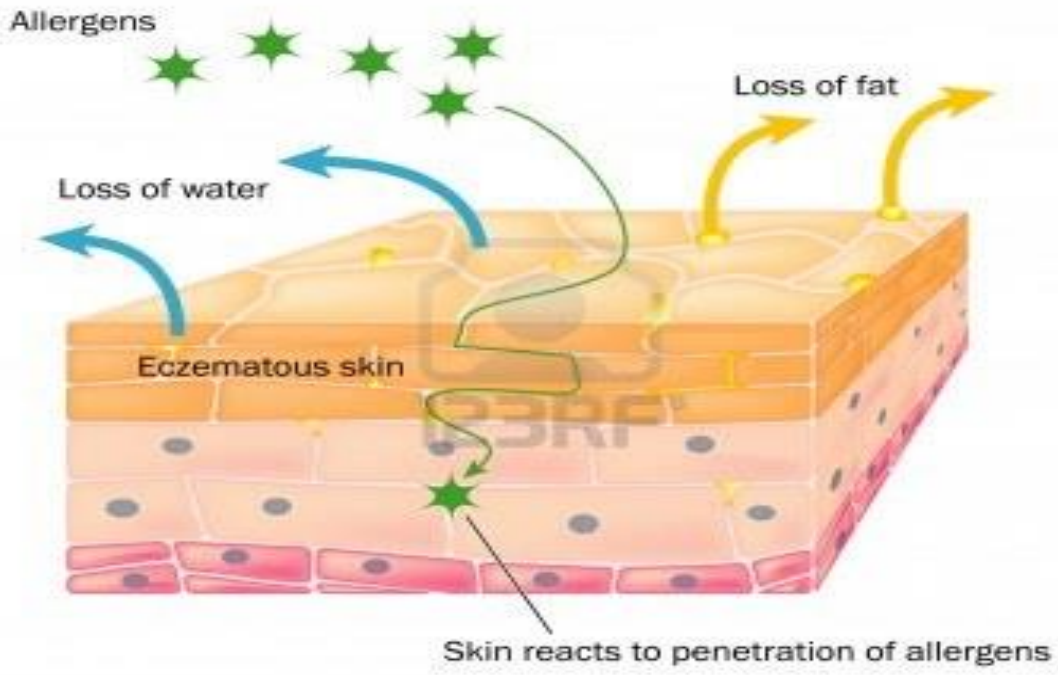
The Brick wall Theory



Normal V Eczema skin



Eczema


Allergens
Loss of fat
Loss of water
Eczematous skin
Skin reacts to penetration of allergens

NHS
National Institute for
Health and Clinical Excellence

Atopic eczema in children

Implementing NICE guidance

2007

NICE clinical guideline 57

Clinical Guideline Implementation Tools

Background: why this guideline matters

* Guideline covers children from birth to 12 years old
* Atopic eczema develops in early childhood
* Up to one in five school children have atopic eczema
* Significant impact on quality of life:
  - can affect sleep and concentration
  - causes discomfort, school absence, low self-esteem

* NICE Guidelines are based on the best available evidence.

Key priorities for implementation

- Assessment of severity, psychological and psychosocial wellbeing and quality of life
- Identification and management of trigger factors
- Stepped care plan
- Treatment
- Education and adherence to therapy
- Indications for referral

Assessment

Holistic assessment should be undertaken at each consultation, taking into account:

- physical severity
- impact on quality of life

There is not necessarily a direct relationship between severity of atopic eczema and impact on quality of life.

severity of the atopic eczema

Clear suggests that the skin is normal with no evidence of active atopic eczema.
Mild indicates areas of dry skin and infrequent itching, with or without small areas of redness.
Moderate severity is areas of dry skin, frequent itching, redness with or without excoriation and localised skin thickening.
Severe atopic eczema has widespread areas of dry skin, incessant itching and redness with or without excoriation, extensive skin thickening, bleeding, oozing, cracking and alteration of pigmentation.

NICE 2007

Growth

* Document growth
* Poor growth in AD:
  * Nutritional causes (?allergic ?dietary)
  * Effects of uncontrolled eczema
  * Effects of treatment

Trigger factors

* Identify potential trigger factors including:
  * irritants
  * skin infections
  * contact allergens
  * food allergens
  * inhalant allergens.

Dietary Triggers

It is important to listen to the parents concerns in relation to diet, what happens to the child / their skin when exposed to certain foods.

Reactions can vary from an irritant reaction to immediate Type 1 hypersensitivity reactions, which range from a contact urticaria to anaphylaxis.

Referral to Paeds if allergy concerns for testing and allergy action plan.

Dietary Examples

- Dairy free
- Egg free
- Wheat free
- Gluten free
- Soya products
- Goat products (1 yr)
- Parents ideas !!!

Dietary interventions require supervision

- Soya-based infant formulas should not be used as the first choice for the management of infants with suspected or proven cow's milk sensitivity, lactose intolerance.
- Soya-based formulas have a high phytoestrogen content, which could pose a risk to the long-term reproductive health of infants
- Hydrolysed protein formulas are available and can be prescribed.

Treatment: stepped approach to management

Use emollients all the time

Use a stepped approach for managing atopic eczema:

- tailor treatment step to severity
- step treatment up or down as necessary

Provide:

- information on how to recognise flares
- instructions and treatments for managing flares

Mild	**Moderate**	**Severe**
Emollients	Emollients	Emollients
Mild potency topical steroids	Moderate potency topical steroids	Potent topical steroids
	Topical calcineurin inhibitors	Topical calicneurin inhibitors
	Bandages	Bandages
		Phototherapy
		Systemic therapy

"Education, education, education"

Treatment: Emollients

* ‘A Substance that occludes the skin surface to encourage the build up of water in the stratum corneum’.

Emollients should be used continuously, even when skin is clear and:

* suited to the child’s needs and preferences
* unperfumed
* used every day
* prescribed in large quantities (250–500 g/week)
* easily available to use at nursery, pre-school or school.

Types of emollient

* Soap Substitutes
* Bath Additives
* Leave on emollients

In eczema

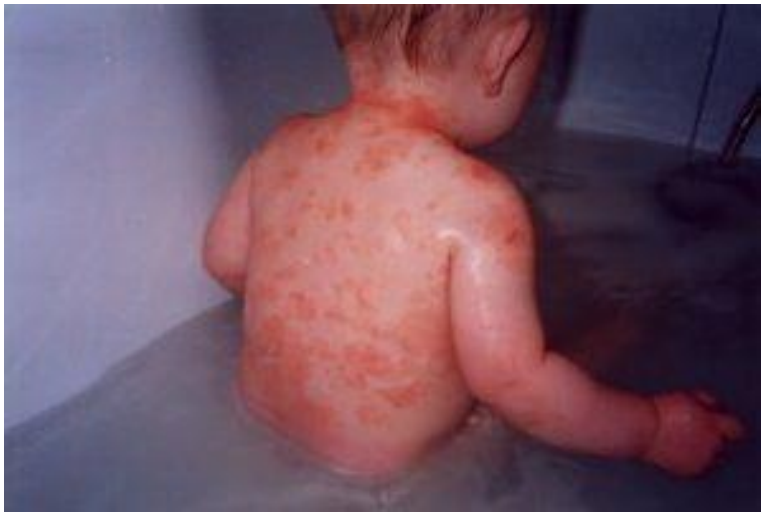
* First line treatment
* They are ‘preventer’ and ‘protector’
* Restore an artificial barrier function to skin.

Important in eczema because:

- trap moisture
- anti-inflammatory
- anti-puritic

Bath Emollient

* Whole body
* Therapy
* Preferred
* Cleansing



Bath Emollient Rationale

* Bath emollients are the foundation for the treatment of eczema
* Bath emollients should be used at least once a day. Bathe for no longer than 10mins.
* Approx 250mls every 2 weeks.
* Pressure on GP's (UK) to keep budget down and therefore not prescribe bath emollients. GP's say no evidence they work!
* BAD still recommend their use.

Emollient Application

* Wash hands (No hands in pot!)
* Use clean spoon/medicine spoon to transfer to hands.
* Rub emollient between hands to soften & warm.
* Apply gently, thinly & quickly in the direction of hair growth.
* Do not rub, as increases heat & friction encouraging itch.
* Apply hourly for first 24 hours if skin very dry, then 4 hourly
* Remember NO MEDICATION in emollients, so safe to apply as often as possible!

Cream? Ointment? Lotion?

* Lotion = high water content (good for hairy areas)
* Cream = more cosmetically acceptable. Best for hot weather
* Ointment = most effective with least additives.
* The best emollient is the one the child and family will use!

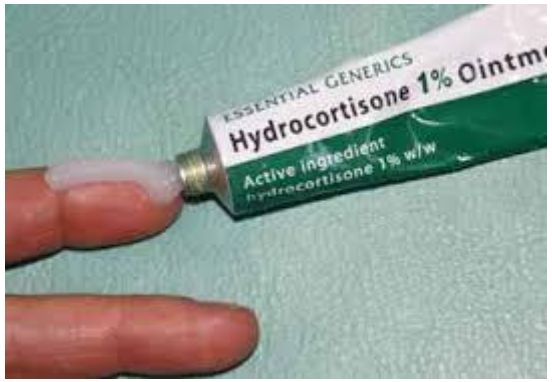
Which to choose?

When prescribing

* Prescribe enough
* Give choice
* Emphasise difference to steroid
* Educate on how to use them effectively

Treatment: Topical Corticosteroids

* Potency should be tailored to severity:
  * mild potency for face and neck, except for 3–5 days of moderate potency for severe flares
  * moderate or potent preparations for short periods only for flares in vulnerable sites
  * do not use very potent preparations in children without specialist dermatological advice

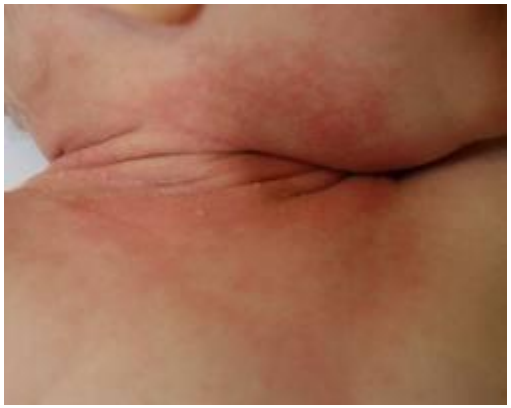


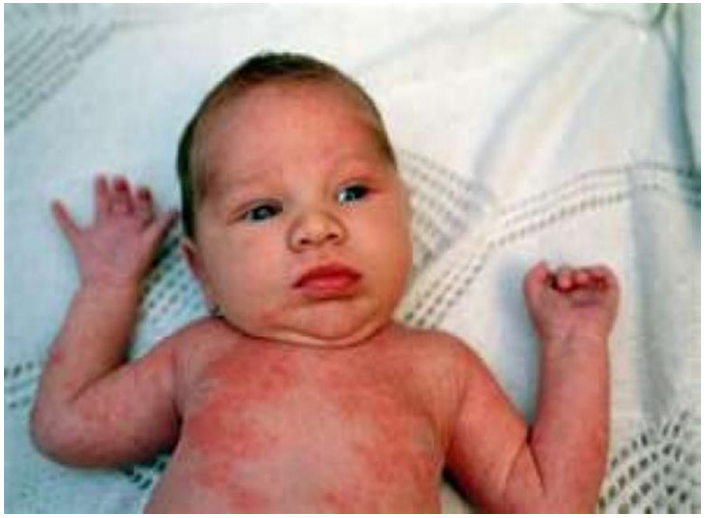
Topical Steroid Potency

Steroid	Potency	Frequency
Hydrocortisone 1%	Low potent	Twice Daily
Eumovate (Clobetasone butyrate 0.05%)	Low – Medium potent	Twice Daily (over 1year)
Betnovate RD (ready diluted) (Betamethasone valerate 0.025%)	Medium potent	Twice Daily
Elocon 0.1% (Mometasone Furoate)	High potent	**Once** Daily
Betnovate (Betamethasone Valerate 0.122%)	High potent	Twice Daily (over 1 year)
Locoid (hydrocortisone butyrate 0.1%)	High potent	Twice Daily
Dermovate (Clobetasol Propionate 0.05%)	Very potent	Once-twice daily (never under 1year)

Treatment: infections

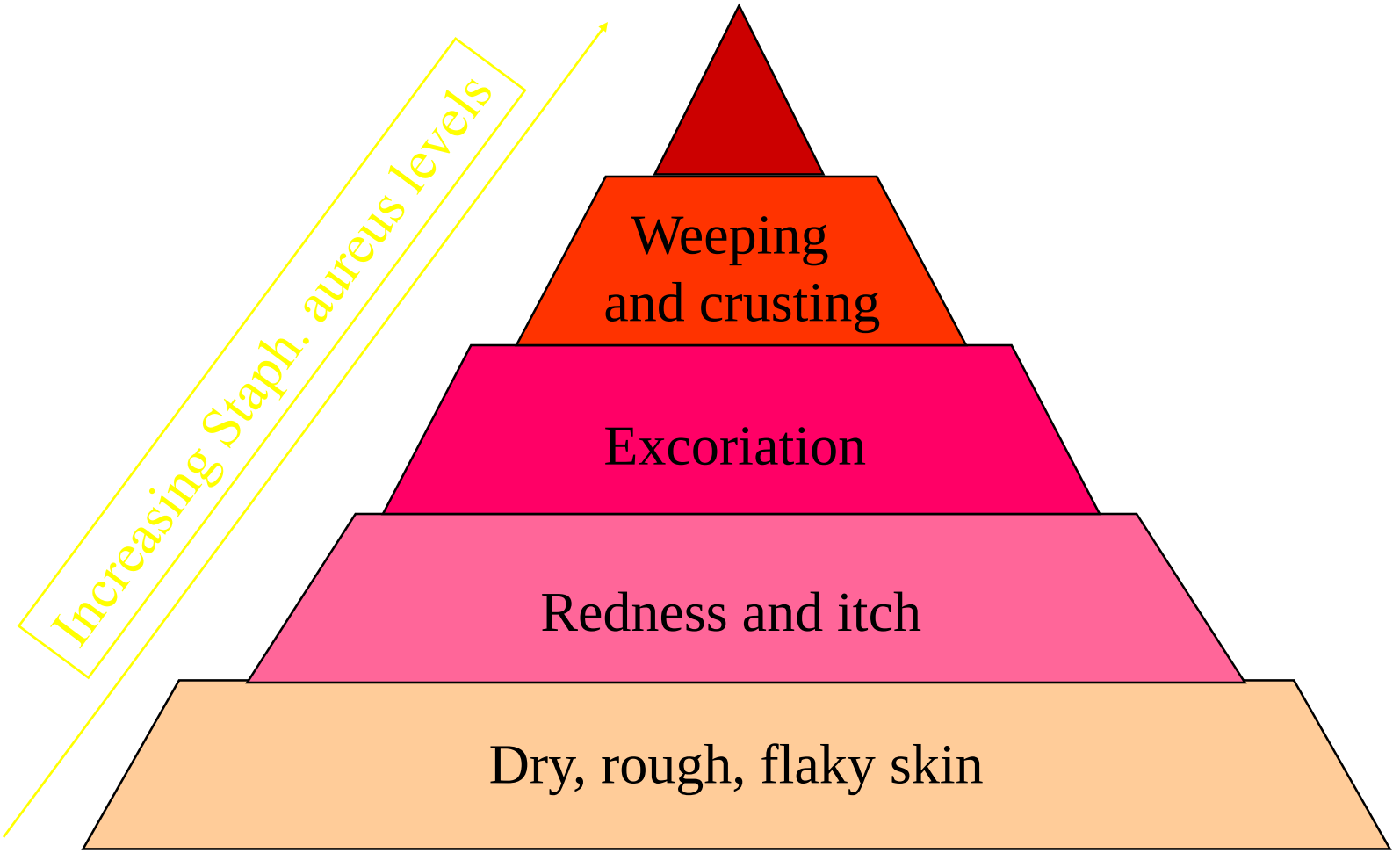
* Offer information on how to:
  * recognise symptoms and signs of bacterial infection
  * recognise eczema herpeticum
  * access appropriate treatment when eczema becomes infected.



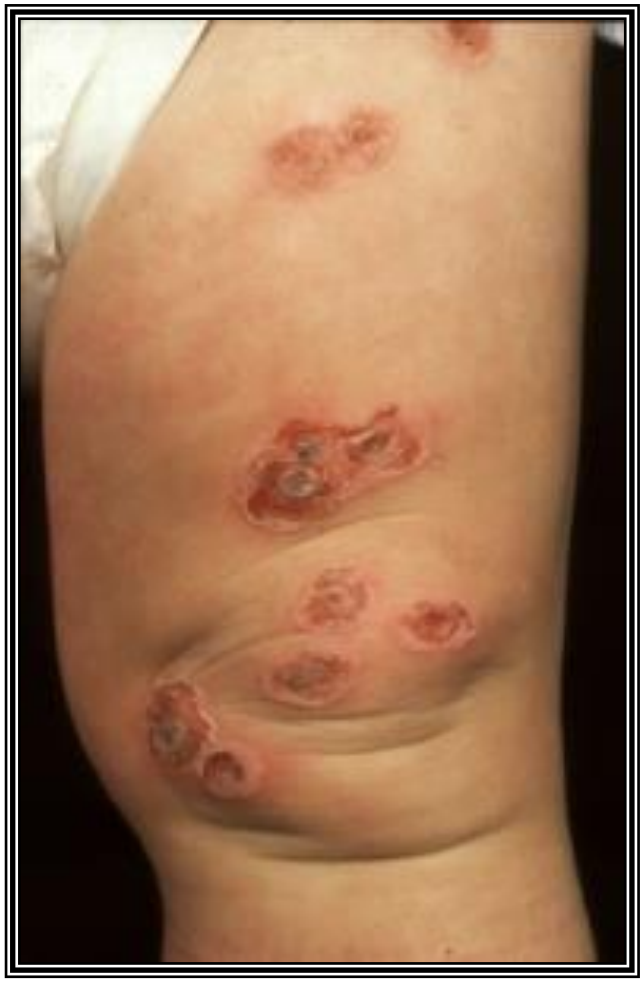


Staph Aureus

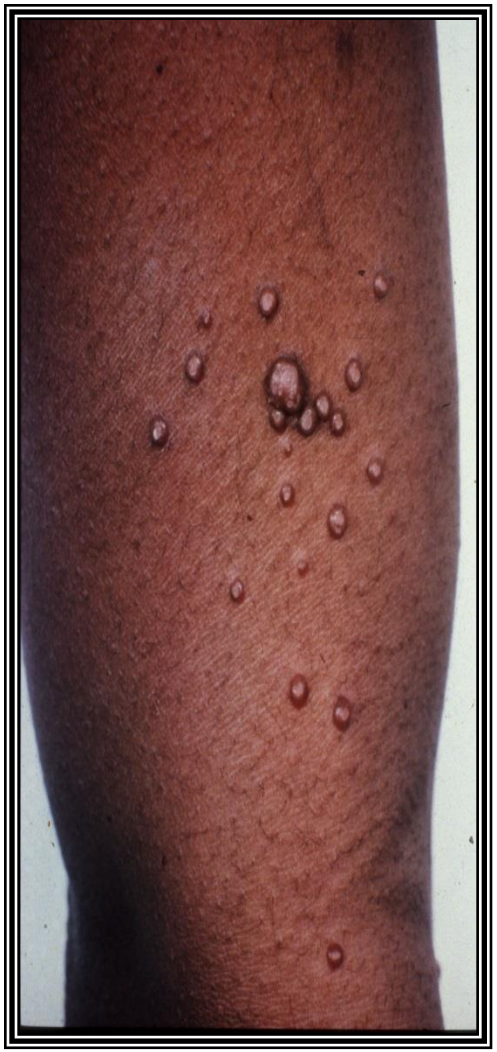
* Bacteria found widely in nature
* Have specific affinity for the skin of patients with eczema, esp. atopic
* Bacteria produce several substances which have been shown to aggravate eczema.
* This bacterium has a unique interface with atopic eczema
* Reduced ceramides in the lipid lamellae allow the bacteria to colonise the skin
* The bacteria produce superantigens which excite the immune system
* A vicious circle arises leading to infection


Increasing Staph. aureus levels
Weeping
and crusting
Excoriation
Redness and itch
Dry, rough, flaky skin

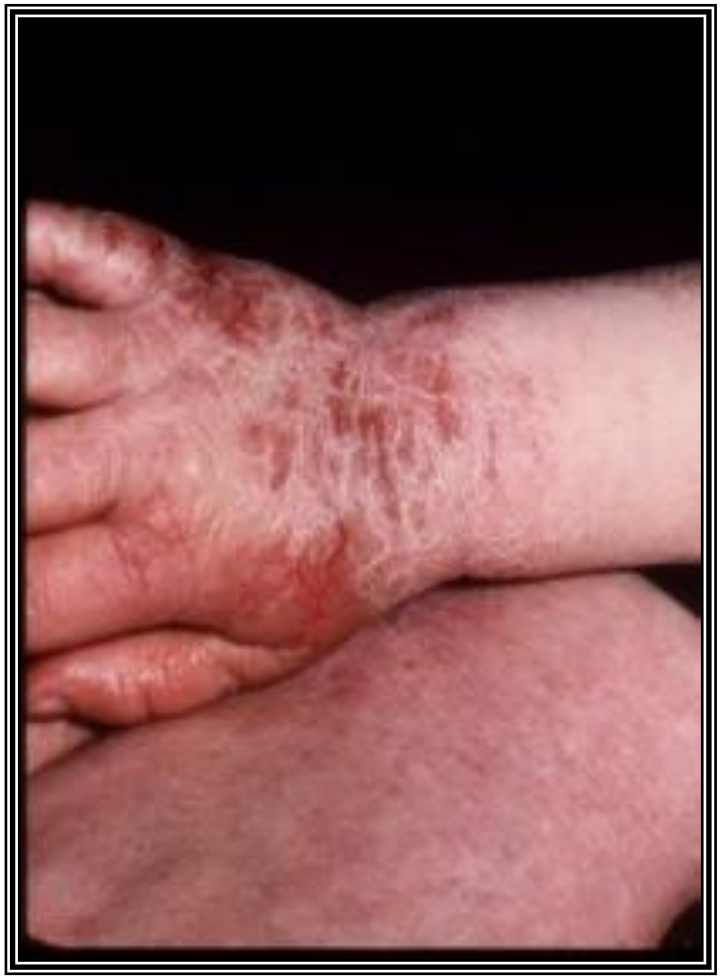
Eczema Herpeticum



Eczema in darker skin



Infected eczema with lichenification



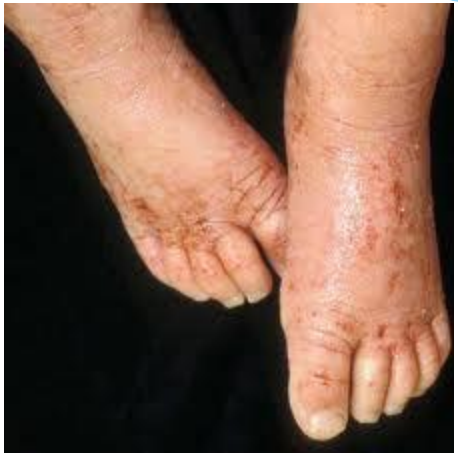
NICE GUIDELINES

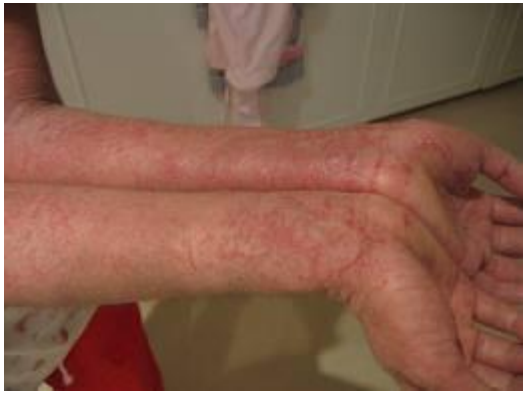
* Diagnosis
* Assessment
* Trigger factors
* Stepped-care plan
* Treatments
* Infection
* Referral
* Education and information

Education and adherence to therapy

* Spend time educating children and their parents or carers about atopic eczema and its treatment.
* Provide written and verbal information with practical demonstrations about:
  * how much of the treatments to use
  * how often to apply treatments
  * when and how to step treatment up or down
  * how to treat infected atopic eczema.
  * Emollients + Education= Patient compliance
    * (Cork 2003)

Wraps, Bandages & occlusive dressings!





* Beware ↑ absorption topical agent
* Beware occluding infection

Support for families

* Parents wish they had been referred sooner by GP/HV
* Parents feel isolated and exhausted
* Concerns leading to underuse of steroids
* Ensuring frequent emollient application
* The need to meet others living and managing eczema

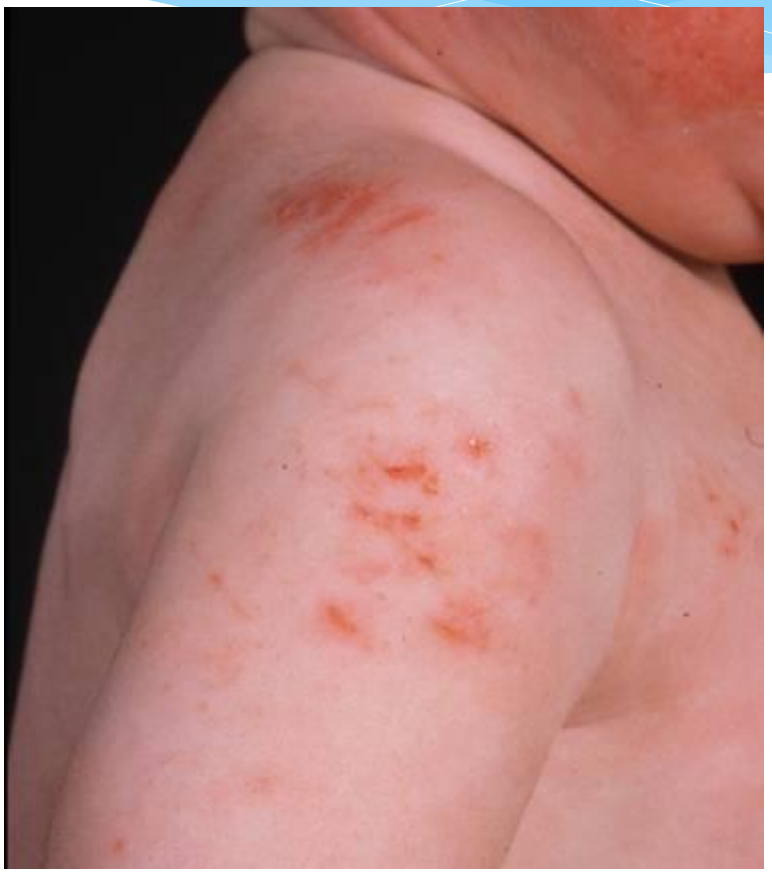
Why is eczema education important?

* Early identification of flare
* Early (& effective) treatment

* Prevent trauma scratching
* Prevent infection induced flare
* Ultimately use less steroids over time

What is the most distressing thing about your child's eczema?

* Appearance
* Scratching
* Bleeding
* Stinging
* Infection



Other treatments for eczema ?

* Herbal
* Homeopathy
* House dust mite reduction
* Over the counter / family
* Others

Antihistamines

* Control of pruritus = ***Sedating*** antihistamine (eg hydroxyzine, alimemazine, chlorphenamine, etc)
* Sedating antihistamines for management of ***flares***

* Non sedating antihistamines little evidence of benefit
* Will probably not prevent aeroallergy induced flare

Effects of childhood eczema on family life

* Body image/confidence
* Isolation
* Sleep loss
* Hobbies
* Parents going out
* Holidays

* Atopic eczema in children can have a profound effect on the quality of life, causing major sleep disruption for the child and family and interfering with normal development, education and play. (Nice 2007)

Life of a child

Allergy desensitization

* Small studies suggest HDM desensitisation may help AD

* Group without asthma didn't go on to develop asthma once desensitised
* Can we halt the atopic march?

NICE - When to refer on

* Diagnostic uncertainty
* Eczema remains poorly controlled
* For specialist advice re application of topical treatments
* ??Contact dermatitis
* Significant pycho-social problems
* Associated with severe or recurrent infections

Practical Advice

Sunscreens

swimming

Eczema & the Sun

* Avoid exposure to sun 11am- 3pm
* Cover up with loose, closely woven cotton/ polyester clothing
* Dark colours provide better protection
* Wide brimmed hat with neck & ear protector
* Beware babies in buggies
* Sunglasses to British Safety Standard
* Drink plenty of water to avoid dehydration

Sunscreens

* Dry skin should be moisturised with a greasy emollient 30 minutes before sunscreen is applied, otherwise the effectiveness of the sunscreen is reduced.

* To be effective sunscreens should be applied 30 minutes before exposure to the sun, to allow protective elements time to bond on the skin.

Sunscreens

* Sunscreens protect by reflecting ultra violet light away from skin & by absorbing the UV light before it can penetrate skin
* Broad spectrum sunscreens are recommended to screen out UVA &UVB rays, minimum factor 15
* Cheaper brands just as effective if used correctly
* Those containing Titanium Dioxide are effective at reflecting harmful sunrays & least likely to cause irritation
* Methyldibromoglutaronitrile, a sunscreen preservative has caused allergic reactions.

Recommended Sunscreens

* Boots Soltan (for good broad spectrum coverage)
* Sunsense range – only available in smaller pharmacies, developed in Australia
* E45
* Uvistat cream 22
* Roc Total Sunblock (very thick)
* Waitrose organic
* Altruist (made by Dermatologist- only buy on Amazon)

Swimming

* Most children can swim as normal as long as emollients are applied prior to entering the water, this prevents the chlorine acting as an irritant.

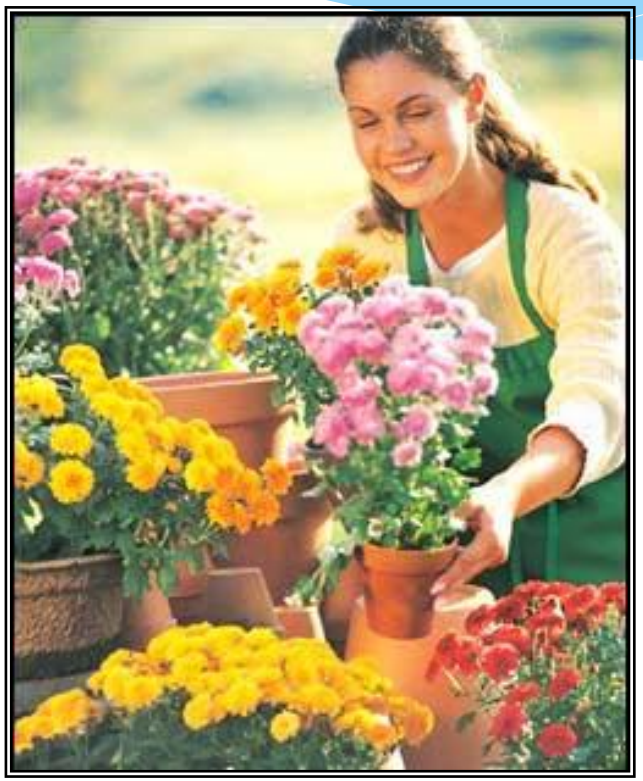
* Ensure the skin is washed with emollient soap substitute as soon after swimming as possible, and emollients applied regularly for the next few hours.

Summary

* Emollients, emollients, emollients
* Avoid aggravating factors
* Prevent (& treat) infections
* Step-wise approach (agreed plan)
* Educate re treatment of flares (quick & effective)

Atopic Eczema Viscous cycle

Advise your patient……
Career & Lifestyle



BEEP STUDY

(Barrier enhancement for Eczema Prevention)

Looked at 1394 babies, who were recruited from atopic parents.

Studied for 5 years.

Babies used emollients from birth for washing and moisturising.

The study hoped to show that with increase moisturisation that the babies would not develop eczema before age 5.

Study did not show lower levels of eczema, but did prove emollients safe from birth!

Study published in Lancet 19/02/2020

Thank you for Listening!