Atopic Dermatitis

Avoid Non-Specific Irritants for <u>All Patients</u>

1) Use cotton or soft cotton-poly clothing. Avoid wool and synthetic fabrics.
2) Keep fingernails short and clean.
3) For all products that will come in contact with the skin, avoid any added fragrances, artificial colors or unnecessary chemicals. No bubble baths.
4) Use mild "clear" detergents*, double rinse the wash and avoid fabric softeners.
5) Sweating either from exercise or hot temperature makes most children with eczema itchy. Bathe or wipe sweat off with a clean wet towel afterwards, and apply moisturizer.

Avoid Allergens in <u>Selected Patients</u>

6) Avoid patient specific IgE-mediated allergens such as dust mites, pets, etc. based on testing and/or strong clinical history.
7) Foods very rarely need to be limited due to eczema but should be avoided for urticaria or anaphylaxis. Food IgE testing has <u>significant</u> false positives and should be interpreted with caution.
8) If food testing is done, do <u>NOT</u> send a food "panel", instead individual foods tests should be ordered only for foods for which there is a compelling medical history.

<u>Effective Bathing and Moisturizing</u>

1) For most children, should bathe daily.
2) Soaking bath (better than a shower) with lukewarm water for 5-10 minutes.
3) Avoid routine use of any additives to bath water.
4) Uses a mild cleanser* with no added fragrance or colors.
5) After bath, do not rub skin dry, instead pat gently and leave skin moist. Immediately (within 2-3 minutes) apply medicated topicals to active areas, and effective moisturizer* to rest of body (the medicated topicals will act as the moisturizer in the active areas).
6) Repeat application of moisturizer as many times a day as needed for dry skin and for mild itching. It may be more effective to moisten the skin with a clean wet towel first and then apply the moisturizer.

* There are too many detergents, cleansers and moisturizers to list them all and the following is just a few examples.
- In general, should avoid harsh soaps and any products with added coloring or fragrances.
- In general, ointments are most effective as moisturizers, but many less greasy creams are available.

Commonly recommended detergents include:
- Tide Free and Gentle, All Clear

Commonly recommended cleansers include:
- White, unscented Dove soap, Cetaphil body wash, CeraVe body wash, CLn body wash, Neutrogena hydrating cleanser

Commonly recommended moisturizers include:
- CeraVe, Cetaphil, Vaseline, Lubriderm, Vanicream, Aquaphor, Curel

Medications – General Principles

There are variations in clinical practice and these recommendations are meant to be general guidelines.

This clinical pathway is for mild to moderate atopic dermatitis. It is recommended that children with severe atopic dermatitis who may need either systemic or topical biologic drugs be referred to an eczema specialist.

Classes of topical medications include*:

- Topical corticosteroids
- Topical calcineurin inhibitors

(topical steroids and calcineurin inhibitors are the most effective, but also have potential adverse effects)

- Topical phosphodiesterase 4 (PDE4) inhibitors
- Topical aryl hydrocarbon receptor (AHR) inhibitors.

Vehicles for topical medications most commonly are ointments, creams and lotions.

- Lotions contain alcohol and water and are more likely to burn, they also evaporate quickly, may dry the skin and are the least effective. However, they are easy to apply and don't leave the skin feeling greasy.
- Creams contain oil and water and are less likely to burn but are not as occlusive as ointments. Ease of application and greasiness are between lotions and ointments.
- Ointments contain mostly oil are least likely to burn and are most occlusive, so are often the most effective. However, they may be hard to spread and leave the skin greasy.

Duration of treatment

- There are no absolute guidelines for duration of treatment, and this is the area where practice varies the most and is based on clinical response. The durations given are guidelines and not firm time limits.
- In general, topical steroids should be used for as short a time as effective, but stopping them before the skin is adequately healed may lead to poor control and longer duration of treatment.
- Shorter duration and lower potency is recommended on areas of skin that are highly vascular or thin (face, groin, skin folds).
- Low potency steroids can be used for longer periods than higher potency steroids. As improvement occurs, potency should be stepped down.
- The non-steroid topical medication can be used for longer periods of time, but may have different risks (calcineurin inhibitors).
- Families should be educated that none of the treatments are cures. It is expected that eczema will flare, often unpredictably, and topical medications will have to be resumed periodically for flares.

* See table of topical medications

Medication Guidelines

Effective daily bathing and moisturizing should continue throughout treatment with medicated topicals.

For mild eczema not responding adequately to bathing and moisturizing
Options are low potency topical steroid or either a calcineurin, PDE4 or AHR inhibitor **. Of these the topical steroid and calcineurin as typically the most effective.
--Apply a thin layer (see FTU chart) to affected areas once or twice daily.
--Continue until skin is clear (smooth and not red).
--No firm duration can be given, but typically low potency can be used daily for 3-4 weeks (less on face and thin/vascular skin).
--When improved stop. If patient flares quickly upon stopping, can either use decreased potency preparations (e.g. change from topical steroid to non-steroid) or decrease frequency of steroid (every other day or twice weekly) as maintenance. Adding a bleach bath*** 2-3 times a week may improve maintenance in select patients.

For moderate eczema not responding to above treatment
Options are medium potency topical steroids, or if not already tried a calcineurin inhibitor. For moderate eczema the other non-steroid topicals are less likely to be effective, but can be trialed.
--Apply a thin layer to affected areas once or twice daily.
--Continue until skin is clear or is now only mildly affected.
--No firm duration can be given, but typically medium potency can be used daily for 10-14 days (less on face and thin/vascular skin).
--When improved, step down to a lower potency preparation and continue until clear. Can use same method as above for maintenance.
--Can consider bleach baths as supplemental additional treatment for moderate eczema.

For severe flares not responding to above treatment
Option is usually high potency steroids. Some patients may respond to a calcineurin inhibitor if not already tried. The other non-steroid topical medications are only rarely effective for severe eczema, if at all.
--Apply a thin layer to affected areas twice daily.
--Continue until skin is improved but not necessarily clear, then step down to mild or moderate guidelines.
-- No firm duration can be given, but typically high potency can be used daily for 7-10 days (less on face and thin/vascular skin).
--Can consider wet wraps**** and bleach baths as supplemental treatment for severe flares.

For persistently severe eczema – recommend referral to an eczema specialist.

See: **topical corticosteroid potency table and non-steroid topicals table, ***bleach bath instructions, ****wet wrap instructions, as well as FTU chart

Additional Treatment Recommendations

Bleach baths (see handout)

- Can be used as adjunctive treatment in selected patients.
- Consider in patients where itching is particularly bothersome, in patients with moderate to severe eczema and in those not responding sufficiently to mild to moderate potency topical treatment.
- Can be used for flares only, but safe to use long-term.

Wet wraps (see handout)

- Used for flares.
- Typical duration is 3-5 days.
- Use with topical corticosteroids, do not use with topical calcineurin inhibitors.
- Do not use if HSV infection suspected. Do not use if large areas of skin are superinfected and require oral antibiotics. OK to use if small areas are infected that can be treated with topical antibiotics.

Antihistamines and Itching

- There are no highly effective treatment for itching and the best "treatment" for itching is to control the eczema. However, antihistamines may take the edge off itching and make it more tolerable.
- Distraction is a very helpful strategy for mild itching.
- For daytime itching recommend a non-sedating antihistamine such as cetirizine or fexofenadine.
- For nighttime itching, can consider diphenhydramine or hydroxyzine if needed.
- Do NOT recommend restraints, gloves or punishment for itching.

Infections

- While routine antibiotics do not have a role in the treatment of eczema, secondary infections are not uncommon.
- Staph infections are the most common. Small areas may be treated adequately with a topical antibiotic such as mupirocin, but larger areas will need an oral antibiotics. Bacterial cultures have variable utility, but for infections that are not responding quickly a skin culture is an option.
- Viral infections are less common, but can be quite severe. Most serious is herpes viral infections (eczema herpeticum). Patients can appear septic and infections affecting the eye can cause permanent vision impairment and should be treated as emergencies. When in doubt, treat empirically and culture/PCR to confirm and stop treatment if cultures/PCR negative. Eczema coxsackium can mimic eczema herpeticum and is often less severe and self-resolving without antivirals.



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BLEACH BATHS FOR ECZEMA

Dilute Bleach Baths Can Help Your Child's Skin

Adding a small amount of bleach to a bath can help your child's skin. It can help get rid of germs that cause skin infections. It can help make your child's skin less itchy.

But bleach baths can also make skin conditions worse in some people, and concentrated bleach (bleach that is not watered down) is a dangerous household poison. So please follow these precautions when trying this very effective therapy:



- **Keep the bleach bottle out of reach of children.**
- **Never put undiluted bleach directly on the skin.**
- **Avoid getting bath water with bleach in your child's eyes.**
- **Do not allow your child to swallow the bleach water.**
- **Drain the bleach bath water right after use.**
- **Be extra careful about falls. Adding bleach to your bath can make your tub very slippery.**

➢ How often should I take a dilute bleach bath?

- *Try dilute bleach baths 2 to 3 times a week, or as often as your doctors says you should.*

➢ How should I prepare a dilute bleach bath?

- *Use common unscented household bleach (like Clorox®). Look at the bottle to check the concentration of the bleach. The concentration should be about 4.5% to 8.25%. On the bottle, "bleach" is often also called "sodium hypochlorite."*
- *Fill up the tub with lukewarm water. Can be used with or without soap.*
  - *There are about 40 gallons in most bathtubs. A half-full tub is about 20 gallons.*
  - *You can use a gallon milk jug to measure your child's bathtub.*
- *To start, add the following amount of bleach to the tub:*

	Using <u>Regular</u> Bleach ≈ 4.5% - 6%		**Using <u>Concentrated</u> Bleach ≈ 7.5 - 8.25%**
Full tub (~40 gallons)	1/2 cup		1/3 cup
Half tub (~20 gallons)	1/4 cup		2 tablespoons
Baby tubs	1½ teaspoon for every gallon of water		1 teaspoon for every gallon of water

- *The amount of bleach added can be adjusted up or down depending on how well it is working or if it is irritating the skin. Ask your child's healthcare provider how much to use at first.*
- *Completely mix the added bleach in the water with a spatula, a spoon or with your hand.*
- *Have the child soak in the dilute bleach water for about 10 minutes. For smaller children, use a cloth or sponge to soak the dry, scaly parts of the body with the dilute bleach bath water.*
- *At the end of the bleach bath, rinse your child's skin very well with fresh, clean water.*
- *Gently pat your child's skin to stop it from dripping, but do not dry all the way.*
- *Put medicine or moisturizer (or both) on your child's skin as directed by your doctor.*



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WET WRAPS FOR FLARES OF ECZEMA

Dry skin is a major problem in everyone with eczema (atopic dermatitis). Treatments to keep the skin from drying out are important in all people with eczema all the time, but are especially important if the eczema is flaring or out of control. Treatment with "wet wraps" can help put water back into the skin, and can be used as a part of the overall management of eczema flare-ups.

STEPS FOR WET WRAPS

1. You and your doctor should discuss when it is appropriate to start wet wrap therapy, and you should not start wet wrap therapy without notifying your doctor first.
    a. If you think the skin may be infected, check with your doctor before starting wet wraps.

2. Gather everything you will need to do the wet wraps:





    a. Moisturizers.
    b. Medicated creams/ointments ("steroids" only, never use tacrolimus (Protopic) or pimecrolimus (Elidel)).
    c. Two sets of thick 100% cotton clothing* to cover the areas of the body/skin to be treated – such as pajamas, sweat pants/shirts, onesies, leggings/T-shirts, socks, etc.). If you plan on treating a limited area – such as one leg or arm, cotton towels may be used to wrap around that area. (*Another option is to use cotton gauze as the wrap material).
    d. Bathtub or sink with warm water.

3. Take a bath in the manner prescribed by your doctor. This is usually by soaking in a tub with comfortable water for 5-10 minutes, using a mild fragrance-free soap. After the bath, gently pat with a towel but don't completely dry the skin, and while the skin is still damp, immediately apply:
    a. The medicated creams/ointments to areas with active eczema.
    b. The moisturizer to all other areas.





4. Take one set of clothing and soak them in warm water.
5. Wring (squeeze) out these items until they are damp, but not dripping.





6. Put on the damp clothing.
7. Put on a layer of dry clothing over the damp layer.
8. Keep both layers of clothing on for at least 2 hours.
    a. Some people prefer to sleep overnight wearing both layers. You can discuss with your doctor how long to keep the layers on.
    b. Adjust the temperature of the room to make it comfortable.
9. After the prescribed time, remove both layers of clothing, re-apply moisturizer, and put on regular clothes.
10. Most people use wet wraps for 3-5 days. Discuss with your doctor how long to continue treatment, and follow-up with you doctor in 1 week.

TABLE: Topical Corticosteroids by Potency

	Potency Class	Drug Name
WEAKEST GROUP	VII	Hydrocortisone 1% Hydrocortisone 2.5%
	VI	Aclomethasone propionate 0.05% Fluocinolone acetonide 0.01% Triamcinolone acetonide 0.025% cream
	V	Betamethasone valerate 0.1% cream Fluticasone propionate 0.05% cream Hydrocortisone valerate 0.2%
	IV	Desoximetasone 0.05% cream Fluocinolone acetonide 0.025% ointment Mometasone furoate 0.1% cream Triamcinolone acetonide 0.1% ointment
	III	Amcinonide 0.1% cream Betamethasone valerate 0.1% ointment Fluocinonide 0.05% cream Fluticasone propionate 0.05% ointment
	II	Betamethasone dipropionate 0.05% ointment Desoximetasone 0.25% ointment Mometasone 0.1% ointment
STRONGEST GROUP	I	Clobetasol 0.05% cream or ointment Betamethasone dipropionate 0.05% ointment

NOTES:
- These are examples only, not a complete list.
- Typically, the same medication/concentration in an ointment vehicle will be more potent than in a cream vehicle.
- Other factors (halogenation, esterification) will increase potency, and these are not reflected in generic drug names.

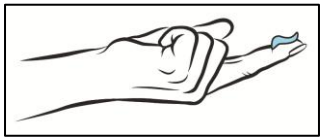
TABLE: Non-Steroid Topical Medications

Drug Class	Drug Name	Frequency	FDA Approved Age
Calcineurin Inhibitors	Pimecrolimus 1% cream Tacrolimus 0.03% ointment Tacrolimus 0.1% ointment	BID BID BID	>= 2 years >= 2-15 years >= 15 years
Phosphodiesterase-4 (PDE4) Inhibitors	Crisabole 2% ointment Roflumilast 0.05% cream Roflumilast 0.15% cream	BID Once daily Once daily	>= 3 months >= 2-5 years >= 6 years
Aryl Hydrocarbon Receptor (AHR) inhibitors	Tapinarof 1% cream	Once daily	>= 2 years

NOTES:
- Among these, the calcineurin inhibitors are generally more effective and the PDE4 and AHR inhibitors are less effective, though individual response varies.
- Be aware of the black box warning on the calcineurin inhibitors.
- This group of topical medications may be especially helpful for “maintenance” therapy in patients who have frequent or rapid recurrence after treatment of flares. Also, for areas of the body where steroids should be used with caution such as the face, groin, etc.

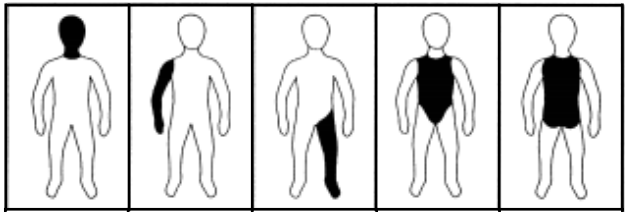
A Parent's Guide To The Use of Topical Treatment

Use the adult *Fingertip Unit* (FTU) as your guide.



One adult *Fingertip Unit* (FTU)

The diagrams of the child (below) show how many adult *Fingertip Units* of cream or ointment are required to cover each area of the child's body.



Age	Face & Neck	Arm & Hand	Leg & Foot	Trunk (Front)	Trunk (Back) including Buttocks
	Number of FTU's				
3-6 months	1	1	1½	1	1½
1-2 years	1½	1½	2	2	3
3-5 years	1½	2	3	3	3½
6-10 years	2	2½	4½	3½	5

Long CC, Mills CM, Finlay AY. British J Derm. 1998;138:293-6