ATOPIC DERMATITIS/ECZEMA SURVIVAL GUIDE

INTRODUCTION

Atopic dermatitis, or eczema, is a common inflammatory condition of the skin. While it persists throughout life, it is often most prominent in small children. There appears to be a genetic predisposition, and there may be an association with allergic rhinitis and asthma; there are also a number of environmental factors that can aggravate eczema.

While there is no cure for atopic dermatitis, there are a number of things that can be done to minimize the impact it has on a patient's life. These can be grouped into maintenance measures, which center around reducing aggravating factors, and interventional treatments to abort flare-ups.

Since babies and small children often have the worst problems with atopic dermatitis, many of these instructions will be worded with them in mind, though they are generally applicable to adults as well. In particular, older patients with dry, itchy skin (AKA "neurodermatitis") will find many of these measures helpful.

There are a variety of recommendations for the treatment of atopic dermatitis. The measures included here attempt to present a conservative and cost-effective approach; at times this necessitated some judgment calls on the part of the author.

A WORD ABOUT THE OVER-THE-COUNTER PRODUCT RECOMMENDATIONS INCLUDED HERE:
Several brand name products are mentioned below. While these are tried-and-true products, they are often somewhat expensive. When a generic equivalent or near-equivalent is available, that will be specified as the preferable choice. Wal-Mart generics will be used as examples, but you can probably find similar products at most large pharmacy chains. One needs to be careful when picking products, since brand names are applied to a vast array of differing formulations. To make product selection as easy and inexpensive as possible, specific product names available on Wal-Mart shelves as of this writing will be given.

Also note that shopping for these products can be difficult for even the most conscientious consumer, since they're often placed at multiple spots in stores, either with cosmetics, soaps, baby products, or other skin care products. And you may see the same product in different sizes at different areas of the store. A good rule of thumb is to buy these items in the largest size available to save money in the long run.

A summary table of OTC preparations will be included at the end of this document.

A WORD ABOUT TOPICAL STEROIDS:
You can't discuss treatment of atopic dermatitis without going into some detail about topical steroids. There are a few different classifications of topical steroids, but most commonly they are placed into 7 groups, with group I being the strongest, and group VII being the least potent. The huge assortment of products is often overwhelming to providers. To simplify things, it is best to limit the steroids you use to a small handful, with one to two representatives of each class. To that end, only a relatively small number of products will be mentioned here. Also remember that an occlusive dressing increases the potency of any steroid by approximately one group.

It is important to recognize that the medium affects the potency of the steroid. In general, the thicker the preparation and the lower the water content, the more potent the effect of the steroid. While there are exceptions, a given concentration of any specific agent will be most potent as an ointment, less potent as a cream, and least potent as a thin lotion. Take great care in choosing the delivery vehicle; choices discussed in this article will be limited to ointments and creams that are available generically, omitting gels, foams, and other novel but non-generic formulations.

The biggest risk of excessive steroid use is detrimental effect on the skin, primarily atrophy. These risks can be minimized if a couple principles are followed. First, do not use group I-V steroids on sensitive areas—the face, neck, axilla, groin, or occlusive skin folds. Second, do not use group I-V steroids for longer than 10 days at a time. In experienced hands these rules can be bent a bit, but you'll almost never get in trouble if you follow them.

Evidence suggests that once-daily use of any steroid is sufficient, and that little is gained by multiple applications. Despite this, eczema flare treatments often use twice-daily protocols. Since these practices are time-honored and effective, such regimens will be included here.

A summary table of topical steroids will be included at the end of this document.

MAINTENANCE MEASURES

The primary factors that aggravate eczema are excessive bathing, low humidity, stress, dry skin, scratching, overheating of skin, and exposure to solvents and detergents. Patients should be instructed to follow the measures discussed below to minimize these eczema triggers. In many cases this may be all that is necessary to adequately manage atopic dermatitis.

<u>Minimize extremes of heat and humidity</u>

1. In hot and humid conditions, wear lightweight cotton clothing. A little bit of baby powder may also be helpful.

2. In cold and dry conditions, wear layers of clothing that can be added and removed as necessary. Especially avoid overdressing babies and excessive use of blankets. Some parents have a tendency to do this out of concern that the baby is especially sensitive to cold, but if you're comfortable in the room, the baby probably is too. Cotton is a good clothing and bedding choice; synthetic fabrics and wool are sometimes scratchy, and may aggravate itching.

<u>Do not bathe excessively</u>

1. One bath a day is usually sufficient, with focused cleaning of soiled areas in between. Excessive bathing can make the skin dry out. (Twice-daily bathing may be helpful during eczema exacerbations, however.)

2. Bathe babies in lukewarm water; adults should bathe in the coolest water that is comfortable. Hot water aggravates itching, which is a major problem in eczema. Many will find a tub bath more comfortable than a shower, since the water pelting down on you in the shower may aggravate itching; however, if a shower is comfortable for you, that is OK.

3. Follow these instructions when bathing.

a) Bathe only as long as necessary to get clean, generally not over 10-20 minutes, in lukewarm water.

b) Use Equate Moisturizing Beauty Bar (generic for regular Dove Bar); if you prefer a liquid body wash, use Equate Deep Moisturizing Body Wash (generic for Dove Deep Moisturizing Body Wash).

Alternative but more expensive products include Cetaphil Gentle Skin Cleanser; Cetaphil Gentle Cleansing Bar; Aveeno Baby Wash & Shampoo; Vanicream Cleansing Bar; Vanicream Free & Clear Liquid Cleanser; Aquaphor Gentle Wash & Shampoo.

c) Bathe gently! There is great temptation to pick and scrub, trying to remove all flakes, but this actually perpetuates the flaking. If you wash gently a few flakes will come off today, a few more tomorrow, and in a week the skin will be much less flaky.

d) After bathing, *pat dry*. Do not rub vigorously, as this aggravates skin drying and itching. Leave the skin a little moist as you proceed to apply moisturizer as discussed below.

<u>Moisturize liberally and correctly</u>

1. The thicker the emollient, the more effective it will be. While it may seem counterintuitive, preparations with high water content are actually the least helpful, and can actually *aggravate* eczema, since the water evaporates rapidly, aggravating skin drying. Ointments, which have little or no water, are best choice, with thick creams coming next. Lotions have the largest water content, and are the least preferable choice.

However, you may have to make compromises with your patient as you select moisturizing products. The greasiness of ointments often makes them undesirable for patients, while thin lotions are the least annoying to apply. Some tactics to address this problem follow.

2. The most important time to apply moisturizer is after bathing. So urge your patient to use the best moisturizing product at this time, preferably an ointment. A little goes a long ways. After applying the ointment, to minimize messiness, cover/dress the area with a loose cotton garment, such as a T-shirt, old sock with the toe cut out, or a baby onesie. If needed for warmth, add another item of clothing on top. If you can get patients to accept an ointment only one time a day, this is the time to use it, so bargain with them.

3. At any other time the skin is drying out, itching, or getting irritated, re-apply moisturizer. If the patient will use the ointment again, great. However, there is room for negotiation. It may be more practical to have them keep a thick cream on hand to use throughout the day. If they insist on using a lotion, instruct them to leave a thin layer on the skin, rather than rubbing it in completely—though the temptation will be great for them to do so.

4. There are a number of prescription emollients available. These are far more expensive than OTC products, and there is little solid evidence that they are more efficacious.

5. The best and cheapest ointment is Equate Petroleum Jelly (generic for Vaseline). Note, however, that even name-brand Vaseline is pretty inexpensive, and sometimes available in a larger jar than generics.

An equally good but more expensive alternative is the related product petrolatum. The least costly version is Equate Advanced Healing Ointment (generic for Aquaphor Healing Ointment from Eucerin).

6. The best and cheapest thick cream is Equate Therapeutic Moisturizing Cream (generic for Eucerin Original Healing Soothing Repair Crème). Another good but more expensive option is Cetaphil Moisturizing Cream.

7. A good, inexpensive lotion is Equate Advanced Recovery Skin Care Lotion (generic similar to Eucerin Original Healing Soothing Repair Lotion). Another good but more expensive option is CeraVe Moisturizing Lotion.

Aggressively treat itching

1. While evidence in support of them is weak, antihistamines have been a mainstay of the treatment of itching. Sedating antihistamines are probably more effective for itching; in fact, their greatest value may be their sedative effect. Nonsedating antihistamines may be of some use when sedation should be avoided. Antihistamine doses higher than typically used for other purposes may be required for relief of itching.

2. Doxepin also has strong antihistaminic effects, and may be of use when other antihistamines are insufficient. It also adds an antidepressant effect.

3. Tepid to cool baths and compresses are helpful for itching.

4. Chilled emollient can provide great relief for itching. Have patients keep a jar of moisturizer in the refrigerator. As discussed above, ointment is preferable to thick cream, which is preferable to lotion. Make sure the patient rubs the moisturizer on with the fingertips, not allowing the fingernails to scratch.

5. Wet wraps are perhaps the most powerful measure you can employ for itching. Wet a cotton garment or wrap, such as a towel, cut-off cotton sock, or T-shirt, and place it in the refrigerator. Apply emollient to the itching area, cover with the chilled garment, then cover with a dry garment. Leave on for 8 hours, or sleep in the wrap. This has the added benefit of debriding crusts and limiting access to the skin for scratching.

6. Tell patients not to use rubbing alcohol! This is a common folk remedy for itching, but it is very drying, and greatly *worsens* itching.

Address anxiety and depression

Especially in adults, antidepressant and anxiolytic medications may be of use, especially when these are identified as eczema flare triggers. Tricyclics also add an antihistaminic effect.

Treat concomitant skin infections

1. Eczema predisposes to fungal infections, while fungal infections increase the severity of eczema.

   a) Look for fungal infections, including tinea versicolor and onychomycosis, and treat as appropriate.

   b) Tinea versicolor is notoriously recurrent and difficult to eliminate. After initial treatment, selenium sulfide 2.5% or ketoconazole 2% shampoo to the entire body for 5 minutes monthly can be helpful in preventing recurrences.

2. Eczema predisposes to Staphylococcus aureus infections, while S. aureus increases the severity of eczema. Every effort should be made to eliminate staph infections and colonization.

   a) Suspect staph infection when you see pustules, honey-crusted lesions, folliculitis, or warmth/redness in excess of that typically seen in course of the patient's atopic dermatitis.

   b) When staph is suspected, culture the wound and nares to confirm the presence of S. aureus and differentiate between methicillin-sensitive and methicillin-resistant variants.

   c) Treat small localized infections with topical mupirocin. Treat more extensive infection with appropriate systemic antibiotics.

   d) S. aureus colonization is difficult to eliminate in patients with atopic dermatitis, but it is important to attempt to do so. Nasal mupirocin is one of the best tools available for this purpose. Twice daily use for the first 7 days of the month is a reasonable regimen.

   e) If the patient continues to have staph infections despite nasal mupirocin, there is modest evidence supporting the use of bleach baths to eliminate colonization. Use 0.25-0.5 cup of sodium hypochlorite 6%—normal household bleach—in a full tub (approximately 40 gallons) of lukewarm warm. Soak from the neck-down for 5-10 minutes. Rinse with fresh water, pat dry, and apply emollient. Repeat twice weekly.

3. Avoid Neosporin and generic bacitracin/neomycin/polymyxin B ointments! Topical neomycin is highly allergenic. When any rash is worsening, thoroughly question the patient about the use of OTC antibiotic ointments; Neosporin is often the culprit. Generic bacitracin/polymyxin B (Polysporin) ointment is available OTC, and is the preferable choice any time a patient needs to use an OTC antibiotic ointment.

Consider maintenance topical steroids

1. Some patients may achieve good control using the measures reviewed above. However, if patients frequently have flares despite these practices, maintenance steroids should be considered. Properly managed, these can produce lasting remissions with few adverse effects.

2. 1% hydrocortisone cream, even in daily use in sensitive areas, presents very little risk of skin atrophy. As a first line, it is reasonable to consider every-other-day application of 1% hydrocortisone

cream to areas that have previously been eczema trouble spots for children or adults.

3. For adolescents and adults who are not adequately managed with 1% hydrocortisone cream, group III-VI topical steroids may be used once daily for two consecutive days each week, e.g., the weekend. Use the weakest agent that achieves lasting remission. This can be continued for up to 4 months at a time. After that a one month break is recommended if it can be tolerated by the patient. A calcineurin inhibitor (discussed below) may be useful as an alternative during the steroid break.

4. For infants and young children who are not adequately managed with 1% hydrocortisone cream, group VI-VII topical steroids may be used once daily for two consecutive days each week, e.g., the weekend. Use the weakest agent that achieves lasting remission. This can be continued for up to 4 months at a time. After that a one month break is recommended if it can be tolerated by the patient. A calcineurin inhibitor (discussed below) may be useful as an alternative during the steroid break.

Consider maintenance calcineurin inhibitors

1. Calcineurin inhibitors are nonsteroidal immunomodulators. They are safe for chronic use without fear of skin atrophy, and thus are useful for sensitive areas where high potency steroids would be problematic. However, overall they are only comparable to low potency topical steroids (approximately group VI), and they are very expensive, requiring a PA under Medicaid. They have a black box warning for the risk of lymphomas and other skin cancers, but this is not thought to be a major concern by most dermatologists.

Calcineurin inhibitors are most commonly used in a maintenance role after they have been determined to be effective in the treatment of flare-ups, to provide a break from ongoing steroids, or for treatment of sensitive areas.

2. Tacrolimus (Protopic) is felt to be the most effective calcineurin inhibitor. The 0.03% ointment should be used for patients age 2-15; the 0.1% ointment should be used for older patients. A reasonable regimen is to use it once daily for 3 non-consecutive days, e.g. Monday-Wednesday-Friday, after resolution of a flare has been achieved. Transient burning, redness, and itching are common side effects which generally resolve with ongoing use.

3. Pimecrolimus (Elidel) 1% cream is generally perceived to be less efficacious than tacrolimus, but it may be better tolerated. A reasonable regimen is to use it once daily for 3 non-consecutive days, e.g. Monday-Wednesday-Friday, after resolution of a flare has been achieved.

BREAKTHROUGH MEASURES

The basic premise behind breakthrough therapy is simple: escalate the maintenance measures discussed above enough to induce remission, then drop back to baseline maintenance measures, adjusting those measures if flare-ups are occurring frequently.

Understand that exacerbations are going to happen

Make sure the patient and parents understand that the typical course of atopic dermatitis is waxing and waning. Physical and emotional stress, viral illness, changes in diet, seasonal allergen exposure, and any

number of unidentified factors can make eczema transiently worse. Expect flare-ups to happen, and have a plan to address them.

Is routine skin care actually being done?

Sometimes exacerbations happen because the patient has become lax about performing daily bathing and moisturizing. If this is the case, have the patient resume use of cleansing and emollient products as discussed above, and more diligently avoid triggers. Urge the use of an ointment as the preferred moisturizer during the flare-up, even if the patient is reluctant to use ointments for baseline care. Also recommend twice-daily use of baths and emollient until the exacerbation has resolved.

Treat infection

Look for staph or fungal infections, and treat as indicated. Even a localized infection can lead to a generalized worsening of eczema; this phenomenon is called an *id reaction*.

Escalate steroids

1. For severe outbreaks of eczema in adolescents and adults a brief course of systemic steroids may be used. Typical prednisone doses used are 40-60 mg/day for 4 days, followed by 20-30 mg/day for 4 days.

2. Increase the potency and frequency of topical steroids being used. A reasonable approach would be to go up one to two groups in strength from the baseline steroids the patient uses, and use them up to 10 days. Past experience will often be a good guide as to what strength steroid the patient needs to induce remission. It is best not to go stronger than group VI steroids for sensitive areas; this may require using two different agents—a stronger one for the body, and a weaker one for sensitive areas. After 10 days drop back down to maintenance steroids.

3. Consider using a wet wrap as described above. This will provide symptomatic relief, and it effectively increases the potency of the steroid used by one group.

Consider calcineurin inhibitors

1. When a sensitive area is not responding to topical steroids at the highest potency the provider is comfortable with, calcineurin inhibitors may be of value. Tacrolimus (Protopic) in the age-appropriate concentration is the preferable choice, though pimecrolimus (Elidel) may be used if the patient does not tolerate tacrolimus.

2. If the patient's exacerbation responds to a calcineurin inhibitor, this may be an argument in favor of using that agent (at reduced frequency) as a maintenance drug.

TOPICAL STEROID WORK AIDS

Topical Steroids Short List		
Potency Group	**Agent**	**Brand Name**
I: Highest	Clobetasol 0.05% cream or ointment	Temovate
II: High	Desoximetasone 0.25% cream or ointment Fluocinonide 0.05% cream or ointment	Topicort Lidex
III: High/Medium	Mometasone 0.1% ointment *	Elocon
IV: Medium	Mometasone 0.1% cream Triamcinolone 0.1% ointment	Elocon Aristocort/Kenalog
V: Medium/Low	Desonide 0.05% ointment Triamcinolone 0.1% cream	Tridesilon Aristocort/Kenalog
VI: Low	Desonide 0.05% cream	Tridesilon
VII: Lowest	Hydrocortisone 1% or 2.5% cream or ointment **	
Notes: This is not intended to be a comprehensive list; it is a short list of agents available generically. Brand names are included for reference; some are no longer on the market.		
* Some references place mometasone 0.1% ointment in Group II, but Group III appears more common. ** While all of these formulations of hydrocortisone are in Group VII, 2.5% will often be more effective than 1%, and ointment will usually be more effective than cream. 1% hydrocortisone cream is the strongest steroid cream available OTC, and the weakest steroid cream likely to have much therapeutic value.		

Amount-needed guidelines

1. Rule of Hand: The area of the side of one adult hand (palm and fingers) is approximately equal to 1% of body surface area. This area requires 0.25 g of medication for one application.

2. Estimation of amount in grams of topical agent needed for a twice-daily, 14-day course. (Note that topical steroids can typically be applied once-daily, so you may wish to cut these amounts in half.)

	Amount in Grams, BID Application for 2 Weeks			
Location	**Adult**	**Older child**	**Young child**	**Infant < 1 yr**
Arm & hand	60	40	20	15
Back & buttocks	100	70	40	20
Entire body	580	350	190	120
Face & neck	30	30	20	15
Front of chest & abdomen	100	50	30	15
Hand & fingers (front & back)	15	10	7.5	5
Leg & foot	110	60	30	20

Reference 1.

3. Give your pharmacist some leeway. Pharmacies do not stock all sizes of all formulations of all topical medications. Including a comment in your prescription like "May dispense any appropriately-sized container you stock" will reduce the likelihood of a callback or delay in filling the prescription. You can save this instruction in your Favorites folder in the Medication Module of the EHR.

OTC CLEANSER AND MOISTURIZER RECOMMENDATIONS

The product listed as first choice is the Wal-Mart generic equivalent of the first alternative on the list; they are recommended first due to cost. Brand-name alternatives are products commonly favored by dermatologists. All of these products are on Wal-Mart shelves at the time of this writing. Note that most large pharmacy chains offer similar generic products.

CLEANSERS	
First Choice:	Equate Moisturizing Beauty Bar
Alternatives:	Regular Dove Bar Equate Deep Moisturizing Body Wash Dove Deep Moisturizing Body Wash Cetaphil Gentle Skin Cleanser Cetaphil Gentle Cleansing Bar Aveeno Baby Wash & Shampoo Vanicream Cleansing Bar Vanicream Free & Clear Liquid Cleanser Aquaphor Gentle Wash & Shampoo
OINTMENTS	
First Choice:	Equate Petroleum Jelly
Alternatives:	Vaseline Equate Advanced Healing Ointment Aquaphor Healing Ointment from Eucerin
THICK CREAMS	
First Choice:	Equate Therapeutic Moisturizing Cream
Alternatives:	Eucerin Original Healing Soothing Repair Crème Cetaphil Moisturizing Cream
LOTIONS	
First Choice:	Equate Advanced Recovery Skin Care Lotion
Alternatives:	Eucerin Original Healing Soothing Repair Lotion CeraVe Moisturizing Lotion

ATOPIC DERMATITIS/ECZEMA PATIENT INFORMATION

A patient handout summarizing these recommendations in lay language has been prepared. It provides patient education, as well as therapeutic options and instructions that you can check off. Make sure you check/circle/cross out options as desired when you give it to the patient.

REFERENCES

1. Berke R, Singh A, Guralnick M; Atopic Dermatitis: An Overview; Am Fam Physician 2012;86(1):35-42.
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4. Dermatology for the Non-Dermatologist course materials.