

Atopic Dermatitis: A Practical Guide to Management

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Health Care Provider Resource

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1. This Guide is written by seven experienced Canadian dermatologists and is intended for use by Primary Health Care Providers only, not by individual patients. The recommendations are based on the professional experience of these dermatologists and currently available medical evidence.
2. This Guide does not constitute medical advice and is not intended to provide recommendations, diagnosis, or treatment to specific individuals.
3. This Guide is current as of June 2016. It is acknowledged that medicine is constantly evolving and the document only reflects recommendations as at the date of publication.
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ABSTRACT

Background: Eczema (atopic dermatitis), is a chronic, pruritic inflammatory skin condition that follows a relapsing course affecting people of all ages, although it is more frequent in children. Eczema is most often diagnosed and managed by primary care providers. **Objective:** This article aims to provide practical guidance to primary healthcare practitioners who care for patients with eczema. **Methods:** The Eczema Society of Canada/Société canadienne de l'eczéma convened a group of Canadian dermatologists with extensive experience in managing paediatric and adult patients with atopic dermatitis, to develop practical recommendations for the management of atopic dermatitis. They developed clinical recommendations based on expert consensus opinion and the best available medical evidence. **Results and Conclusion:** The experts developed recommendations that focus on three key areas of managing patients with eczema: (1) patient/caregiver education, (2) addressing skin barrier dysfunction and (3) inflammation control.

Abbreviations:

AD - Atopic Dermatitis

QoL – Quality of Life

SOA – Sedating Oral Antihistamine

TCI – Topical Calcineurin Inhibitors

TCS – Topical Corticosteroids

ABOUT ATOPIC DERMATITIS

Atopic dermatitis (AD)—also commonly referred to as eczema or atopic eczema—is a chronic, pruritic, relapsing inflammatory skin condition that impacts quality of life (QoL) and places a significant burden on patients and families. It can affect people of all ages but it is more frequent in children. Eczema is characterized by periods of acute worsening symptoms, known as flares, alternating with periods of symptom remission, but some patients do not have any remission. Patients often have associated atopic disorders, such as allergic rhinoconjunctivitis, food allergies and/or asthma. The onset of eczema is typically between 2 and 6 months of age, although it can begin at any age. It was previously thought that eczema resolved or improved by adulthood in most cases, but evidence suggests that it is a chronic condition that may persist into adulthood.^{1,2,3}

Eczema is caused by a dysfunctional skin barrier and dysregulation of the immune system, due to genetic, immunologic, and environmental factors. Pruritus is the most notable feature of eczema, which is at the centre of much of the disease burden for patients and their families.

Therapeutic education directed to the patient or main caregiver(s) has been demonstrated to improve QoL.⁴

While complete guidelines on AD are available,^{5,6,7,8} these guidelines may not be practical for everyday clinical practice in primary care, nor are they specific to the Canadian healthcare system.

DIAGNOSIS & ASSESSMENT

Eczema is most often diagnosed and managed by primary care providers.⁹ Eczema is diagnosed based on the morphology and distribution of the patient's skin lesions, associated clinical signs, and family history (Table 1).¹⁰ Eczema can range from mild to severe, based on body surface area involvement, extent of eczematous lesions, and the impact on a patient's QoL.

At this time eczema remains a clinical diagnosis. In select cases additional testing may be performed, such as a biopsy or patch testing, to rule out other conditions, but this is usually unnecessary. If the diagnosis is unclear, referral to a dermatologist should be considered.

Table 1: Diagnostic Features of Eczema⁵

Atopic Dermatitis Diagnostic Features
<ul style="list-style-type: none">• Chronic or relapsing dermatitis• Typical morphology and age-specific patterns (e.g. flexural areas in all age groups; extensors, face, and neck in paediatric population)• Early age of onset of atopy• Personal and/or family history of atopy
Acute Dermatitis
<ul style="list-style-type: none">• Pruritus• Xerosis• Erythema, edema• Blistering, oozing and crusting• Excoriations (linear crusted erosions)
Chronic Dermatitis
<ul style="list-style-type: none">• Thickness (induration, papulation,)• Excoriations (linear crusted erosions)• Lichenification (increased cutaneous line markings with thickening of the skin)

Quality Of Life in Eczema Assessment

Eczema has a significant impact on QoL for patients and their families. Physicians should consider addressing this impact on QoL with their patients and patients’ families, in addition to assessing the signs and symptoms of the disease. Sleep is disturbed, often for the whole family. Healthcare providers should address itch, sleep loss, and disease impact on mood, activities, behaviour and self esteem, when diagnosing eczema and formulating a management plan.

The impact of AD on QoL for the patient and his or her family is often very significant. The level of impact has been found to be similar and at times can surpass the effect that diabetes has on the family.¹¹

MINIMIZING AND CONTROLLING FLARES

Eczema is a relapsing-remitting, chronic disease with cyclical periods of relative quiescence and periods of flares. Currently, there is no cure for eczema. As such, the main goal of eczema management is to improve baseline

inflammation and xerosis and to reduce the frequency and severity of flares. For some patients, treating baseline disease activity will involve emollient use only. For others it will involve the use of emollients and topical anti-inflammatory medications to any inflamed areas. In periods of flare, treatment needs to be increased beyond this baseline. For some with mild disease and mild flares, this means adding a topical anti-inflammatory medication to their emollient regimen. For others with more severe eczema, it may require a temporary increase in the potency of topical anti-inflammatory medications. For patients with frequent flares and flares that require high-potency topical corticosteroids, referral to a dermatologist is recommended.

PATIENT EDUCATION

Patient and caregiver education is a key aspect of successful eczema management¹². Studies have demonstrated that therapeutic patient education increases adherence to therapy, increases the use of moisturizers, and decreases fear of medications.^{13, 14, 15} Suboptimal treatment and poor adherence to therapy are common in patients with eczema, much like in patients with other chronic diseases that require regular intervention. Therefore, therapeutic education is particularly important in the face of many sources of potentially misleading or inaccurate information, or patient misconceptions and fears present in the community.¹⁶

Patient counselling should focus on the following key points:

Eczema is a chronic disease. There is no cure, but control of the disease can be achieved. Eczema typically goes through periods of flares and remissions. Moisturizing is the mainstay of therapy during remission, and prescription treatments are needed for any areas of inflammation.

Eczema flares can be managed by hydrating the skin (bathing and moisturizing appropriately) and reducing inflammation with topical medication.

Undertreating, starting treatment too late, or stopping treatment too soon, should be avoided. Treatment of eczema flares should begin at the first sign of inflammation. Patients and caregivers often stop treatment before the skin is fully clear of lesions, mistakenly believing that the vast improvement they have seen means the skin is “clear enough.” Clinicians should

encourage patients and caregivers to make sure the skin is completely clear of lesions before stopping treatment, since even though eczema flares may seem to be much less severe, the patient still has chronic active inflammation, and often the skin rapidly becomes worse. Patients need to be counselled on how to apply the medication, as applying the treatment sparingly may contribute to under treatment.

Adherence to therapy is essential for the optimal management of eczema. Poor adherence may be the most significant barrier to optimal care in eczema. In a survey of 200 eczema outpatients, 24% admitted that they did not adhere to treatment, and experts estimate this percentage could be significantly higher.⁸ Healthcare providers should counsel patients and caregivers about the importance of adhering to treatment.

Trigger avoidance: Patients should be counselled to attempt to identify and avoid their triggers, and to understand that some eczema flares occur despite strict trigger avoidance and diligent skin care. This is often a source of frustration for patients. Many eczema flares do result from some environmental trigger. Common triggers include harsh or fragranced soaps and self-care products, rough fabrics, overheating and sweating, and winter weather. Often these triggers can be identified but not avoided, such as weather changes.

Lifestyle can impact eczema as well, such as sweating for a young athlete. Instead of advising the patient to avoid pleasurable activities, help the patient learn about ways to manage the eczema flare that may follow an activity or exposure to an eczema trigger. Additional actions can be taken to help the condition, such as keeping nails trimmed short and filed smooth to help reduce damage done by scratching. Distraction can also be helpful during episodes of acute itch, particularly activities that keep the hands busy.

Patients and caregivers often seek causes or cures for eczema, which diverts attention away from the treatment plan. Patients should be counselled on the chronicity of atopic dermatitis, and reminded that broad panel allergy testing and restrictive diets are not recommended in the absence of signs and symptoms consistent with an IgE-mediated allergy.

For additional patient support, information and education, recommend reliable sources, such as the Eczema Society of Canada/ Société canadienne de l'eczéma (www.eczemahelp.ca), Canadian Dermatology Association (www.dermatology.ca), American Academy of Dermatology

(www.aad.org), National Eczema Association (USA) (www.nationaleczema.org), or National Eczema Society (UK) (www.eczema.org).

WRITTEN ECZEMA CARE PLANS

A written eczema care plan is a recommended tool to improve therapeutic outcomes.^{17, 18} Patients and caregivers may benefit from having a written plan in order to carry out the multi-step plan of caring for eczema, which often includes specific bathing and moisturizing recommendations and instructions for using prescription medications (type and dosage). For a sample written eczema care plan, see **Figure 1**.

SKIN CARE

Moisturizers

Frequent application of moisturizers is the cornerstone of eczema management,¹⁹ helping to decrease itch, preventing and reducing flares, and decreasing the need for prescription medications. Xerosis results from skin barrier dysfunction and is present to some degree in most patients with eczema. Moisturizers are used to reduce xerosis, which reduces itching, and they also reduce transepidermal water loss.²⁰

For patients with mild eczema, frequent and consistent use of moisturizers may sufficiently manage the disease. In moderate to severe disease, moisturizing is still a fundamental part of treatment. Patients may need to be explicitly counselled on how to use moisturizers in conjunction with other topical prescription treatments.

Patients should select moisturizers that are soothing and do not irritate the skin. Ideal moisturizers contain varying amounts of emollient, occlusive and humectant ingredients. While thicker products that both moisturize and provide a barrier are recommended, there are many moisturizers to choose from and patient preference is important. The consistent use of a moisturizer that is well-tolerated by a patient is more important than the specific product selected.

There is insufficient evidence to recommend a specific optimal regimen for use of moisturizers. However, this consensus group suggests that generous application, one to several times a day, is necessary to help minimize skin dryness. It is highly recommended to apply moisturizers immediately after bathing or any water exposure to improve skin hydration.^{21, 22}

Barrier Repair & Barrier Repair Products

Patients with atopic dermatitis have impaired skin barrier function, partly due to deficiencies in ceramides (lipids) and filaggrin (a protein), components of the outer skin barrier. These deficiencies contribute to a degraded skin barrier that allows bacteria, irritants, and allergens to enter the skin, and also allows moisture to escape.²³ To address this, ceramides are increasingly available in over-the-counter moisturizers, as well as one prescription barrier repair treatment.

BATHING & SHOWERING

Daily bathing is often recommended for patients with eczema; however, there is no evidence to support a standard recommendation for the frequency, duration or the method of bathing. Moisturizing after bathing is strongly recommended.^{21, 22} Clinicians can recommend that patients bathe or shower (5-10 minutes) in warm, plain water once daily, or every other day, based on patient preference (e.g., baths may sting open eczema lesions making daily bathing challenging). Gentle cleansers may be used only on areas that need cleaning, and should be used at the end of the bath or shower. Bathing using this method should not aggravate eczema. Moisturizing should immediately follow bathing or showering, since exposure to water can exacerbate eczema if the skin is not moisturized soon after exiting the water. Evidence is lacking to support the use of bath additives such as oils, emollients, bath salts, and most other products.

INFLAMMATION CONTROL

Topical Corticosteroids

Appropriate use of topical corticosteroids (TCS) is a safe and effective first-line therapy in the treatment of the inflammatory component of eczema.²⁴ Consider factors such as the age of the patient, areas of the body to be treated, xerosis, and patient preference when prescribing appropriate topical corticosteroids. Selecting the appropriate agent, including the appropriate strength, can be challenging. In general, low potency TCS (classes VI and VII) are recommended for the face, neck, skin folds, and groin, for both paediatric and adult patients. Moderately potent medications (classes III, IV, and V) are recommended for the trunk and extremities. Higher potency TCS may be required for refractory eczema or lichenified areas. Consider referral to a dermatologist in these cases.

Once to twice daily application of TCS are the generally recommended treatment during an acute eczema flare. Treatment should be stopped once the affected areas are smooth to the touch and no longer itchy or red. If no response to treatment is seen after 1 to 2 weeks, re-evaluate to consider other diagnoses or treatment plans. With appropriate use, the incidence of adverse events is minimal.²⁵ When prescribing combination treatments, TCS strength should be taken into consideration, as the TCS could be of higher potency than is appropriate.

Patients and caregivers may fear the side effects of pharmacological treatments. Fear of topical corticosteroids is common and should be recognized and addressed. This may be particularly important for paediatric patients. Addressing fears and concerns may help improve adherence and avoid under-treatment or non-treatment. Patients who are using corticosteroids over the long term should be monitored, and should have regular physical examinations to watch for cutaneous side effects. Monitoring of eczema patients for systemic side effects from topical corticosteroids is not routinely recommended.^{26, 27}

In patients who have good adherence to their treatment plan and experience periods of remission, but flare frequently in predictable areas, maintenance treatment with topical corticosteroids may be suitable. Intermittent application (one application 1 to 2 times a week) of a moderately potent topical corticosteroid is recommended for proactive treatment on areas that are commonly at risk of flare.²⁸

Topical Corticosteroid Side Effects

As with all medications, TCS can have side effects (Table 2). However, when they are used appropriately, the incidence of side effects is low, and patients should be counselled accordingly.²⁹ The burden of under- and untreated eczema usually outweighs the risks associated with TCS.³⁰

Table 2: Potential Adverse Effects of Topical Corticosteroids¹⁸

Potential Adverse Effects of Topical Corticosteroids¹⁸

- Skin atrophy
- Purpura
- Telangiectasia
- Striae
- Focal hypertrichosis
- Acneiform or rosacea-like eruptions
- Impairment of wound healing and re-epithelialization
- Allergic contact dermatitis
- Hypothalamic-pituitary-adrenal axis suppression

Topical Calcineurin Inhibitors

Topical calcineurin inhibitors (TCI) (e.g. tacrolimus and pimecrolimus) are a class of anti-inflammatory medications that are a recommended safe and effective second-line therapy option for treatment of acute flares of eczema.³¹ Whereas TCS are generally considered first-line topical treatment for eczema, TCI can also be used off-label as first-line therapy in select cases, particularly for areas that are sensitive to the adverse effects of TCS, such as the eyelids. TCI are also appropriate second-line therapy for eczema that does not respond to TCS or in patients intolerant of TCS. TCI can also be used as a preventive therapy, 2 to 3 times a week in areas of predictable flares similar to the preventative strategy described for TCS above.³² Proactive, intermittent use of TCI has been shown to be more effective than the use of emollients alone.^{33, 34}

Topical Calcineurin Inhibitor Side Effects

Mild to moderate burning or stinging sensation of the skin can occur with TCI use, and patients and caregivers should be counselled about this possible reaction. Patients who use tacrolimus may have flushing of the face when they consume alcohol.

Based on concerns about an increased risk of cancer with the use of TCI use, the US Food and Drug Administration issued a black-box warning shortly after the class of medications came on to the market. Shortly after the US Food and Drug Administration warning was issued, Health Canada issued a similar warning. However, TCI have been available for over a decade now and recently published data does not support those concerns.^{35, 36, 37, 38, 39} Healthcare providers should be aware of the black-box warning and discuss it with patients.

ADJUNCTIVE THERAPIES

Antimicrobials

Skin infections can worsen eczema and should be addressed when present. Clinical signs of infected eczema include crusting, oozing, and pus. Gram-positive bacteria, in particular *Staphylococcus aureus*, is frequently found on the skin in eczema.⁴⁰ Mild infection may be treated with a topical antibiotic adjunctively with a topical anti-inflammatory agent. The routine use of topical antistaphylococcal antibiotic treatment in the absence of clinical signs of infection is not recommended.⁴¹

When clinical signs of bacterial infection are seen, swabs for culture and sensitivity should be considered, partly because of the increased prevalence of resistant organisms, and empiric oral antibiotics targeting streptococcal and staphylococcal infections can be started. In patients who frequently show clinical signs of secondary bacterial infection, consider bleach baths as prophylactic therapy.⁴²

Bleach Baths

In patients where infections are common, bleach baths can be done once to twice per week, and consist of bathing in a dilute solution of bleach and clear warm water.⁴³ Patients and/or caregivers can create a dilute bleach bath at home by adding 120 mL (1/2 a cup) of regular strength household bleach (6% sodium hypochlorite) to a full standard-size bathtub of warm water (which is usually about 150 litres). This concentration of bleach is quite low (0.005%). For smaller bathtubs, patients may use 1 teaspoon (5 mL) of regular bleach for every 5 litres of water.⁴²

The bleach and clear water should be mixed well, and the patient should bathe in the solution for 5 to 10 minutes, thoroughly rinsing the skin after with warm clear water. Rinsing should be immediately followed by application of prescription treatments, if needed, and moisturizers. Patients and caregivers should be explicitly counselled on how to perform the bleach bath, including how to select the correct concentration of bleach and safe dilution practices.

Managing Viral Infections

Viral infection with herpes simplex virus can cause eczema herpeticum, a potentially life-threatening condition. Swabs for viral detection (such as viral culture, or polymerase chain reaction) should be performed in suspected cases of eczema herpeticum, in addition to initiation of treatment with an appropriate antiviral agent.⁴⁴ Eczema coxsackium is a form of hand-foot-and-mouth disease in

patients with eczema that is more extensive than routine hand-foot-and-mouth disease, and can look similar to eczema herpeticum. Molluscum contagiosum occurs more commonly in eczema patients and the presence of the virus can lead to eczema surrounding the mollusca, potentially exacerbating an eczema flare.

Antihistamines

Due to a lack of evidence of their efficacy in patients with eczema, non-sedating oral antihistamines are not recommended for use.⁴⁵ However, sedating oral antihistamines (SOA), such as hydroxyzine and diphenhydramine, can be used in patients whose disease significantly interferes with sleep. It should be noted that long-term use of SOA may lead to a reduction in the efficacy and sedative effects of the treatment.⁴⁶ Control of inflammation and itch, through the use of previously discussed prescription anti-inflammatory medications and appropriate bathing and moisturizing may mitigate the need for sedating antihistamines in many patients. Patient reliance upon regular antihistamine use should be an indication that the treatment plan is not optimally managing the condition.⁴⁷

Allergy Testing & Restrictive Diets

The relationship between eczema and allergy is complex. While children with eczema have a significantly higher incidence of food allergies, food does not cause eczema flares for most patients. In an AD patient who has confirmed food allergies, exposure to the allergenic foods can induce urticaria, which can indirectly worsen the eczema. If a patient shows true allergic signs and symptoms such as urticaria or anaphylaxis to a food, that food should be avoided and an epinephrine auto injector should be prescribed, until an allergist/immunologist can be consulted. Routine allergy testing with eczema as the only symptom is not currently recommended. Broad spectrum panel testing for a variety of foods is not recommended, as it often leads to a number of false positive results.⁴⁸

Food elimination diets or restrictive diets, are not recommended as an eczema intervention. Excessive, prolonged food elimination diets, especially in children, may lead to weight loss, poor growth, and nutritional deficiency.⁴⁹

Supplements & Alternative Therapies

There is limited evidence to support the routine use of dietary supplements and alternative medicines for the treatment of eczema. However, some patients may find dietary supplements or alternative interventions to be

helpful. If the dietary supplements or interventions are not harmful, the patient should be counselled and supported accordingly. However, if these interventions could be harmful, patients should be counselled and cautioned. Extra caution should be taken in the case of infants and children.

REFRACTORY AND SEVERE ECZEMA

Phototherapy⁵⁰ and/or systemic immunomodulatory agents may be necessary for refractory and severe eczema, and they should be used by health care providers versed in their use.⁵¹ Phototherapy, specifically broad- and narrow-band UVB, can be used for pediatric and adult patients with AD. It is a safe and effective treatment for most patients, but a major barrier to its use is accessibility as it requires visits to a physician's office multiple times per week. Furthermore, long term side effects, such as skin cancer, have not been well-established in the paediatric population.

Cyclosporine, methotrexate, azathioprine and mycophenolate mofetil are the systemic agents commonly used for atopic dermatitis. All of these agents may cause significant adverse events and require regular monitoring, so they should be used with caution and after appropriate discussion of their risks and benefits with patients and their families. Specific guidelines for their use, including dosing schedules and adverse effects, are beyond the scope of this review. Referral to a dermatologist should be considered in patients with refractory eczema in whom systemic therapy is being contemplated.

Systemic Corticosteroids

Systemic corticosteroids, such as prednisone, are not recommended for the routine management of atopic dermatitis. While systemic corticosteroids can rapidly ameliorate the signs and symptoms of an acute eczema flare, patients often have a disease flare upon withdrawal of the corticosteroid. Given the long-term consequences of chronic systemic corticosteroid use, they should be avoided whenever possible in patients with atopic dermatitis.⁵²

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WRITTEN ECZEMA CARE PLAN

Date : _____

Patient Name: _____

Physician Name: _____

1. Every day, take a 5- to 10-minute bath or shower. If this is not enjoyable or is uncomfortable, take a shower or bath every second day. You can use a gentle cleanser if you wish. Gently towel dry. The skin can be left damp to the touch. Apply prescription medications to any areas of eczema that are red, rough, and/or itchy.
 - Apply _____ to the affected areas of the face, neck, armpits, and groin _____ times per day.
 - Apply _____ to the scalp _____ times per day.
 - Apply _____ to other affected areas of the body _____ times per day.
2. Apply a moisturizer to the unaffected areas of the body, within a few minutes of exiting the bath or shower.

Additional instructions:

3. Moisturizer may be applied throughout the day, whenever the skin feels dry or itchy, or after any contact with water (e.g. bath, swimming, etc). Apply prescription medications only as described in step 2.
4. Continue using the prescription medications until the red, rough rash is gone and the skin becomes clear. If after two weeks of diligent use of medication your skin has not cleared, speak with your physician.
5. After the rash has cleared, continue applying moisturizer at least two times a day to the entire body.
6. Restart the prescription medications, as described in steps 2 to 3, when the eczema flares again.
7. Oozing fluid, yellow crusts, blisters, and/or red swelling need to be reported to your doctor immediately. This could indicate an infection or other concern. Talk with your doctor right away about these symptoms, or any concerns.

Important Note:

Should the patient or caregiver have any questions about this action plan, the duration of treatment, or any concerns related to treatment, contact the prescribing doctor.



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