The Evolving Role of Systemic Therapies in the Management of Atopic Dermatitis: Key Principles in Patient Care and Education

SATURDAY, OCTOBER 3, 2020 | 7:00 PM – 8:15 PM CT

FACULTY | Elaine Siegfried, MD and Margaret Lee, MD, PhD

This symposium is neither sponsored nor endorsed by the American Academy of Pediatrics.
Agenda

I. Atopic dermatitis (AD) in pediatric and adolescent patients: an overview
   a. Prevalence of AD and impact on quality-of-life
   b. Animated theme – pathophysiology of atopic dermatitis
   c. Comorbid conditions in pediatric and adolescent patients
   d. Challenges in the management of AD

II. The Burden of AD
   a. Quality-of-life with AD
   b. Psychosocial and developmental impact of AD in children and adults
   c. Impact of nonadherence on the cost of AD
   d. Direct and indirect costs of AD

III. Diagnosis and long-term management of AD in pediatric/adolescent patients
   a. Current guideline recommendations for the management of AD in pediatric and adolescent patients
   b. Dispensing considerations for topical medications
   c. Management of flares
   d. Effect of management decisions on patient quality-of-life
   e. Therapy intensification

IV. Clinical Trial Data on Agents for the Management of AD
   a. Animated theme – mechanism of action of available agents for the management of AD
   b. Efficacy and safety of systemic agents
   c. Efficacy and safety of topical agents
   d. Impact of agents on patient quality-of-life

V. Patient Considerations in AD
   a. Selecting treatment options based on patient- and disease-specific factors
   b. Barriers to therapy adherence
   c. Managing “steroid phobia”
   d. Patient education and counseling
   e. Managing adverse events

VI. Case Study

VII. Conclusions

VIII. Questions and Answer
The Evolving Role of Systemic Therapies in the Management of Atopic Dermatitis: Key Principles in Patient Care and Education

FACULTY

Elaine Siegfried, MD
Director of Pediatric Dermatology
SSM Health Cardinal Glennon Children’s Hospital
Professor of Pediatrics and Dermatology
St. Louis University School of Medicine
St. Louis, MO

Margaret Lee, MD, PhD
Director of Pediatric Dermatology
Director of Dermatology Medical Student Clerkship
Director of Dermatology Wellness & Professional Vitality
Assistant Professor of Dermatology & Pediatrics
BUSM Department of Dermatology
Boston, MA

PROGRAM OVERVIEW

This live virtual activity will review evidence-based approaches to the diagnosis and management of atopic dermatitis (AD), in addition to associated quality of life issues and adverse events associated with disease and treatment.

TARGET AUDIENCE

This activity is intended for pediatricians, dermatologists, pediatric dermatologists, primary care physicians, and other healthcare professionals involved in the management of pediatric and adolescent patients with atopic dermatitis.

LEARNING OBJECTIVES

Upon the completion of this program, attendees should be able to:

• Apply evidence-based approaches to diagnose, assess, and manage moderate-to-severe atopic dermatitis in pediatric and adolescent patients
• Assess the physical, psychosocial, and developmental impact of atopic dermatitis on patients’ quality of life when selecting therapy options and evaluating therapeutic outcomes
• Recognize and manage the adverse events associated with systemic and topical therapies for the management of atopic dermatitis in pediatric and adolescent patients
ACCREDITATION STATEMENT
Med Learning Group is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

CREDIT DESIGNATION STATEMENT
Med Learning Group designates this live virtual activity for a maximum of 1.25 AMA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the live virtual activity.

NURSING CREDIT INFORMATION
Purpose: This program would be beneficial for nurses involved in the care of pediatric and adolescent patients with atopic dermatitis. Credits: 1.25 ANCC Contact Hours.

CNE ACCREDITATION STATEMENT
Ultimate Medical Academy/CCM is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center’s Commission on Accreditation. Awarded 1.25 contact hours of continuing nursing education of RNs and APNs.

DISCLOSURE POLICY STATEMENT
In accordance with the Accreditation Council for Continuing Medical Education (ACCME) Standards for Commercial Support, educational programs sponsored by Med Learning Group must demonstrate balance, independence, objectivity, and scientific rigor. All faculty, authors, editors, staff, and planning committee members participating in an MLG-sponsored activity are required to disclose any relevant financial interest or other relationship with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services that are discussed in an educational activity.

DISCLOSURE OF CONFLICTS OF INTEREST

Dr. Siegfried is a consultant for Regeneron, Sanofi Genzyme, UCB, AbbVie, Verrica, Leo, Novan, Pfizer, and Pierre Fabre. Dr. Siegfried receives fees to SSM/SLU related to sponsoring clinical trials for Regeneron, Janssen, Lilly, Pierre Fabre, and Verrica. She receives grant funding from Pfizer to support 2020-2022 Peds Derm Fellow. Dr. Siegfried has received honoraria from Regeneron, Sanofi Genzyme, and Verrica; and is on the Data Safety Monitoring Board for UCB, Leo, Novan, and Pfizer.

Dr. Lee has received grant funding from Pfizer for research and research fellowship training.

CME Content Review
The content of this activity was independently peer reviewed.
The reviewer of this activity has nothing to disclose.

**CNE Content Review**

The content of this activity was peer reviewed by a nurse reviewer.  
The reviewer of this activity has nothing to disclose.

The staff, planners, and managers reported the following financial relationships or relationships to products or devices they or their spouse/life partner have with commercial interests related to the content of this CME/CE activity:

Matthew Frese, MBA, General Manager of Med Learning Group, has nothing to disclose.
Christina Gallo, SVP, Educational Development for Med Learning Group, has nothing to disclose.
Lisa Crenshaw, Senior Program Manager for Med Learning Group, has nothing to disclose.
Nicole Longo, Director of Medical and Scientific Services for Med Learning Group, has nothing to disclose.
Lauren Welch, MA, VP, Accreditation and Outcomes, has nothing to disclose.
Brianna Hanson, Accreditation and Outcomes Coordinator, has nothing to disclose.

**DISCLOSURE OF UNLABELED USE**

Med Learning Group requires that faculty participating in any CME activity disclose to the audience when discussing any unlabeled or investigational use of any commercial product or device not yet approved for use in the United States.

During this lecture, the faculty may mention the use of medications for both FDA-approved and non-approved indications.

**METHOD OF PARTICIPATION**

There are no fees for participating and receiving CME credit for this live virtual activity. To receive CME/CNE credit participants must:

1. Read the CME/CNE information and faculty disclosures.
2. Participate in the live virtual activity.
Participants will receive their certificate as a downloadable file.

**DISCLAIMER**

Med Learning Group makes every effort to develop CME activities that are science-based. This activity is designed for educational purposes. Participants have a responsibility to use this information to enhance their professional development in an effort to improve patient outcomes. Conclusions drawn by the participants should be derived from careful consideration of all available scientific information. The participant should use his/her clinical judgment, knowledge, experience, and diagnostic decision-making before applying any information, whether provided here or by others, for any professional use.

For CME questions, please contact Med Learning Group at info@medlearninggroup.com

Contact this CME provider at Med Learning Group for privacy and confidentiality policy statement information at [http://medlearninggroup.com/privacy-policy/](http://medlearninggroup.com/privacy-policy/)

**AMERICANS WITH DISABILITIES ACT**

Staff will be glad to assist you with any special needs. Please contact Med Learning Group prior to participating at info@medlearninggroup.com

Provided by Med Learning Group

This activity is co-provided by Ultimate Medical Academy/Complete Conference Management (CCM).

Supported by an educational grant from Sanofi Genzyme and Regeneron Pharmaceuticals.

Copyright © 2020 Med Learning Group. All rights reserved. These materials may be used for personal use only. Any rebroadcast, distribution, or reuse of this presentation or any part of it in any form for other than personal use without the express written permission of Med Learning Group is prohibited.
The Evolving Role of Systemic Therapies in the Management of Atopic Dermatitis: Key Principles in Patient Care and Education

Elaine Siegfried, MD  
Professor of Pediatrics and Dermatology  
Saint Louis University School of Medicine  
Director, Division of Dermatology, Cardinal Glennon Children's Hospital  
St. Louis, MO

Margaret Lee, MD, PhD  
Director of Pediatric Dermatology  
Assistant Professor of Dermatology & Pediatrics  
Boston University School of Medicine, Department of Dermatology  
Boston, MA

Disclosures

• Dr. Siegfried is a consultant for Regeneron, Sanofi Genzyme, UCB, AbbVie, Verrica, Leo, Novan, Pfizer, Pierre Fabre. Dr. Siegfried receives fees to SSM/SLU related to sponsoring clinical trials for Regeneron, Janssen, Lilly, Pierre Fabre, and Verrica. She receives grant funding to support 2020-2022 Peds Derm Fellow. Dr. Siegfried has received honoraria from Regeneron, Sanofi Genzyme, and Verrica; and is on the Data Safety Monitoring Board for UCB, Leo, Novan, and Pfizer.

• Dr. Lee has received grant funding from Pfizer for research and research fellowship training.

• During the course of this lecture, use of medications for both FDA-approved and non-approved indications may be discussed.

This activity is supported by an educational grant from Sanofi Genzyme and Regeneron Pharmaceuticals.
Learning Objectives

• Apply evidence-based approaches to diagnose, assess, and manage moderate-to-severe atopic dermatitis in pediatric and adolescent patients

• Assess the physical, psychosocial, and developmental impact of atopic dermatitis on patients’ quality of life when selecting therapy options and evaluating therapeutic outcomes

• Recognize and manage the adverse events associated with systemic and topical therapies for the management of atopic dermatitis in pediatric and adolescent patients

Overview

Elaine Siegfried, MD
Pediatric Atopic Dermatitis

Today’s topics will feature discussions surround the following topics:

• Features of Atopic Dermatitis (AD)
  • Pathophysiology, presenting characteristics and impact on quality of life

• Current practices and challenges in the management of AD
  • Phenotypic mimics, associated morbidities, product allergens, adherence issues, steroid phobia and adverse events

• Exciting advancements in therapies approved for pediatric AD
  • 2020 - New age indications for topical (crisaborole ≥ 3 mo) and systemic (dupilumab ≥ 6 yo) therapies

Features of Atopic Dermatitis (AD)

AD is a chronic, pruritic, inflammatory skin disease that is characterized by:

• Childhood onset
• Familial occurrence
• Eczematous change
  – erythema
  – induration, papulation
  – excoriation
  – lichenification
• Characteristic distribution
• Intermittent flares
• Associated skin conditions
  (minor diagnostic criteria)
• Skin infections
• Associated morbidities

Impact of AD

Increasing prevalence: 12–13% in children and adolescents and >7% in adults in the US
- 85% present by 5 years old
- Adult-onset in 2–8%

Increasing costs: ~$5.3 billion/year

Greater impact on quality of life than type I diabetes


Video Presentation

We will now watch a brief animation exploring the pathophysiology of atopic dermatitis
AD can be life-changing, not only for the child but also for their family.
Impact on Family Sleep

Phone survey of 270 parents of children with AD, age 0–6 years

**Sleep disturbance** and **cosleeping** are associated with AD severity

Impact of Psychosocial Function

Phone interviews in 8 countries with 2002 adolescents and adults with moderate-to-severe AD

Of the 125 teens 14–17 years of age...

- **39%** were teased or bullied due to their AD
- **46%** reported negative effects on school performance
- **83%** avoided ≥1 everyday activity


Impact on Quality-of-Life

• Consequences of *sleep deprivation*
  – Exhaustion
  – Mood changes
  – Impaired psychosocial functioning

• Consequences of *social isolation*
  – School avoidance
  – Depression

• **Restricted** lifestyle choices
  – Clothing, holidays, socializing, owning pets, participating in sports

Eczema (aka Dermatitis) Is a Phenotype

Characteristics

• Itch

• Skin lesions: poorly circumscribed erythema and induration with fine scale
  – Acute: edema/vesicles; quickly reversible
  – Subacute
  – Chronic: lichenification; persistent

• Histology
  – Epidermis: spongiosis, parakeratosis
  – Dermis: superficial perivascular infiltrate (lymphocytes/histiocytes > neutrophils/eosinophils)


AD Is the Most Common Chronic Eczema in Children

• Defined diagnostic criteria
  – Hanifin and Rajka criteria
  – UK Working Party
    • Family history of atopy, eczema, asthma, allergies
    • Early age of onset
    • Itching

• Features
  – Eczematous morphology
  – Distribution
  – Associated cutaneous conditions
  – Associated morbidities
  – Beware phenotypic mimics

UK = United Kingdom.
**Classic AD Distribution Changes with Age**

- **Infants:** face, extensor extremities
- **Children:** wrists, ankles, antecubital and popliteal fossae


---

**Diaper-Area Sparing: a Diagnostic and Therapeutic Feature**

Images courtesy of Dr. Elaine Siegfried and Dr. Margaret Lee.
More Common Features in Skin of Color

- Follicular/papular and nummular morphology
- Obscured erythema
- Prominent lichenification
- Dyspigmentation


Phenotypic Mimics

**Otherwise healthy**
- Pityriasis alba
- Keratosis pilaris
- Ichthyosis vulgaris
- Lichen simplex chronicus
- Contact dermatitis
- Psoriasiform overlap
- Seborrheic dermatitis
- Tinea
- Scabies

**Unhealthy**
- Immune deficiencies
- Nutritional deficiencies
- Cutaneous T-cell lymphoma (CTCL)
- Genodermatoses

Evaluation for Suspected Immune Deficiency

- Personal or family history of frequent extracutaneous infections (OM, sinusitis, pneumonia, frequent strep, recurrent HSV)
- Poor growth
- Surveillance throat/skin swabs for occult Strept colonization
- Surveillance skin scrapings for HSV PCR, culture; consider HSV serology
- Screen for vitamin D deficiency, IL-17, quantitative immunoglobulins, total IgE, *pneumococcal* titers
- **If suggestive, begin immune assessment**

OM = otitis media; HSV = herpes simplex virus; PCR = polymerase chain reaction; IL = interleukin; IgE = immunoglobulin E; PI = primary immunodeficiency.


Recognizing Skin Infections

- Requires a high index of suspicion
- History, family history, and clinical findings are supportive
- Laboratory confirmation (variable sensitivity)
  - Fungal: skin and scalp reservoir swab + pulled hairs, nail clippings
  - HSV: skin scraping on ice for PCR, viral culture; serology
  - Coxsackie: nasal swab for PCR
  - Strep: skin and throat reservoir swab for culture (*Staph aureus* is a colonizer)
  - Skin biopsy

- Cutaneous HSV and group A Streptococcal coinfection can occur
- Impact: avoid unnecessary treatment, prevent complications

Common Skin Infections in AD

Scabies
Tinea
Molluscum
Herpes simplex

Images courtesy of Dr. Elaine Siegfried.

Be Aware of “Incognito” Skin Infections

Scabies
Tinea
Molluscum
Herpes simplex

Images courtesy of Dr. Elaine Siegfried.
### Associated Morbidities

**Atopic**
- Allergic rhinitis (~50% prevalence)\(^1\)
- Allergic conjunctivitis\(^2\)
- Asthma (~22–30% prevalence)\(^1,3,4\)
- Primary eosinophilic gastrointestinal disorders\(^2\)
- Food allergy\(^5\)

**Others\(^1,2,6,7\)**
- Mental/behavioral health
- Skin infections
- Allergic contact dermatitis
- Immune deficiency
- Cataracts

---

**AD and Food Allergy**

- The **prevalence** of food allergy is higher in children with moderate-to-severe AD (~30%)
- The **role** of food allergens in the pathogenesis of AD is unclear
- The association between AD and food allergy is complex and is a common source of conflicting therapeutic recommendations

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Clinical signs and symptoms</th>
<th>Most common, relevant food allergens in atopic children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinically confirmed signs and symptoms after food exposure PLUS Laboratory evidence of sensitization (Diagnostic criteria not well established)</td>
<td>Range from transient/self limited to anaphylaxis Life-threatening reactions are rare Risk not predicted by initial presentation, laboratory parameters, or increasing clinical concern</td>
<td>Cow’s milk Egg Wheat Soy Tree nut/peanut</td>
</tr>
</tbody>
</table>

---

Ancillary Itch-Control Considerations

**Montelukast***

- Used by >2 million US children/year
- Underappreciated neuropsychiatric risks, including suicidal thoughts or actions
  - 3/2/20 boxed warning and Mediguide for neuropsychiatric events including agitation, aggression, sleep disturbance, suicidal thoughts & behavior
  - *limit use to allergic rhinitis* (in patients ineffectively treated or intolerant)
- Chewable formulation contains aspartame (*metabolizes to formaldehyde*) a potential cause of systemic allergic contact dermatitis

---

**Sedating Antihistamines**

- 1st-generation agents are frequently used to treat AD-related itch and sleeplessness
- Before antihistamine use, consider:
  - Central nervous system (CNS) exposure
  - Unclear impact on the developing brain
  - Potential for sedation and idiosyncratic agitation
  - *limited support* that antihistamines help AD-related itch

Allergic Contact Dermatitis (ACD)

- Commonly complicates AD
- Delayed hypersensitivity reaction (onset 1–14 days after contact)
- Skin-care products often contain potential contact allergens
- Patterned accentuation is suggestive (periorbital, subumbilical, posterior axillary, dorsal aspects of hands/feet, waistband)
- Be aware of variants
  - **Generalized**
    (eg, emollients, topical medications)
  - **Systemic** allergic contact dermatitis
    (eg, nickel, formaldehyde)
- Patch testing can confirm diagnosis
  (≤60% sensitivity)
  - “Do it yourself” (DYI)
  - In-office: limited availability, costly, requires minimum of 3 visits

Address suspected ACD with empiric avoidance of topical allergens

Top 10 Pediatric Product Allergens

1. Fragrances/BOP
2. Neomycin/bacitracin
3. Wool wax/lanolin
4. Formaldehyde/bronopol/quat-15
5. Methylchloroisothiazolinone + methylisothiazolinone

Top sensitizers: nickel sulfate/cobalt chloride

If empiric, bland skin care fails to support long-term control, consider in-office or DIY patch testing

Management

Margaret Lee, MD, PhD
Disease Issues

- AD is a *chronic disease* with episodic flares
- There is **no cure**; the goal of treatment is to maintain control
- Early and consistent disease control may minimize long-term atopy risk

Management Issues

**Variables impacting treatment choice**
- Patient preference and ability
- Safety and efficacy
- Cost and access
- Comorbidities

**Therapeutic goals**
- To reduce symptoms, prevent exacerbations and minimize therapeutic risks
- Prolonged remission and infrequent flares
  - Improved adherence through affordable, easy-to-use and effective regimen
  - Resultant improved quality of life, including restful sleep and undisturbed activities of daily living
**Standard Treatment Strategies: 5 “I”s**

- **Impaired skin barrier function**
  - Ointment emollient, wet wraps, ambient humidity

- **Psychosocial assessment tools, referrals, letters**

- **Inflammation**
  - Bleach baths
  - Avoid topical allergens
  - Topical corticosteroids/calcineurin inhibitors/crisaborole
  - Systemic anti-inflammatory medication

- **Infection/risk**
  - (Strep, HSV, molluscum, tinea)

- **Itch (and scratching)**
  - Non-sedating antihistamines for urticarial component, N-acetylcysteine*

- **Interrupted sleep**
  - Short-term sedating antihistamines, sleep hygiene

*N-acetylcysteine not approved FDA-approved for AD

---

**Assessment of Disease Severity**

- Validated AD-specific severity scales
  - **SCORAD** (SCORing Atopic Dermatitis index): includes extent, sleep, and itch
  - **EASI**—Eczema Area and Severity Index: includes extent
  - **IGA**—Investigator’s Global Assessment: simple 0–5 point scale

- Modified forms used in clinical trials

- SCORAD and EASI are too cumbersome for clinical practice

- IGA is simple, useful, and may be required for insurance authorization

---

Specialist referral
Consider comorbidities
Short-term aggressive treatment
• Wet wraps
• Hospitalization
Phototherapy
Systemic Immunosuppressants
• Cyclosporine A*
• Methotrexate*
• Mycophenolate mofetil*
• Azathioprine*
Dupilumab

Bleach Bath Options

• Dilute sodium hypochlorite
  – Household bleach (~5–6%),
  – “Concentrated” (up to 8.25%)
  – Carrel-Dakin solution (0.025%)
• Cleansers (CLn®, Anasept® 0.057%)
• “Like a swimming pool”
• Up to twice a day as needed
• Add 1/4–1/2 cup to a big tub; 1-3 teaspoons to a baby bath
• Apply emollient immediately after bathing

TCS = topical corticosteroid; TCI = topical calcineurin inhibitor; PRN = as needed.

*Cyclosporine A, methotrexate, mycophenolate mofetil, and azathioprine not FDA-approved for AD.
Emollient Options

- Affordability
- Tactile acceptance
- Low allergenicity
- Options
  - Non-allergenic: plain petroleum jelly, plain mineral oil (beware tocopherol), Vanicream™ Moisturizing Ointment (formerly Vaniply™ Ointment)
  - Physiologic lipids (eg, CeraVe®, EpiCeram®); equimolar ratio of ceramides, cholesterol, fatty acids for benefit
  - pH <5 (A-Mantle™)
  - Colloidal oatmeal (Aveeno®)
  - Prescription skin-barrier devices (Hylatopic®, Mimyx®, Atopiclair®)
- Wet wraps


Safe and Effective Use of Topical Medications in Children

How much, how often, how to monitor?
*Refer to individual medication PI for approved indications and guidelines for treatment

<table>
<thead>
<tr>
<th>Medication</th>
<th>Quantity</th>
<th>Frequency</th>
<th>Possible Safety Monitoring</th>
<th>Prescribing Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corticosteroids*</td>
<td>15–60 gm/mo (based on age/body site/potency)</td>
<td>15 days/mo</td>
<td>AM cortisol</td>
<td>Potency and age group specific</td>
</tr>
<tr>
<td>Calcineurin inhibitors*</td>
<td>100–200 gm/mo; Supplied in 30–100 gm tubes</td>
<td>BID</td>
<td>Tacrolimus peak</td>
<td>≥2 years</td>
</tr>
<tr>
<td>PDE-4 inhibitors*</td>
<td>100–200 gm/mo; Supplied in 60–100 gm tubes</td>
<td>BID</td>
<td>—</td>
<td>≥3 months</td>
</tr>
</tbody>
</table>

mo = month(s); BID = twice daily; AM = morning; PDE-4 = phosphodiesterase-4.

Potential Adverse Events

• Topical corticosteroids
  – Cutaneous: barrier disruption, telangiectasia, striae, acne/perioral dermatitis
  – Extracutaneous: adrenal axis suppression, growth failure, rebound
  – Usually reversible

• Topical calcineurin inhibitors
  – Stinging/burning, especially when applied to inflamed skin
  – Black box warning requiring anticipatory guidance (theoretical risk of lymphoma, NMSC)

• Crisaborole
  – Stinging/burning: ~5% in clinical trials subjects, possibly higher in practice; requires anticipatory guidance

NMSC = nonmelanoma skin cancer.

“Steroid Phobia”

• An exaggerated fear of using corticosteroids; strong social media presence
  – International Topical Steroid Awareness Network (www.itsan.org/)
  – National Eczema Association (https://nationaleczema.org/warnings-for-topical-steroids-eczema/)

• Systematic review
  – 16 cross-sectional studies
  – Responses from patient, parent, or other caregiver
  – Spanning the spectrum of simple concern to irrational fear
  – Prevalence 21–84%
  – Negative impact on adherence

Confirming Topical Medication Use

• Limit number of refills, use caution with pound jars
• Check pharmacy dispensing records

Examine tubes

Avoid pound jars

1 tablespoon = 15 grams

Adherence

• The most important contributory factor to successful treatment

Barriers
– Time constraints
– Unclear or difficult-to-follow instructions
– Medication phobia
– Cost/access

• Confirming medication use will inform therapeutic response

Strategies for improvement

• Consistent messaging across providers
• Frequent follow-up visits
• Patient/parent education
• Specific skin care instructions, including topical medication quantity
• Monitoring of medication use
• Electronic reminders, eg, email, text messages
• Experience positive outcomes

Reasons for Topical Treatment Failure

- Excessive use of topicals needed to control disease
- Inability to effectively use topicals
  - Acceptance
  - Comprehension
  - Time requirement

Consider **systemic treatment** for patients with skin disease that can not be controlled with topical medication, especially in the setting of other atopic morbidities.


Optimizing Long-Term Control

- **Reactive Treatment**
  - Address only intermittent flares
  - Prescription antibiotics, potent TCS, and prednisone
  - Yields alternating roller-coaster improvement and flares

- **Proactive Treatment**
  - Practice daily skin care
  - Use adequate amounts of topical medication
  - Recognize and avoid triggers
  - Maintains control

New and Targeted Therapy

Video Presentation

We will now watch a brief animation describing the mechanisms of action of approved and emerging therapies in AD
# Commercially Available Agents Under Investigation for AD

## Selected Pharmacologic Interventions in AD

<table>
<thead>
<tr>
<th>Agent</th>
<th>Route</th>
<th>Age</th>
<th>Indications</th>
<th>AD indication status</th>
<th>Common AEs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monoclonal antibodies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dupilumab</td>
<td>SQ</td>
<td>≥6 yrs</td>
<td>AD, M-S asthma; chronic sinusitis w/ nasal polyp</td>
<td>2017 (adults), 2019 (≥12 yrs), 2020 (≥6 yrs)</td>
<td>Conjunctivitis, eye pruritis, injection-site reactions</td>
</tr>
<tr>
<td>Mepolizumab</td>
<td>SQ</td>
<td>≥6 yrs</td>
<td>Severe asthma Eosinophilic granulomatosis</td>
<td>Phase 2a</td>
<td>HA, injection site reactions, back pain, fatigue</td>
</tr>
<tr>
<td>Secukinumab</td>
<td>SQ</td>
<td>Adults</td>
<td>Plaque psoriasis, PsA, ankylosing spondylitis</td>
<td>Phase 2</td>
<td>Nasopharyngitis, diarrhoea, URI</td>
</tr>
<tr>
<td>Ustekinumab</td>
<td>SQ</td>
<td>Adults; ≥6 yrs</td>
<td>M-S plaque psoriasis PsA, Crohn's disease, UC</td>
<td>Phase 2 completed</td>
<td>Nasopharyngitis, injection-site reactions, URI, mycotic infection, pruritis, sinusitis, UTI</td>
</tr>
<tr>
<td><strong>JAK Inhibitors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tofacitinib</td>
<td>PO</td>
<td>Adults</td>
<td>PsA, RA, UC</td>
<td>Phase 2 completed</td>
<td>URI, nasopharyngitis, GI symptoms, HA, HTN, rash, anemia, high cholesterol</td>
</tr>
<tr>
<td><strong>PDE 4 Inhibitors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apremilast</td>
<td>PO</td>
<td>Adults</td>
<td>PsA, M-S plaque psoriasis, oral ulcers w/ Bechét's</td>
<td>Phase 2a completed</td>
<td>Diarrhea, nausea, HA, URI</td>
</tr>
<tr>
<td>Crisaborole</td>
<td>Topical</td>
<td>≥3 mo</td>
<td>Mild-moderate AD</td>
<td>2016 (≥2 yrs); 2020 (≥23 mo)</td>
<td>Application-site reactions,</td>
</tr>
</tbody>
</table>

**Notes:**
- JAK = Janus kinase; SQ = subcutaneous; M-S = moderate to severe; PO = oral; PsA = Psoriatic arthritis; RA = rheumatoid arthritis; UC = ulcerative colitis; PDE = phosphodiesterase;
- AEs = adverse events; URI = upper respiratory tract infection; UTI = urinary tract infection; HTN = hypertension; HA = headache.
- See PIs for individual agents.
Case Study 1: HPI

- A 4-month-old girl has a history of sensitive skin since shortly after birth, worsening despite use of OTC 1%, then 2.5% hydrocortisone as recommended by her pediatrician.

- She was subsequently prescribed crisaborole ointment by a pediatric dermatologist but discontinued this after 1 week due to stinging discomfort with applications.

- She is otherwise healthy and growing well.

HPI = history of present illness; OTC = over-the-counter.
Case Study 1

What additional history is most relevant?

A. Food exposure
B. Oral antihistamine use
C. Use of topical products
D. History of infections
E. Family history of atopy
Case Study 1—Question 2

Which of the following do you recommend?

A. “Safer” skin-care products
B. Daily bathing
C. Dilute bleach baths
D. Topical fluticasone
E. A, B and C

QD = every day; QOD = every other day.

Case Study 2: HPI

- A 3-year-old boy with eczema since age 2 months and a history of milk allergy presented to the ED for worsening skin disease.
- After seeing a dermatologist at age 11 months, he responded to prescribed topical medication but worsened after running out; his parents failed to follow up as recommended.
- He has severe itch that interferes with sleep. He is otherwise healthy and growing well.
- Home skin care included use of a variety of topical products, including Baby Vaseline®, Eucerin® baby creme, and Neosporin® ointment

ED = emergency department.
Case Study 2

(continued)
Case Study 2—Question 1

What additional history is most relevant?

A. Food exposure
B. Oral antihistamine use
C. Family history of atopy
D. Barriers to adherence

BitPearl

<table>
<thead>
<tr>
<th>Embrace the AD serenity prayer</th>
<th>Quantify topical medication use</th>
<th>Long-Term TCS</th>
<th>Recognize the difference between urticaria and AD</th>
<th>Adherence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjust things that can trigger skin inflammation, eg, topical products, microbiome, ambient humidity</td>
<td>Monitor gm/month Subdivide pound jars; 1 tbsp = 15 gm</td>
<td>Use long-term TCS no more than once a day, up to 15 days/month</td>
<td>Antihistamines are effective for histamine-mediated urticarial itch. Montelukast may be effective for controlling chronic urticaria but not AD. Be aware of the underappreciated neuropsychiatric side effects of sedating antihistamines and montelukast</td>
<td>Assume and address</td>
</tr>
</tbody>
</table>

Appreciate the impact of timely AD control on the lifetime risk of atopy

Conclusions

• Atopy often includes more than skin disease
• AD is a chronic disease with significant impact on quality of life
• A proactive approach is more effective than reactive treatment
• Proactive treatment is stepwise and based on severity
• Management can be difficult and potentially complicated by conflicting messages from different care-team members (clinicians and family)
• Adherence is key to successful therapy
• Evolving biomarkers and targeted treatments promise to revolutionize treatment

Website

The Evolving Role of Systemic Therapies in the Management of Atopic Dermatitis: Key Principles in Patient Care and Education

THRIVE-AD.COM
RESPONSIVE WEBSITE
Online Poster Portal

The Evolving Role of Systemic Therapies in the Management of Atopic Dermatitis: Key Principles in Patient Care and Education

For more information and additional resources please visit https://atopicdermatitis.posterprogram.com
# Atopic Dermatitis Overview

<table>
<thead>
<tr>
<th>Resource</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication</td>
<td>Title</td>
</tr>
<tr>
<td>-------------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>Gelfand EW. Recurrent Infection, Pulmonary Disease and Autoimmunity as Manifestations of Immune Deficiency. Presented at 40th Annual Pulmonary and Allergy Update; January 31-February 3, 2018; Dillon, CO.</td>
</tr>
<tr>
<td>Reference</td>
<td>URL</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Palmer CNA, et al. Common Loss-Of-Function Variants of the Epidermal Barrier Protein Filaggrin Are a Major Predisposing Factor for</td>
<td><a href="https://www.nature.com/articles/ng1767">https://www.nature.com/articles/ng1767</a></td>
</tr>
<tr>
<td>Study Title</td>
<td>Journal Details</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Atopic Dermatitis. <em>Nat Genet.</em> 2006;38:441-446.</td>
<td></td>
</tr>
<tr>
<td>Siegfried EC, Hebert AA. Diagnosis of Atopic Dermatitis: Mimics, Overlaps, and</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>Authors</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
## Treatment of Atopic Dermatitis

<table>
<thead>
<tr>
<th>Resource</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>


https://www.jaad.org/article/S0190-9622(16)30330-9/fulltext


https://www.hindawi.com/journals/drp/2010/894258/


https://www.medicaljournals.se/acta/content/abstract/10.2340/00015555-2157


Samorano LP, et al. Inadequate Response to  
<table>
<thead>
<tr>
<th>Title</th>
<th>DOI/URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference</td>
<td>URL</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
</tbody>
</table>