

Practicing Itchcraft!

A review of Eczema and Its treatment

Feb 27th , 2023

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Conflicts of Interest

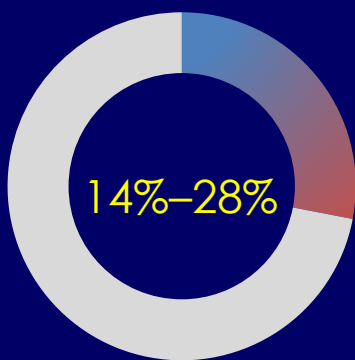
- Advisory boards/ speaker
 - Abbvie, Aralez, Bausch, CIPHER, Galderma, Johnson & Johnson, La Roche Posay, Nestle, PediaPharm, Pierre Fabre, Pfizer, Sanofi, Valeant.
- Eczema Society of Canada
 - Board of directors

Objectives

The attendee will be able to :

- Describe eczema morphology and differentiate 3 common mimickers of eczema
- List 4 factors leading to poor control of AD
- Create a tailored eczema plan for their patients
- List 3 topical and 2 systemic agents used to treat eczema

Atopic Dermatitis Is Common in Childhood



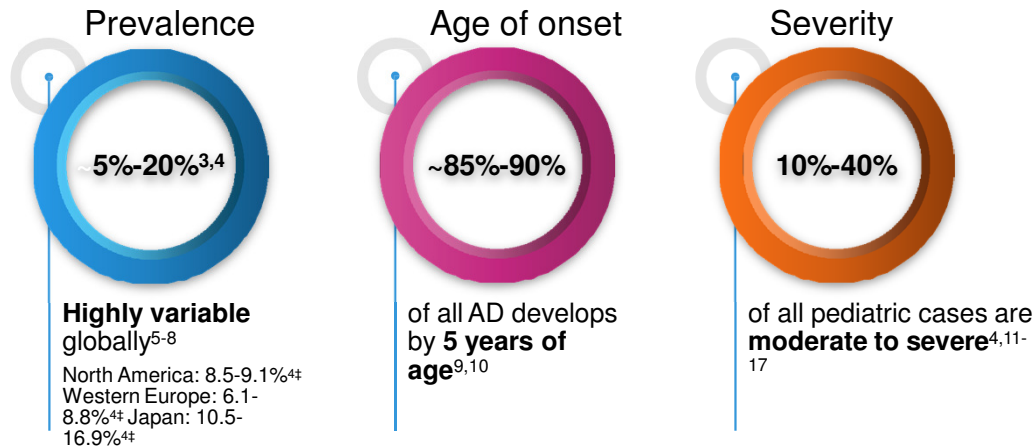
Prevalence of AD
in Canadian children



Eichenfield LF, *J Am Acad Dermatol.* 2014;70(2):338-51; Chu LM, *Ann Allergy Asthma Immunol.* 2014;113(4):430-9; Dell SD, *Can Respir J.* 2010;17(1):e1-6; Habbick BF, *CMAJ.* 1999;160(13):1824-8.

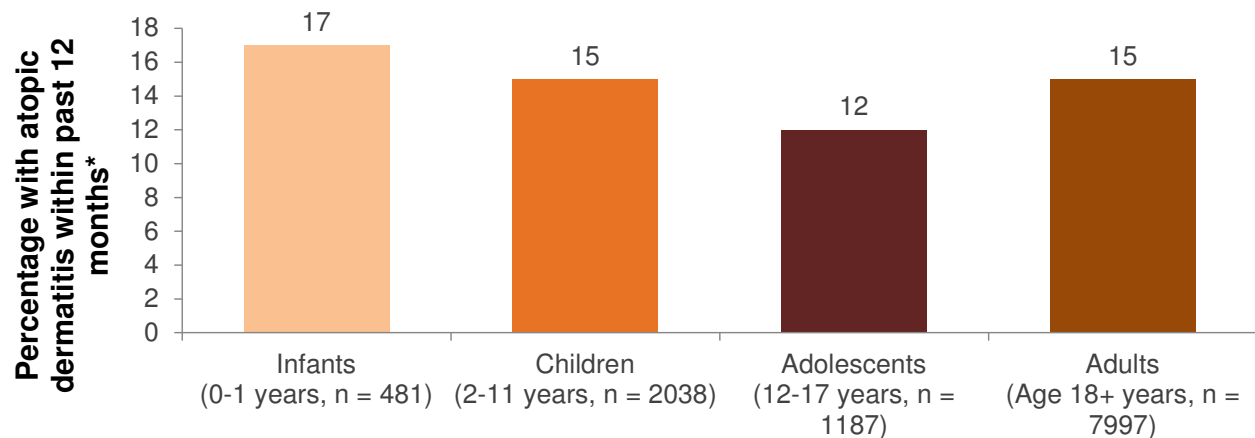
Most Common Pediatric Chronic Dermatoses in Industrialized Countries

Epidemiology of pediatric patients with AD



1. Thestrup-Pedersen K. Clin Exp Dermatol. 2000;25(7):535-543. 2. World Allergy Organization. Shaw TE et al. J Invest Dermatol. 2011;131(1):67-73. 4. Williams H et al. J Allergy Clin Immunol. 1999;103(1 Pt 1):125-138. 5. Deckers JA et al. PLoS One. 2012;7(7):e39803. 6. Larsson M et al. Acta Paediatr. 2008;97(9):1210-1215. 7. Punekar VS and Sheikh A. Clin Exp Allergy. 2009;39(8):1209-1216. 8. Simpson CR et al. J R Soc Med. 2009;102(3):108-117. 9. Lyons JJ et al. Immunol Allergy Clin North Am. 2015;35(1):161-183. 10. Silverberg NB and Duran-Mckinster C. Dermatol Clin. 2017;35(3):351-363. 11. Ballardini N et al. Br J Dermatol. 2013;168(3):588-594. 12. Brown SI et al. J Allergy Clin Immunol. 2008;121(4):940-946 e943. 13. Dhali S and Sheikh A. J R Soc Med. 2015;108(6):229-236. 14. Lebon A et al. Arch Pediatr Adolesc Med. 2009;163(8):745-749. 15. Olesen AB et al. Acta Derm Venereol. 2005;85(3):244-247. 16. Saeki H et al. Br J Dermatol. 2005;152(1):110-114. 17. Silverberg JJ and Simpson EL. Pediatr Allergy Immunol. 2013;24(5):476-486.

AD is Common and May Persist



Kantar. Health Epi database 2016

It's Not Just Eczema

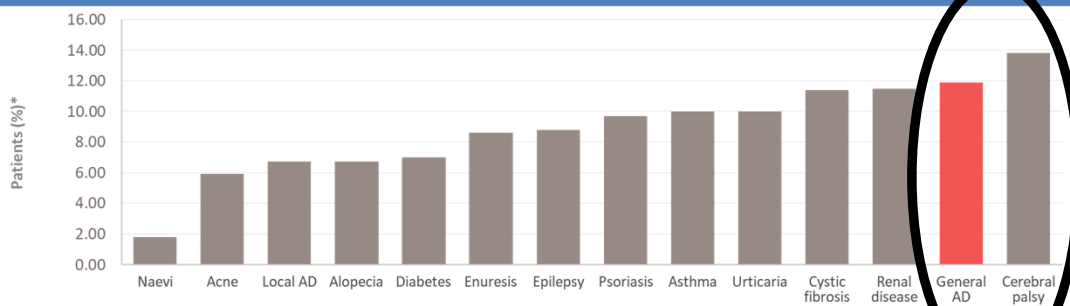


Impact on QOL = Diabetes, Cystic Fibrosis

Beattie PE. BJD 2006; 155(1):145-151 . Chamlin SL Pediatrics 2004;114(3):607-11. Su JC Arch Dis Child 1997;76(2):159-62. Hori KA Pediatrics 2007 120(3)

AD has a large impact on Pts and families

CLQI scores for 540 children, 379 with chronic skin disease and 161 with other chronic diseases



CLQI=Children's Life Quality Index; QoL=quality of life.
Beattie PE, et al. Br J Dermatol. 2006;155(1):145-151.

Significant Burden for Patients and Care Givers

▪ Pediatric AD disrupts normal functioning and activities of daily living:



~50% of patients experience a disruption in school and/or work^{1,2}



~86% of patients avoid at least 1 everyday activity (e.g. wearing T-shirts/shorts, bathing)²

▪ Pediatric AD negatively impacts the QoL of patients and their families:

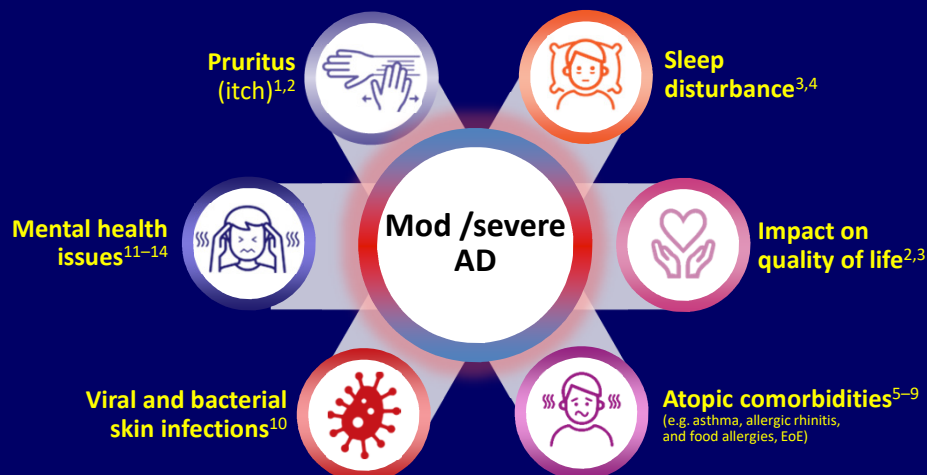
- The QoL impact of pediatric AD is comparable or higher than that of other chronic conditions (e.g. asthma, diabetes mellitus, cystic fibrosis)³
- Up to 52% of families report impaired QoL when caring for a child with AD⁴

▪ Up to **83% of children** with AD and **61% of caregivers** experience sleep disturbance^{5,6}

- Sleep disturbance may perpetuate AD symptoms in patients and correlates with anxiety and depression in caregivers^{5,6}

1. Reed B & Blaiss MS. *Allergy Asthma Proc.* 2018;39(6):406-410. 2. Zuberbier T et al. *J Allergy Clin Immunol.* 2006;118(1):226-232. 3. Beattie PE & Lewis-Jones MS. *Br J Dermatol.* 2006;155(1):145-151. 4. Bridgman AC et al. *J Cutan Med Surg.* 2018;22(4):443-444. 5. Camfferman D et al. *Sleep Med Rev.* 2010;14(6):359-369. 6. Chamlin SL et al. *Arch Pediatr Adolesc Med.* 2005;159(8):745-750. 7. Moore K et al. *Br J Dermatol.* 2006;154(3):514-518.

Look at the Overall Burden - Not just Skin Signs



1. Weissshaar E, et al. *Acta Derm Venereol.* 2008;88:234-239. 2. Alanne S, et al. *Acta Paediatr.* 2011;100(8):e65-70. 3. Eczema Society of Canada. AD quality of life report. Moderate-to-severe disease. 2016/2017 survey results. https://eczemahelp.ca/wp-content/uploads/2019/02/ESC_Quality-of-Life-Report_Nov-2017-1.pdf. Accessed October 2020. 4. Zuberbier T, et al. *J Allergy Clin Immunol.* 2006;118(1):226-232. 5. Ruzicka T, et al. *N Engl J Med.* 2017;376:826-835. 6. Deleuran M, et al. *J Am Acad Dermatol.* 2020;82:377-388. 7. Thağı D, et al. Poster presentation at AAAAI, 4 March 2018, Orlando, FL, USA. Poster 430. 8. Deleuran M, et al. Poster presentation at AAAAI, 4 March 2018, Orlando, FL, USA. 9. Simpson EL, et al. Poster presentation at AAAAI, 4 March 2018, Orlando, FL, USA. Poster 415. 10. Ong PY, et al. *Clin Rev Allergy Immunol.* 2016;51(3):329-337. 11. Saunes M, et al. *Br J Dermatol.* 2007;156(2):283-288. 12. Halvorsen JA, et al. *J Invest Dermatol.* 2014;134(7):1847-1854. 13. Yaghmaie P, et al. *J Allergy Clin Immunol.* 2013;131(2):428-433. 14. Hammer-Helmich L, et al. *BMJ Open.* 2016;6:e012637.

Major Criteria for Diagnosis of Atopic Dermatitis (Hanifin criteria)

Patients should have ≥ 3 of the following:

- Chronic or relapsing dermatitis
- Typical morphology and age-specific patterns
 - Flexural areas in all age groups
 - Extensors, face and neck in pediatric population
- Pruritus
- Personal and/or family history of atopy

1.Hanifin JM, Rajka G. *Acta Derm Venereol. Suppl (Stockh)* 1980; 92:44-7.



Is This Eczema ?



Is This Eczema ?



Psoriasis



Eczema



Clues to psoriasis

Eczema

Poorly demarcated



Psoriasis

Well demarcated red scaly plaques



Clues to psoriasis

| Eczema | Psoriasis |
|-------------------|--|
| Poorly demarcated | Well demarcated |
| locations | Elbows/knees Gluteal cleft/ umbilicus |
| Nails - pitting | Nails – onycholysis, oil drop sign |

Clues to psoriasis

| Eczema | Psoriasis |
|---|--|
|  |  |
| Nails - pitting | Nails – onycholysis, oil drop sign |

Clues to psoriasis

Eczema

Poorly demarcated

locations

Nails - pitting

Psoriasis



Elbows/knees
Gluteal cleft/ umbilicus



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Pityriasis Amiantacea

Seborrheic Dermatitis
Eczema
Psoriasis
Tinea capitis



Is this eczema ?



Tinea Incognito



Nummular Eczema



Tinea



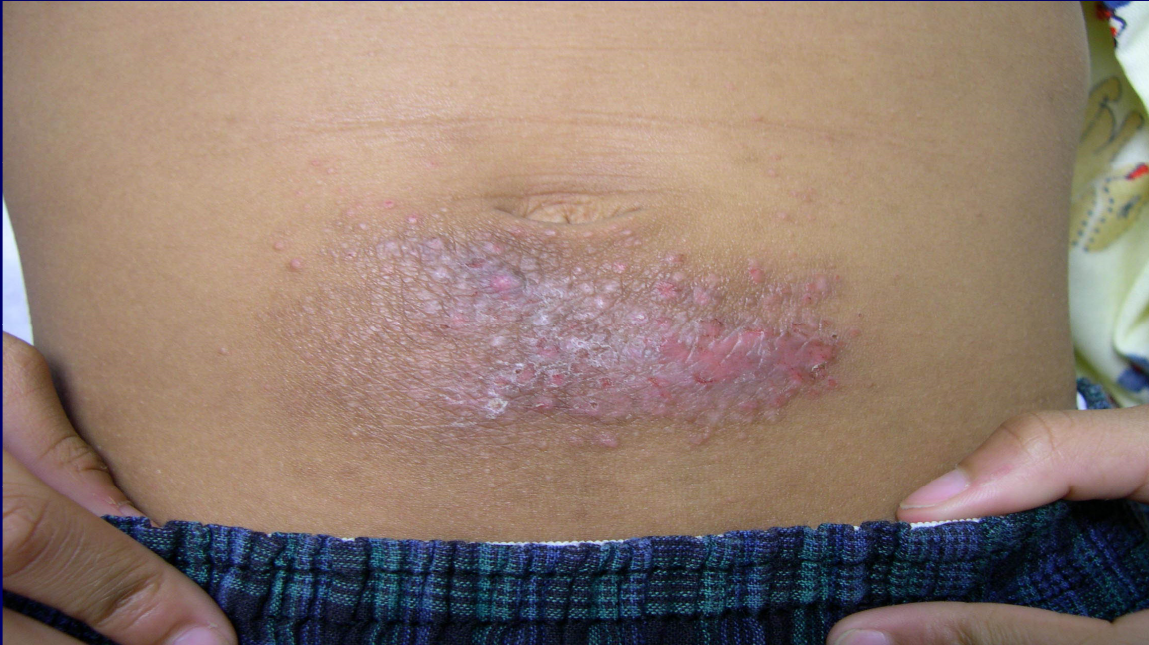
Peds atlas.org

Tinea versus nummular eczema

| <u>Tinea</u> | <u>Eczema</u> |
|--|----------------------------------|
| Annular | Oval |
| Scale and papules on periphery | Scale and papules throughout |
| Expanding outward | Fixed |
| Partially responsive to steroids BEWARE : Tinea Incognito | Partially responsive to steroids |

Is this eczema ?





Dermatlas.med

Dimethylglyoxime test kit



Is this Eczema ?



Peds atlas.org

Lip Licker's dermatitis



Peds atlas.org

Eczema ?



[Peds atlas.org](https://pedsatlas.org)

Perioral dermatitis



[Peds atlas.org](https://pedsatlas.org)

Is this Eczema ?



Electronic textbook of dermatology . T McGovern



The other “LIME disease”



Phytophotodermatitis

- Common
 - Red/blistering
 - Classic is after
- Phototoxic reaction
- Lime, parsley
- BC : Giant Hogweed



Sasseville . Derm clinics 2009. Patterns of phytophotodermatitis

Trials and tribulations of AD treatment

- Too much broad band
- Too Late
- Too weak
- Too Little
- Too Scared

Too Much Broad Band !

- It's due to egg!!!!!!
- "I Can Cure Your Childs eczema"
Every internet based eczema company
- Control not cure
 - Try to make it seem like they don't have eczema

"Education is the KEY"

EDUCATION IS YOUR MOST B

- ↓ severity and ↑ QOL over 1 y program
- Video may be better than in p
- Centre for teaching – just like
- Action Plan is necessary

Eczema Action Plan

Doctor: _____
Phone Number for Appointments: _____

A simple way to remember what medications & creams to use for your/your child's skin:

1. **Green** means **Go**. Use preventative measures.
2. **Yellow** means **Caution**. Use lower strength medications.
3. **Red** means **Caution**. Use higher strength medications and get help from the doctor.

Green = Go - Regular Daily Care

- Bathe with lukewarm water, 5-10 minutes. Avoid scrubbing and rubbing the skin as this can cause flare-ups.
- Use **mild soap**, if any, such as Dove for sensitive skin, Cergel's cleanser, or Aveeno for dry skin. If not too dirty, use soap only on hands, feet, armpits, and genital area, not all over.
- Apply **moisturizer** _____ at least 2 times a day (even if no bath is taken) and after every bath. After the bath, pat dry and apply the moisturizer **RIGHT AWAY**, within 3 minutes, all over the body.
- Keep fingernails short, and avoid irritating clothing such as wool or other scratchy fabrics.

Yellow = Caution - Mild Symptoms of Rash and Itching - Use Lower Strength Medications

- Continue Regular Daily Care (Green Zone) as Above
- To the red, itchy, rashy areas on the **BODY** apply _____ 2 times per day **BEFORE** you apply moisturizer.
- To the red, itchy, rashy areas on the **FACE** apply _____ 2 times per day **BEFORE** you apply moisturizer.
- If the scalp is affected, apply _____ 1-2 times per day
- For nighttime itching take _____ before bed
- For daytime itching take _____ in the morning
- If using **Yellow zone** medications regularly (for more than 1-2 weeks,) you need to see a doctor every few months.

Red = Caution - Severe Symptoms of Rash and Itching - Use Higher Strength Medications



- Continue Regular Daily Care (Green Zone) as Above and **Yellow zone** medications for mild rash.
- To the red, itchy, rashy areas on the **BODY** apply _____ 2 times per day **BEFORE** you apply moisturizer.
- To the red, itchy, rashy areas on the **FACE** apply _____ 2 times per day **BEFORE** you apply moisturizer.
- If the scalp is affected, apply _____ 1-2 times per day
- For nighttime itching take _____ before bed
- For daytime itching take _____ in the morning
- If using **Red zone** medications regularly (for more than 1-2 weeks,) you need to see a doctor at the **least** every 2-4 weeks.
- **Get serious about it!** If the above treatments are not working, severe itching continues, there is fever, or pus bumps are present. You can see your primary medical provider, an urgent care doctor, or your skin doctor.
- If using **Red zone** medications regularly (for more than 1-2 weeks,) you need to see a doctor at the **least** every 2-4 weeks.

Credit: UCSF School of Medicine

Stadler BJD 2014. Barbardot Ped Dermatol 2013. Stab BMJ 2006.
Armstrong 2011 JAAD. Ntuen J Dermatol treat 2010.; . Bass AM

Dermatol. 2018; 35(1):70-5; Heratizadeh A et al. *Allergy Clin Immunol.* 2017; 140(3):845-853.

Education can be Easy, Effective, and Cheap in 2020 possibly virtual ?

- 136 Pt/parents in UK
 - DVD, Online journal, telephone help line
 - 12 week
 - Emollient use , eczema severity, cost of care
- Emollients  , Severity  , Cost Neutral

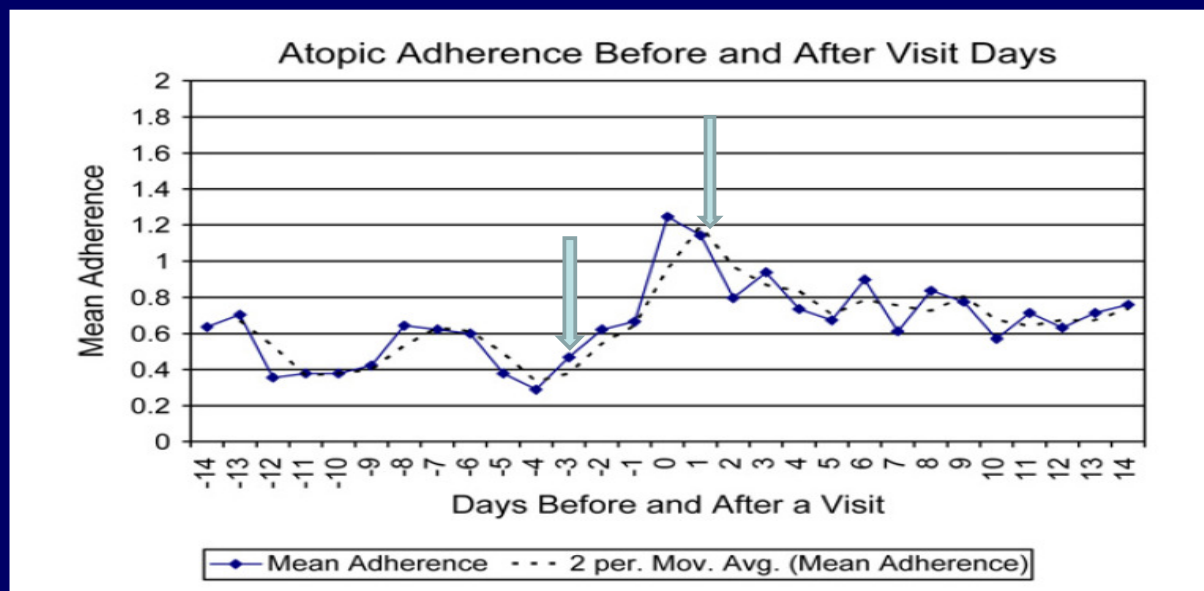
Mason BMC Dermatol 2013

Try to increase Adherence

- Pt to bring meds each visit
 - Allows assessment of actual use
 - Containers often look bigger than they are
 - If unclear of use can get info from government database
 - Under and over-use
 - If difficult to control
 - Frequent follow up can be useful

Krejci-Manwaring JAAD 2007

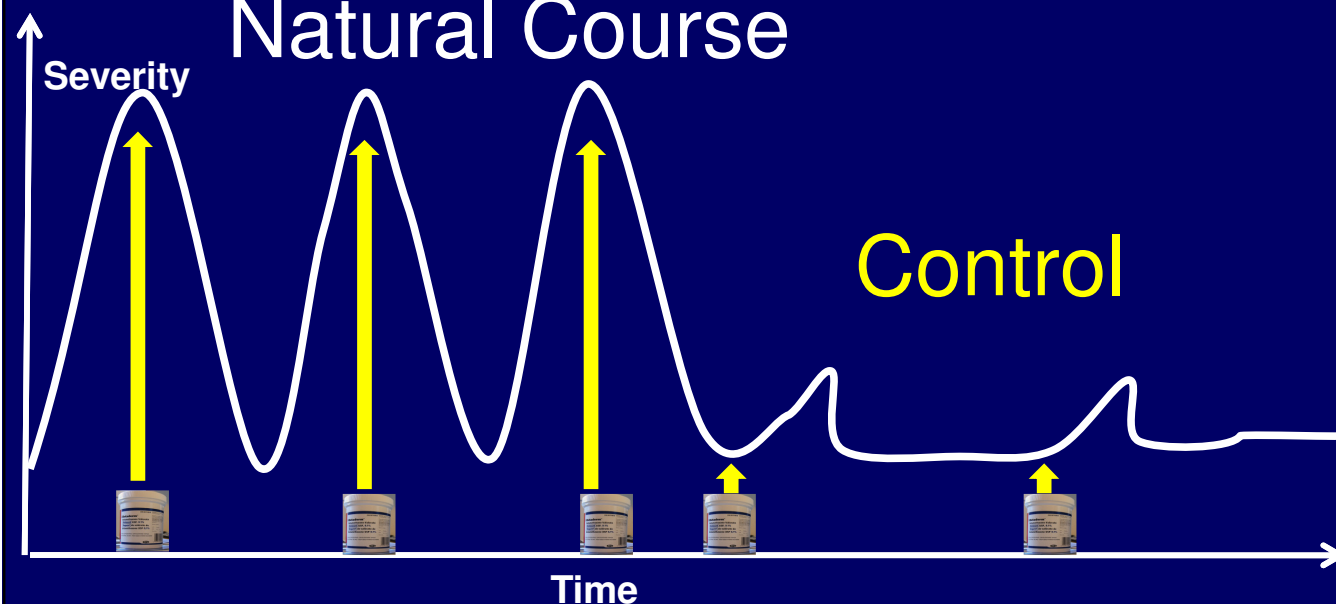
It requires Stealth



Compliance is best just before and after visit [Feldman JAAD 2007](#)

Too Late!

Natural Course



Too Weak !

- Misperception of medication Strength



Class VII
Steroid



Class I Steroid

Hydrocortisone

Clobetasol

Too Weak !

- Perceptions:
 - Percentage equates to strength



LADA
2000



BMW 1

Too Little - MD and PT !

- Give enough
- Human nature
 - Economize
 - Fear
- Demonstrate use
- Bring in meds each visit

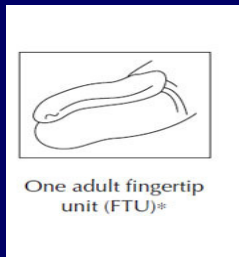
How Much

- How Much
 - Pts economize.
 - Demonstrate application

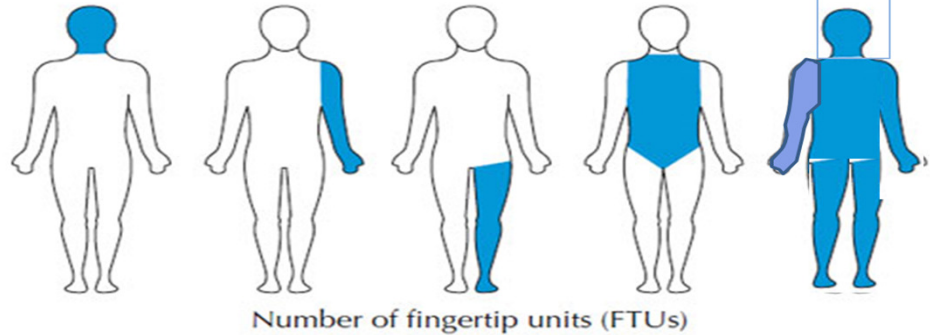


=

2 palms



1 FTU=0.5 gr



| AGE | Face | Arm | Leg | Trunk | Whole body |
|-------------|------------------|-----------------|-----------------|--------------|----------------|
| Adult | 2.5 (1.25 gr) | 4 (2 gr) | 8 (4gr) | 14 (7gr) | 40 (20gr) |
| 1-2 yr old | 1 (0.5gr) | 1 (0.5gr) | 2 (1gr) | 4 (2gr) | 11 (5.5gr) |
| 6-10 yr old | 2 (1gr) | 2.5 (1.25gr) | 4.5 (2.25gr) | 7 (3.5gr) | 23 (11.5gr) |

Toddlers $\frac{1}{4}$; Kids $\frac{1}{3}$ → of Adult FTU

How much would you give ?



How much would he require for 4 week supply?

- 10 grams
- 30 grams
- 50 grams
- 100 grams



- Total 2 palm = 1 FTU
- 1 FTU=0.5 grams
- 0.5 grams bid = 1 gram a day
- 1 month supply = **30 grams**

To scared and too worried - Steroid Phobia

- 39% use steroids less frequently than recommended
- Up to 80% use steroids as last resort



“I stopped it because the Med caused white spots”



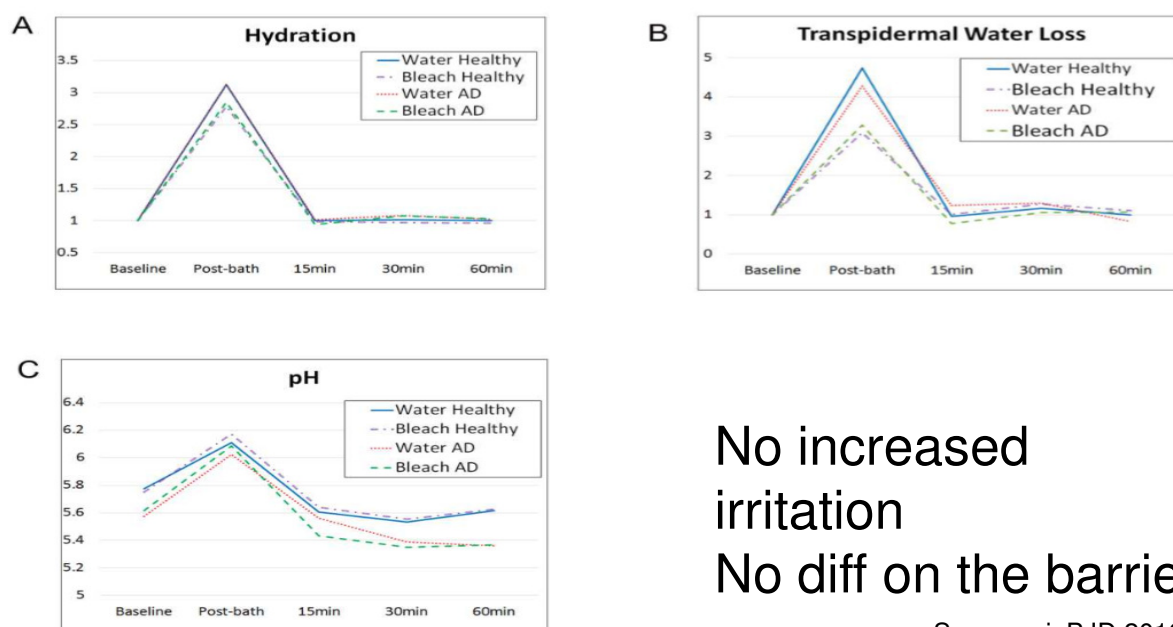
Bleach Baths- Clorox to the Rescue ?



- “Swimming pool” bath;
 - ¼ to ½ cup per bath or 1 teaspoon per gallon water
- Rinse after the bath with tap water & immediately apply moisturizer
- Repeat twice a week
- Pediatric population (Texas children’s hospital) led to 6 to 10-fold decrease in MRSA
 Browning J, Levy M, Metry D et al
- Decreased eczema scoring with bleach baths

Huang. Pediatrics. 2009 May;123(5):e808-14

Bleach Bath and the Barrier

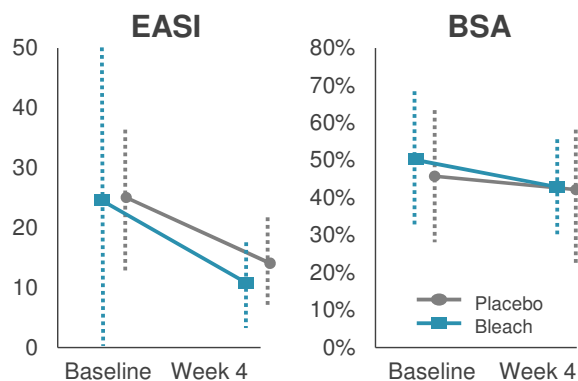


Recent Evidence on Bleach Baths

- Meta-analysis of studies evaluating the efficacy of bleach vs. water baths for atopic dermatitis
- There were ***no significant differences*** between groups in either EASI or BSA at Week 4

Chopra R et al. *Ann Allergy Asthma Immunol.* 2017; 119:435-40.

EASI and BSA of Bleach vs. Water Baths for 3 Combined Studies (Pooled Mean \pm SD)



Bleach wash

TABLE 2 Primary and secondary end point scores with mean relative reductions from baseline to 2 and to 6 wk

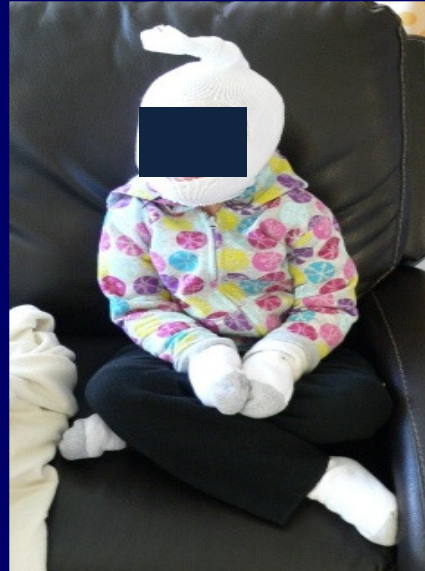
| | Baseline | 2 wk | 6 wk | Baseline to 2 wk | | Baseline to 6 wk | |
|----------------------|----------|-------|-------|-----------------------------|---------|-----------------------------|---------|
| Score | | | | Mean relative reduction (%) | P-value | Mean relative reduction (%) | P-value |
| Primary end points | | | | | | | |
| EASI | 13.8 | 8.4 | 6.8 | 34.2 | 0.00001 | 46.0 | 0.00001 |
| BSA | 30.6% | 23.2% | 19.5% | 21.8 | 0.0006 | 33.6 | 0.00001 |
| IGA | 3.6 | 2.7 | 2.3 | 23.1 | 0.00001 | 35.7 | 0.00001 |
| Secondary end points | | | | | | | |
| VAS | 6.3 | 4 | 3.6 | 29.0 | 0.00001 | 39.1 | 0.00001 |
| CDLQI | 10.5 | 5.7 | 5.2 | 39.8 | 0.00001 | 37.7 | 0.00001 |
| FDLQI | 11.7 | 8.7 | 6.2 | 19.7 | 0.00001 | 45.9 | 0.00001 |
| PSQ | 6.6 | 4.9 | 3.9 | 19.9 | 0.0001 | 34.1 | 0.00001 |

64% still +ve staph

Paller A. Pediatric dermatology 2019 Jul;36(4):442-447..

Wet Wraps





Wet Wraps



- Can help treat severe AD
- Steroid better than emollients
- Short term



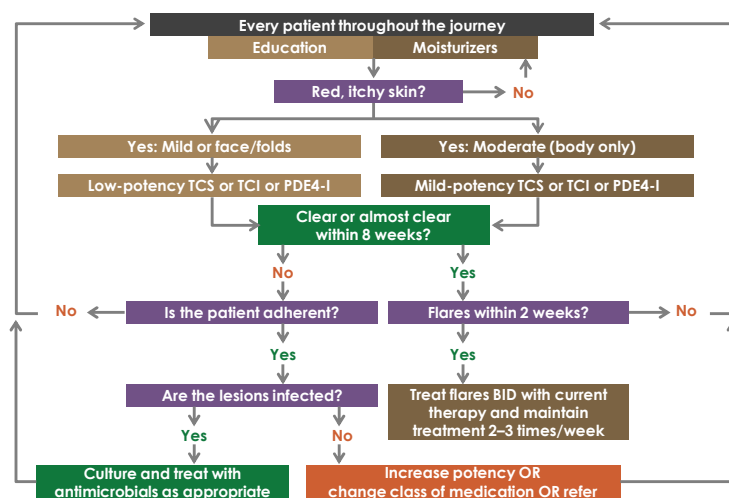
Oranje. 2006 Apr;154(4):579-85.
Dabade TS,. J Am Acad Dermatol 2011 Oct

Wet Wraps

- Retrospective review – 218 Hospitalized pt
 - Mean age 5.9 yrs
 - Global assessment
 - All showed improvement
 - 45% - 75-100% improvement
 - 38% - 50-75% improvement
 - 6% - 25- 50% improvement

Davis. JAAD 2012

Recommendations for Management of Acute Flares of Mild-to-Moderate Atopic Dermatitis



Treatment should be stopped once the affected areas are smooth to the touch and no longer itchy or red.¹

If no response to treatment is seen after 1 to 2 weeks, healthcare providers should re-evaluate and consider other diagnoses or treatment plans.¹

PDE4-I, phosphodiesterase inhibitor; TCI, topical calcineurin inhibitor; TCS, topical corticosteroid.

1. Weinstein M, et al. *Atopic Dermatitis: A Practical Guide to Management*. Eczema Society of Canada. 2019; 2. Lynde CW, et al. *J Cutan Med Surg*. 2019;23(3_suppl):35-135.

Calcineurin Inhibitors

Pimecrolimus/ Tacrolimus

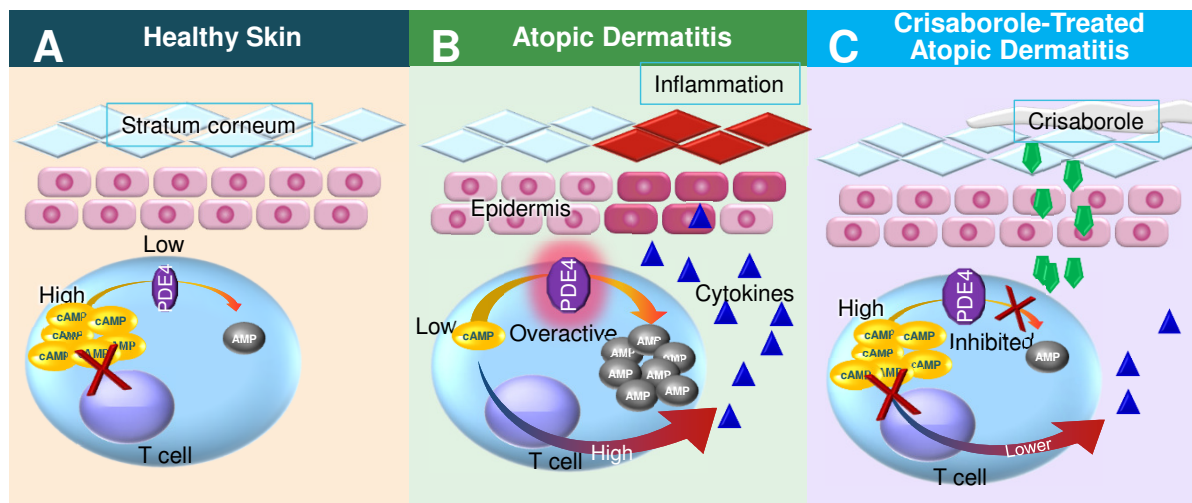
- Second-line agents (?)
- European / USA Guidelines
 - TCS mainstay of therapy
 - Suggest TCIs preferable in certain locations
- Data → effective
- Black box label
 - BUT data - good safety

Black Box

- 6.7 million patients have used TCIs since market approval
- 2015 Cochrane Review (Martins): - 20 studies, 5885 Pts
 - No evidence of tacrolimus association with risk of malignancies
- Since 2005, ++ medical literature have failed to show increased malignancies
- Many organizations
 - warning unsupported by medical evidence

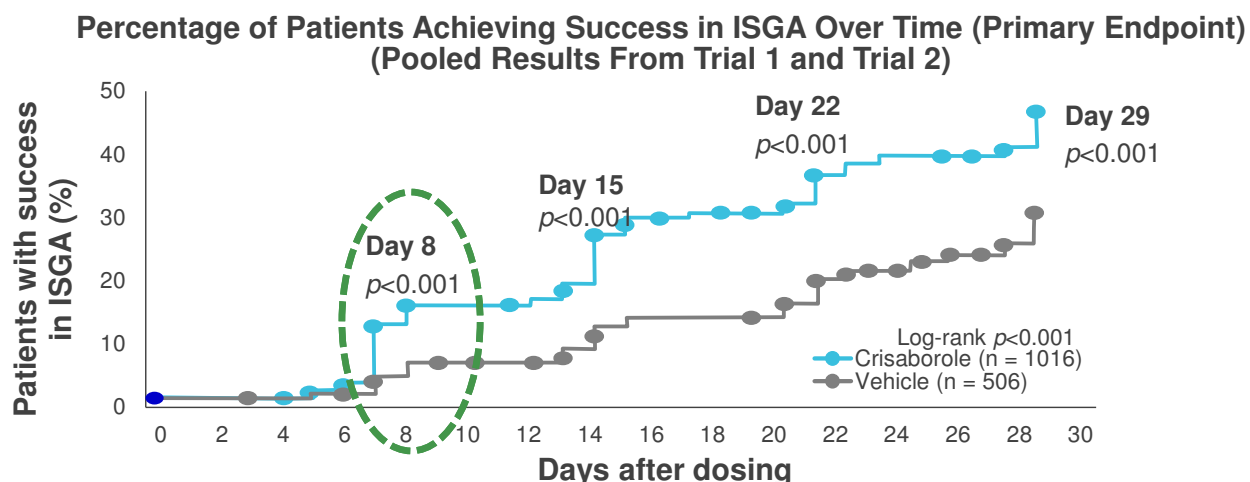
The black box warning - pimecrolimus removed by Health Canada and indication down to 3 months

PDE4 Inhibitor: Mechanism of Action Crisaborole



AMP: adenosine monophosphate; cAMP: cyclic adenosine monophosphate; PDE4: phosphodiesterase 4
 Adapted from: 1. Jarnagin K et al. *J Drugs Dermatol.* 2016; 15(4):390-6.

Crisaborole Achieved Early Separation From Vehicle* by Day 8 for Time to Success in ISGA**1-3

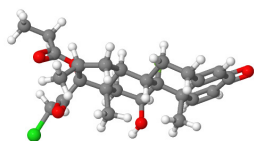


*The vehicle control is the same petrolatum-based, proprietary, non-medicated ointment formulation that delivers the active ingredient of crisaborole; utilizing a vehicle arm is a standard way to test the effect of a topical product

**Success in ISGA, a stringent metric, is defined as Clear (0) or Almost Clear (1) AND at least a 2-grade improvement from baseline.

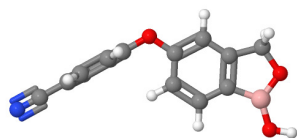
1. *PREUCRISA™ (Crisaborole) Product Monograph*. Kirkland, QC: Pfizer Canada Inc.; June 2018; 2. Paller AS et al. *J Acad Derm.* 2017; 75(3):494-503; 3. Paller

— Anti-inflammatory molecules



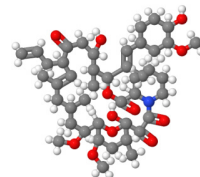
Clobetasol

$C_{25}H_{32}ClFO_5$
466.97 g/mol $g \cdot mol^{-1}$



Crisaborole

$C_{14}H_{10}BNO_3$
251.045 g/mol $g \cdot mol^{-1}$



Tacrolimus

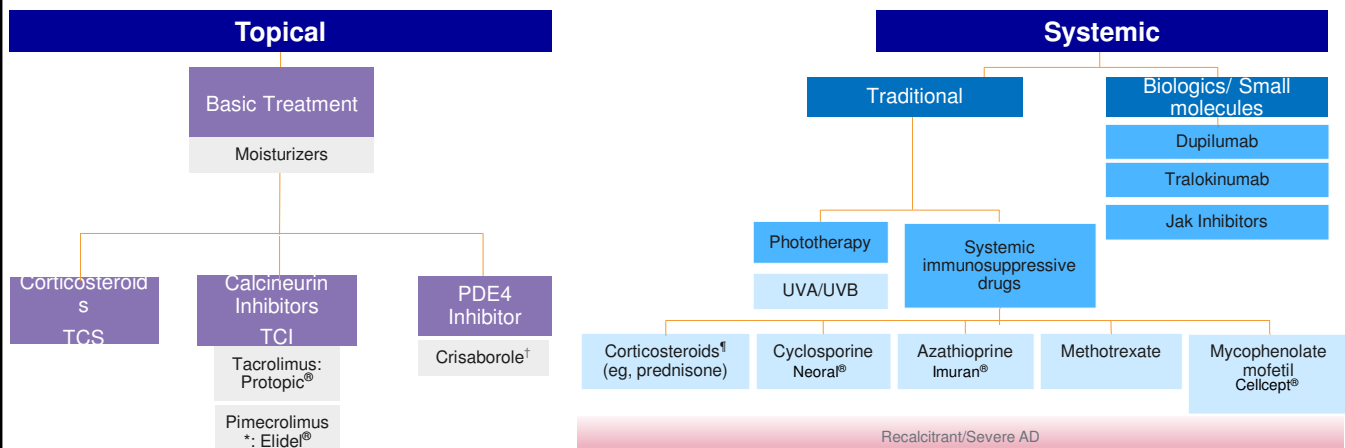
$C_{44}H_{69}NO_{12}$
804.018 g/mol $g \cdot mol^{-1}$



What to do???

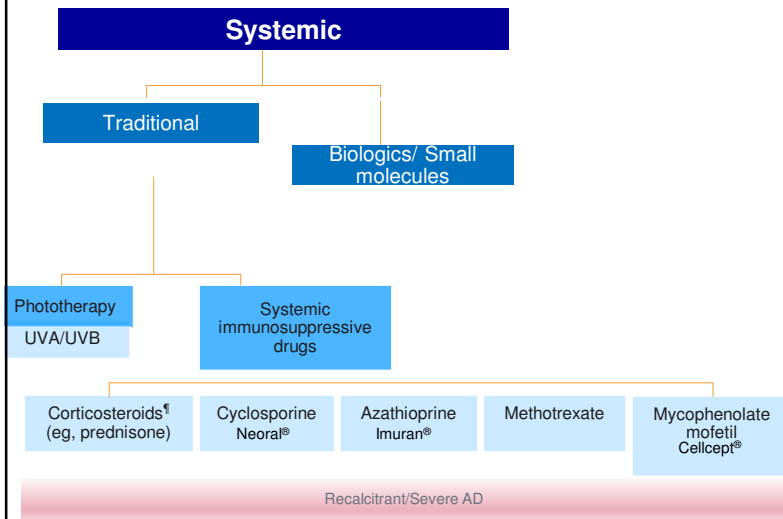


Treatment Options for AD



Eichenfield LF et al. J Am Acad Dermatol 2014;71:116-132. / Wollenberg A et al. J Eur Acad Dermatol Venereol 2018;32(5):657-682. / Saeki H et al. J Dermatol 2016;43:117-1145. / Sidbury R et al. J Am Acad Dermatol 2014;71:327-349. / Wollenberg A et al. J Eur Acad Dermatol Venereol 2018;32(6):850-878. / Boguniewicz M et al. J Allergy Clin Immunol Pract 2017;5:1519-1531. / Bieber T, Straeter B. Allergy 2015;70:6-11.

Treatment Options for AD



Dupilumab

- IL-4Ra (block IL4/13/ injection
- > 6yr
- AD/ atopy
- Safe effective / No blood work

Tralokinumab

- Binds IL13/ injection
- > 12yr
- AD
- Safe effective / No blood work

Jak Inhibitors- Abrocitinib / Upacitinib

- Inhibits JAK/ oral
- > 12yr/ AD
- Quick onset\ Safe effective (debate Pan JAK vs selective)
- Blood work - minimal