Choosing the Correct Topical Steroid

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Pediatrics
Allergy-Asthma-Immunology

Outline

- Review features of most common pediatric dermatoses
- Present guidelines in choosing the appropriate topical steroids for successful treatment of common pediatric dermatoses

Question No. 1: From the following list, choose 3 of the most common dermatoses in the pediatric age group?

Pediatric Dermatoses	
1. Seborrheic Dermatitis	6. Fungal Infections of the Skin
2. Atopic Dermatitis	7. Intertrigo
3. Scabies	8. Contact Dermatitis
4. Impetigo	9. Arthropod Bite Reaction
5. Nummular Dermatitis	10. Dyshidrotic Dermatitis

2015 Pediatric Census
Philippine Dermatological Society

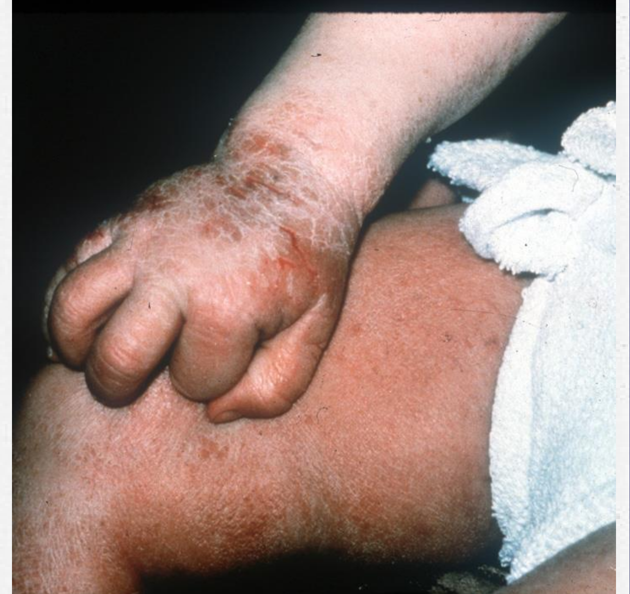
Age Range	Total No of Patients (29,579)
< 1 year	1,595
1-10 years	13,794
11-20 years	14,190

2015 Pediatric Census
Philippine Dermatological Society

Atopic Dermatitis	Arthropod Bite Reaction
Seborrheic Dermatitis	Dyshidrotic Eczema
Contact Dermatitis	Nummular Eczema
Intertrigo	

I. Atopic Dermatitis

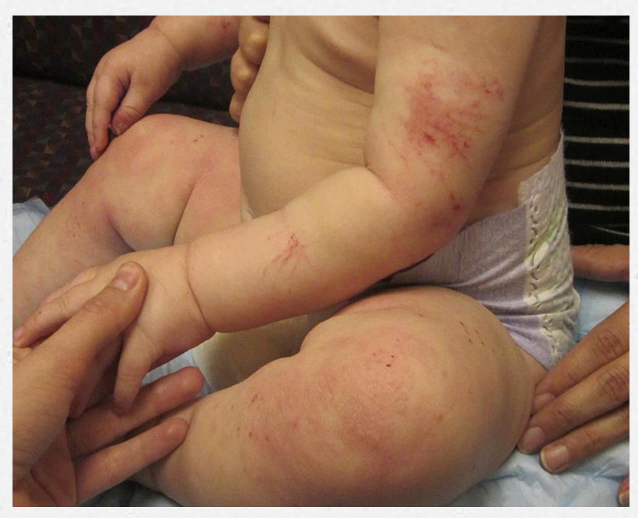
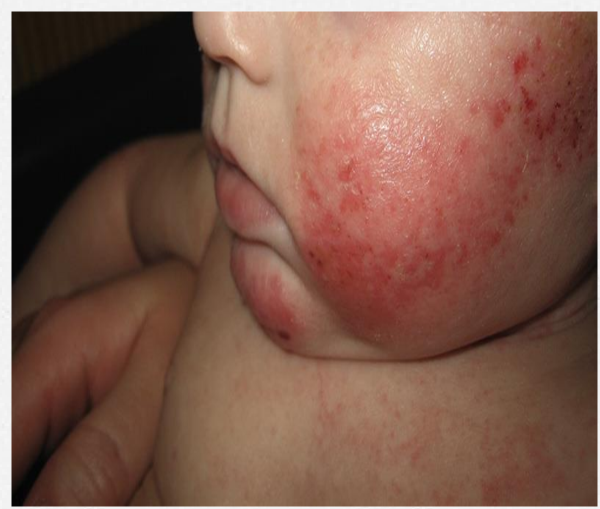
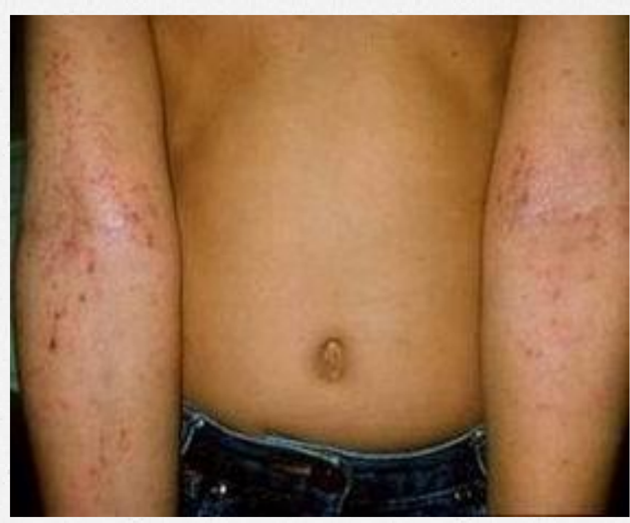
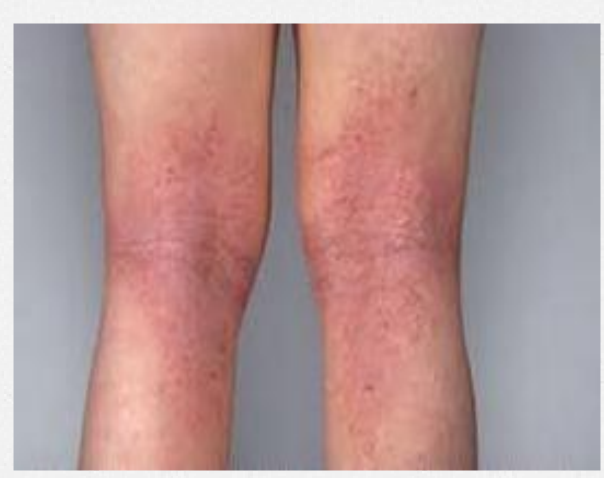
- **Key Points:**
  - Pruritus
    - Required for diagnosis
    - Most important and debilitating symptom



  - Personal or family history of atopic disease
  - Waxing-waning course (flares and remissions)

Zuberbier T et al. J Allergy Clin Immunol 2006;118: 226-32

Locations of Atopic Dermatitis with Age

Atopic Dermatitis

- **Key Points:**
  - **Effective treatment alleviates symptoms**
    - **Manage the disease not cure it**
    - **Prepare the patient for chronicity of disease**
    - **Affects not only patients but also patient's family**

Wolter S and Price HN. Pediatr Clin N Am 61 (2014) 241–260
Gee SN, Bigby M. Arch Dermatol 2011;147(8):967–70.
Ahmed A et al. Semin Cutan Med Surg 2013;32:101-109

Atopic Dermatitis

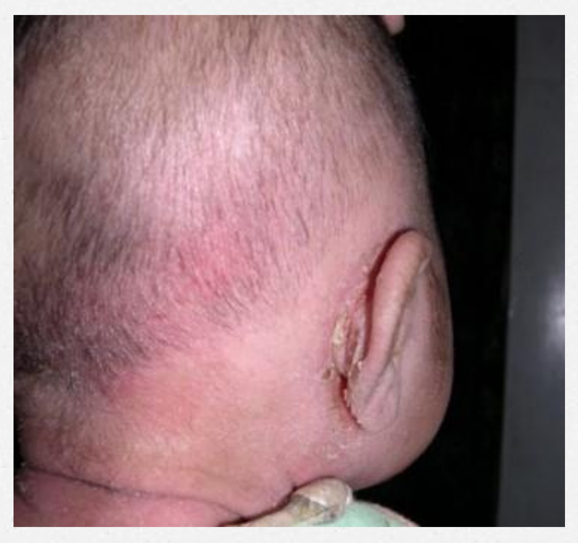
From the mouth of the babes:

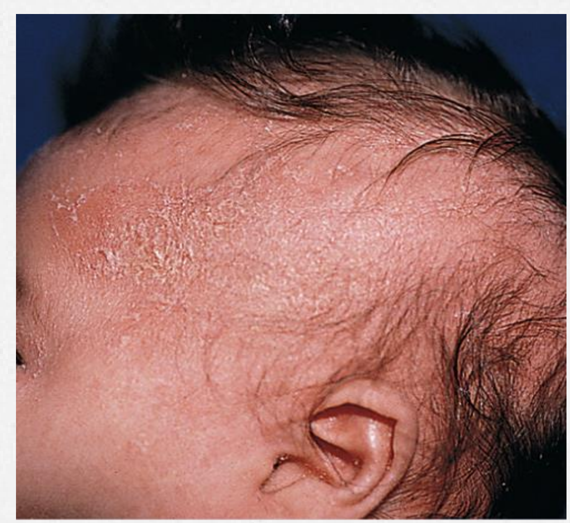
- self conscious
- uncomfortable
- feeling left out
- not normal, odd
- a really bad skin disease that has affected our lives

2. Seborrheic Dermatitis

- **Key Points**
  - **Infants to adults**
  - **Often associated with increased sebum production (seborrhea)**
  - **Sebaceous glands – active during 1st few months of life / post puberty**

Seborrheic Dermatitis

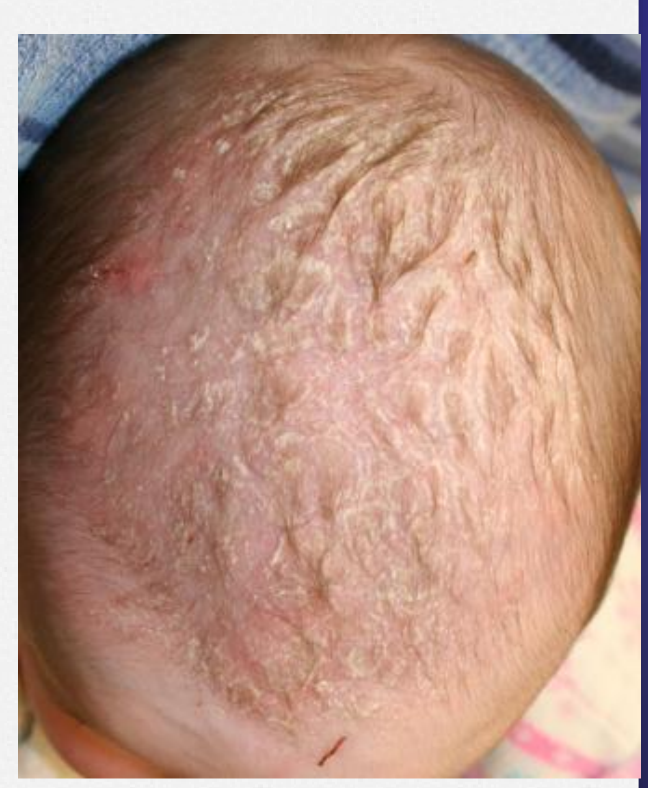




Sites: face, ears, scalp, upper trunk (rich in sebaceous follicles)

Seborrheic Dermatitis

- **INFANTS**
  - 1st 3 months
  - Scalp / Intertriginous folds
  - Greasy scales and crusts
  - CRADLE CAP
    - oily, thick fissured crusts
    - on frontal/parietal scalp



3. Contact Dermatitis

- **Key Points**
  - **Any eczematous pruritic skin disorder that results when a particular substance comes in contact with the skin**
    - **Irritant Contact Dermatitis (80%)**
    - **Allergic Contact Dermatitis (20%)**

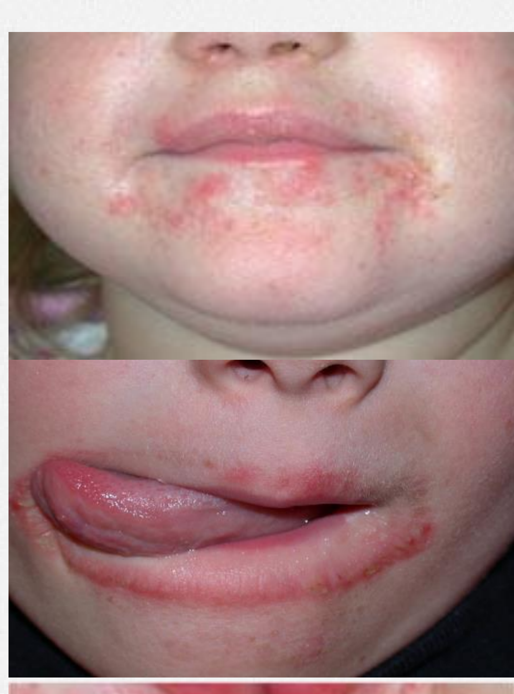
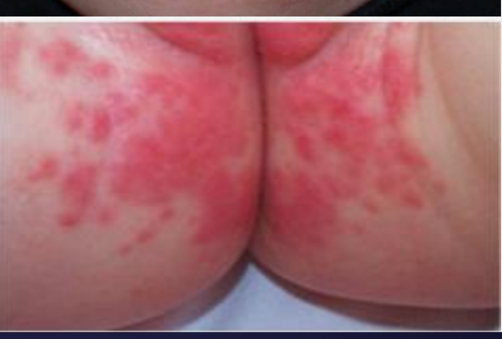
Fonacier LS, Dreskin SC and Leung DYM. J Allergy Clin Immunol 2010;125:S138-49

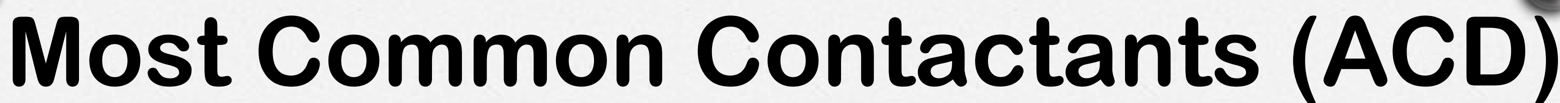
Criteria	ICD	ACD
At risk	Anyone, especially if repeated exposure and occupational exposure	Previously sensitized and genetically predisposed
Mechanism	Nonimmunologic, direct tissue damage	Immunologic, delayed-type hypersensitivity reaction
Concentration of offending agent	Usually high, dose effect	Might be low threshold dose, all or nothing
Common causative agents	Water, soaps, solvents detergents, acids, bases, saliva, urine, stool	Poison ivy, poison oak, poison sumac, metals, cosmetics, medications, rubber, resins, adhesives
Risk if atopic	Increased	Decreased
Symptoms	Burning, stinging, soreness	Itching
Morphology	Erythema, edema, desquamation, fissures	Erythema, edema, vesicles, papules, lichenification
Demarcation	Usually sharp, limited to area in contact with agent	Sometimes sharp
Typical onset	Minutes to hour	Hours to days
Histology	Spongiosis, primarily neutrophilic infiltrates	Spongiosis, primarily lymphocytic infiltrates

Fonacier LS, Dreskin SC and Leung DYM. J Allergy Clin Immunol 2010;125:S138-49

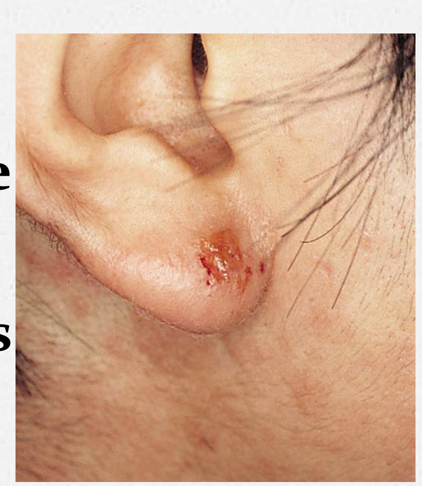
Irritant Contact Dermatitis (ICD)

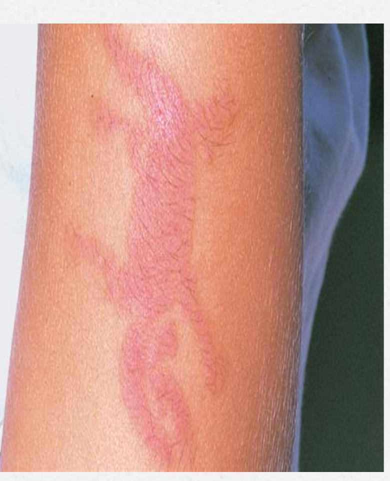
- Atopic Dermatitis particularly susceptible
- Most Common Irritants:
  - Circumoral – food as direct contact/not ingested
  - Regurgitation of food particles
  - Dribbling of saliva
  - Soap, Talcum, Bubble Bath, Detergents
  - Urine, Feces- diaper dermatitis



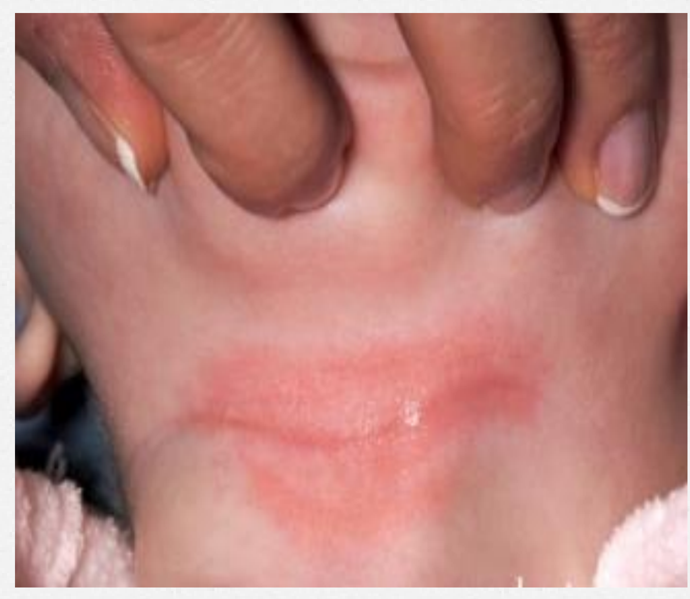
- **Most Common Contactants:**
  - Clothing Dermatitis – Formaldehyde
  - Shoe Dermatitis – Rubber
  - Metal (Nickel) Dermatitis – Earrings
  - Diapers- dyes, rubber in elastic
  - Fragrances – perfumes/colognes
  - Dye – paraphenylene, henna tattoo





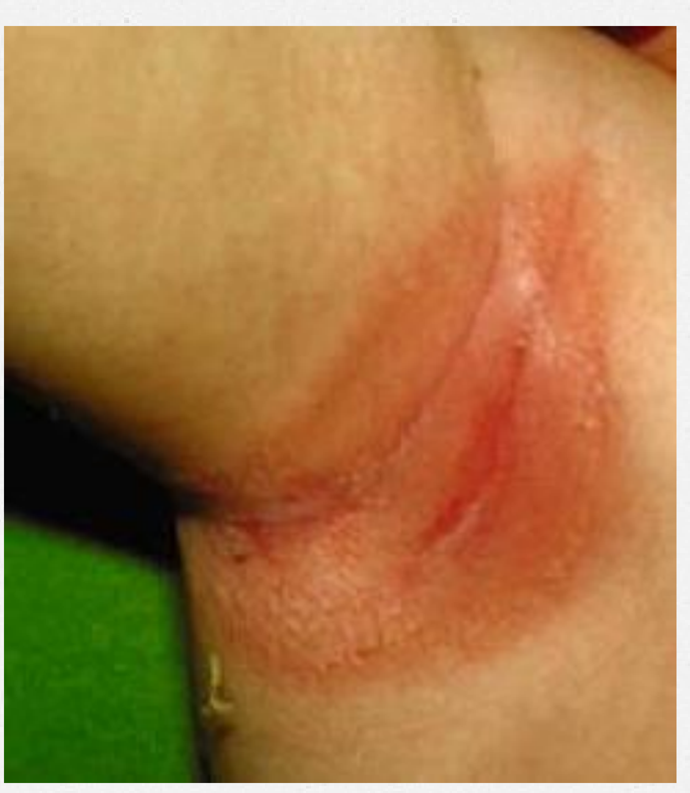
4. Intertrigo

- Triggered by two appositional skin surface areas rubbing against each other in conjunction with local heat and moisture



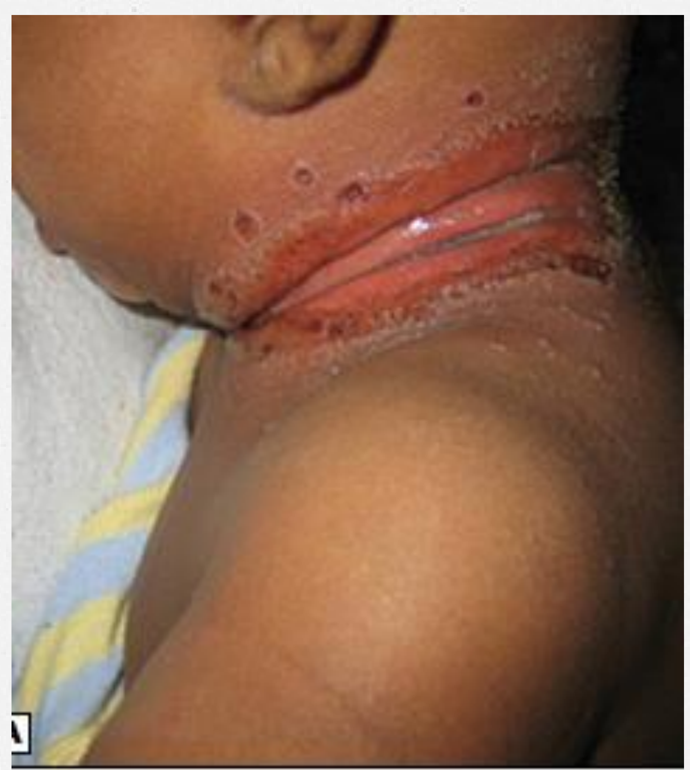
Intertrigo

- **Frequently –Skinfolds**
  - **Inguinal**
  - **Axilla**
  - **Buttocks**
  - **Neck**
  - **Inframammary**
  - **Fingerwebs**



Intertrigo

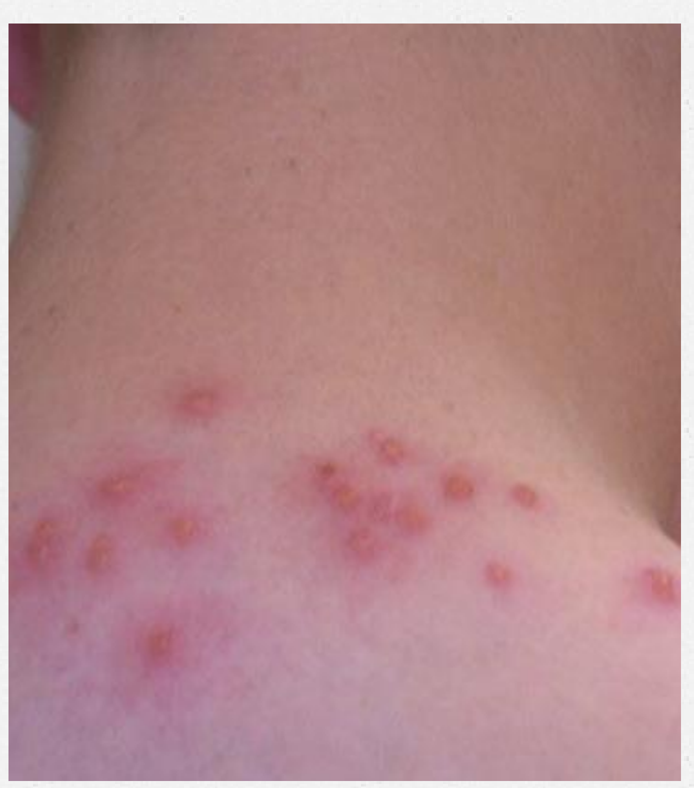
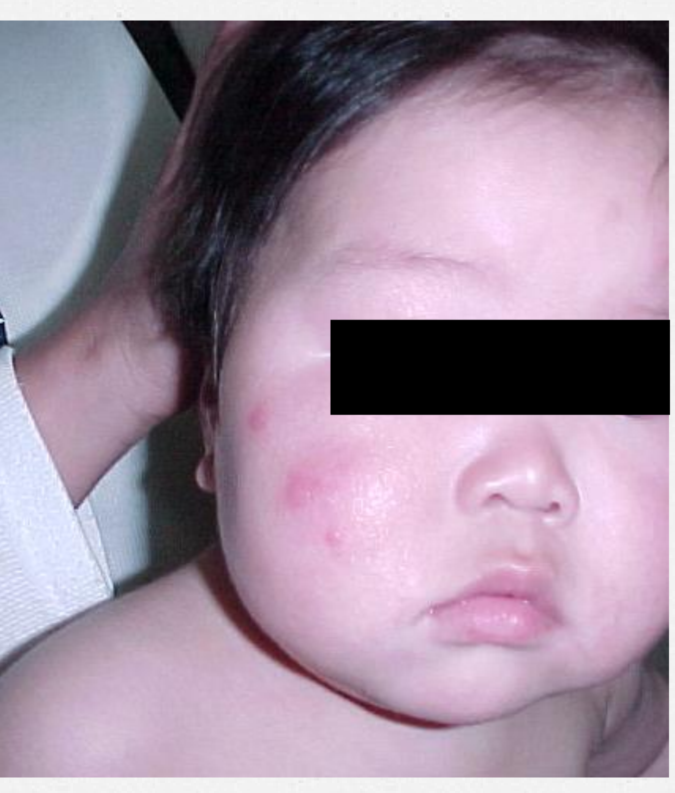
- Candidal intertrigo
  - "Beefy Red" or bright red plaques
  - Multiple Satellite Papules



Intertrigo

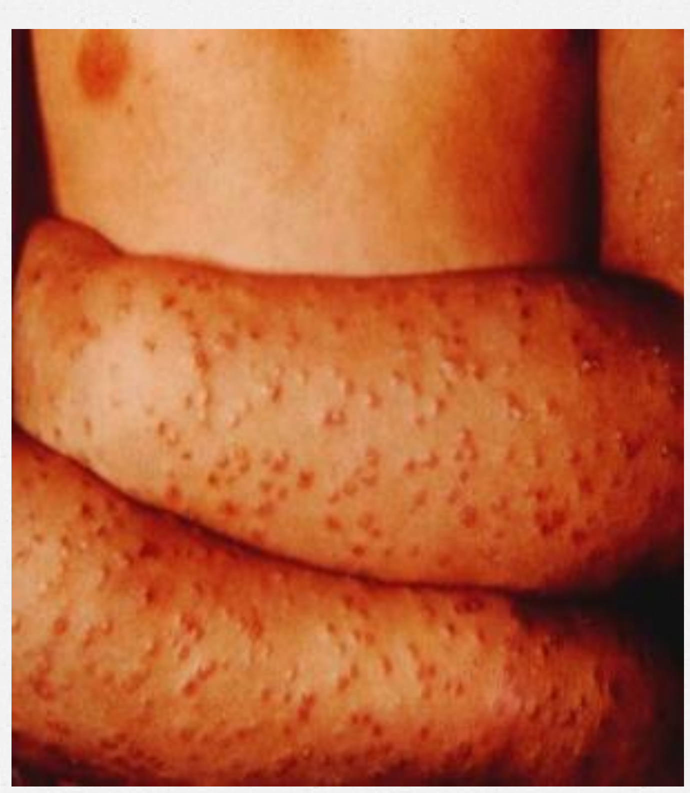
- Treatment
  - Topical Mild Steroid Cream (1-2 weeks)
  - Topical Antifungal Cream (Candidal Intertrigo)
  - Keep Area Dry
  - Frequent Diaper Change
  - Wear loose underwear

5. Arthropod Bite Reaction

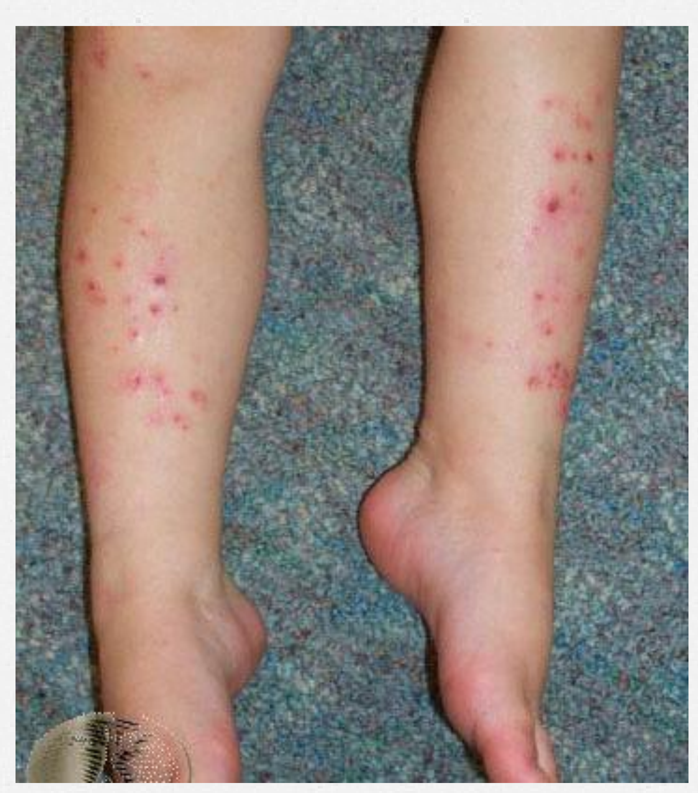
Arthropod Bite Reaction

- **Papular Urticaria or Insect Bite Induced Hypersensitivity (IBIH)**
  - Chronic or recurrent papules, vesicles or wheals
  - Hypersensitivity reaction to a stinging or biting insect (flea/mosquito)



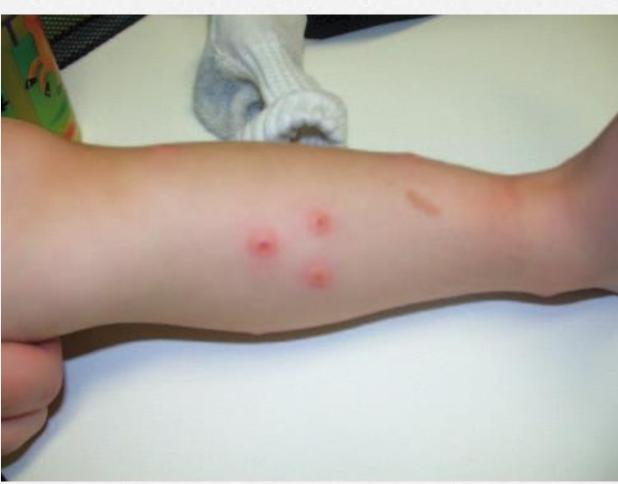
Arthropod Bite Reaction

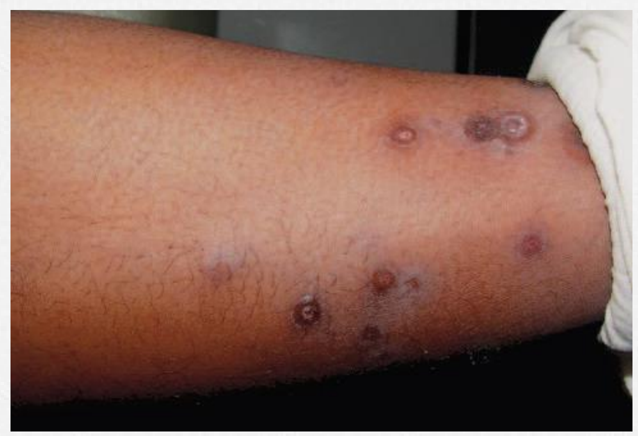
- Lesions in linear clusters
- Exposed areas
- Intense pruritus
- New bites are accompanied by reactivation of old ones



Arthropod Bite Reaction

- Postinflammatory hypo- or hyperpigmentation and scars are common
- Resolves with the development of immunological tolerance
 (5-7 years)





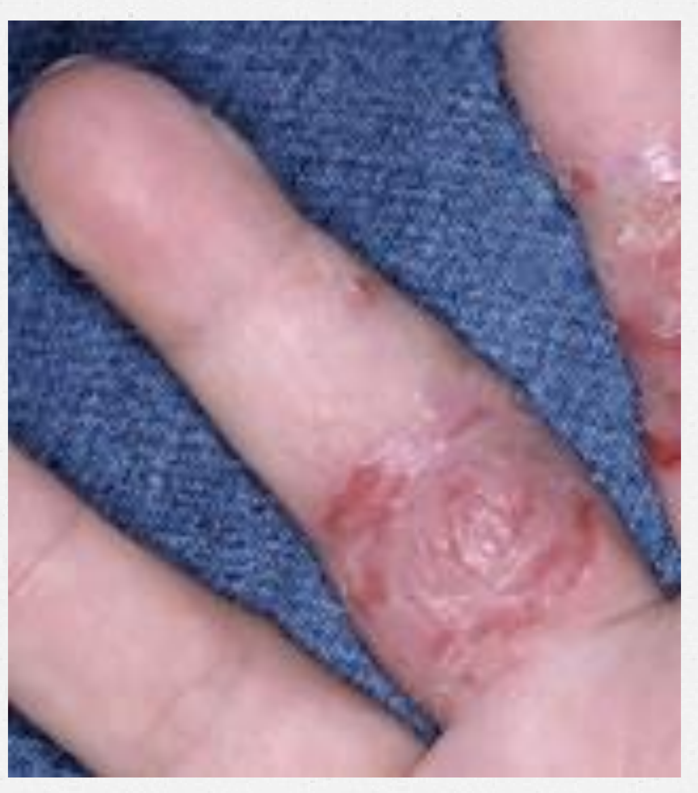
Arthropod Bite Reaction

- **Treatment**
  - Protective clothing
  - Judicious use of insect repellants
  - Aggressive flea/mosquito control measures
  - High potency topical steroids
  - Antihistamines

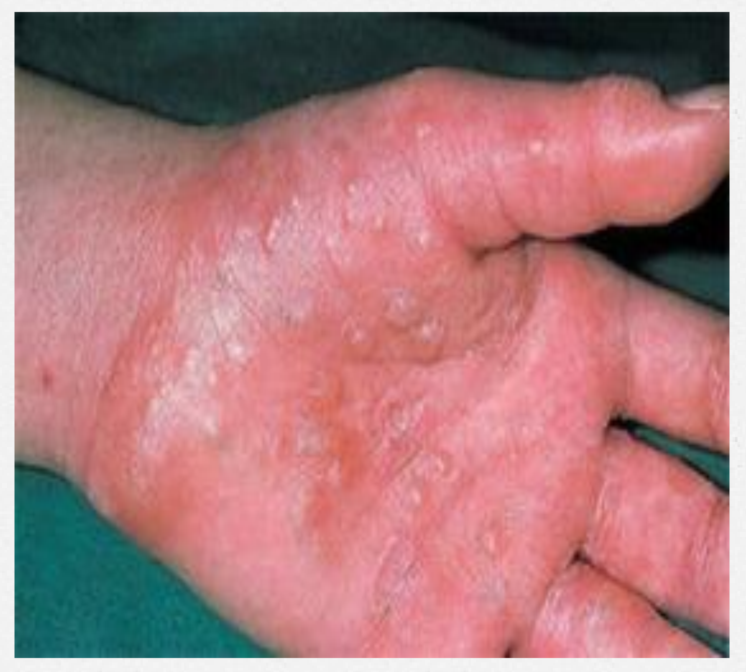
6. Dyshidrotic Dermatitis

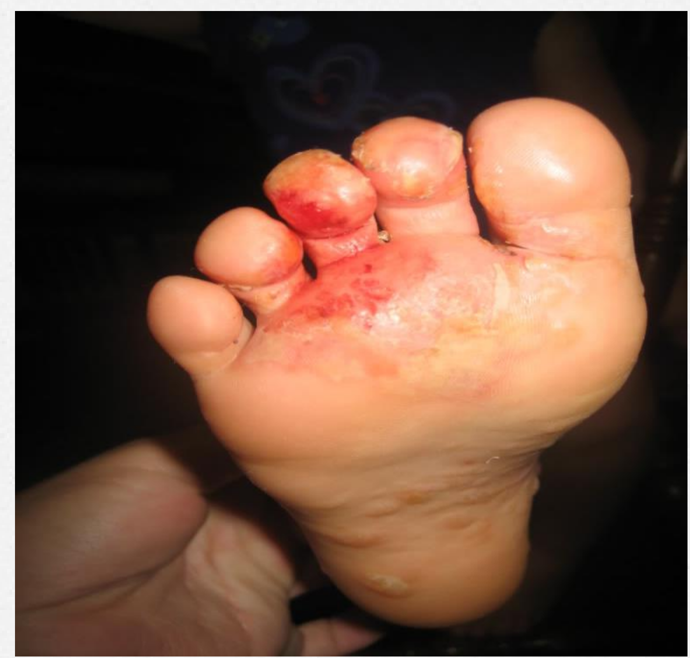
Dyshidrotic Dermatitis

- **Pompholyx-"bubble"**
  - **Vesiculo-bullous eruptions**
  - **Recurrent or chronic**
  - **AD-Predisposition**
  - **Itching or burning**



Dyshidrotic Dermatitis



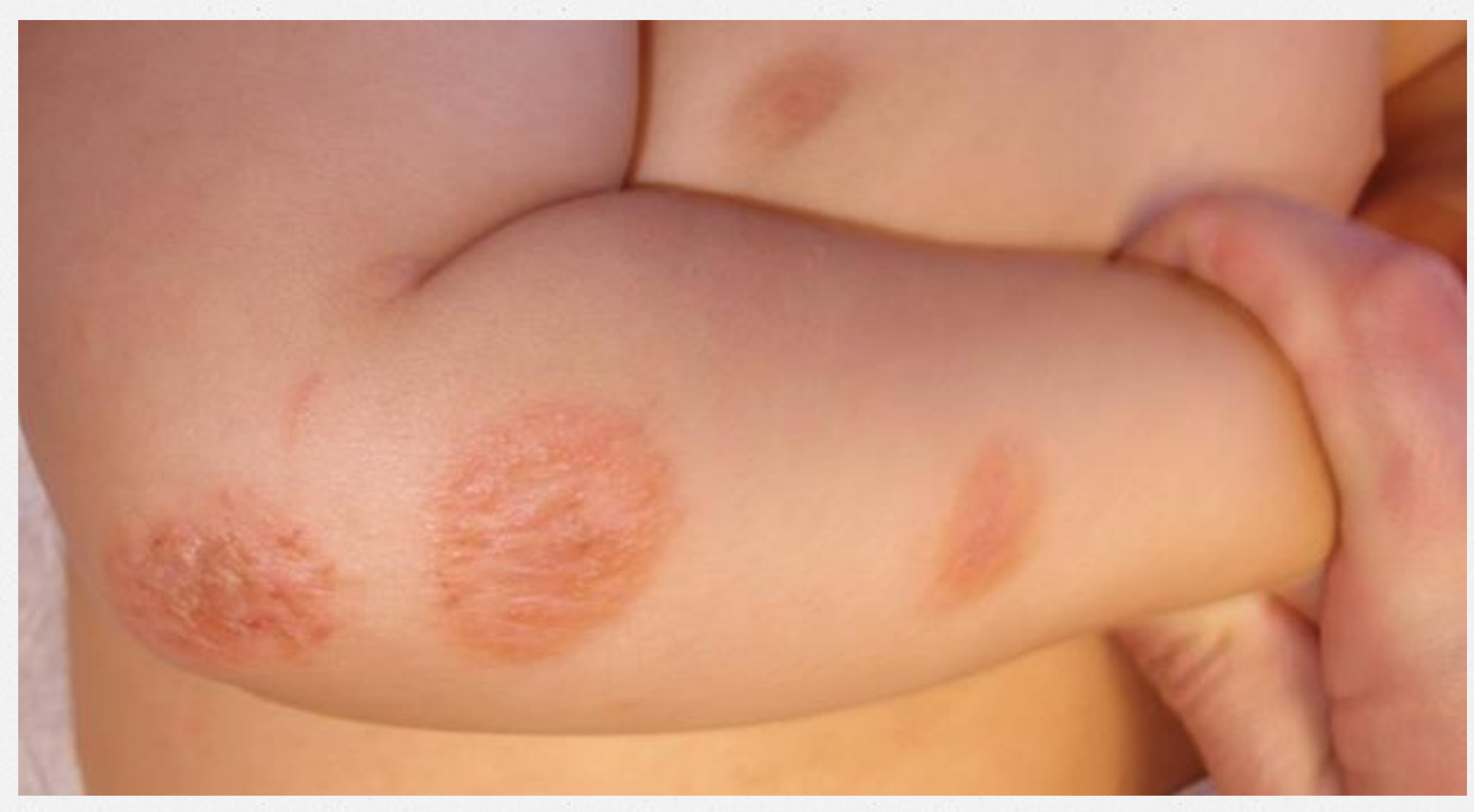


Site – palms, soles, sides of fingers

Dyshidrotic Dermatitis

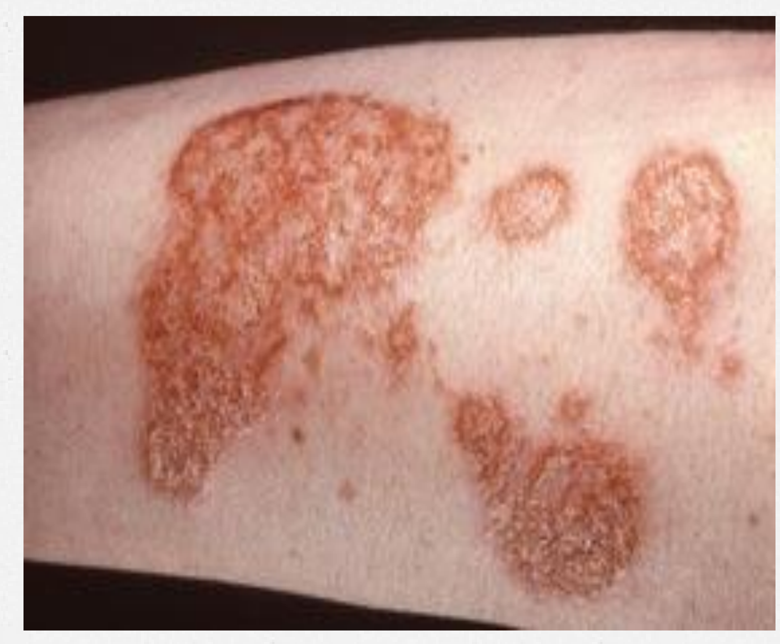
- **Treatment**
  - **Emollients**
  - **Soaks / Compresses if skin is oozing and crusty (15 minutes 1-2x/week)**
  - **Potent Steroid**

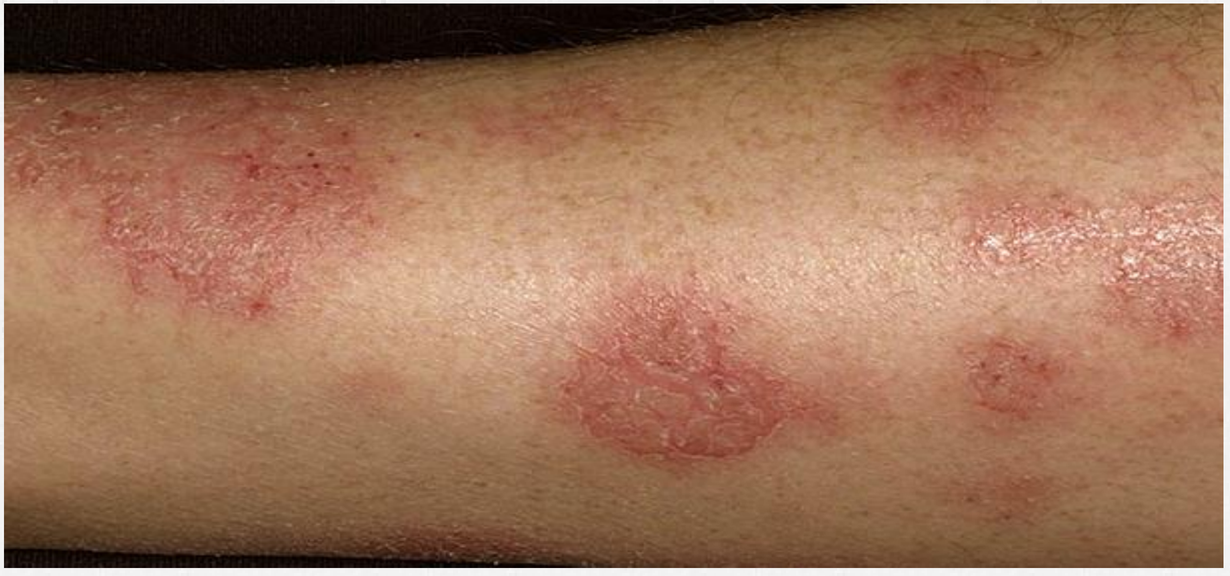
7. Nummular Eczema



Nummular Eczema

- **Discoid Eczema**
  - Discrete coin-shaped lesions
  - Erythematous, vesicular crusted patches
  - Pruritic
  - Associated with AD, emotional stress, dry skin





Site – extensor surface of extremities, trunk

Nummular Eczema

- **Treatment**
  - **Emollients**
  - **Antihistamines**
  - **Moderate to Potent Steroid**

Scratch

Damaged Skin

Release of Inflammatory Chemicals

Itch

RED, DRY SKIN

Topical Corticosteroids

- Effective for conditions that are characterized by:
  - hyperproliferation
  - inflammation
  - immunologic involvement

Choosing Topical Steroids

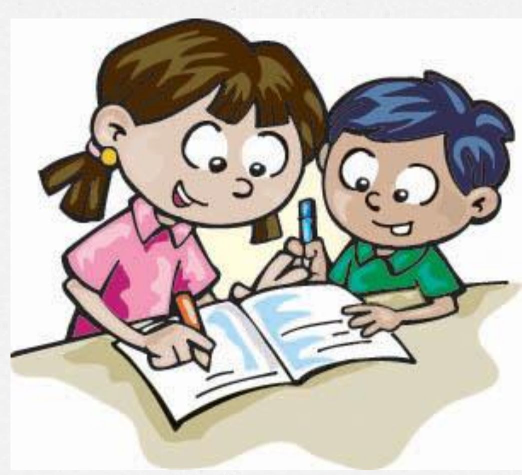
- Know the disease
- **Know the drug**
  - Potency
  - Vehicle
  - Dose, frequency of application, duration
  - Adverse Effects
- Know the patient

Topical Corticosteroids

- **Potency**
  - **The potency of the TCSs is classified by their potential for vasoconstriction**
    - **Clinical efficacy**
    - **Adverse reaction**
  - **TCS potency should be properly matched with the site of application and severity of disease**

Question No. 2

- A topical steroid belonging to Class 1 would be considered:
  A. Mild
  B. Mid potent
  C. Potent
  D. Super potent



Potency Ranking Of Topical Corticosteroids

CLASS I – (Superpotent)
Clobetasol Propionate 0.05%
Betamethasone Dipropionate 0.05%

CLASS II – (Potent)
Fluocinonide acetonide 0.05%
Triamcinolone acetonide 0.05%
Mometasone Furoate Ointment 0.1%

CLASS III – (Potent)
Fluticasone propionate ointment 0.005%
Betamethasone Valerate ointment 0.1%
Triamcinolone Acetonide 0.1%

CLASS IV – (Mid-strength)
Mometasone Furoate cream 0.1%
Fluticasone propionate cream 0.05%

CLASS V – (Mid-strength)
Betamethasone Valerate cream 0.1%
Fluocinolone Acetonide 0.025%

CLASS VI – (Mild)
Desonide 0.05%
Fluocinolone Acetonide 0.01%

CLASS VII – (Mild)
Hydrocortisone 1% and 2.5%
Methyprednisolone 1%

Arndt KA, Hsu JT. Manual of Dermatologic Therapeutics, 7th ed, 2007

Topical Corticosteroids

- **Potency**
  - The potency of the TCSs is classified by their potential for vasoconstriction
    - Clinical efficacy
    - Adverse reaction
  - **TCS potency should be properly matched with the site of application and severity of disease**

Table 1. Conditions Treatable with Topical Steroids

High-potency steroids (groups I to III)
Alopecia areata
Atopic dermatitis (resistant)
Discoid lupus
Hyperkeratotic eczema
Lichen planus
Lichen sclerosus (skin)
Lichen simplex chronicus
Nummular eczema
Poison ivy (severe)
Psoriasis
Severe hand eczema

Medium-potency steroids (groups IV and V)
Anal inflammation (severe)
Asteatotic eczema
Atopic dermatitis
Lichen sclerosus (vulva)
Nummular eczema
Scabies (after scabicide)
Seborrheic dermatitis
Severe dermatitis
Severe intertrigo (short-term)
Stasis dermatitis

Low-potency steroids (groups VI and VII)
Dermatitis (diaper)
Dermatitis (eyelids)
Dermatitis (face)
Intertrigo
Perianal inflammation

Ference JD and Last AR. Am Fam Physician. 2009;79(2):135-140.

Topical Corticosteroids

- Vehicle
  - Steroids may differ in potency based on the vehicle in which they are formulated
    - Ointment
    - Cream
    - Lotion
  - Hydration generally promotes steroid penetration
  - Occlusion increases steroid penetration

Ference JD and Last AR. Am Fam Physician. 2009;79(2):135-140.

Topical Corticosteroids

- **Vehicle**
  - ***Ointment***
    - **provide more lubrication and occlusion**
    - **dry or thick, hyperkeratotic lesions**
    - **greasy nature may result in poor patient satisfaction and compliance**

Ference JD and Last AR. Am Fam Physician. 2009;79(2):135-140.

Topical Corticosteroids

- **Vehicle**
  - ***Cream***
    - **good lubricating qualities**
    - **cosmetically appealing**
    - **generally less potent than ointments of the same medication**

Ference JD and Last AR. Am Fam Physician. 2009;79(2):135-140.

Topical Corticosteroids

- **Vehicle**
  - ***Lotion***
    - **Least greasy and occlusive**
    - **Contains water and may be drying**
    - **Used in scalp and hairy areas where drying effects are not problematic**

Ference JD and Last AR. Am Fam Physician. 2009;79(2):135-140.

Topical Corticosteroids

- ***Frequency of Administration / Duration of Treatment***
  - **Low-potency corticosteroids are recommended for maintenance therapy, whereas intermediate and high-potency corticosteroids should be used for the treatment of clinical exacerbation over short periods of time**

Wolter S and Price HN. Pediatr Clin N Am 61 (2014) 241–260
National Institute for Health and Clinical Excellence Clinical Guideline for Atopic Eczema in Children, Dec 2007

Topical Corticosteroids

- ***Frequency of Administration / Duration of Treatment***
  - A short treatment with a potent topical corticosteroid is as effective as a longer treatment with a mild preparation

National Institute for Health and Clinical Excellence Clinical Guideline for Atopic Eczema in Children, Dec 2007

Topical Corticosteroids

- *Adverse Effects*

  - **Most frequently reported side effects:**
    - **local irritation (66 %)**
    - **skin discoloration (15 %)**
    - **striae or skin atrophy (15 %)**

Hengge U et al. J Am Acad Dermatol. 2006;54(1):1-15

Table 4. Potential Side Effects of Topical Corticosteroids

Cutaneous/local effects

Atrophic changes
- Easy bruising
- Increased fragility
- Purpura
- Stellate pseudoscars
- Steroid atrophy
- Striae
- Telangiectasis
- Ulceration

Infections
- Aggravation of cutaneous infection
- Granuloma gluteale infantum
- Masked infection (tinea incognito)
- Secondary infections

Miscellaneous
- Contact dermatitis
- Delayed wound healing
- Hyperpigmentation
- Hypertrichosis (hirsutism)
- Hypopigmentation
- Perioral dermatitis
- Photosensitization

Cutaneous/local effects

Miscellaneous (continued)
- Reactivation of Kaposi sarcoma
- Rebound flare
- Steroid-induced acne
- Steroid-induced rosacea

Ocular changes
- Cataracts
- Glaucoma
- Ocular hypertension

Systemic effects

Endocrine
- Cushing disease
- Hypothalamic-pituitary-adrenal suppression

Metabolic
- Aseptic necrosis of the femoral head
- Decreased growth rate
- Hyperglycemia

Renal/electrolyte
- Hypertension
- Hypocalcemia
- Peripheral edema

Adapted with permission from Hengge UR, Ruzicka T, Schwartz RA, Cork MJ. Adverse effects of topical glucocorticosteroids. J Am Acad Dermatol. *2006;54(1):5.*

Topical Corticosteroids

- N= 92 pediatric dermatological patients who received at least three months topical corticosteroid treatment
- Investigated the atrophogenic potential of topical corticosteroids using a validated five-point dermoscopic scale
- No degree of cutaneous atrophy was observed at any of the 280 body sites measured

Hong E, Smith S, Fischer G. Pediatr Dermatol 2011;28:393–6.

Topical Corticosteroids

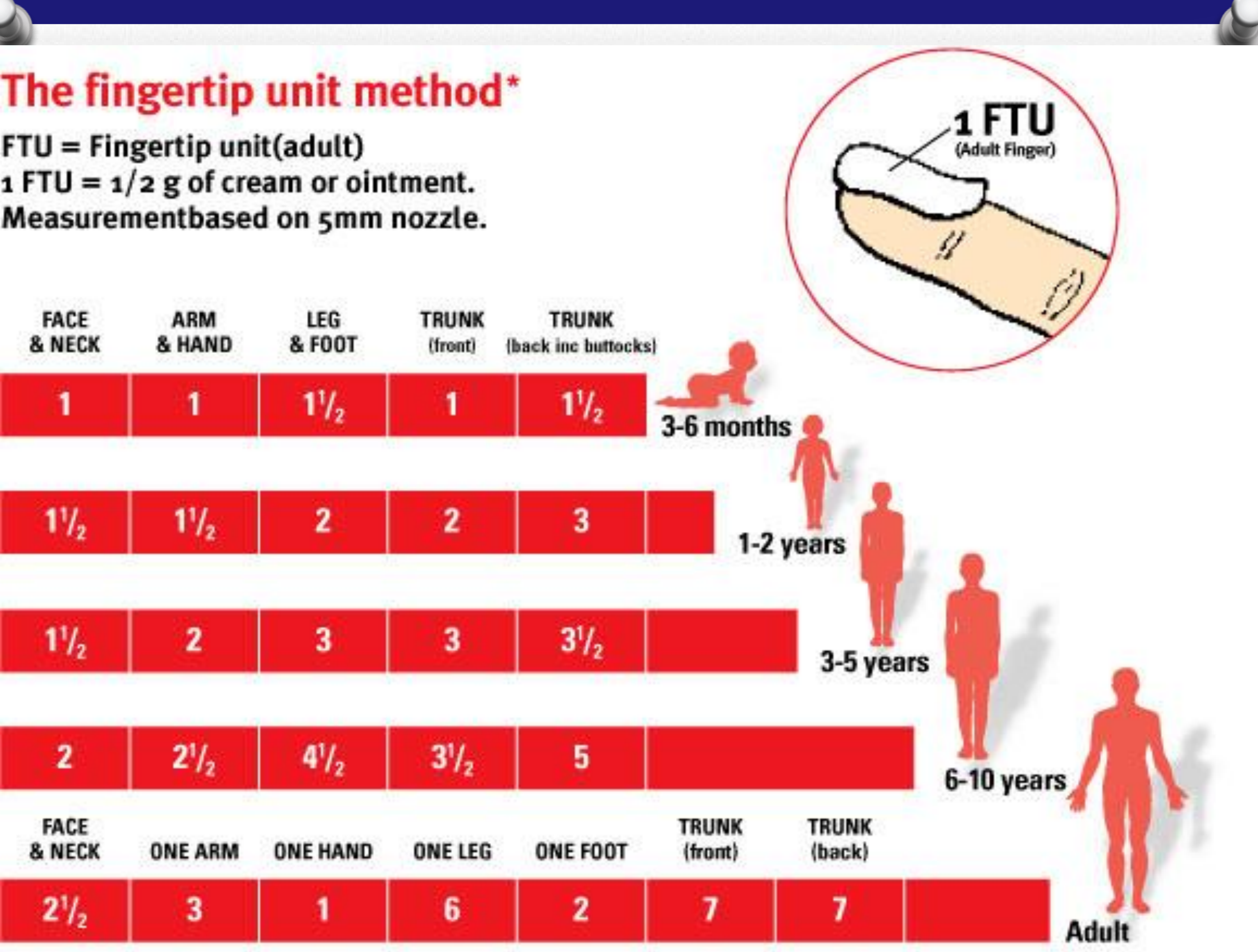
- ***Adverse Effects***
  - **Side effects are rare when low to high potency steroids are used for three months or less, except:**
    - **in intertriginous areas**
    - **on the face and neck**
    - **under occlusion**

Ference JD and Last AR. Am Fam Physician. 2009;79(2):135-140.

Topical Corticosteroids

- ***Adverse Effects***
  - **When used appropriately, the risk of local and systemic effects of topical CS rarely occurs**
  - **The risks of the disease are far greater than the risks of treatment**
  - **Underuse of topical corticosteroids is more common than overuse**

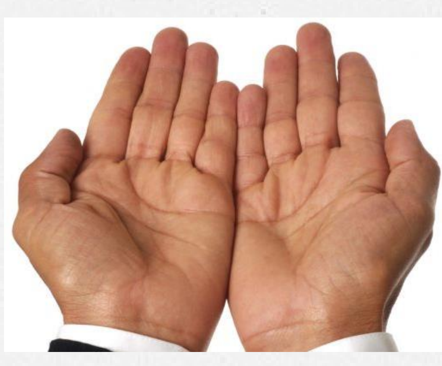
2014 National Eczema Association http://www.national eczema.org
Mooney E et al. Australas J Dermatol March 2015

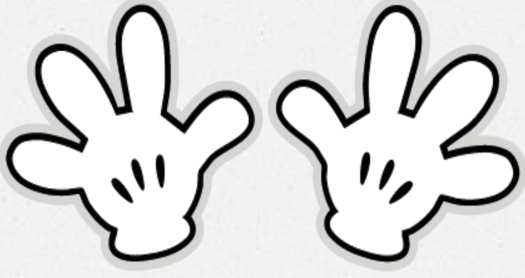


Long CC and Finlay AY. Clinical and Experimental Dermatology 1991; 16: 444-447 Leo Pharma
http://www.staphy.com/The-Fingertip-Unit

***Question No. 3*:** **One Fingertip Unit should be enough to cover an area of skin the size of :**

A.

C. 

B. 

D.

Choosing Topical Steroids

- Know the disease
- Know the drug
  - Potency
  - Vehicle
  - Dose, frequency of application, duration
  - Adverse Effects
- **Know the patient**

Topical Corticosteroids

- **Know the Patient**
  - **With any prescribed strategy, parent education about goals of therapy is tantamount to success**

Krakowski AC et al. Pediatrics 2008;122;812-824
Wolter S and Price HN. Pediatr Clin N Am 61 (2014) 241–260

Topical Corticosteroids

- **Know the Patient**
  - **Time spent in educating will prevent mishaps**
  - **Take care of the other extreme of steroid phobia which leads to inadequate usage and poor clinical results.**

Sanjay K. Rathi and Paschal D'Souza. Indian J Dermatol. 2012 Jul-Aug; 57(4): 251–259.

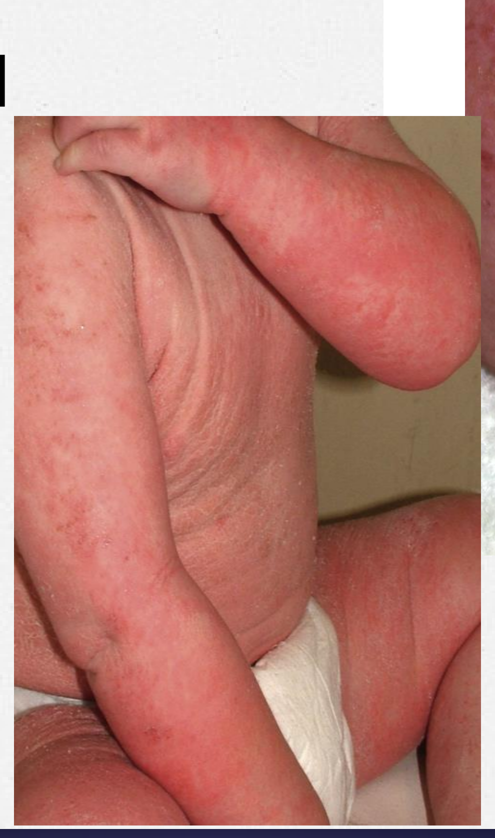
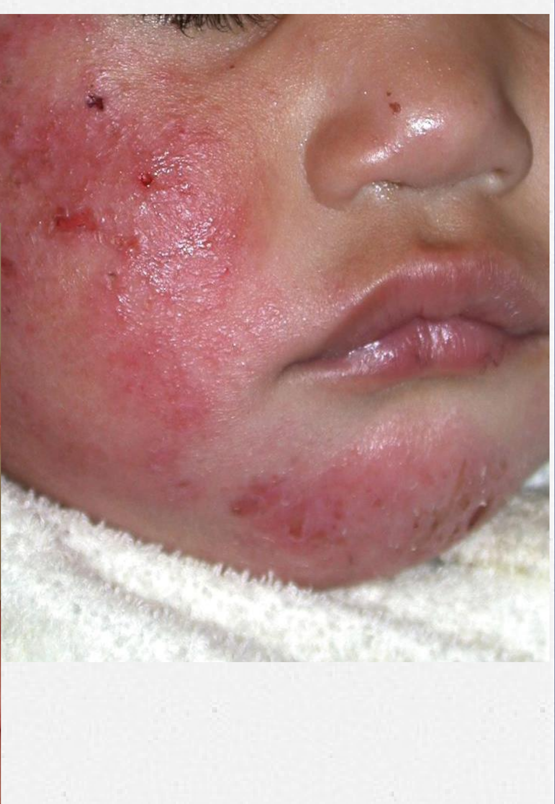
Topical Corticosteroids

- **Know the Patient**
  - address parental and patient concerns about side effects at each visit
  - establish close follow-up appointments to increase compliance and adherence to therapy
  - continue to explore and address reasons for treatment failure

2014 National Eczema Association http://www.national eczema.org

Question No.4: The severity of the Atopic Dermatitis of this patient is.....

A. Controlled
B. Mild
C. Moderate
D. Severe

Controlled eczema with no active skin involvement	Mild eczema	Moderate eczema	Severe eczema
Normal skin with no evidence of dryness, redness or itching	Areas of dry skin Infrequent itching (with or without small areas of redness)	Areas of dry skin Frequent itching Redness (with or without excoriation and localised skin thickening)	Widespread areas of dry skin Incessant itching Redness (with or without excoriation, extensive skin thickening, bleeding, oozing, cracking and alteration of skin pigment)

National Institute for Health and Clinical Excellence Clinical Guideline for Atopic Eczema in Children. 2007

<u>Question No.5</u>: How will you manage this case?

A. Use mild topical steroids for 2 weeks
B. Use midpotent to potent steroids for 5 days then once control is achieved, shift to mild steroids for 2 weeks
C. Seek specialist advice because of the severity of the skin lesions
D. Check for ongoing exposure to allergens and irritants

Summary

- Topical corticosteroids effective for conditions that are characterized by:
  - hyperproliferation
  - inflammation
  - immunologic involvement

- In choosing topical steroids,
  - Know the disease
  - Know the drug
  - Know the patient

Summary

- Topical steroid potency should be properly matched with the site of application and severity of disease
- Time spent in educating will prevent mishaps and take care of the other extreme of steroid phobia which leads to inadequate usage and poor clinical results

THANK YOU!!!