

# Future of Pediatrics

## **Simple solutions to scaly stuff**

A. Yasmine Kirkorian, MD

## **Cost-conscious care for common cutaneous conditions**

Scott A. Norton, MD, MPH, MSc

## **Prepubertal vulvar dermatology**

Kalyani S. Marathe, MD, MPH

No financial conflicts of interest.

Future of Pediatrics

# Cost-conscious care for common cutaneous conditions

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Chief of Dermatology  
Children's National Medical Center  
Washington, DC

June 20, 2017

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# Cost-conscious care for common cutaneous conditions

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June 20, 2017

... but I will discuss many medications  
by brand name and discuss their costs.



# Future of Pediatrics

## Cost-conscious care for common cutaneous conditions

**UNIQUE TALK FOR ME.**

MD, MSc  
Chief of Dermatology  
Children's National Medical Center  
Washington, DC

June 20, 2017



# **“Cost-conscious care for common cutaneous conditions”**

## **Physician Incentive Program (unnamed carrier):**

- Our incentive program makes quarterly payments based on quality measures, including:
  - **A share in the cost savings that result from a focus on prescribing patterns for select drug categories.**

On Wed, May 10, 2017 at 9:51 PM, Scott Norton wrote:

On the **Disclosure of Financial Relationships** for June's *Future of Pediatrics* conference, I reported:

My topic is "**Cost-conscious care for common cutaneous conditions**" and I plan to mention trade names throughout the lecture. In most cases, I will identify a single product by its trade name because of its high price. I believe I will express bias *against* products with egregiously high prices. I may, at times, mention equivalent products, often by trade name, with much lower prices.

I will disclose this when I give my presentation.

**Scott A. Norton, MD, MPH, MSc**  
*Chief of Dermatology*  
Division of Dermatology  
Professor of Dermatology & Pediatrics

**Disclosures**



**Children's National**™

“... some medications are less expensive, more effective, or more widely covered by health plans than others.”

**Acne vulgaris**

**Atopic dermatitis (eczema)**

**Urticaria**

**Ringworm (true tineas)**

**Head lice**

# Acne vulgaris: prescribing guidelines



## Prescribing Guidelines for Acne



PARTNERS  
FOR **KIDS** SM



# Acne vulgaris: general principles

- ▶ Topical salicylic acid and benzoyl peroxide, both available OTC, are often used for initial treatment of acne.
- ▶ A topical antibiotic, often in combination with benzoyl peroxide, is commonly used to treat mild to moderate acne.
- ▶ Many dermatologists now prescribe a topical retinoid for first-line treatment of acne.
- ▶ Retinoid/antimicrobial combinations are more effective than either component alone, particularly for patients with inflammatory lesions.
- ▶ Oral antibiotics are generally prescribed for moderate to severe acne unresponsive to topical drugs.
- ▶ The most effective drug available for treatment of inflammatory acne is isotretinoin; it can clear severe recalcitrant nodular acne, but it has many adverse effects.

	Mild	Moderate	Severe
1st Line	<p>Start benzoyl peroxide (BP) 2.5% or 5%</p> <p><i>Change frequency, concentration and/or formulation of BP as needed.</i></p>	<p>Start benzoyl peroxide (BP) 2.5% or 5%</p> <p>AND</p> <p>topical retinoid (adapalene 0.1% gel, tretinoin 0.025% cream or 0.01% gel).*</p> <p><i>Change type, frequency, concentration and/or formulation of agent(s) as needed.</i></p>	<p>Start benzoyl peroxide (BP) 2.5% or 5%</p> <p>AND</p> <p>oral antibiotic (minocycline capsules or doxycycline monohydrate capsules)</p> <p>AND</p> <p>topical retinoid (adapalene 0.1% gel, tretinoin 0.025% cream or 0.01% gel).*</p>
2nd Line	<p><i>Change type, frequency, concentration and/or formulation of topical retinoid as needed.</i></p>	<p><i>Change type and/or formulation of topical antibiotic as needed.</i></p>	<p><i>Change type and/or formulation of topical antibiotic as needed.</i></p>
3rd Line	<p>Add topical antibiotic (erythromycin 2% solution or clindamycin 1% gel or solution).*†</p> <p><i>Change type and/or formulation of topical antibiotic as needed.</i></p>	<p>Add oral antibiotic (minocycline capsules or doxycycline monohydrate capsules). May use with or without topical antibiotic.</p> <p><i>Change type and/or formulation of oral antibiotic as needed.</i></p>	<p>For females only, add combined oral contraceptive or oral spironolactone</p> <p>OR</p> <p>consider oral isotretinoin.</p>
4th Line	<p>Use topical dapsone as single therapy or use with BP and/or tretinoin.</p>	<p>For females only, add combined oral contraceptive or oral spironolactone</p> <p>OR</p> <p>consider oral isotretinoin.</p>	

**Stepwise treatment strategies**

# Mild

## Mild

### 1st Line

Start benzoyl peroxide (BP)  
2.5% or 5%

*Change frequency, concentration and/or  
formulation of BP as needed.*

### 2nd Line

**Change to or add** topical retinoid  
(adapalene 0.1% gel, tretinoin  
0.025% cream or 0.01% gel).\*

*Change type, frequency, concentration  
and/or formulation of topical retinoid as  
needed.*

### 3rd Line

**Add** topical antibiotic  
(erythromycin 2% solution or  
clindamycin 1% gel or solution).\*†

*Change type and/or formulation of topical  
antibiotic as needed.*

### 4th Line

Use topical dapsone as single  
therapy or use with BP and/or  
tretinoin.

## Sources:

*Medical Letter*

Major pharmacy chains

Major insurance carriers

## Mild

Start benzoyl peroxide (BP)  
2.5% or 5%

*Change frequency, concentration and/or  
formulation of BP as needed.*

1st Line

# Mild

Benzoyl peroxide 😊

\$9 per 6oz OTC

## Mild

1st Line

Start benzoyl peroxide (BP)  
2.5% or 5%

*Change frequency, concentration and/or  
formulation of BP as needed.*

2nd Line

**Change to or add topical retinoid**  
(adapalene 0.1% gel, tretinoin  
0.025% cream or 0.01% gel).\*

*Change type, frequency, concentration  
and/or formulation of topical retinoid as  
needed.*

# Mild

Benzoyl peroxide 😊

\$9 per 6oz OTC

Retinoid, topical:

Adapalene gel 😊

\$157 per 45gm

Tretinoin cream 😊

\$158 per 45gm

Retin-A MicroSphere

\$722 per 45gm

## Mild

### 1st Line

Start benzoyl peroxide (BP)  
2.5% or 5%

*Change frequency, concentration and/or  
formulation of BP as needed.*

### 2nd Line

**Change to or add topical retinoid**  
(adapalene 0.1% gel, tretinoin  
0.025% cream or 0.01% gel).\*

*Change type, frequency, concentration  
and/or formulation of topical retinoid as  
needed.*

### 3rd Line

**Add topical antibiotic**  
(erythromycin 2% solution or  
clindamycin 1% gel or solution).\*†

*Change type and/or formulation of topical  
antibiotic as needed.*

# Mild

Benzoyl peroxide 😊

\$9 per 6oz OTC

## Retinoid, topical:

Adapalene gel 😊

\$157 per 45gm

Tretinoin cream 😊

\$158 per 45gm

Retin-A MicroSphere

\$722 per 45gm

## Antibiotic, topical:

clindamycin, generic 😊

\$115 per 50gm

*Evoclin*

\$438 per 50gm



## Mild

### 1st Line

Start benzoyl peroxide (BP)  
2.5% or 5%

*Change frequency, concentration and/or  
formulation of BP as needed.*

### 2nd Line

**Change to or add topical retinoid**  
(adapalene 0.1% gel, tretinoin  
0.025% cream or 0.01% gel).\*

*Change type, frequency, concentration  
and/or formulation of topical retinoid as  
needed.*

### 3rd Line

**Add topical antibiotic**  
(erythromycin 2% solution or  
clindamycin 1% gel or solution).\*

*Change type and/or formulation of topical  
antibiotic as needed.*

### 4th Line

Use topical dapsone as single  
therapy or use with BP and/or  
tretinoin.

# Mild

Benzoyl peroxide 😊

\$9 per 6oz OTC

Retinoid, topical:

Adapalene gel 😊

\$157 per 45gm

Tretinoin cream 😊

\$158 per 45gm

Retin-A MicroSphere

\$722 per 45gm

Antibiotic, topical:

clindamycin, generic 😊

\$115 per 50gm

*Evoclin*

\$438 per 50gm

Topical dapsone, *Aczone*

\$259 per 30gm

## Moderate

1st Line

Start benzoyl peroxide (BP)  
2.5% or 5%

AND

topical retinoid (adapalene 0.1%  
gel, tretinoin 0.025% cream or  
0.01% gel).\*

*Change type, frequency, concentration  
and/or formulation of agent(s) as needed.*

2nd Line

**Change to or add topical  
antibiotic (erythromycin 2%  
solution or clindamycin 1% gel or  
solution).\*\*†**

*Change type and/or formulation of topical  
antibiotic as needed.*

3rd Line

**Add oral antibiotic (minocycline  
capsules or doxycycline  
monohydrate capsules). May use  
with or without topical antibiotic.**

*Change type and/or formulation of oral  
antibiotic as needed.*

4th Line

**For females only, add combined  
oral contraceptive or oral  
spironolactone**

OR

consider oral isotretinoin.

# Moderate

Benzoyl peroxide 😊

\$9 per 6oz OTC

Retinoid, topical:

Adapalene gel 😊

\$157 per 45gm

Tretinoin cream 😊

\$158 per 45gm

Antibiotic, topical:

clindamycin, generic 😊

\$115 per 50gm

Antibiotic, oral (per month):

Doxycycline, generic 😊

\$4 - \$ 108

*Doryx*

\$ 630

Minocycline 😊

\$ 16

*Minocin*

\$1634



# Acne vulgaris: topical combinations

## Some Topical Clindamycin/Benzoyl Peroxide Products

Drug	Some Formulations	Cost/Size <sup>1</sup>
Clindamycin/benzoyl peroxide +		
generic	1%/5% gel	\$340.30/50 g
<i>Benzaclin</i> (Valeant)		437.40/50 g
generic	1.2%/5% gel 😊	166.00/45 g
<i>Duac</i> (Stiefel)		291.90/45 g
<i>Acanya</i> (Valeant)	1.2%/2.5% gel	444.00/50 g
<i>Onexton</i> (Valeant)	1.2%/3.75% gel	444.00/50 g

**Generic clinda/BPO 1.2% / 5%**

# Atopic Dermatitis / Childhood Eczema

## Atopic Dermatitis

- ▶ Topical corticosteroids are generally used to control inflammation in atopic dermatitis.
- ▶ The lowest potency topical corticosteroid that is effective should be used for maintenance treatment.
- ▶ Topical tacrolimus can be used for topical corticosteroid-resistant dermatitis, especially on the face or intertriginous areas where corticosteroid adverse effects can be troublesome. It can also be used as maintenance treatment to minimize use of topical corticosteroids.
- ▶ Subcutaneously-injected dupilumab can be used to treat moderate-to-severe atopic dermatitis that has not responded to topical therapies.
- ▶ A short course of an oral corticosteroid can be helpful in severe acute exacerbations of atopic dermatitis.

## Class 5 Topical Corticosteroids-Lower Mid Potency

<b>Betamethasone valerate</b> (Diprolene® External)	0.1% Cream, Ointment	\$17	<b><i>Trianex</i></b> <b>\$860</b> <b><i>Cordran</i></b> <b>\$581</b> <b><i>Sernivo</i></b> <b>\$780</b>
<b>Fluocinolone acetate</b> (Synalar®)	0.025% Cream, Ointment	\$31	
<b>Fluticasone propionate</b> (Cutivate® External)	0.005% Ointment; 0.05% Cream	\$31	
<b>Mometasone furoate</b> (Elocon® External)	0.1% Cream, Lotion	\$28	
<b>Triamcinolone acetonide</b> (Kenalog®)	0.025% Ointment	\$6	

## Class 6 Topical Corticosteroids-Mild Potency

<b>Aclometasone</b> (Aclovate®)	0.05% Cream, Ointment	\$23	<b><i>Locoid Lipocream</i></b> <b>\$690</b> <b><i>Desonate</i></b> <b>\$513</b> <b><i>Verdeso</i></b> <b>\$780</b>  <b>Desonide</b> <b>↑↑↑↑</b>
<b>Betamethasone valerate</b> (Diprolene® External)	0.1% Lotion	\$17	
<b>Fluocinolone acetate</b> (Synalar®)	0.01% Cream	\$31	
<b>Triamcinolone acetonide</b> (Kenalog®)	0.025% Cream; 0.025% Lotion	\$20	

## Class 7 Topical Corticosteroids-Least Potent

<b>Hydrocortisone</b>	0.5%, 0.1%, 2.5% Cream and Ointment; 1% Lotion	\$6	
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# Newer non-steroidal topicals for eczema

## CALCINEURIN INHIBITORS

Pimecrolimus 1% <i>Elidel</i> (Novartis)	<i>Elidel</i>	\$517.20 <sup>2</sup>
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Tacrolimus 0.03%, 0.1% generic <i>Protopic</i> (Astellas)	<i>Protopic</i>	416.70 <sup>2</sup> 486.20 <sup>2</sup>
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## PDE4 INHIBITOR

Crisaborole 2% <i>Eucrisa</i> (Pfizer)	<i>Eucrisa</i>	580.00 <sup>2</sup>
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# 510(k)-cleared prescription moisturizers

**EpiCeram**

**AtopiClair**

**Mimyx**

**Elotone**

“If there is any scientific, evidence-based support for the superiority of the prescription device moisturizers over well-crafted, traditional, petrolatum-based OTC emollients, we could not find it.”

Wolf R, Parish L.

Barrier-repair prescription moisturizers: Do we really need them? Facts and controversies.

*Department of Dermatology and Cutaneous Biology Faculty Papers*. 2013: paper 31.

<http://jdc.jefferson.edu/dcbfp/31>

# Urticaria (hives)

## Urticaria

- ▶ An oral second-generation H<sub>1</sub>-antihistamine is the preferred first-line treatment for acute urticaria.
- ▶ High doses (up to 4 times the usual dose) of an oral second-generation H<sub>1</sub>-antihistamine can be used for chronic urticaria that does not respond to standard doses.
- ▶ Addition of omalizumab can reduce symptoms in patients with chronic urticaria who remain symptomatic despite H<sub>1</sub>-antihistamine treatment.
- ▶ A short course of an oral corticosteroid can help relieve severe exacerbations of chronic urticaria.






Cetirizine  
Fexofenadine  
Loratadine

# Antihistamines

Desloratadine / Clarinex

## Oral Second-Generation H<sub>1</sub>-Antihistamines and Combinations

Cetirizine <sup>3,4</sup> – Zyrtec Allergy, Children's Zyrtec Allergy (Johnson & Johnson)	5, 10 mg tabs and caps; 5, 10 mg chewable tabs; 5 mg/5 mL syrup		10 mg once/d	6-11 mos: 2.5 mg once/d <sup>5</sup> 12-23 mos: 2.5 mg once/d-bid <sup>5</sup> 2-5 yrs: 2.5 or 5 mg once/d or 2.5 mg bid 6-11 yrs: 5 or 10 mg once/d	\$15.90
Cetirizine/pseudoephedrine <sup>3,4</sup> – Zyrtec-D 12 hour (Johnson & Johnson)	5 mg/120 mg ER tabs		1 tab bid	≥12 yrs: 1 tab bid	39.80
Desloratadine – generic	5 mg tabs; 2.5, 5 mg disintegrating tabs		5 mg once/d	6-11 mos <sup>6</sup> : 1 mg once/d 1-5 yrs <sup>6</sup> : 1.25 mg once/d	51.10
Clarinex (MSD)	5 mg tabs; 0.5 mg/mL syrup			6-11 yrs: 2.5 mg once/d	206.70
Desloratadine/pseudoephedrine – Clarinex-D 12 hour (MSD)	2.5 mg/120 mg ER tabs		1 tab bid	≥12 yrs: 1 tab bid	284.40
Fexofenadine <sup>3,4</sup> – Allegra Allergy, Children's Allegra Allergy (Chattem)	30, 60, 180 mg tabs; 30 mg disintegrating tabs; 30 mg/5 mL susp		60 mg bid or 180 mg once/d	6-23 mos: 15 mg bid <sup>7</sup> 2-11 yrs: 30 mg bid	15.60 <sup>8</sup>
Fexofenadine/pseudoephedrine <sup>3,4</sup> – Allegra-D 12 hour (Chattem)	60 mg/120 mg ER tabs		1 tab bid	≥12 yrs: 1 tab bid	41.00
Allegra-D 24 hour	180 mg/240 mg ER tabs		1 tab once/d	≥12 yrs: 1 tab once/d	31.20
Levocetirizine – generic <sup>9</sup> Xyzal Allergy 24 hour, Children's Xyzal Allergy (Chattem) <sup>3</sup>	5 mg tabs; 2.5 mg/5 mL oral soln		5 mg once/d	6 mos-5 yrs: 1.25 mg once/d <sup>5</sup> 6-11 yrs: 2.5 mg once/d	10.00 18.00 <sup>10</sup>
Loratadine <sup>3,4</sup> – Alavert (Pfizer) Claritin, Children's Claritin (Bayer)	10 mg disintegrating tabs 10 mg tabs and caps; 10 mg disintegrating tabs; 5 mg chewable tabs; 1 mg/mL syrup		10 mg once/d	2-5 yrs: 5 mg once/d 6 yrs: 10 mg once/d	7.80 18.60

# Topical Antifungals

Table 1. Some Topical Antifungals for Tinea Pedis Infection

Drug	Available Forms <sup>1</sup>	Usual Adult Dosage <sup>2</sup>	Cost <sup>3</sup>
<b>Allylamine</b>			
Terbinafine – generic	Cream, solution	once/d x 2-4 wks <sup>4</sup>	\$294.10 <sup>5</sup>
Terbinafine – <i>Lamisil</i> (Schering-Plough)	Cream	bid x 1-2 wks <sup>7</sup>	5.30
<b>Benzimidazole</b>			
Econazole – generic	Cream	once/d x 4 wks	90.10
Econazole – <i>Lotrimin</i> (J&J)	Cream	or bid x 1 wk	0
<b>Imidazole</b>			
Clotrimazole – generic	Cream, solution		0
Clotrimazole – <i>Lotrimin</i> (J&J)	Cream		0
Econazole – generic	Cream		0
Ketoconazole – generic	Cream		0
Luliconazole – <i>Luzu</i> (Valeant)	Cream		0
Miconazole <sup>6</sup> – generic	Cream, powder spray		0
<i>Lotrimin AF</i> <sup>6</sup> (MSD Consumer)	Liquid spray, powder		0
<i>Desenex</i> <sup>6</sup> (Novartis Consumer)	Liquid spray, powder		0
Oxiconazole – <i>Oxistat</i> (PharmaDerm)	Cream, lotion	bid x 4 wks	315.90
Sertaconazole – <i>Ertaczo</i> (Valeant)	Cream	bid x 4 wks	351.70 <sup>9</sup>
Sulconazole – <i>Exelderm</i> (Ranbaxy)	Cream, solution	bid x 4 wks	136.50
<b>Other</b>			
Ciclopirox – generic	Gel, cream, lotion	bid x 4 wks	64.50
<i>Loprox</i> (Valeant)	Gel		627.80 <sup>9</sup>
Tolnaftate – generic	Cream, lotion, solution, powder, spray, gel	bid x 4 wks	2.70
<i>Tinactin</i> <sup>6</sup> (MSD Consumer)	Cream, liquid spray, powder spray, powder		7.20

Clotrimazole \$2  
Miconazole \$2  
Terbinafine \$5  
Econazole \$14  
Ketoconazole \$41

Naftifine \$294  
Oxiconazole \$315  
Luliconazole \$380  
Ciclopirox \$628



# Treatment of Head Lice

Generic Drug Name (Brand)	Strength	Average Cost Per Script
<b>HEAD LICE</b>		
<b>Topical Pediculocides</b>		
<b>Benzyl alcohol</b> (Ulesfia®)	5%	\$218
<b>Ivermectin lotion</b> (Sklice®)	0.5%	\$334
<b>Malathion lotion</b> (Ovide®)	0.5%	\$237
<b>Permethrin</b> (Nix®)	1%	\$14
<b>Pyrethrins/piperonyl butoxide</b> (LiceMD®/RID®)	0.33%-4%	\$7
<b>Spinosad suspension</b> (Natroba®)	0.9%	\$263



**What makes me want to draw Happy Faces? 😊**

## **Physician Incentive Program:**

- Our incentive program makes quarterly payments based on quality measures, including:
  - **A share in the cost savings that result from a focus on prescribing patterns for select drug categories.**

# What makes me want to draw Happy Faces?

## **Acne vulgaris:**

- Benzoyl peroxide
- Tretinoin generic (not microsphere) or Adapalene
- Clindamycin, topical, generic
- Doxycycline, generic or Minocycline, generic

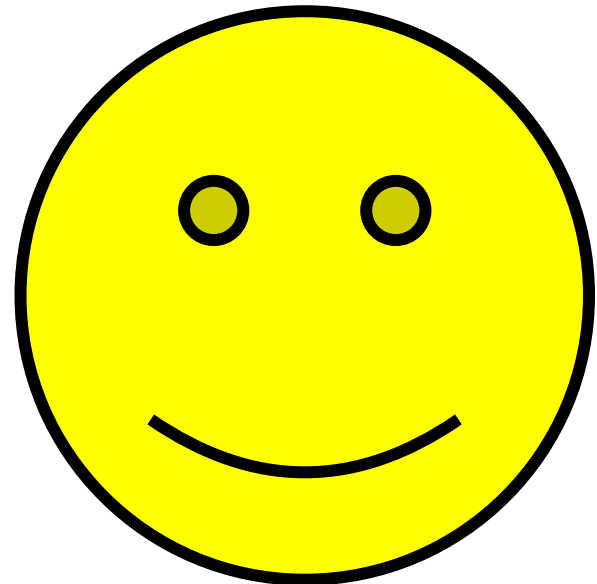
**Atopic dermatitis/eczema:** inexpensive, low potency topical steroids

**Urticaria:** Loratadine or Cetirizine or Fexofenadine

## **Ringworm (true tinea):**

- Clotrimazole
- Miconazole
- Terbinafine
- Econazole
- Ketoconazole

**Head lice:** Permethrin or Pyrethrins



Future of Pediatrics

# Cost-conscious care for common cutaneous conditions

Scott A. Norton, MD, MPH, MSc  
Chief of Dermatology  
Children's National Medical Center  
Washington, DC

June 20, 2017



# **nb-UVB Phototherapy Unit (narrow band-ultraviolet B)**

Main Hospital, mid-August 2017

Treatment of:

- psoriasis
- vitiligo
- severe atopic dermatitis
- cutaneous lymphomas
- graft vs host disease

Thanks to the CNHS Board of Visitors!



