Managing Acne: Patient by Patient and Practice by Practice

Lawrence Eichenfield MD
Professor of Dermatology and Pediatrics
University of California, San Diego
Rady Children’s Hospital, San Diego
Children’s Hospital, Orange County
Project: Improved Acne Management

Transforming Clinical Practices Initiative (TCPI)

- Desire: Provide high-quality, evidence-based care at the right time and right place
  - Improve patient and provider satisfaction
  - Reduce present and future health care costs
Evidence Basis

- AAP/American Acne Rosacea Society Evidence-Based Expert Recommendations
- AAD Acne Guidelines
- THERE ARE PRACTICE GAPS
Acne, Misery and Halvorsen

Substantial acne: associated with
• Social impairment; Self-esteem
• Diminished QOL
• Depression

4744 adolescents (80% response rate):
493 substantial acne:

Suicidal thoughts: 9.5% no/little acne); 24.1% substantial (OR=2)

Halvorsen JA et al. J Invest Dermatol 131:363-70
Misery L. J Invest Dermatol 131:290-92
Acne: Increasingly Early

• NAMCS database (1979–2007): decrease in the average age of children seeking treatment for acne\textsuperscript{1}
  – 12 years of age should no longer be considered the low end of the “normal” range for acne onset\textsuperscript{2}
• Acne may be the first sign of onset of puberty in children 7 to 11 years\textsuperscript{3}
  – Clinical impression of earlier puberty is supported by epidemiologic data\textsuperscript{2,3}

NAMCS, National Ambulatory Medical Care Survey.
Principles

- You can manage most of the acne you see.
- An algorithmic approach is reasonable, functional and efficient.
- We have shown that we can do case-based algorithm, guideline based acne training.
- In practice, we have shown we can make acne care better and easier!!!! (...and minimize referrals to dermatology)
2) A 10-year-old girl presents with 20 closed comedones on the forehead and no inflammatory lesions (mild acne). Which of the following treatments would you prescribe? Please circle **ONE** answer choice.

A) Benzoyl peroxide alone
B) Topical retinoid alone
C) Benzoyl peroxide + topical retinoid
D) Topical antibiotic alone
E) Topical antibiotic + benzoyl peroxide
F) Topical antibiotic + topical retinoid
G) Topical antibiotic + topical retinoid + benzoyl peroxide
H) Oral antibiotic alone
I) Oral antibiotic + topical retinoid
J) Oral antibiotic + benzoyl peroxide
K) Oral antibiotic + topical retinoid + benzoyl peroxide
L) Oral antibiotic + topical retinoid + benzoyl peroxide + topical antibiotic
M) Topical dapsone alone
N) Oral contraceptive pills
O) Isotretinoin
P) Referral to Endocrinology
3) A 14-year-old girl presents with 25 inflammatory papules and 35 open and closed comedones on the face (moderate acne). Which of the following treatments would you prescribe? Please circle **ONE** answer choice.

A) Benzoyl peroxide alone
B) Topical retinoid alone
C) Benzoyl peroxide + topical retinoid
D) Topical antibiotic alone
E) Topical antibiotic + benzoyl peroxide
F) Topical antibiotic + topical retinoid
G) Topical antibiotic + topical retinoid + benzoyl peroxide
H) Oral antibiotic alone
I) Oral antibiotic + topical retinoid
J) Oral antibiotic + benzoyl peroxide
K) Oral antibiotic + topical retinoid + benzoyl peroxide
L) Oral antibiotic + topical retinoid + benzoyl peroxide + topical antibiotic
M) Topical dapsone alone
N) Oral contraceptive pills
O) Isotretinoin
P) Referral to Endocrinology
4) A 14-year-old boy presents with a moderate amount of inflammatory papules and pustules on the forehead, cheek, chin, chest, and back (moderate acne). Which of the following treatments would you prescribe? Please circle ONE answer choice.

A) Benzoyl peroxide alone
B) Topical retinoid alone
C) Benzoyl peroxide + topical retinoid
D) Topical antibiotic alone
E) Topical antibiotic + benzoyl peroxide
F) Topical antibiotic + topical retinoid
G) Topical antibiotic + topical retinoid + benzoyl peroxide
H) Oral antibiotic alone
I) Oral antibiotic + topical retinoid
J) Oral antibiotic + benzoyl peroxide
K) Oral antibiotic + topical retinoid + benzoyl peroxide
L) Oral antibiotic + topical retinoid + benzoyl peroxide + topical antibiotic
M) Topical dapsone alone
N) Oral contraceptive pills
O) Isotretinoin
P) Referral to Endocrinology
5) A 15-year old boy with extensive inflammatory lesions and a small amount of diffuse scarring on his face comes to your office for treatment (severe acne). He has been using OTC salicylic acid wash. Which of the following treatments would you prescribe for him? Please circle ONE answer choice.

A) Benzoyl peroxide alone
B) Topical retinoid alone
C) Benzoyl peroxide + topical retinoid
D) Topical antibiotic alone
E) Topical antibiotic + benzoyl peroxide
F) Topical antibiotic + topical retinoid
G) Topical antibiotic + topical retinoid + benzoyl peroxide
H) Oral antibiotic alone
I) Oral antibiotic + topical retinoid
J) Oral antibiotic + benzoyl peroxide
K) Oral antibiotic + topical retinoid + benzoyl peroxide
L) Oral antibiotic + topical retinoid + benzoyl peroxide + topical antibiotic
M) Topical dapsone alone
N) Oral contraceptive pills
O) Isotretinoin
P) Referral to Endocrinology
Acne categorization

- Acne can be categorized as predominantly comedonal, inflammatory, and/or mixed
- Presence of absence of scarring, PIH or erythema should be assessed
- Severity may be broadly categorized as mild, moderate or severe
Acne Therapeutics: Categories

• Benzoyl peroxide (washes, gels, creams): OTC
• Topical antibiotics: clindamycin; erythromycin; dapsone (Aczone)
• BP/Top antibiotic combinations
  – Brands: Acanya, Benzacllin, Duac, Benzamycin
• Topical retinoids: tretinoin (Retin A, Atralin); adapalene (Differin); tazarotene (Tazorac)
Acne Therapeutics: Categories

- Retinoid/Antibiotic: (Ziana, Veltin)
- Retinoid/BP Combinations: (Epiduo)
- Oral antibiotics: Doxy, Mino, Tetra (rare others)
- Oral contraceptives
- Isotretinoin
Principals Behind the Guidelines

- Benzoyl peroxide is an antimicrobial that does not induce bacterial resistance
- Topical antibiotics: (clindamycin/erythromycin) not recommended as monotherapy: can induce resistance alone be used with BP
- Retinoids: Useful in all regimens
- Oral antibiotics: Should be used with topical retinoids, and BP
Adolescent: Moderate Acne  
(Comedonal or Inflammatory/Mixed)

### Initial Treatment

<table>
<thead>
<tr>
<th><strong>Topical Combination Therapy</strong>&lt;sup&gt;*&lt;/sup&gt;</th>
<th><strong>Oral Antibiotic</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Retinoid + Benzoyl Peroxide (BP)</td>
<td>+</td>
</tr>
<tr>
<td>or</td>
<td>Topical Retinoid + BP</td>
</tr>
<tr>
<td>Retinoid + (BP + Antibiotic)</td>
<td>or</td>
</tr>
<tr>
<td>or</td>
<td>Topical Retinoid + Antibiotic + BP</td>
</tr>
</tbody>
</table>

*Topical dapsone may be considered as single therapy or in place of topical antibiotic

### Inadequate Response**

| Change Topical Retinoid Concentration, Type and/or Formulation and/or Change Topical Combination Therapy |
| Add or Change Oral Antibiotic |
| FEMALES: Consider Hormonal Therapy† |
| or |
| Consider Oral Isotretinoin† |

†Consider dermatology referral.

**Topical fixed-combination prescriptions available

**Assess adherence

### Considerations

<table>
<thead>
<tr>
<th>Previous treatment/history</th>
<th>Managing Expectations/Side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs</td>
<td>Psychosocial Impact</td>
</tr>
<tr>
<td>Vehicle selection</td>
<td>Active scarring</td>
</tr>
<tr>
<td>Ease of use</td>
<td>Regimen Complexity</td>
</tr>
</tbody>
</table>
Adolescent: Mild Acne
(Comedonal or Inflammatory/Mixed Lesions)

**Initial Treatment**

- Benzoyl Peroxide (BP)
  - or
- Topical Retinoid
  - or
- Topical Combination Therapy*
  - BP + Antibiotic
    - or
  - Retinoid + BP
    - or
  - Retinoid + Antibiotic + BP

---

**Inadequate Response**

- Add BP or Retinoid, if not already prescribed
  - or
- Change Topical Retinoid Concentration, Type and/or Formulation
  - or
- Change Topical Combination Therapy

---

**Considerations**

<table>
<thead>
<tr>
<th>Previous treatment/history</th>
<th>Managing Expectations/Side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs</td>
<td>Psychosocial Impact</td>
</tr>
<tr>
<td>Vehicle selection</td>
<td>Active scarring</td>
</tr>
<tr>
<td>Ease of use</td>
<td>Regimen Complexity</td>
</tr>
</tbody>
</table>

*Topical fixed-combination prescriptions available

**Assess adherence
Adolescent: Severe Acne
(Inflammatory/Mixed and/or Nodular Lesions)

**Consider Changing Oral Antibiotic**
**AND**
**Consider Oral Isotretinoin**

**FEMALES:** Consider Hormonal Therapy

### Initial Treatment†

**Combination Therapy***

- Oral Antibiotic
- Topical Retinoid + Benzoyl Peroxide (BP)
- +/- Topical Antibiotic

*Topical dapsone may be considered in place of topical antibiotic

### Inadequate Response**†

- **Consider Changing Oral Antibiotic**
  - **AND**
  - **Consider Oral Isotretinoin**

  **FEMALES:** Consider Hormonal Therapy

### Considerations

<table>
<thead>
<tr>
<th>Previous treatment/history</th>
<th>Managing Expectations/Side effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs</td>
<td>Psychosocial Impact</td>
</tr>
<tr>
<td>Vehicle selection</td>
<td>Active scarring</td>
</tr>
<tr>
<td>Ease of use</td>
<td>Regimen Complexity</td>
</tr>
</tbody>
</table>

*Consider dermatology referral.

*Topical fixed-combination prescriptions available

Assess adherence; consider change of topical retinoid
## Acne Algorithm

<table>
<thead>
<tr>
<th>Mild Acne (Comedonal or Inflammatory/Mixed Lesions)</th>
<th>Moderate Acne (Comedonal or Inflammatory/Mixed Lesions)</th>
<th>Severe Acne (Inflammatory/Mixed and/or Nodular Lesions)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial Treatment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzyol Peroxide (BP) or Topical Retinoid OR</td>
<td>Topical Combination Therapy</td>
<td>Oral Combination Therapy</td>
</tr>
<tr>
<td>Topical Combination Therapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Retinoid + BP or BP + Antibiotic + BP</td>
<td>• Retinoid + BP or Retinoid + Antibiotic + BP + BP</td>
<td>• Oral Antibiotic + Retinoid + BP + Topical Antibiotic</td>
</tr>
<tr>
<td>• BP + Antibiotic + BP</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inadequate Response</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Add BP or Retinoid, if not already prescribed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Change Topical Retinoid concentrations, type and/or formulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Change Topical Combination therapy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Therapy Dosing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topical Retinoid: Adapalene (0.1% cream, lotion or gel, or 0.3% gel), Tretinoin (0.025, 0.05, 0.1% cream or gel)</td>
<td><strong>Should give BP (photosensitivity)</strong></td>
<td><strong>Possible clinical trial</strong></td>
</tr>
<tr>
<td>Benzyol Peroxide: (5%-10%). Use in AM if using Tretinoin; staining of sheets/clothes/towels</td>
<td><strong>Topical Antibiotic: Clindamycin (Clindamycin Phosphate) topical solution OR BID OR BID or Topical Combination Therapy (May not be covered by insurance)</strong></td>
<td><strong>Consider dermatology referral</strong></td>
</tr>
<tr>
<td>** Therapy Dosing **</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzyol Peroxide + Antibiotic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BP + Clindamycin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BP + Erythromycin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retinoid + BP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BP 2.5% + Adapalene 0.1% gel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• BP 3% + Adapalene 0.3% gel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retinoid + Antibiotic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Tretinoin 0.025% gel + Clindamycin phosphate 1.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Oral Antibiotics:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Doxycycline 50-100 mg Daily or BID or Minocycline 50-100 mg Daily or BID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Take with lots of water and stay upright for 5-10 minutes prior to taking (avoid pill esophagitis). Photosensitivity precautions (less with Minocycline)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral Hormones (ODH): Orthoestren, Est, Yasmine. Must be counseled on side effects of OCPs</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NOTE:</strong> Accutane should only be prescribed by, and at the discretion of, dermatology specialists</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Education

- Set realistic expectations
- Topical therapies typically take 6-8 weeks to start seeing results
- Review Proper Application of Topical Therapies
  - Apply a pea-sized amount to the entire face, distributing it several spots and spreading and rubbing in completely (less is more)
  - If it leaves a film, too much was probably applied
- Discuss Expected Side-Effects
  - Redness, drying and irritation are typical with the perception of worsening (especially with BP & retinoids within 2 weeks) after start
  - Patients should use a combination moisturizer + sunscreen with SPF > 30

### Consider Derm Referral

- Signs of hesitancy, acanthosis nigricans and/or menstrual irregularities with acne (PCOS)
- CHOL < 9 years old
- Lack of satisfactory response to treatment after 8-12 weeks
- Accutane is being considered (the final decision to initiate Rx rests with the specialist)
- Tender cysts or nodules where intradermal corticosterone injection is being considered
- Scar-inducing cysts or nodules present or scarring is actively occurring despite treatment

---

<table>
<thead>
<tr>
<th><strong>Initial Treatment</strong></th>
<th><strong>Mild Acne</strong> (Comedonal or Inflammatory/Mixed Lesions)</th>
<th><strong>Moderate Acne</strong> (Comedonal or Inflammatory/Mixed Lesions)</th>
<th><strong>Severe Acne</strong> (Inflammatory/Mixed and/or Nodular Lesions)</th>
</tr>
</thead>
</table>
| **Benzoyl Peroxide (BP) or Topical Retinoid** | **Topical Combination Therapy**
• Retinoid + BP or
• BP + Antibiotic or
• Retinoid + Antibiotic + BP | **Topical Combination Therapy**
• Retinoid + BP or
• Retinoid + Antibiotic + BP
OR
**Oral Combination Therapy**
Oral Antibiotic + Retinoid + BP | **Oral Combination Therapy**
Oral Antibiotic + Retinoid + BP +/- Topical Antibiotic |

<table>
<thead>
<tr>
<th><strong>Inadequate Response</strong></th>
<th><strong>Assess Adherence!</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Add BP or Retinoid, if not already prescribed</strong> or</td>
<td><strong>Change Topical Retinoid concentrations, type and/or formulation</strong> or <strong>Change Topical Combination therapy</strong> and/or <strong>Add or change Oral Antibiotic or</strong> <strong>Consider Isotretinoin (Accutane)</strong> <strong>♀: Consider Hormone OCPs</strong></td>
</tr>
<tr>
<td><strong>Change Topical Retinoid concentrations, type and/or formulation</strong> or</td>
<td><strong>Consider Dermatology referral</strong> <strong>Consider changing oral Antibiotic AND</strong> <strong>Consider Isotretinoin (Accutane)</strong> <strong>♀: Consider Hormone OCPs</strong></td>
</tr>
<tr>
<td>Therapy Dosing</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>Topical Retinoids: Adapalene (0.1% cream, lotion or gel, or 0.3% gel). Tretinoin (0.025, 0.05, 0.1% cream or gel) Should give in the PM (photosensitivity)</td>
<td></td>
</tr>
<tr>
<td>Benzoyl Peroxide: (5%-10%). Use in AM if using Tretinoin; staining of sheets/clothes/towels</td>
<td></td>
</tr>
<tr>
<td>Topical Antibiotics: Cleocin (Clindamycin Phosphate) topical solution QD-BID</td>
<td></td>
</tr>
<tr>
<td>Topical Combination Therapies <em>(May not be covered by insurance)</em></td>
<td></td>
</tr>
<tr>
<td><strong>Benzoyl Peroxide + Antibiotic</strong></td>
<td></td>
</tr>
<tr>
<td>• BP + Clindamycin</td>
<td></td>
</tr>
<tr>
<td>• BP + Erythromycin</td>
<td></td>
</tr>
<tr>
<td>• May require refrigeration</td>
<td></td>
</tr>
<tr>
<td>• <em>P.acnes bacterial resistance</em> to erythromycin is well-known</td>
<td></td>
</tr>
<tr>
<td><strong>Retinoid + BP</strong></td>
<td></td>
</tr>
<tr>
<td>• BP 2.5% + Adapalene 0.1% gel</td>
<td></td>
</tr>
<tr>
<td>• BP2.5% + Adapalene 0.3% gel</td>
<td></td>
</tr>
<tr>
<td>• Approved 9 &amp; up</td>
<td></td>
</tr>
<tr>
<td>• Approved 12 &amp; up</td>
<td></td>
</tr>
<tr>
<td><strong>Retinoid + Antibiotic</strong></td>
<td></td>
</tr>
<tr>
<td>• Tretinoin 0.025% gel + Clindamycin phosphate 1.2%</td>
<td></td>
</tr>
<tr>
<td>• Requires additional benzoyl peroxide to prevent antibiotic resistance</td>
<td></td>
</tr>
</tbody>
</table>

**Oral Antibiotics:**
- Doxycycline 50-100 mg Daily or BID or Minocycline 50-100 mg Daily or BID.
- Take with lots of water and stay upright for 5-10 minutes prior to taking (avoid pill esophagitis). Photosensitivity precautions (less with Minocycline)

**Oral Hormones (OCPs):** Orthocyclen, Yaz, Yasmine. Must be counseled on side effects of OCPs

**NOTE:** Accutane should only be prescribed by, and at the discretion of, dermatology specialists
<table>
<thead>
<tr>
<th>Education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Set Realistic Expectations</strong></td>
</tr>
<tr>
<td>- Topical therapies typically take 6-8 weeks to start seeing results</td>
</tr>
<tr>
<td><strong>Review Proper Application of Topical Therapies</strong></td>
</tr>
<tr>
<td>- Apply a pea-sized amount to the entire face, distributing it several spots and spreading and rubbing it in completely (less is more)</td>
</tr>
<tr>
<td>- If it leaves a film, too much was probably applied</td>
</tr>
<tr>
<td><strong>Discuss Expected Side-Effects</strong></td>
</tr>
<tr>
<td>- Redness, drying and irritation are typical with the perception of worsening (especially with BP &amp; retinoids within 2 weeks) after start</td>
</tr>
<tr>
<td>- Patients should use a combination moisturizer + sunscreen with SPF&gt;50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consider Derm Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Signs of hirsutism, acanthosis nigricans and/or menstrual irregularities with acne (PCOS)</td>
</tr>
<tr>
<td>- Child &lt;9 years old</td>
</tr>
<tr>
<td>- Lack of satisfactory response to treatment <strong>after 8-12 weeks</strong></td>
</tr>
<tr>
<td>- Accutane is being considered (the final decision to initiate Rx rests with the specialist)</td>
</tr>
<tr>
<td>- Tender cysts or nodules where intralesional corticosteroid injection is being considered</td>
</tr>
<tr>
<td>- Scar-inducing cysts or nodules present or scarring is actively occurring despite treatment</td>
</tr>
</tbody>
</table>
Scarring: Not just an old kids process

- 22 patients with mild to moderate acne of acne lesions that preceded them

104 atrophic scars
- 30 were established scars
- 21 arose from acne lesions
- 53 arose from clinically normal skin
- 7 from papules
- 6 from erythematous macules
- 4 from pustules
- 4 from closed comedones

Patel MJ et al. SID Annual Meeting; May 5-8, 2010; Atlanta, GA. Abstract 344.
Acne Guidelines: Recommendation Highlights

• **Oral antibiotics** are appropriate for moderate to severe inflammatory acne at any age

• Second generation tetracyclines (doxycycline, minocycline) are *sometimes preferred* to tetracycline because of ease of use, fewer problems with absorption, and less frequent dosing.
Acne Guidelines: Hormonal Therapy

- Combined oral contraceptives (COCs): may be useful as second-line therapy in regimens of care in pubertal females with moderate to severe acne.

- Tobacco use; family history of thrombotic events; migraine with aura should be assessed.

- Re: bone growth and bone density: many recommend withholding OCs for acne until one year after onset of menstruation.
Isotretinoin

• Isotretinoin is recommended for severe, scarring, and/or refractory acne in adolescents and may be utilized in younger patients

• Extensive counseling particularly regarding the avoidance of pregnancy, as well as careful monitoring of potential side effects and toxicities, is recommended
Isotretinoin

• Bone effects:
  – Bone mineralization changes: inconsistent data; not associated with increased fractures
  – Hyperostoses: very uncommon for acne
  – Premature epiphyseal closure: rare
    Single case report for isotret for acne
  – IBD: Controversial...but counseling reasonable
Acne Guidelines: Recommendation Updates

• Topical retinoids are prescription or OTC
• Adapalene 0.1% gel (Differin) granted OTC status
Filling in Pediatric Acne Practice Gaps: A Prospective Multicenter Study of Case-Based Education

Stephanie Feldstein, M.D. a,b, Maryam Afshar, M.D. a, Andrew C. Krakowski, M.D. c, and Lawrence F. Eichenfield, M.D. a,*

Table 2
Average participant self-reported knowledge of and confidence in using the American Acne and Rosacea Society/American Academy of Pediatrics (AARS/AAP) recommendations, before the intervention and at 3-month follow-up, rated on a five-point Likert Scale, where 1 is poor and 5 is excellent

<table>
<thead>
<tr>
<th></th>
<th>Preintervention (N = 150)</th>
<th>Three months postintervention (N = 62)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of acne guidelines</td>
<td>2.4</td>
<td>3.5</td>
<td>&lt;.0001*</td>
</tr>
<tr>
<td>Confidence in using acne</td>
<td>2.5</td>
<td>3.7</td>
<td>&lt;.0001*</td>
</tr>
</tbody>
</table>
Table 3

Errors in management of pediatric acne on the case-based examination, which at least 5% of providers made

<table>
<thead>
<tr>
<th>Management error</th>
<th>Number of providers (%)</th>
<th>Preintervention (N = 149)</th>
<th>Three months postintervention (N = 62)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate facial acne</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failure to include a retinoid</td>
<td>26 (17)</td>
<td>2 (3)</td>
<td></td>
<td>.046*</td>
</tr>
<tr>
<td>Use of a topical or oral antibiotic without benzoyl peroxide</td>
<td>23 (15)</td>
<td>4 (6)</td>
<td></td>
<td>.046*</td>
</tr>
<tr>
<td>Moderate face and body acne</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failure to include a retinoid</td>
<td>19 (13)</td>
<td>1 (2)</td>
<td></td>
<td>.027*</td>
</tr>
<tr>
<td>Use of a topical or oral antibiotic without benzoyl peroxide</td>
<td>26 (17)</td>
<td>2 (3)</td>
<td></td>
<td>.003*</td>
</tr>
<tr>
<td>Severe acne</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Failure to initiate combination therapy before starting isotretinoin</td>
<td>50 (34)</td>
<td>18 (29)</td>
<td></td>
<td>.845</td>
</tr>
<tr>
<td>Failure to include a topical retinoid as part of combination therapy</td>
<td>7 (5)</td>
<td>0 (0)</td>
<td></td>
<td>.248</td>
</tr>
</tbody>
</table>
Key Question:

- Can a program targeting pediatricians to utilize clinical practice guideline-based care, composed of an educational program and an electronic medical record ordering tool, decrease the utilization of specialty referrals to dermatology for acne care and improve the acne care by the primary care providers?
Design

- 116 Pediatricians in the CPCMG group
  - All had access to EMR
- Educational training conference on acne treatment guidelines
- Order tool embedded in EMR
- Pediatrician survey
Retrospective data collection

- Chart review of patients with acne-coded visit
  - December 31, 2016 – April 30, 2017
  - December 31, 2015 – April 30, 2016
  - Included all patients > 7 YO and < 21 YO
  - Reason for referral, post-intervention
Results

Acne coded visits: Increased 17.7%

- Odds ratio of 1.18 (95% CI 1.08-1.28; p<0.001)
- The ordering tool (SmartSet) was used 546 times by the pediatricians (43.03%)
  p=0.003).
- Results of a pediatrician survey on work burden showed a decreased burden of acne care after the intervention, with 67.8% assessing the work as minimal.
This guideline was developed in conjunction with Dr. Lawrence Eichenfield, Chief of Pediatric and Adolescent Dermatology at Rady Children’s Hospital, San Diego and vice chair of the Department of Dermatology at UCSD School of Medicine. This guideline is based on the expert recommendations for management of pediatric acne of the American Acne Rosacea Society and the American Academy of Pediatrics.

This Guideline is meant to support clinical assessment and medical decision-making. It is not intended or meant to replace the provider’s professional judgment or establish a professional standard of care. This Guideline should be modified based on the provider’s professional judgment in considering individual patient’s needs.

Acne classification photographs

Acne Algorithm PDF
Mild Acne

Treatment Options

Choose one option

- $ Monotherapy - Benzoyl Peroxide Wash
- $ Monotherapy - Tretinoin (generic for Retin-A)
- $$ Monotherapy - Adapalene (generic for Differin)
- $ Tretinoin (generic for Retin-A) + Benzoyl Peroxide Wash
- $$ Adapalene (generic for Differin) + Benzoyl Peroxide wash
- $$$ Adapalene-Benzoyl Peroxide (Epiduo)

Moderate Acne

Treatment Options

Moderate to Severe Acne (OR significant chest/back involvement)

Treatment Options

Alternative Regimens for Severe Acne

Treatment Options

Additional acne medications

Treatment Options
Treatment Options

Diagnosis

☐ Acne vulgaris [L70.0]
☐ Encounter for initial prescription of contraceptive pills [Z30.011]

Level of Service

☐ (99212) PR OFFICE OUTPATIENT VISIT 10 MINUTES [99212]
☐ (99213) PR OFFICE OUTPATIENT VISIT 15 MINUTES [99213]
☐ (99202) PR OFFICE OUTPATIENT NEW 20 MINUTES [99202]
☐ (99203) PR OFFICE OUTPATIENT NEW 30 MINUTES [99203]

Follow Up

☐ 2-3 months (if starting or changing acne medications)
☐ 6 months (if stable and desire "tune-up" visit)
☐ 1 year (maximum interval for stable acne)

Walmart Pharmacy 2177 - SAN DIEGO, CA - 3382 MURPHY CANYON ROAD
858-571-6971
THANK YOU

TCPi | Transforming Clinical Practice Initiative

CHOC Children’s

Rady Children’s Hospital San Diego