

Adolescent Acne: Practical Pearls and Pitfalls

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Disclosure

I have no conflict of interest.

Objectives

1. Describe the burden and impact of acne on the adolescent population.
2. Describe evidence-based treatment recommendations for adolescent acne.
3. Develop strategies for counseling on proper use of acne treatments and treatment expectations in order to improve adherence and outcomes.

Acne

- Affects ~85% of teenagers
- Typically presents at age 8-12, peaks at age 15-18, resolves by age 25
- Affects women > men
- Affects all races equally
- Affects social/emotional functioning, relationships, school/work
- Health-related quality of life impact ≈ asthma, psoriasis, arthritis
- A/w ↑ risk stigmatization, bullying, anxiety, depression, poor self-esteem, SI

Acne stigma

Compared to those with no acne, for those with severe acne, participants reported less comfort:

- Being friends
- Hiring
- Having physical contact
- Dating
- Posting photo together on social media

Compared to those with no acne, participants more likely to rate those with severe acne as:

- Having poor hygiene
- Unattractive
- Unintelligent
- Unlikable
- Immature
- Untrustworthy



JAMA Dermatol. 2024;160(1):93-98. doi:10.1001/jamadermatol.2023.4487

Treat and refer early
to prevent scarring

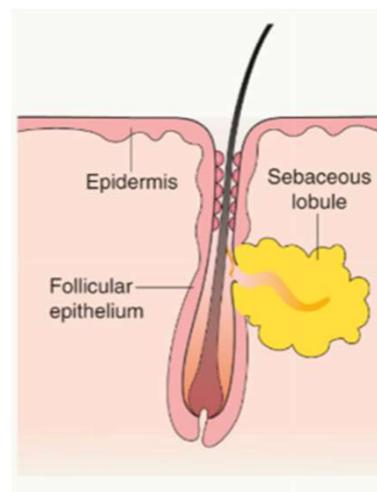
Acne pathogenesis

Four factors:

1. Follicular hyperkeratinization
2. Increased sebum production
3. Proliferation of *Cutibacterium acnes*
4. Inflammatory response

1. Follicular hyperkeratinization

Keratin and sebum accumulate and plug the hair follicle



Microcomedone

Dermatology 4e

2. Increased sebum production

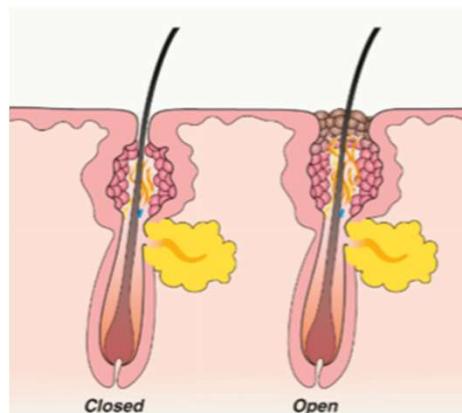
Androgens stimulate sebum production →
 accumulation of sebum and shed keratin →
 comedo formation



Closed comedones



Open comedones



Comedones

Hurwitz Clinical Pediatric Dermatology 3e

Dermatology 4e

3. Proliferation of *Cutibacterium acnes*

4. Inflammatory response

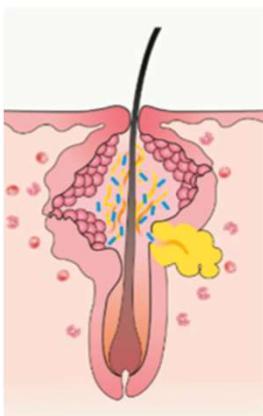
Cutibacterium acnes proliferation in the
 sebaceous follicle →
 release of proinflammatory cytokines →
 inflammatory response (primarily neutrophils)



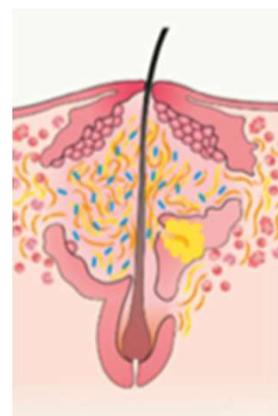
Papules
Pustules



Nodules
Cysts

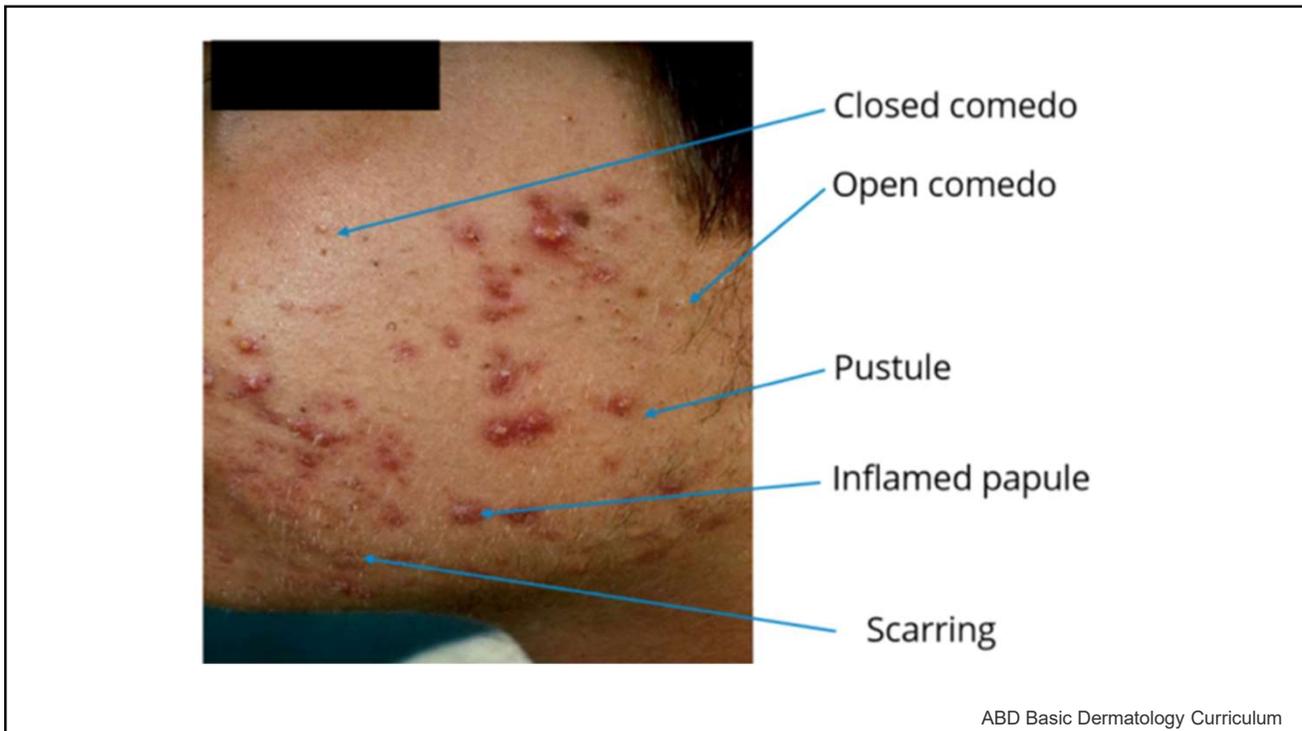


Papules
Pustules



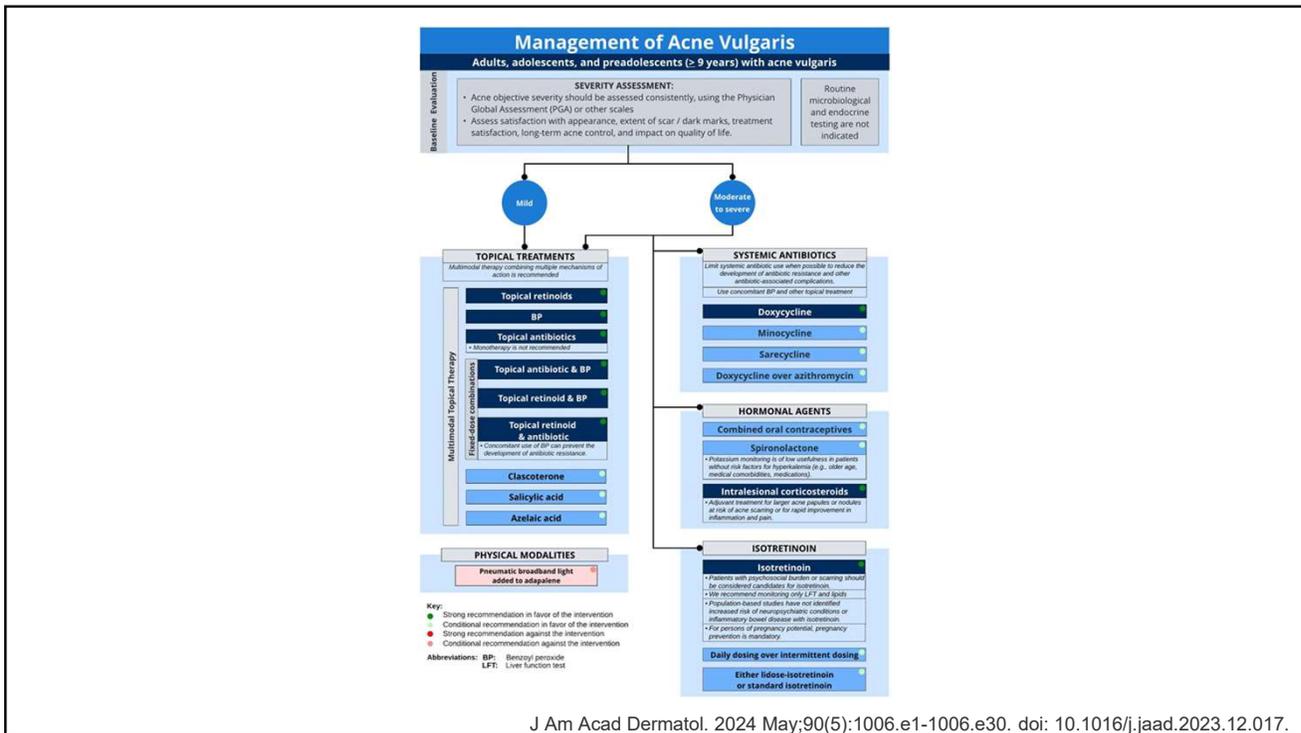
Nodules
Cysts

Dermatology 4e



Acne management

- Based on:
 - Type of lesions
 - Age of patient
 - Severity
 - Distribution
 - Emotional impact
- Shared decision-making is critical
- Combination therapy is key
- Takes up to 3 months to see improvement



Personalized care

- Shared decision-making → improved adherence and outcomes
- Once-a-day vs twice-a-day regimen?
- Sensitive skin?
 - Pay attention to vehicle (consider cream over gel)
 - Consider adapalene over tretinoin
 - Use caution with leave-on combination products containing benzoyl peroxide
- Preference for topicals only?
- Able to swallow pills?
- Time of year / sun sensitivity?

Topical treatment regimen

- **Benzoyl peroxide:** ↓ the amount of acne-causing bacteria on the skin
- **Topical antibiotic:** ↓ the amount of acne-causing bacteria on the skin and ↓ inflammation
- **Topical retinoid:** unclog pores and ↓ inflammation

Example OTC topical acne regimen

AM:

- OTC benzoyl peroxide 4% wash
- Non-comedogenic sunscreen

PM:

- Gentle skin cleanser
- OTC adapalene 0.1% gel
- Non-comedogenic moisturizer

Example Rx topical acne regimen

AM:

- OTC Benzoyl peroxide 4% wash
- Clindamycin lotion
- Non-comedogenic sunscreen

PM:

- Gentle skin cleanser
- Tretinoin 0.025% cream
- Non-comedogenic moisturizer

Counseling and setting expectations

- Slow response (up to 3 months to see improvement)
- Importance of adherence
- Administration/application technique

Topical therapies

Topical retinoids

- Vitamin A derivatives
- Cornerstone of acne treatment!
- Comedolytic, anti-inflammatory, improve dyspigmentation, maintain clearance
- Four types:
 - **Tretinoin**
 - **Adapalene**
 - Tazarotene
 - Trifarotene
- Adapalene 0.1% gel available OTC, others Rx only
- A/e: dryness, irritation

Topical retinoid counseling tips

- Use just a **pea-size** amount for whole face
- **Start slowly**, just every third night, working up to nightly as tolerated
- Acne will **get worse** before it gets better (“purge”)
- To minimize irritation: **wait 20 minutes** after washing face, follow with **moisturizer**
- Work up **ladder**
 - Tretinoin: start with 0.025% (then move to 0.05%, then 0.1%)
 - Adapalene: start with 0.1% (then move to 0.3%)
- Tretinoin is photolabile → needs to be applied at nighttime
- No benzoyl peroxide before tretinoin → leads to oxidation and inactivation
- Adapalene is okay with sunlight and benzoyl peroxide
- Sensitive skin - choose adapalene cream over tretinoin or adapalene gel
- Reduce frequency if needed - better to use a couple times a week than not at all
- Concurrent **daily sunscreen** use to reduce risk of sunburn

Benzoyl peroxide (BP)

- Antimicrobial agent that releases free oxygen radicals, mildly comedolytic
- A/e: burning, stinging, dryness, erythema, pain, peeling, irritation, fabric staining/bleaching

Benzoyl peroxide (BP) counseling tips

- Lower BP concentrations and wash-off formulations may be better tolerated
 - Look for 4% wash rather than 10% wash to minimize irritation
- **Bleach** towels/pillowcases/clothing
- Do NOT use right before applying tretinoin! (Okay to use before adapalene)
- Concern that some BP products may contain **benzene** (carcinogen)
 - Store at room temperature or in refrigerator
 - Do not keep past expiration date
 - Discard products that have been opened for more than 6 months

Topical antibiotics

- Antibacterial and anti-inflammatory
- Monotherapy NOT recommended d/t concern for antibiotic resistance → combine w/benzoyl peroxide (↑efficacy, ↓resistance)
 - Exception: do NOT combine dapsone and benzoyl peroxide → orange-brown skin coloration
- Types:
 - **Clindamycin**
 - Erythromycin
 - Minocycline
 - Dapsone
- No active comparator studies to suggest any one is superior to another

Fixed-dose topical combinations

- Fixed-dose topical combos of BP, retinoids, or abx may improve adherence
- Examples:
 - Clindamycin 1% / Benzoyl peroxide 5% gel
 - Adapalene 0.1% / Benzoyl peroxide 2.5% gel
 - Adapalene 0.3% / Benzoyl peroxide 2.5% gel
 - Clindamycin 1.2% / Adapalene 0.15% / Benzoyl peroxide 3.1% gel

Salicylic acid

- Comedolytic
- OTC

Azelaic acid

- Comedolytic, antibacterial, and anti-inflammatory
- Helpful for sensitive skin
- Helpful for darker skin types d/t lightening effect on dyspigmentation
- 10% available OTC, 15-20% by Rx

Clascoterone

- Topical antiandrogen
- Twice daily application
- Expensive

Systemic therapies

Systemic antibiotics

- Moderate to severe acne
- Should NOT be used as monotherapy
- Concern about abx resistance
- Limit to shortest duration possible (typically max 3-4 months)
- Dermatologists prescribe more abx per clinician than all other specialties...

Doxycycline

- FDA-approved for acne
- 100 mg BID = go-to for acne
- A/e: GI upset (nausea, vomiting), esophagitis, phototoxicity
- Counseling
 - Take with food
 - Take with big glass of water
 - Don't lay down within 1 hour of taking
 - Sun protection!

Minocycline

- FDA-approved for acne
- Concerns about rare a/e → infrequently used for acne

Sarecycline

- FDA-approved for acne
- Narrow-spectrum tetracycline-class abx
- Well tolerated with low incidence GI upset and photosensitivity
- High cost

Cephalexin

- 500 mg BID
- Available as a liquid
- Preferred if can't swallow pills, concerns re: photosensitivity, unable to tolerate doxycycline

Hormonal agents

- Combined oral contraception
- Spironolactone

- Progestin-only OCPs, IM injections, IUDs, and subq implants may worsen acne!

Combined oral contraceptives

- Combination of estrogen and progestin
- Anti-androgenic properties
- All COCs theoretically helpful for acne
- Four COCs FDA-approved for acne:
 - Norgestimate/ethinyl estradiol
 - Norethindrone acetate/ethinyl estradiol/ferrous fumarate
 - Drospirenone/ethinyl estradiol
 - Drospirenone/ethinyl estradiol/levomefolate
- Data do not support the superiority of one COC over another for acne

Spironolactone

- Aldosterone receptor antagonist → ↓ testosterone
- NOT FDA-approved for acne

Isotretinoin (Accutane)

- FDA approved since 1982
- Mechanism
 - ↓ size and secretion of sebaceous glands
 - ↓ *C. acnes*
 - Normalizes keratinocyte keratinization → inhibits comedogenesis
 - Anti-inflammatory
- Uses
 - Severe acne
 - Mild to moderate acne that has failed standard treatment
 - Scarring
 - Acne-related psychosocial burden

Isotretinoin (Accutane)

- iPledge = FDA-mandated REMS
- Teratogenic
- A/e
 - Dry eyes, dry lips, dry skin
 - Lab abnormalities (elevated LFTs, triglycerides)
 - Photosensitivity
 - Neuropsychiatric conditions (changes in mood, depression, anxiety, SI)



Diet

- Glycemic load - those with diets low in glycemic load may have less acne compared with those with diets high in glycemic load
- Available evidence insufficient to develop a recommendation on:
 - Low dairy diet
 - Low whey diet
 - Omega-3 fatty acids
 - Chocolate

Pityrosporum folliculitis

- Monomorphic follicular-based papules/pustules on forehead, upper back, chest
- Often seen in combination with seborrheic dermatitis
- Caused by *Malassezia furfur*
- Typically itchy
- Management
 - Topical antifungals
 - Ketoconazole shampoo and/or cream
 - Econazole cream
 - Ciclopirox shampoo and/or cream
 - Oral antifungals
 - Fluconazole



Takeaways

- Acne has a significant impact on quality of life and self-esteem
- Treat and refer early to prevent scarring
- Combination therapy is key
- Basic acne regimen: benzoyl peroxide, topical abx, topical retinoid
- Shared decision-making and counseling improve adherence and treatment outcomes

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Questions?