Path of Least Resistance: Guidance for Antibiotic Stewardship in Acne

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PRACTICE **POINT**

- Oral antibiotics remain a cornerstone in the treatment of moderate to severe acne, but growing concerns about antibiotic resistance necessitate more intentional prescribing.

Dermatologists have long relied on oral antibiotics to manage moderate to severe acne[1-4]; however, it is critical to reassess how these medications are used in clinical practice as concerns about antibiotic resistance grow.[5] The question is not whether antibiotics are effective for acne treatment—we know they are—but how to optimize their use to balance clinical benefit with responsible prescribing. Resistance in *Cutibacterium acnes* has been well documented in laboratory settings, but clinical treatment failure due to resistance remains rare and difficult to quantify.[6,7] Still, minimizing unnecessary exposure is good clinical practice. Whether antibiotic resistance ultimately proves to drive clinical failure or remains largely theoretical, stewardship safeguards future treatment options.

In this article, we present a practical, expert-based framework aligned with American Academy of Dermatology (AAD) guidelines to support responsible antibiotic use in acne management. Seven prescribing principles are outlined to help clinicians maintain efficacy while minimizing resistance risk. Mechanisms of resistance in *C acnes* and broader microbiome impacts also are discussed.

MECHANISMS OF RESISTANCE IN ACNE THERAPY

Antibiotic resistance in acne primarily involves *C acnes* and arises through selective pressure from prolonged or subtherapeutic antibiotic exposure. Resistance mechanisms include point mutations in ribosomal binding sites, leading to decreased binding affinity for tetracyclines and macrolides as well as efflux pump activation and biofilm formation.[8,9] Over time, resistant strains may proliferate and outcompete susceptible populations, potentially contributing to reduced clinical efficacy. Importantly, the use of broad-spectrum antibiotics may disrupt the skin and gut microbiota, promoting resistance among nontarget organisms.[5] These concerns underscore the importance of limiting antibiotic use to appropriate indications, combining antibiotics with adjunctive nonantibiotic therapies, and avoiding monotherapy.

PRESCRIBING PRINCIPLES FOR RESPONSIBLE ORAL ANTIBIOTIC USE IN ACNE

The following principles are derived from our clinical experience and are aligned with AAD guidelines on acne treatment.[10] This practical framework supports safe, effective, and streamlined prescribing.

Reserve Oral Antibiotics for Appropriate Cases

Oral antibiotics should be considered for patients with moderate to severe inflammatory acne when rapid anti-inflammatory control is needed. They are not indicated for comedonal or mild papulopustular acne. Before initiating treatment, clinicians should weigh the potential benefits against the risks associated

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with antibiotic exposure, including resistance and microbiome disruption.

Combine Oral Antibiotics With Topical Retinoids

Oral antibiotics should not be used as monotherapy. Topical retinoids should be initiated concurrently with oral antibiotics to maximize anti-inflammatory benefit, support transition to maintenance therapy, and reduce risk for resistance.

Consider Adding an Adjunctive Topical Antimicrobial Agent

Adjunctive topical antimicrobials can help reduce bacterial load. Benzoyl peroxide remains a first-line option due to its bactericidal activity and lack of resistance induction; however, recent product recalls involving benzene contamination may have raised safety concerns among some clinicians and patients.[11,12] While no definitive harm has been established, alternative topical agents approved by the US Food and Drug Administration (eg, azelaic acid) may be used based on shared decision-making, tolerability, cost, access, and patient preference. Use of topical antibiotics (eg, clindamycin, erythromycin) as monotherapy is discouraged due to their higher resistance potential, which is consistent with AAD guidance.

Limit Treatment Duration to 12 Weeks or Less

Antibiotic use should be time limited, with discontinuation ideally within 8 to 12 weeks as clinical improvement is demonstrated. Repeated or prolonged courses should be avoided to minimize risk for resistance.

Simplify Treatment Regimens to Enhance Adherence

Regimen simplicity improves adherence, especially in adolescents. A two-agent regimen of an oral antibiotic and a topical retinoid typically is sufficient during the induction phase.[13,14]

Select Narrower-Spectrum Antibiotics When Feasible

Using a narrower-spectrum antibiotic may help minimize disruption to nontarget microbiota.[15,16] Sarecycline has shown narrower in vitro activity within the tetracycline class,[17,18] though clinical decisions should be informed by access, availability, and cost. Regardless of the agent used (eg, doxycycline, minocycline, or sarecycline), all antibiotics should be used judiciously and for the shortest effective duration.

Use Systemic Nonantibiotic Therapies When Appropriate

If there is inadequate response to oral antibiotic therapy, consider switching to systemic nonantibiotic options. Hormonal therapy may be appropriate for select female patients. Oral isotretinoin should be considered for patients with severe, recalcitrant, or scarring acne. Cycling between antibiotic classes without clear benefit is discouraged.

FINAL THOUGHTS

Oral antibiotics remain a foundational component in the management of moderate to severe acne; however, their use must be intentional, time limited, and guided by best practices to minimize the emergence of antimicrobial resistance. By adhering to the prescribing principles we have outlined here, which are rooted in clinical expertise and consistent with AAD guidelines, dermatologists can preserve antibiotic efficacy, optimize patient outcomes, and reduce long-term microbiologic risks. Stewardship is not about withholding treatment; it is about optimizing care today to protect treatment options for tomorrow.

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