
Duration of oral antibiotic therapy for the treatment of adult acne: A retrospective analysis investigating adherence to guideline recommendations and opportunities for cost-savings

Chelsey E. Straight, BS,^a Young H. Lee, MD,^b Guodong Liu, PhD,^c and Joslyn S. Kirby, MD^b
Hershey, Pennsylvania

Background: The duration of oral antibiotic acne therapy for adolescents compared with guidelines was recently investigated; however it was uncertain if duration of antibiotics for adult acne therapy differed.

Objective: This study aimed to evaluate duration of oral antibiotics for adult acne compared with guidelines and determine possible cost-savings.

Methods: This was a retrospective cohort study of MarketScan Commercial Claims and Encounters database that incorporated claims data to determine duration and costs of antibiotic treatment among adults ages 21 years and older.

Results: Of 17,448 courses, 84.5% (14,737) aligned with duration guidelines, although 12,040 (69.0%) courses did not include concomitant topical retinoid therapy. Mean savings of \$592.26 per person could result if prolonged courses met guidelines. Mean (median) costs of generic and branded formulations for the most frequent course duration (90-179 days) were \$103.77 (\$54.27) and \$1421.61 (\$1462.25), respectively.

Limitations: Actual patient prescription adherence is uncertain and database lacks information regarding acne severity, patient physical characteristics, and clinical outcomes.

Conclusions: The majority of oral antibiotic course durations follow guidelines, although topical retinoids are underused. Costs of antibiotic therapy were lower for shorter courses and those using generic medications; the cost-effectiveness of these modifications has not been investigated. (J Am Acad Dermatol 2015;72:822-7.)

Key words: adult acne treatment; oral antibiotics; postadolescent acne; topical retinoids; treatment guidelines.

Acne is a very common condition affecting the majority of teenagers.^{1,2} In recent years, however, patients with postadolescent, or adult, acne have been identified as representing an increasingly important population of patients with acne.^{3,4} Acne is the most common reason patients

present to dermatologists, with approximately two thirds of visits made by women with a mean age of 24 years.⁵ Although males are more commonly affected during adolescence, females account for the vast majority of adults with acne.⁶ Most adult women with acne have experienced a prolonged course of

From the Penn State College of Medicine^a; and Department of Dermatology^b and Division of Health Services Research, Department of Public Health Sciences,^c Penn State Milton S. Hershey Medical Center.

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Reprint requests: Joslyn S. Kirby, MD, Department of Dermatology, Penn State Milton S. Hershey Medical Center, 500 University Dr,

Mail Code HU14, Hershey, PA 17033-0850. E-mail: jkirby1@hmc.psu.edu.

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disease.^{3,7,8} A study in 2001 found that among adult women treated for acne, 80% demonstrated persistent acne, with a mean disease duration of approximately 20 years.⁷ In general, patients with acne have a significant psychological burden, comparative with systemic diseases such as asthma and diabetes, and duration of disease has been shown to correlate with psychosocial disability.^{5,8}

In 2003 and 2009, consensus recommendations were made by an international group of experts regarding oral antibiotics therapy for acne.^{9,10} The 2009 guidelines suggested that oral antibiotics be administered for 3 months and then discontinued if a patient has little or no clinical improvement.¹⁰ Other guidelines, put forth by medical organizations or government-based groups, recommend the total duration of oral antibiotic therapy be limited to a range of 3 to 6 months.¹⁰⁻¹⁴ Prolonged courses, or those longer than 6 months, are not recommended for maintenance therapy.^{10,15,16} Topical retinoids, used either as monotherapy or in combination with other topicals or systemic therapies, are recommended as part of the treatment regimen for all (nonpregnant) adult women with acne, regardless of severity.⁵ However, adherence to this recommendation may be difficult in this adult population because of a predisposition to skin irritation.¹⁵

We recently investigated the mean duration of antibiotic therapy in adolescents and found that 82.5% of courses were aligned with the guideline recommendations.¹⁷ However, adult women with acne have been reported to have a slower response to oral antibiotics and therefore these patients may receive longer antibiotic courses.⁸ The aim of this study was to evaluate the duration of oral antibiotic use among adults with acne, with a particular focus on women, in comparison with recent guideline recommendations.

METHODS

Data source

This is a retrospective cohort study from the MarketScan Commercial Claims and Encounters database from January 1, 2008, through December 31, 2010. The database consists of claims for employees, retirees, and dependents of over 250 employers nationwide. Individuals have private

insurance plans; no Medicaid or Medicare data are included. The database includes claims from more than 130 payers and describes health care use and expenditures for approximately 56 million individuals per year. Claims are identified by distinctive patient identifiers and contain information on age, gender, location, and type of plan. Pharmacy claims

contain information on medications (dosage, strength, and amount dispensed), days supplied, and costs. It does not capture prescriptions that were not filled.

Study design and study population

The study population consists of adults ages 21 years and older who were continuously enrolled with at least 2 claims for a diagnosis of acne (*International Classification of Diseases, Ninth Revision* code 706.1) within 18 months and seen by a dermatologist.

Enrollees were excluded if there was a documented diagnosis that would require an oral antibiotic typically used for acne (folliculitis, rosacea, Lyme disease, Rocky Mountain spotted fever, chlamydia, syphilis, malaria, pneumonia), received a medication known to cause or exacerbate acne (systemic steroids [testosterone, progesterone, corticosteroids], lithium, phenobarbital, phenytoin, epidermal growth factor inhibitors, isoniazid), or had been pregnant during the study period (*International Classification of Diseases, Ninth Revision* code 651.X). Patients who were treated with isotretinoin before antibiotic use or more than 30 days after a course were included. Eligible oral antibiotic and topical retinoid claims were identified by the National Drug Code associated with their generic names and their Master Form Code. Drug claims were then extracted for each qualified antibiotic. A long-term antibiotic course was defined as at least 60 days, as this is the minimum duration (about 8 weeks) to demonstrate clinical effectiveness.¹⁰

Shorter courses were excluded to eliminate antibiotics prescribed for acute issues or those who stopped treatment prematurely. A course was composed of 1 or multiple serial prescriptions. The end date was defined as the date of the last prescription claim plus the days supplied. For chronic medications, adherence is rarely perfect; therefore, missed doses and delays between distributions may occur.^{10,18-21} To capture multiple

CAPSULE SUMMARY

- Guidelines recommend oral antibiotic duration be limited to 3 to 6 months for acne. Topical retinoids are recommended in combination with and as maintenance therapy after antibiotics.
- In our retrospective study, 84.5% of oral antibiotic courses followed duration guidelines, although 69.0% lacked concomitant topical retinoid therapy.
- Cost savings can be realized by using shorter courses of antibiotics and generic medications.

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