∎

Prescription patterns and costs of acne/rosacea medications in Medicare patients vary by prescriber specialty

Myron Zhang, BA,[a] Jonathan I. Silverberg, MD, PhD, MPH,[b,c,d] and Benjamin H. Kaffenberger, MD[a]
Columbus, Ohio; and Chicago, Illinois

Background: Prescription patterns for acne/rosacea medications have not been described in the Medicare population, and comparisons across specialties are lacking.

Objective: To describe the medications used for treating acne/rosacea in the Medicare population and evaluate differences in costs between specialties.

Methods: A cross-sectional study was performed of the 2008 and 2010 Centers for Medicare and Medicaid Services Prescription Drug Profiles, which contains 100% of Medicare part D claims.

Results: Topical antibiotics accounted for 63% of all prescriptions. Patients ≥65 years utilized more oral tetracycline-class antibiotics and less topical retinoids. Specialists prescribed brand name drugs for the most common topical retinoids and most common topical antibiotics more frequently than family medicine/internal medicine (FM/IM) physicians by 6%-7%. Topical retinoids prescribed by specialists were, on average, $18-$20 more in total cost and $2-$3 more in patient cost than the same types of prescriptions from FM/IM physicians per 30-day supply. Specialists (60%) and IM physicians (56%) prescribed over twice the rate of branded doxycycline than FM doctors did (27%). The total and patient costs for tetracycline-class antibiotics were higher from specialists ($18 and $4 more, respectively) and IM physicians ($3 and $1 more, respectively) than they were from FM physicians.

Limitations: The data might contain rare prescriptions used for conditions other than acne/rosacea, and suppression algorithms might underestimate the number of specialist brand name prescriptions.

Conclusion: Costs of prescriptions for acne/rosacea from specialists are higher than those from primary care physicians and could be reduced by choosing generic and less expensive options. (J Am Acad Dermatol http://dx.doi.org/10.1016/j.jaad.2017.04.1127.)

Key words: acne; antibiotics; cost of care; Medicare; prescription drug costs; rosacea; topical retinoids.

About 65%-72% of medical appointments scheduled for the treatment of rosacea are with dermatologists, and the remaining are with by family physicians, internists, and ophthalmologists.[1,2] Only 15% of patients with acne are seen

> **Abbreviations used:**
>
> FM: family medicine
> IM: internal medicine
> TCA: tetracycline-class antibiotic

by specialties other than dermatologists.[3] The cost of acne and rosacea prescription medications in the United States totaled $2 billion in 2004,[4] suggesting that prescription choices for these diseases have a large impact on national health care expenditure. Previous studies examined prescription patterns[1,5-7] and costs[8-11] in acne and rosacea in populations primarily <65 years of age. Further, comparisons of prescription costs across different specialties are lacking. A recent investigation showed that in comparison to primary care physicians, specialists prescribed more brand-name drugs and a broader range of topical steroids, which was a practice associated with increased costs.[12] We hypothesized that similar prescribing patterns occur for acne/rosacea treatments. Understanding the patterns and costs of prescription medications might offer insight into strategies to reduce health care costs. In this study, we analyzed total and out-of-pocket costs and prescribing patterns of acne/rosacea treatments across different specialties in the Medicare population.

CAPSULE SUMMARY

- There have been few studies of prescription patterns and costs for acne/rosacea across specialties and in the elderly population.

- Specialists prescribe greater numbers of branded drugs than primary care physicians, resulting in increased costs.

- Utilizing more generic options could reduce Medicare acne/rosacea prescription costs by at least $3-$4 million per year.

METHODS

Data source and variables

As described previously,[12] a cross-sectional study was performed of the 2008 and 2010 Prescription Drug Profiles Public Use Files released by the Centers for Medicare and Medicaid Services,[13] representing 100% of Medicare part D prescription drug claims. Data are reported as profiles—aggregates of prescriptions with the same categorical variable values with continuous variables reported as a mean. For example, a profile can represent 20 claims, all for the same drug, patient sex, age group, insurance plan type, and prescriber type. Topical retinoids, topical antibiotics indicated for acne/rosacea, ≥30-day courses of oral tetracycline-class-antibiotics (TCA), and oral isotretinoin were selected for this analysis. Specific drugs selected and other variables reported in the data set are presented in Supplemental Table I (available at http://www.jaad.org).

Prescriber taxonomy

Prescriber specialty was reported as 1 of the 6 categories. They included family medicine (FM), internal medicine (IM), psychiatry/neurology, specialist, other, and suppressed (to protect patient

confidentiality; algorithm detailed in Supplemental Table I; available at http://www.jaad.org). We merged the specialist and other categories of the prescription drug profiles into a single specialist category with the assumption that most were dermatologists. This assumption was validated against prescriber distributions from the 2014 Medicare Provider Utilization and Payment Data,[12,14] which includes dermatology as a specific specialty (Supplemental Table II; available at http://www.jaad.org). Suppressed prescribers were considered in a separate category to avoid potential biases from the suppression algorithm. The final provider designations compared in the analyses were FM, IM, specialist, and suppressed.

Statistical analysis

Statistical analyses, as described previously,[12] were performed in MATLAB (version R2015b, MathWorks, Natick, MA). Primary outcomes examined were total cost (the sum of costs paid for ingredients, dispensing fee, and sales tax) and patient cost (nonreimbursed cost paid by the beneficiary) of prescriptions. Costs per prescription were normalized to a length of 30 days. The 2008 costs were adjusted for inflation to 2010 prices using the Consumer Price Index from the US Bureau of Labor Statistics.[15]

Summary statistics were calculated for yearly aggregate cost, mean cost per prescription, and mean prescription length of each drug. Mean drug costs are presented for both generic and branded versions for comparison. Prescription frequencies and brand name usage were calculated and stratified by provider type.

Multivariable linear regression was used to model log-transformed costs in each drug class against prescriber specialty and covariates. This model was designed to reflect the effects of specialty-dependent differences in medication and brand choice on costs of treatments with similar efficacy and indications. Linear modeling produced residuals with positive skew, so costs were log-transformed. Total cost was modeled against specialty with covariates of sex, age, year, and prescription drug hierarchical conditional category (risk score that reflects health status). Patient cost was modeled against specialty with covariates of sex, age, plan type, coverage, benefit