

The cost of topical immunomodulator therapy in Medicare patients varies by prescriber specialty

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Background: Topical immunomodulators (TI)—including corticosteroids, calcineurin inhibitors, and vitamin D analogues—are commonly prescribed in multiple specialties, but cost comparisons are lacking.

Objective: To evaluate differences in costs of TI across specialties and determine associated variables.

Methods: A cross-sectional study was performed using the Centers for Medicare & Medicaid Services 2008 and 2010 Prescription Drug Public Use Profiles, which contain 100% of drug claims made by Medicare beneficiaries.

Results: Branded drugs cost an average of \$174.02 more than generics per 30-day supply ($P < .001$). Differences in health insurance benefit phase, drug choice, brand name, and coverage type were the greatest determinants of patient cost ($P < .001$). Prescriptions for low-, medium-, and high-potency TI from specialists (mostly dermatologists) cost more than those from family medicine, internal medicine, and psychiatry/neurology physicians; total costs of a 30-day supply from a specialist differed from family and internal medicine physicians by \$7.36-\$14.57, and patient costs were higher for specialists by \$1.69-\$3.16 ($P < .01$). Brand names were prescribed 8% of the time by specialists and 1.4%-3.1% by nonspecialists.

Limitations: We were unable to adjust for some confounders of cost, such as medication weight or treated body area, and the data does not reflect previous treatment failures or use by non-Medicare patients.

Conclusion: The costs of TIs prescribed by specialists (primarily dermatologists) are higher than those prescribed by primary care physicians and could be reduced by choosing more generics within the respective potency classes. (J Am Acad Dermatol <http://dx.doi.org/10.1016/j.jaad.2016.11.052>.)

Key words: atopic dermatitis; cost of care; inflammatory skin disease; Medicare; prescription drug costs; psoriasis; topical immunomodulators; topical steroids.

Topical immunomodulators (TI), including corticosteroids, calcineurin inhibitors, and vitamin D analogues, are commonly prescribed for inflammatory skin diseases, such as atopic dermatitis, contact dermatitis, and psoriasis. The total cost of goods for prescription drugs for these three inflammatory skin diseases was \$1.58 billion in 2004.¹ The magnitude of these costs suggests TI as

an important area of potential savings in health care expenditure.

Inflammatory skin diseases are commonly managed in both primary care and specialist settings. Studies have shown 43% of pediatric atopic dermatitis visits are with a generalist compared with 44% with a specialist,² and up to 67% of visits for contact dermatitis are seen by physicians other than

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dermatologists.³ Few studies have examined prescription tendencies and costs of TI across different specialties. We hypothesized that specialists used a broader range of TI, including branded and more costly medications. Moreover, we hypothesized patient and payer characteristics that influence cost of TI. In this study, we analyzed total and patient costs of prescription TI using Medicare beneficiary data. Our goal was to identify opportunities to reduce the burden of prescription TI on health care costs.

METHODS

Data source and variables

A cross-sectional study was performed with the Prescription Drug Profiles Public Use Files released by the Centers for Medicare & Medicaid Services. These data represent 100% of prescription drug claims for Medicare part D patients for years 2008 and 2010.⁴ Variables reported in the dataset are presented in Supplemental Table I (available at <https://data.mendeley.com/datasets/482k4v868k>). Analyses were limited to topical corticosteroids, calcineurin inhibitors, and vitamin D analogues (Supplemental Table I; available at <https://data.mendeley.com/datasets/482k4v868k>). The data are reported as profiles, each containing a collection of individual prescription events with the same characteristics; the number of prescription events within each profile is reported, and quantitative variables such as costs are reported as means of all events within the profile.

Prescriber taxonomy

Prescriber specialty included 6 categories: family medicine (FM), internal medicine (IM), psychiatry/neurology (psych/neuro), specialist, other, and suppressed. Prescriber specialty was suppressed for certain prescription profiles with fewer than 11 beneficiaries to protect patient confidentiality by using a suppression algorithm (Supplemental Table I; available at <https://data.mendeley.com/datasets/482k4v868k>). Classification was based on the National Uniform Claims Committee taxonomy code reported as primary by the prescriber in the National Plan and Provider Enumeration System database. We hypothesized that dermatologists would prescribe TI more often for patients.

To validate this assumption, we examined prescriber distributions from the Medicare Provider Utilization and Payment Data (MPUPD) from 2013.⁵ MPUPD contains all Medicare part D claims with the exception of drugs by individual prescribers with <10 claims, thereby representing a similar population as that present in the Prescription Drug Profiles.

MPUPD included information on specific specialties, including dermatology. MPUPD data confirmed that when specialists prescribed topical immunomodulators, the specialist was specifically a dermatologist between 72-94% of the time depending on the prescribed medicine. (Supplemental Table II; available at <https://data.mendeley.com/datasets/482k4v868k>). Because combining the specialist category with the other category did not affect results, we merged them to form a new specialist category, which consisted largely of dermatologists.

Suppressed prescribers were kept in a separate category to avoid potential biases from the suppression algorithm (Supplemental Table I; available at <https://data.mendeley.com/datasets/482k4v868k>).

The final 5 prescriber designations used in the analyses were FM, IM, psych/neuro, specialist (predominantly dermatology), and suppressed.

Statistical analysis

Data processing and statistical analyses were performed in MATLAB (version R2015b, MathWorks, Natick, MA). All prescription profiles were weighted by the frequency of prescription in all steps of calculation and modeling; costs are presented as weighted means, and linear regression was performed using weighted least squares. Mean costs were normalized to a prescription length of 30 days. Costs from 2008 were adjusted for inflation to 2010 prices using the Consumer Price Index from the US Bureau of Labor Statistics.⁶ The primary outcomes modeled were the mean total cost of a 30-day prescription of TI (the sum of costs paid for ingredients, dispensing fee, and sales tax for each prescription) and mean patient cost (nonreimbursed cost paid by the beneficiary). Summary statistics, including mean, standard deviation (SD), and yearly total and patient cost of care, mean prescription

CAPSULE SUMMARY

- Topical corticosteroids, calcineurin inhibitors, and vitamin D analogues are commonly prescribed by both dermatologists and primary care physicians.
- Prescriptions from specialist (mostly dermatologists) are associated with increased costs compared with those from primary care physicians.
- Costs to treat dermatologic conditions might be reduced by specialists choosing generics and less expensive medications within the respective potency classes.

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