

RESEARCH LETTER

Topical Corticosteroid Clinical Decision Support for Primary Care Providers: There's an App for That!

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Literature has indicated that 20-36% of patients in PCP offices have dermatologic conditions¹. PCPs have been shown to prescribe inappropriately high-potency topical corticosteroids (TCS), or, conversely, inappropriately low-potency TCS.² In addition, drug costs may be higher if multiple small tubes are dispensed over the treatment course.³ Importantly, mobile devices and applications provide significantly increased access to point-of-care tools and, with use by providers, demonstrate better clinical decision-making and improved patient outcomes.^{4,5} The focus of this study was to develop and evaluate an application ('app') designed as a clinical decision support for PCP use of TCS.

The app was developed using clinical practice guidelines for topical corticosteroid use. App design and functionality was iteratively developed by a multidisciplinary group of professional app designers (3), PCPs (3), and dermatology providers (3). A study of the app was performed with PCPs to determine changes in potency, vehicles and amount of corticosteroid prescriptions before and after app use (CorticoCream Calculator, <https://www.padermatology.org/corticocream-calculator.html>). The study was approved by

the Penn State institutional review board. PCPs were recruited on June 7, 2017, then 3 months later their prescription records were retrieved for the three months before and after the recruitment date (March 7-September 7, 2017). Surveys collected participants' perceptions of app utility, performance, and PCPs' perceptions about their personal confidence in prescribing TCS. Descriptive statistics were performed and the t test, Chi-square test or Fisher's exact test were used to determine statistical significance.

Study sample characteristics are reported in Table 1. There was an increase in the percentage of prescriptions for intermediate sized (45-170g) units, with a baseline percentage of 48.6% and an increase to 58.6%. There was a decrease in the percentage of prescriptions for small sized (15-30g) units, with a baseline percentage of 42.0% and a decrease to 36.3% (p=.07).

There was also a shift away from low-potency towards high-potency TCS (Figure 1). Low-potency prescriptions decreased from 25% to 22.6% and high-potency increased from 16.0% to 19.0% after initiating app use, but weren't statistically significant (p=.68). There

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Table 1. Characteristics of Respondent Population

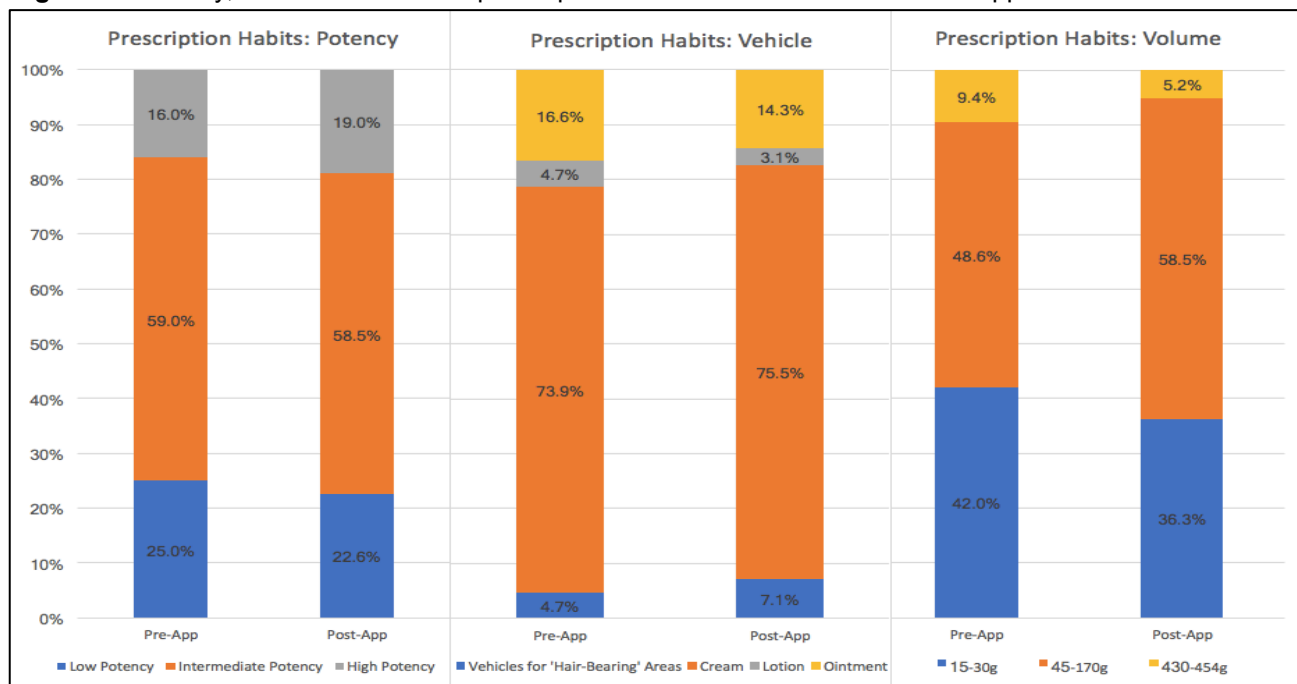
Total Sample	N=13
Gender	
Female	5 (38.5%)
Male	8 (61.5%)
Title	
Physician	13 (100.0%)
Training in Dermatology	
Medical School	10 (76.9%)
Clinical Rotation	10 (76.9%)
On the job/research	8 (61.5%)
Conferences/Lectures/ Seminars with CME credits	4 (30.8%)
Other	1 (7.7%)
Years in Practice	
0-1	0 (0%)
2-5	7 (53.8%)
5-10	1 (7.7%)
10+	5 (38.5%)
Number of TCS Prescriptions	
Before App	213 (52.1%)
After App	196 (47.9%)

were shifts in the choice of vehicles, with an increase from 4.7% to 7.1% for shampoo, gel, solution and foam, which are sometimes preferred for hair-bearing areas ($p=.55$).

Survey results, collected at 0, 1, and 3 months of application use, showed an increase in certainty of prescribing appropriate quantity and vehicle. Certainty for quantity increased from 30.8% to 46.1% ($p=.27$). Similarly, certainty for vehicle increased from 30.8% to 61.5% ($p=.29$). Lastly, the application was described as “very easy to use,” “intuitive” and “an excellent tool,” with one participant commenting it “broadened [their] knowledge of what to use and how much to give.”

In conclusion, a clinical decision app increased PCPs’ perception of certainty when prescribing steroids and resulted in nearly significant differences in amounts of TCS prescribed to patients. There were

Figure 1: Potency, vehicle and volume prescription habits before and after use of application.



changes, though not statistically significant in higher potency steroids and more vehicle diversity associated with app use. This app could aid PCPs in their management of patients and reduce unnecessary appointments to dermatologists. This would offer dermatologists more availability for patients with urgent concerns or truly recalcitrant dermatoses.

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