

# Treatment Patterns in Pediatric Patients with Moderate to Severe Atopic Dermatitis

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## Background

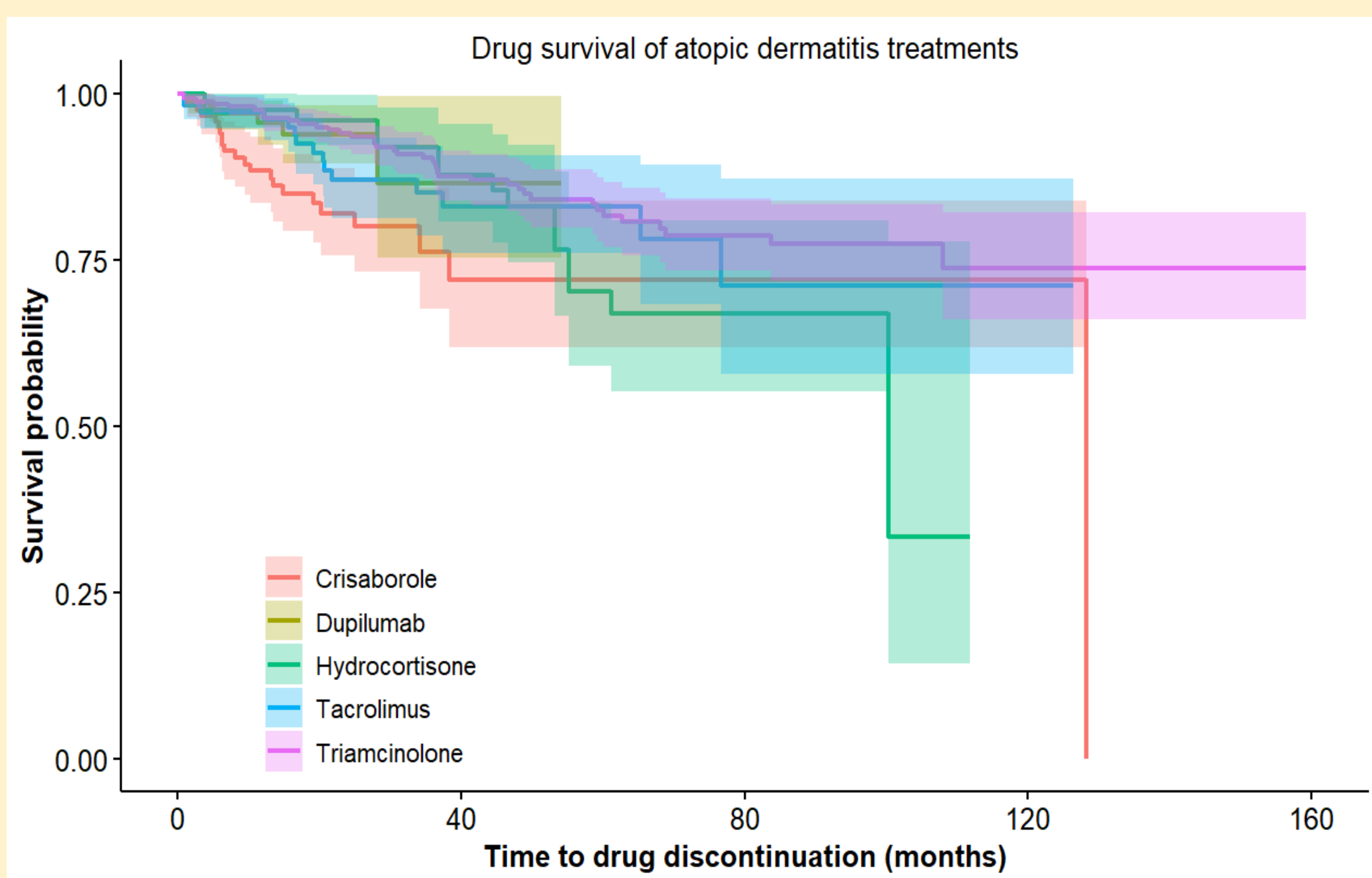
Atopic dermatitis (AD) is a chronic skin condition marked by skin inflammation, resulting in symptoms like itchiness, redness, and oozing. Although AD can manifest at any age, it predominantly affects children, with a global prevalence of approximately 10-20%.<sup>1</sup> The American Academy of Pediatrics recommends topical corticosteroids as the initial therapy for children with AD, with secondary options like non-corticosteroid topical calcineurin inhibitors and phosphodiesterase inhibitors for those over 2 years old.<sup>2</sup> If AD remains poorly controlled, treatments may escalate to oral systemic immunosuppressive therapy and biologic therapy.

## Results

Table 1. Patient demographics (n = 285)

Baseline Characteristics	Patients (n=285)
Age, median (SD)	11.0 (4.6)
Female, n (%)	139 (48.8%)
Race, n (%)	
White (non-Hispanic)	85 (29.8%)
Latino/Hispanic	84 (29.5%)
Black (non-Hispanic)	66 (23.2%)
Asian	18 (6.3%)
Other	12 (4.2%)
Unknown	21 (7.4%)
Insurance type n, (%)	
Commercial	115 (40.4%)
Government	129 (45.3%)
Self-Pay/Other	42 (0.35%)
Median household income (thousands in USD)	
Under \$25	1 (25.0%)
\$25 under \$50	56 (20.4%)
\$50 under \$75	135 (47.4%)
\$75 under \$100	45 (15.8%)
\$100 and above	48 (16.8%)

Figure 1. Kaplan-Meier curve for atopic dermatitis drug survival



## Discussion/Conclusion

This is among the few studies that assessed treatment discontinuation in pediatric patients with moderate to severe AD. It provides insights into real-world patterns of the use of systemic treatments over a 10-year period in pediatric patients. Patients analyzed in the study presented considerable use of systemic treatments, with almost all 285 patients being prescribed triamcinolone 0.1% topical (91.9%) and over half being prescribed dupilumab (51.2%). Patients with higher household income had lower discontinuation rates than those with lower household income, suggesting a possible barrier to affording AD drugs.

## Objectives

Limited studies characterize the use of atopic dermatitis (AD) treatments over time as well as patient factors associated with treatment discontinuation in the pediatric population. This study utilized electronic health records (EHR) data to better understand real-world treatment patterns in pediatric patients with this debilitating disease.

## Methods

**Study design:** Retrospective cohort study

**Data source:** EHR from a large integrated delivery health system in Texas

**Inclusion criteria:** Patients ages 18 years and under with a diagnosis of moderate to severe AD identified using ICD-10 codes L20, L20.9, and L20.8 between January 1, 2020 and December 31, 2022 and have been prescribed at least one medication indicated for the treatment of AD within the study period of January 1, 2014 to April 24, 2023

**Primary outcome:** Time to treatment discontinuation in the top 5 AD medications prescribed to patients

**Secondary outcome:** Predictors for treatment discontinuation

**Statistical analyses:** Medication discontinuation rates and median treatment persistence were summarized with descriptive statistics. Survival curves were constructed using unadjusted Kaplan-Meier estimates. Cox proportional hazards regression models were constructed to determine the predictors of treatment discontinuation. Median household income was estimated using the zip codes of the patients' home address on file determined by the American Community Survey 2017 to 2021 5-year estimates.<sup>3</sup>

Table 2. Drug survival of atopic dermatitis treatments

Treatment	Number of patients (n, %)	Number of events (discontinuation rate, %)	Median (months)	Q1, Q3
triamcinolone 0.1% topical	262 (91.9%)	39 (14.9%)	45.2	[Q1, 22.8; Q3: 80.1]
dupilumab (DUPIXENT)	146 (51.2%)	7 (4.8%)	10.4	[Q1, 6.1; Q3: 19.9]
crisaborole (Eucrisa) 2% topical	121 (42.5%)	22 (18.2%)	18.6	[Q1, 9.7; Q3: 31.3]
tacrolimus 0.1% topical	114 (40.0%)	15 (13.2%)	25.4	[Q1, 11.3; Q3: 48.6]
hydrocortisone 2.5% topical	85 (29.8%)	16 (18.9%)	37.5	[Q1, 15.2; Q3: 59.2]

Table 3. Predictors of treatment discontinuation, Cox regression analysis

Characteristic	Hazard ratio (95% CI)	P value
Age at start of treatment	0.96 (0.92-1.01)	0.12
Female sex	0.80 (0.54-1.20)	0.29
Race – White (non-Hispanic)	0.88 (0.29-2.66)	0.82
Race – Hispanic/Latino	1.62 (0.55-4.79)	0.38
Race – Black (non-Hispanic)	1.54 (0.52-4.58)	0.44
Race – Asian	Reference	N/A
Race – Other	1.46 (0.36-5.87)	0.60
Race – Unknown	0.77 (0.19-3.18)	0.72
Median Household Income	0.98 (0.97-0.99)	0.001
Insurance – Commercial	Reference	N/A
Insurance – Government	1.19 (0.74-1.92)	0.47
Insurance – Self-pay	1.25 (0.66-2.37)	0.50

## Limitations

- Potential missing data points due to retrospective nature
- Reasons for drug discontinuation were not accessible
- Potential misclassification of patients due to the scarce use of scale to characterize severity of atopic dermatitis

## References

1. Spielman SC, LeBovidge JS, Timmons KG, et al. A review of multidisciplinary interventions in atopic dermatitis. J Clin Med. 2015;4(5):1156–1170.
2. Atopic Dermatitis. American Academy of Pediatrics. Updated June 11, 2021. Accessed October 24, 2023. <https://www.aap.org/en/patient-care/atopic-dermatitis/>
3. American Community Survey 2017-2021 5-Year Data Release. United States Census Bureau. Updated December 8, 2022. Accessed October 24, 2023. <https://www.census.gov/newsroom/press-kits/2022/acs-5-year.html>