

# Treatment Pattern, Healthcare Resource Utilization and Cost of Pediatric Patients with Atopic Dermatitis in the United States

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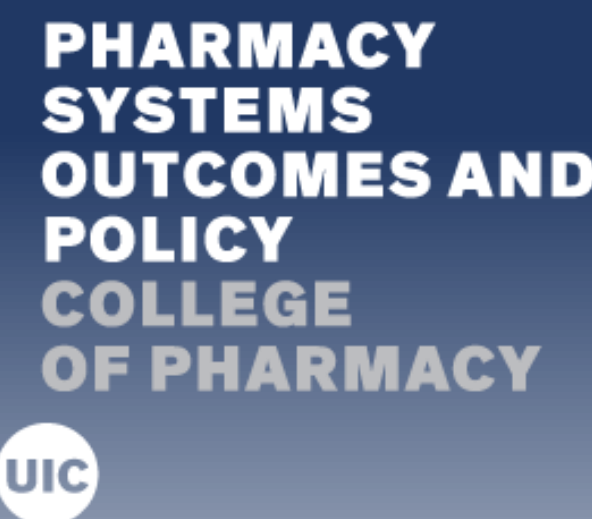
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## INTRODUCTION

- The treatment landscape for atopic dermatitis (AD) has expanded considerably since the introduction of dupilumab.<sup>1</sup>
- The heterogeneity among treatment pattern and healthcare utilization between insurance groups is an unexplored dimension of the economic burden post-biologics era.
- Evidence on the direct medical costs and HCRU associated with pediatric AD is limited, despite children comprising one of the largest and most affected patient populations.

## OBJECTIVE

- This study aimed to characterize treatment patterns, healthcare resource utilization (HCRU), and direct medical costs among pediatric patients with atopic dermatitis stratified by insurance type (commercial vs. Medicaid).

## METHOD

- Data source** This retrospective cohort study used the Merative MarketScan® Commercial Claims and Encounters Database and the Merative MarketScan® Multi-State Medicaid Database.
- Study Population** Pediatric patients (<18 years) with incident AD from January 1, 2022, to August 31, 2023, were identified. Incident AD was defined by the absence of AD diagnosis claims during the 12-month pre-diagnosis baseline period. Patients were required to have ≥1 pharmacy claim for an AD-related treatment following diagnosis, with the first treatment claim serving as the index date. Patients with immune-related comorbidities were excluded.
- Follow-up period** Patients were followed up to one-year, disenrollment, or end of the study period (September 30, 2024), which came ever first.
- Outcome measurement**
  - Healthcare utilization**
    - AD-related HCRU was assessed across four domains: outpatient visits, emergency department (ED) visits, inpatient hospitalizations, and pharmacy dispensing.
    - AD-related medical HCRU was defined as any claim with a primary or secondary diagnosis of AD.
    - AD-related pharmacy utilization was captured from pharmacy dispensing records and restricted to medications indicated for AD management.

## RESULTS

- A total of 113,273 pediatric AD patients were identified (54.5% Medicaid, 45.5% commercial); Medicaid patients were younger (7.2 vs. 7.9 years), had higher burdens of atopic comorbidities (asthma 8.1% vs. 4.5%; allergic rhinitis 14.1% vs. 9.3%), neuropsychiatric conditions (developmental delays 10.0% vs. 5.9%), and significantly higher ED utilization (0.6 vs. 0.2 visits/year; SMD=0.428).
- Compared with commercially insured patients, Medicaid-insured patients had a higher proportion initiating low-potency topical corticosteroids (TCSs) but a lower proportion initiating high-potency TCS as their index medication (low TCSs: 31.7% vs 29.1%; high potency TCSs: 55.3% vs 59%).
- Commercially insured patients were more likely to initiate dupilumab as their index medication compared with Medicaid-insured patients (0.5% vs 0.1%).
- Mean annual AD-related direct medical costs were 3.2-fold higher in commercially insured patients (\$1,869) compared to Medicaid (\$592), driven primarily by higher pharmacy costs (\$766 vs \$101) and outpatient costs (\$356 vs \$125).

## DISCUSSION

- This is the first real-world study to comprehensively characterize treatment patterns and direct medical costs among pediatric patients with atopic dermatitis in the United States during the post-biologic era.
- Medicaid patients were younger on average, which may explain why they were prescribed fewer high-potency TCSs and TCIs, as these medications are used more cautiously in young children.
- Among pediatric patients receiving systemic therapy, systemic corticosteroids remained the predominant treatment modality.
- This study may have several limitations.
  - (1) Treatment add-on and switch were defined using dispensed days supply and a 30-day grace period, which may not perfectly capture clinical intent, lead to misclassification.
  - (2) The study period captures only the early post-approval era of several newer agents, may not yet reflect steady-state real-world prescribing behavior.

## CONCLUSION

- This study demonstrates the heterogeneity in pediatric AD treatment patterns and costs among different insurance types.

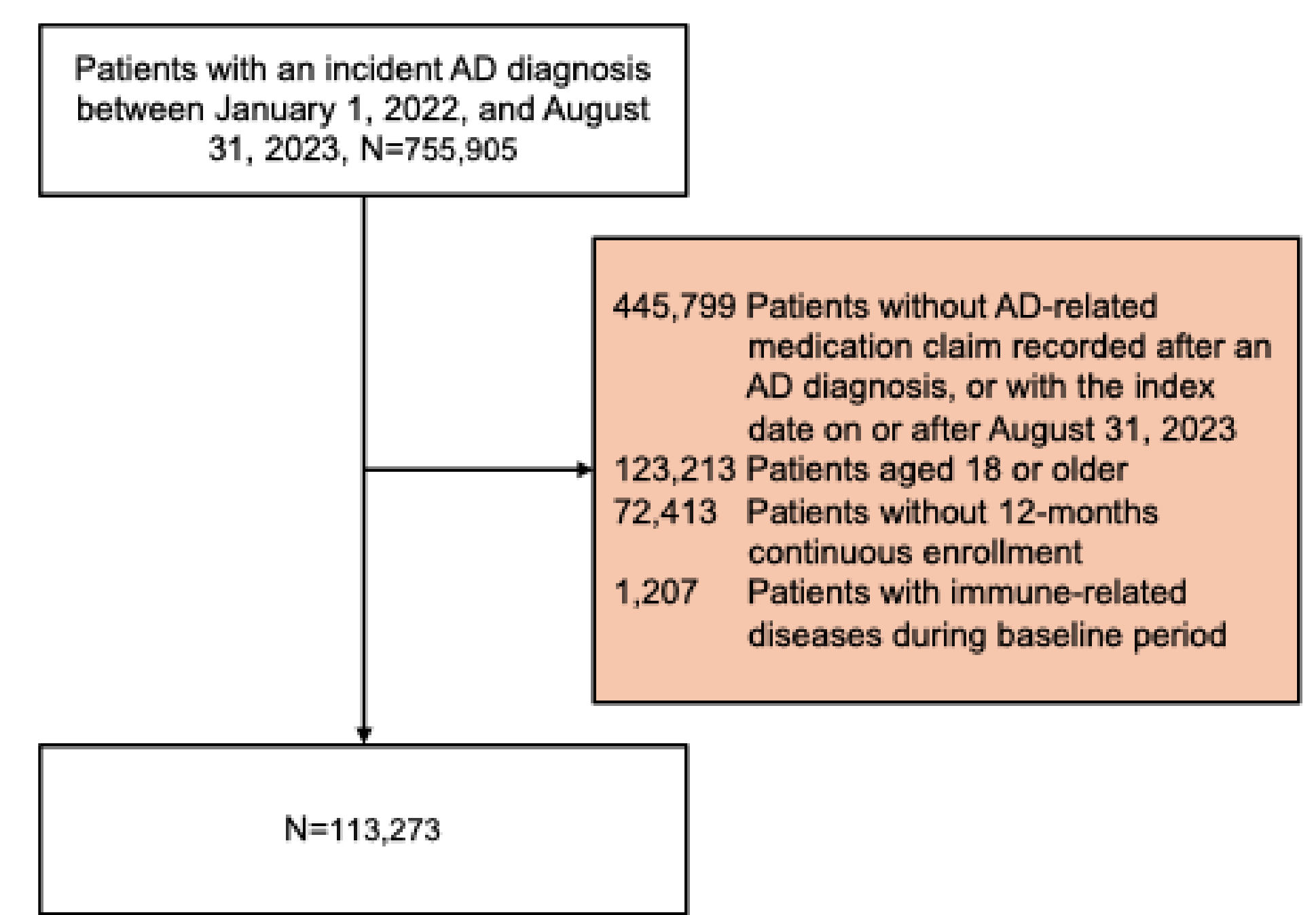


FIGURE 1. Patient selection flow chart

TABLE I. Patient characteristics

Characteristics	Commercial	Medicaid	Overall	SMD
	N = 51,575	N = 61,698	N = 113,273	
Age, years (Mean, SD)	7.9 (5.3)	7.2 (4.8)	7.5 (5.1)	
Age group				0.155
0-6	20,681 (40.1%)	27,716 (44.9%)	48,397 (42.7%)	
7-11	12,580 (24.4%)	17,202 (27.9%)	29,782 (26.3%)	
12-17	18,314 (35.5%)	16,780 (27.2%)	35,094 (31.0%)	
Sex				0.047
Male	24,824 (48.1%)	28,258 (45.8%)	53,082 (46.9%)	
Female	26,751 (51.9%)	33,440 (54.2%)	60,191 (53.1%)	
Index year				0.194
2022	31,675 (61.4%)	43,537 (70.6%)	75,212 (66.4%)	
2023	19,900 (38.6%)	18,161 (29.4%)	38,061 (33.6%)	
<b>Atopic Comorbidity History</b>				
Asthma	2,346 (4.5%)	4,991 (8.1%)	7,337 (6.5%)	0.146
Allergic rhinitis	4,814 (9.3%)	8,723 (14.1%)	13,537 (12.0%)	0.150
Food allergy	1,742 (3.4%)	1,123 (1.8%)	2,865 (2.5%)	0.098
<b>Pediatric Comorbidity History</b>				
Anemia	679 (1.3%)	1,517 (2.4%)	2,196 (1.9%)	0.084
Anxiety	3,026 (5.8%)	2,133 (3.4%)	5,159 (4.5%)	0.114
Any malignancy	60 (0.1%)	50 (0.1%)	110 (0.1%)	0.011
Cardiovascular conditions	980 (1.9%)	955 (1.5%)	1,935 (1.7%)	0.027
Conduct disorder	331 (0.6%)	1,049 (1.7%)	1,380 (1.2%)	0.099
Congenital malformations	3,637 (7.0%)	3,785 (6.1%)	7,422 (6.5%)	0.037
Depression	1,548 (3.0%)	1,542 (2.5%)	3,090 (2.7%)	0.031
Developmental delays	3,068 (5.9%)	6,213 (10.0%)	9,281 (8.1%)	0.152
Epilepsy	508 (1.0%)	866 (1.4%)	1,374 (1.2%)	0.039
GI conditions	2,752 (5.3%)	4,058 (6.5%)	6,810 (5.9%)	0.052
Joint disorders	648 (1.2%)	636 (1.0%)	1,284 (1.1%)	0.021
Menstrual disorders	607 (1.2%)	491 (0.8%)	1,098 (1.0%)	0.039
Nausea/vomiting	3,625 (6.9%)	6,343 (10.2%)	9,968 (8.7%)	0.116
Pain conditions	7,528 (14.4%)	8,538 (13.7%)	16,066 (14.0%)	0.022
Sleep disorder	1,108 (2.1%)	1,682 (2.7%)	2,790 (2.4%)	0.037
<b>Healthcare Utilization, (Mean, SD)</b>				
ED visits, past year	0.2 (0.6)	0.6 (1.2)	0.4 (1.0)	0.428
Outpatient visits, past year	9.2 (14.5)	9.7 (17.5)	9.5 (16.2)	0.028
Inpatient visits, past year	0.0 (0.2)	0.0 (0.2)	0.0 (0.2)	0.048

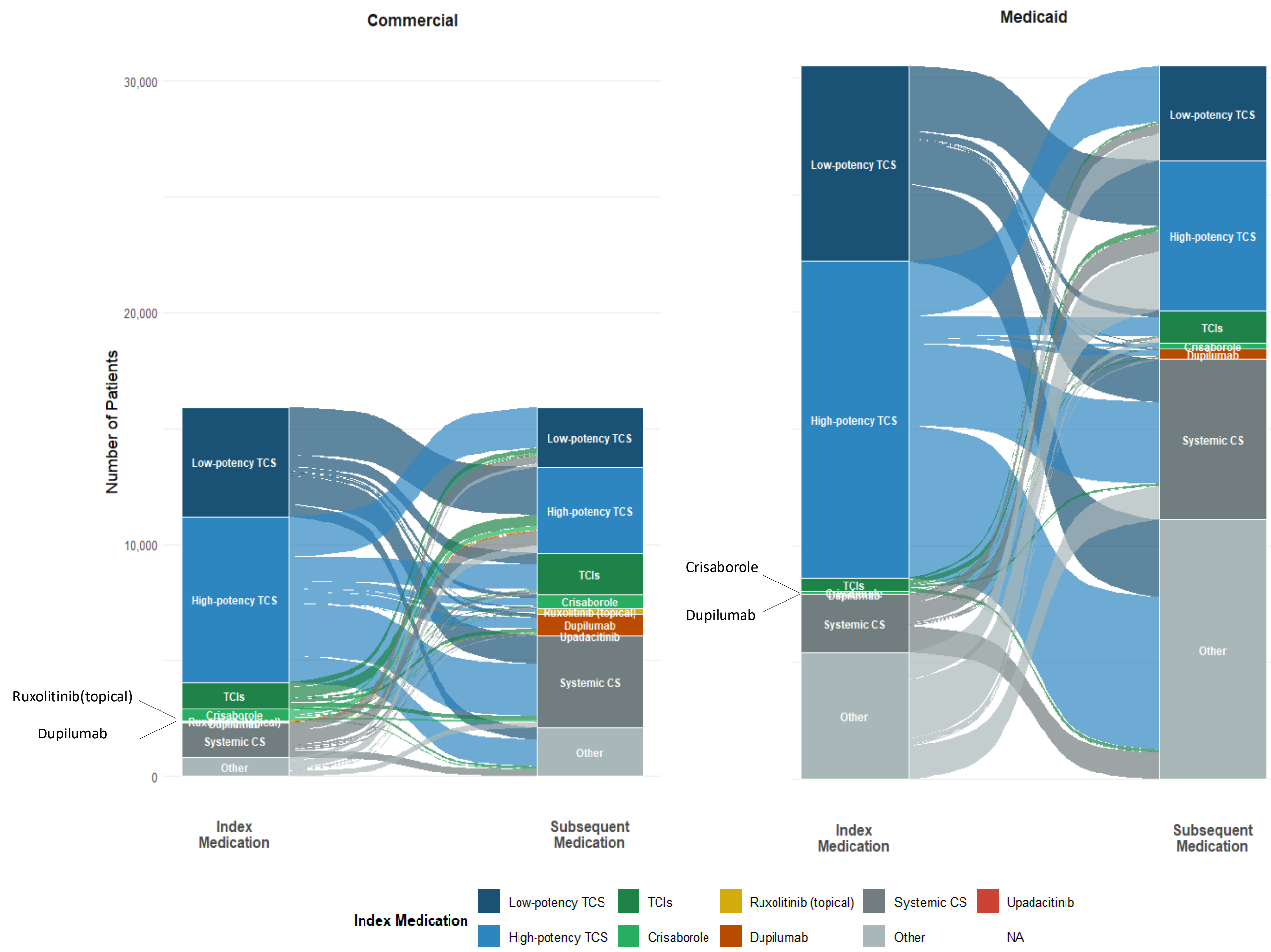


FIGURE 2. Treatment switch patterns among pediatric patients with atopic dermatitis at 12-month follow-up  
 Note: 1. Abbrev: TCS, topical corticosteroids; TCIs, topical calcineurin inhibitors; CS, corticosteroids; Other, antihistamine and montelukast..  
 2. Flows represent patients who switched from index medication to subsequent medication within 12 months.  
 3. Index medication with n<50 were not reported.

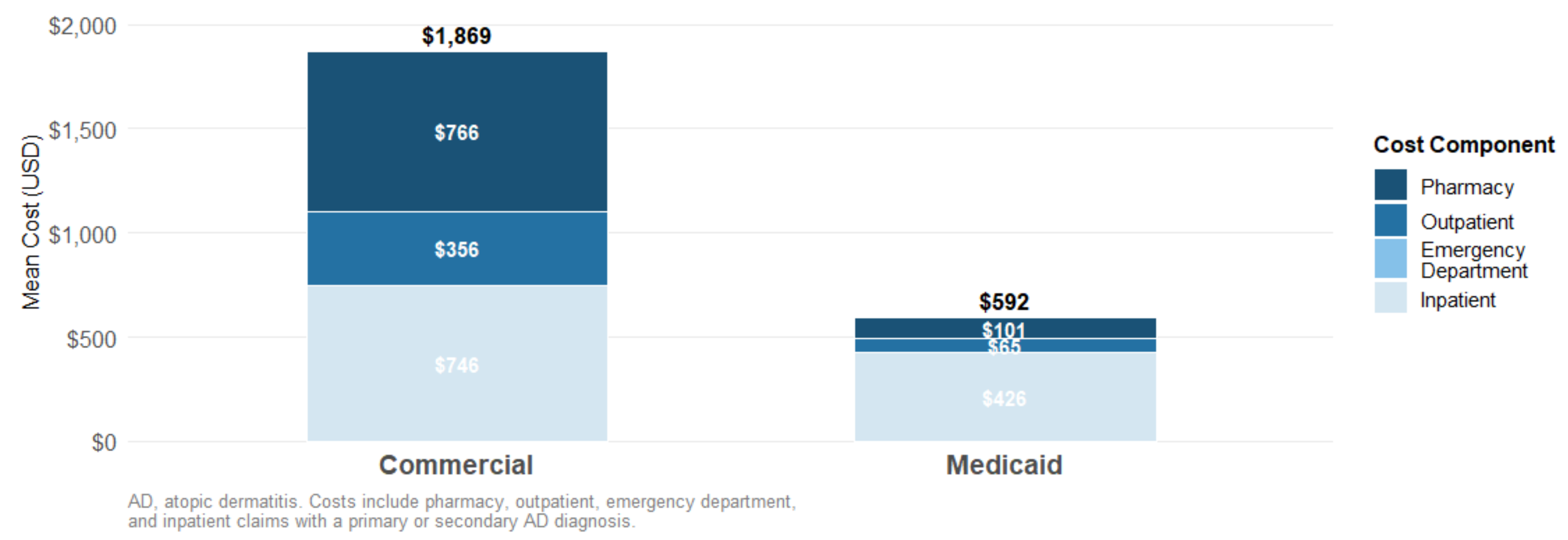


FIGURE 3. Mean annual AD-related medical costs by insurance type.  
 Note: Cost is presented as per person per year.

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Disclosures:  
 Conflict of Interest- The authors have no conflict of interest associated with the content of this poster.  
 Funding: None.  
 IRB: This study of deidentified data was considered exempt from review by the University of Illinois Chicago Institutional Review Boards.

