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## Racial and ethnic differences in healthcare utilization for childhood eczema: an analysis of the 2001–2013 Medical Expenditure Panel Surveys

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### Abstract

**Background**—Eczema is a common chronic inflammatory disease of the skin. Studies suggest differences in disease prevalence and severity by race/ethnicity. Our knowledge of healthcare utilization for eczema among different racial/ethnic groups remains limited.

**Objective**—To evaluate healthcare utilization for childhood eczema among different racial/ethnic groups in the U.S.

**Methods**—We performed a cohort study of non-Hispanic white (reference), non-Hispanic black, and Hispanic white individuals under age 18 with caregiver-reported eczema (N=2,043) pooled from the two-year longitudinal cohorts of the 2001–2013 Medical Expenditure Panel Surveys. Healthcare utilization outcomes were evaluated over the two-year follow-up period by race/ethnicity using multivariable regression.

**Results**—Among all children with eczema, non-Hispanic blacks versus whites were less likely to report an ambulatory visit for eczema (adjusted odds ratio [OR<sub>adj</sub>] 0.69; 95% confidence interval 0.51–0.92). Among those with at least one ambulatory visit for eczema, non-Hispanic blacks versus whites reported more visits (adjusted incidence rate ratio [IRR<sub>adj</sub>] 1.68; 1.10–2.55) and

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**IRB Statement:** The study was granted exempt status by the University of Pennsylvania Institutional Review Board.

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prescriptions (IRR<sub>adj</sub> 1.22; 1.01–1.46), and were more likely to report a dermatology visit (OR<sub>adj</sub> 1.82; 1.06–3.14) for eczema.

**Limitations**—Caregiver- or self-reported data.

**Conclusions**—Our findings suggest disparities in healthcare utilization for eczema among non-Hispanic black children despite healthcare utilization patterns suggestive of more severe disease.

### Keywords

Atopic dermatitis; eczema; healthcare disparities; healthcare utilization; race; ethnicity; ambulatory visits; prescriptions

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## INTRODUCTION

Eczema is a common chronic inflammatory disease of the skin that is associated with significant negative physical and psychosocial effects.<sup>1–5</sup> The prevalence of childhood eczema in the United States (U.S.) is upwards of 10%<sup>6,7</sup> and differs by race and ethnicity with the disease being more common among non-Hispanic black children (17.1% prevalence) than among non-Hispanic whites (11.2%) and Hispanic whites (13.7%).<sup>7,8</sup> Eczema may also be more severe among racial/ethnic minority children, though the exact nature of this relationship remains unclear.<sup>6</sup> While data suggest that at least the physical burden of eczema may be greater among racial/ethnic minority children, it remains unclear if healthcare utilization for childhood eczema reflects this greater burden.

Previous studies have identified lower healthcare utilization among racial/ethnic minorities across multiple medical conditions including dermatologic diseases<sup>9–12</sup> as well as poorer access to medical care, primary care included, among racial/ethnic minority children.<sup>13,14</sup> Few studies have specifically examined healthcare utilization for eczema by race/ethnicity. Two studies using data from the National Ambulatory Medical Care Survey (NAMCS) or the National Hospital Ambulatory Medical Care Survey (NHAMCS) found minority race/ethnicity to be associated with increased healthcare utilization as measured by ambulatory visits for eczema.<sup>15,16</sup> However, these studies were limited by their inclusion of only those individuals with eczema who were accessing medical care. Thus, the purpose of our study was to evaluate healthcare utilization among all children with eczema by race/ethnicity at a population level and with patient-level granularity using data from the Medical Expenditure Panel Surveys.

## METHODS

### Study design and data source

We conducted a cohort study using data from the Medical Expenditure Panel Survey (MEPS), which generates estimates that are nationally representative of the U.S. civilian non-institutionalized population and is the most complete source of data on healthcare utilization, cost, and health insurance coverage in the U.S.<sup>17</sup> The MEPS introduces a new panel of individuals each year that are drawn from a subset of participants from the previous year's National Health Interview Survey. Each panel includes five rounds of interviews over

a two-year follow-up period and collects self- or caregiver-reported information on demographic and socioeconomic characteristics, health insurance coverage, medical conditions, and healthcare utilization measures. Reported medical conditions are recorded verbatim, professionally designated International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes, and then collapsed into three-digit ICD-9 code categories in order to preserve confidentiality. This study was conducted according to the Declaration of Helsinki and reported according to the Strengthening the Reporting of Observational Studies in Epidemiology statement.<sup>18</sup> The study was granted exempt status by the University of Pennsylvania Institutional Review Board.

### Study population

Our study population was limited to survey respondents reporting atopic dermatitis or eczema (ICD-9 codes 691 or 692). Both ICD-9 codes were included due to low prevalence, and likely underutilization, of the more specific ICD-9 691 code. Analyses were further limited to respondents aged 0–17 in order to define a pediatric population that is more likely to have true atopic dermatitis. Respondents from years 2001–2013 were pooled for analyses as these years had consistent reporting options for race/ethnicity. Lastly, only those individuals who identified as non-Hispanic white, non-Hispanic black, and Hispanic white were included as the sample sizes of other races were too small to generate stable estimates.

### Definitions of exposure and covariates

The Longitudinal Files provided information on race/ethnicity (the primary explanatory variable or “exposure”) categorized as non-Hispanic white (reference), non-Hispanic black, and Hispanic white, age, sex, census region, health insurance type, household income level, and survey years. Information on age and census region is collected at the time of interview for each of the five survey rounds; health insurance type and household income level is collected for each of the two years of follow-up. Age and census region from the interview round during which eczema was first reported was used. Health insurance type and household income level from the first year of study follow-up was used if eczema was first reported in interview rounds 1–3 and from the second year if eczema was first reported in rounds 4 or 5. If information could not be ascertained using the delineated algorithm, then data from the closest available time point was used. Comorbid asthma (ICD-9 code 493) or allergies (ICD-9 code 477) were identified from the Medical Conditions Files. Duration of eczema follow-up in terms of number of interview rounds was determined from the round in which eczema was first reported until the end of person or survey follow-up.

### Definitions of outcome measures

Healthcare utilization outcomes were separately evaluated among two cohorts: (i) all individuals with caregiver-reported eczema, and (ii) those individuals with eczema who had accessed medical care (i.e., reported at least one ambulatory visit) for eczema. Among the entire cohort, the outcome of interest was any ambulatory visit for eczema (dichotomized as at least one versus no visits). Among those who accessed medical care, the outcomes of interest were number of ambulatory visits, number of prescriptions obtained, and any dermatology ambulatory visit for eczema. The number of office-based medical provider visits, outpatient department visits, and prescribed medicines obtained for eczema were

obtained from the Medical Conditions Files. The total number of ambulatory visits for eczema was derived from the sum of office-based medical provider visits and outpatient department visits for eczema and did not include emergency visits. The number of healthcare utilization events (i.e., ambulatory visits and prescriptions obtained for eczema) per year was calculated by dividing the number of healthcare utilization events over the two-year follow-up period by the number of rounds of eczema follow-up and multiplying by the expected 2.5 rounds of follow-up per year (based on five interview rounds over the two-year follow-up period). Ambulatory dermatology visits for eczema were determined by linking records corresponding to eczema from the Medical Conditions Files to Office-Based Provider Visit Files and Outpatient Department Visit Files containing information on provider specialty. Provider specialty was only fully available for years 2002–2013, thus analyses examining associations with ambulatory dermatology visits were limited to these years.

### Statistical analyses

Each survey panel served as a two-year cohort, and panels were pooled across the years. One individual (0.05% [unweighted]) had incomplete covariate information and was excluded from all analyses. Bivariate analyses between race/ethnicity and other population characteristics were examined using the Rao-Scott design-based  $\chi^2$  test for categorical variables and the global F-test from linear regression analysis for continuous variables. Odds ratios (OR) for the association between dichotomous healthcare utilization outcomes (i.e., any ambulatory visit for eczema among the full cohort, and any ambulatory dermatology visit for eczema among those who accessed medical care for eczema) and race/ethnicity were calculated using logistic regression. Incidence rate ratios (IRR) for the association between number of ambulatory visits for eczema and race/ethnicity among individuals who accessed medical care for eczema were calculated using zero-truncated negative binomial regression, accounting for duration of eczema follow-up. IRRs for the association between number of prescriptions obtained for eczema and race/ethnicity among individuals who accessed medical care for eczema were calculated using negative binomial regression, accounting for duration of eczema follow-up. In all analyses, multivariable regression was employed to adjust for age, sex, variables that were identified *a priori* as conceptually important to the questions of interest, and variables that were significantly associated with race/ethnicity ( $P < 0.05$ ) in bivariate analyses. We also tested for hypothesized interactions between race/ethnicity and the following: (1) health insurance status, (2) household income, and (3) comorbid asthma in select analyses. All analyses accounted for the complex survey design and population-based weights using Stata 14.0 (StataCorp, College Station, TX) SVY commands and the appropriate variables for strata, primary sampling units, and longitudinal weights as specified in the Pooled Linkage Variance Estimation File.

## RESULTS

A total of 2,043 surveyed individuals were aged 0–17 and reported having eczema. This is representative of more than 2.9 million children with eczema in the U.S. with a racial/ethnic composition of 65.8% non-Hispanic white, 18.3% non-Hispanic black, and 15.9% Hispanic white. In bivariate analyses (Table I), minority children (Non-Hispanic blacks and Hispanic

whites) were significantly younger, less likely to have any private insurance, more likely to fall into the low income category, and more likely to have asthma relative to non-Hispanic white children. Additional differences in census region of residence, duration of eczema follow-up, and survey panel number were observed by race/ethnicity.

Overall, 59.6% of children with eczema had an ambulatory visit for their disease over the two-year follow-up period (Table II; 62.1% non-Hispanic white, 51.9% non-Hispanic black, and 58.1% Hispanic white). In adjusted analyses accounting for age, sex, census region, insurance status, household income, comorbid asthma, duration of eczema follow-up, and survey year, non-Hispanic blacks had 30% lower odds of having an ambulatory visit for eczema during the two-year follow-up period than non-Hispanic whites ( $OR_{adj}$  0.69; 95% confidence interval [CI] 0.51–0.92). Interactions between race/ethnicity and both insurance status and household income were evaluated and were not found to be statistically significant; the ORs for an ambulatory visit for eczema were not significantly affected by insurance status or household income across racial/ethnic groups (data not shown).

In contrast, among individuals who accessed medical care for eczema, non-Hispanic blacks had significantly more ambulatory visits ( $IRR_{adj}$  1.68; 95% CI 1.10–2.55; Table III) and obtained more prescriptions ( $IRR_{adj}$  1.22; 95% CI 1.01–1.46; Table IV) for eczema compared with non-Hispanic whites during the two-year follow-up period. Similar directional patterns of increased healthcare utilization among Hispanic white children were also observed but were not statistically significant. Also among this cohort, both non-Hispanic blacks ( $OR_{adj}$  1.82; 95% CI 1.06–3.14) and Hispanic whites ( $OR_{adj}$  1.85; 95% CI 1.03–3.33) were more likely to have seen a dermatologist for their eczema than non-Hispanic whites during the two-year follow-up period (Table V).

Other variables that were found to be independently associated with more ambulatory visits among children who accessed medical care for eczema included younger age ( $IRR_{adj}$  0.95 [95% CI 0.93–0.98] for each one-year increase in age), and comorbid asthma ( $IRR_{adj}$  2.33 [1.32–4.13], data not shown). Comorbid asthma ( $IRR_{adj}$  1.42 [1.12–1.80]) and male sex ( $IRR_{adj}$  1.16 [1.02–1.33]) were each associated with an increasing number of prescriptions obtained for eczema (data not shown). Interactions between race/ethnicity and comorbid asthma were assessed for both outcomes of number of ambulatory visits and prescriptions for eczema and were not found to be statistically significant. Lastly, older age ( $OR_{adj}$  1.07 [1.03–1.11] for each one-year increase in age) and higher income level ( $OR_{adj}$  1.65 [0.92–2.96], and 2.33 [1.16–4.66] for middle- and high-income relative to low-income levels, respectively) were each associated with a higher likelihood of having seen a dermatologist (data not shown).

## DISCUSSION

In our study of a nationally representative sample of children with caregiver-reported eczema, we found that non-Hispanic blacks were less likely to report an ambulatory visit for eczema compared with non-Hispanic whites. However, among those who had accessed medical care (i.e., had at least one ambulatory visit for eczema), non-Hispanic blacks reported more visits and prescriptions obtained for eczema, and were more likely to report a

dermatology visit for eczema compared with non-Hispanic whites. Importantly, our findings were independent of baseline sociodemographic factors, health insurance status, and presence of atopic comorbidities, all of which may affect access to healthcare,<sup>13,19</sup> suggesting that race, alone, is a predictor of whether or not a child sees a medical provider for his/her eczema in the ambulatory setting.

Our population-based study adds to the limited existing literature on healthcare utilization for eczema in children<sup>5,15,16</sup> by examining racial/ethnic differences in multiple healthcare utilization outcomes with granularity at the individual level. Unlike prior studies using the NAMCS and NHAMCS data samples of all U.S. office-based and hospital outpatient and emergency department visits,<sup>15,16</sup> respectively, use of MEPS data allowed us to evaluate healthcare utilization among all individuals with eczema regardless of whether or not they were accessing medical care for their skin disease. Our analyses were also performed only among individuals with reported eczema, thus, minimizing confounding by racial/ethnic differences in eczema prevalence. Furthermore, our multivariable analyses adjusted for baseline differences in sociodemographic factors, health insurance status, and atopic comorbidities, allowing us to assess the independent association between race/ethnicity and healthcare utilization for eczema. Collectively, our findings suggest a newly identified disparity in ambulatory care for non-Hispanic black children with eczema compared with non-Hispanic whites. In line with a previous study that found more severe childhood eczema to be associated with increased healthcare utilization,<sup>5</sup> our observation of greater healthcare utilization for eczema among non-Hispanic black versus white children who had accessed medical care suggests more severe skin disease among the minority group. If, in fact, this is the case, the disparity in ambulatory visits among all non-Hispanic black versus white children with eczema may indicate an even greater gap in care. Notably, this gap in eczema care is not entirely explained by financial or insurance barriers to medical care, per our analyses, and may be reflective of differences in other factors such as social environment or stressors, recognition or understanding of eczema, trust in the medical system, access to high quality care, among others, that need to be identified.

Beyond race/ethnicity, we identified additional characteristics to be associated with healthcare utilization for eczema. Among children who had accessed medical care for eczema, comorbid asthma was also associated with a greater number of total ambulatory visits and prescriptions obtained for eczema but not with dermatology visits. Non-specialty healthcare utilization may be partially driven by asthma-related health care in conjunction with eczema care provided by non-dermatologists in the pediatric population.<sup>20</sup> The documented association between eczema severity and asthma may also be a contributing factor.<sup>5</sup> For dermatology visits, higher household income was associated with greater likelihood of having seen a dermatologist for eczema. As prior studies suggest greater eczema prevalence<sup>21</sup> and severity<sup>6</sup> among those of lower income, our observation may be driven by greater access to specialty care among those with higher income rather than disease severity.

Limitations of our study include the following: (1) information on health conditions and healthcare utilization were based on caregiver report and may be subject to recall bias and under-reporting of eczema as suggested by the lower than expected number of children with



reported eczema; (2) heterogeneous definition of eczema due to use of collapsed three-digit ICD-9-CM codes and general underutilization of the more specific atopic dermatitis code (691); (3) small sample sizes of other racial/ethnic minority groups that prevented analysis; (4) potential for unmeasured confounders such as geographic proximity to healthcare providers; and (5) lack of direct measures of eczema severity.

Nevertheless, our findings shed important light on the status of ambulatory care for childhood eczema in the U.S. Identifying non-Hispanic black race to be independently associated with lower ambulatory healthcare utilization for childhood eczema suggests the presence of barriers to health care for eczema among this minority group irrespective of income and insurance status, despite likely having more severe skin disease. Further research is necessary to understand what these additional barriers are and why they exist. Ultimately, increasing the awareness and understanding of these disparities in healthcare utilization is essential to providing equitable care and improving outcomes for all patients with eczema.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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## ABBREVIATIONS AND ACRONYMS

<b>CI</b>	confidence interval
<b>ICD-9-CM</b>	International Classification of Diseases, Ninth Revision, Clinical Modification
<b>IRB</b>	Institutional Review Board
<b>MEPS</b>	Medical Expenditure Panel Survey
<b>OR</b>	odds ratio
<b>IRR</b>	incidence rate ratio
<b>NAMCS</b>	National Ambulatory Medical Care Survey
<b>NHAMCS</b>	National Hospital Ambulatory Medical Care Survey

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**CAPSULE SUMMARY**

- Healthcare utilization for eczema among racial/ethnic groups is under-examined.
- Though healthcare utilization patterns among those who accessed care suggested more severe eczema among non-Hispanic blacks versus whites, overall, blacks were less likely to report an ambulatory visit for eczema.
- Our results suggest racial disparities in healthcare utilization for childhood eczema.

**Table I**  
**Baseline characteristics of patients with eczema**

Medical Expenditures Panel Surveys, 2001–2013; unweighted N=2,043; weighted N=2,917,222

	Race/ethnicity			P-value *
	Non-Hispanic white 65.80%	Non-Hispanic black 18.30%	Hispanic white 15.90%	
Age (years), <i>mean (95% CI)</i>	7.10 (6.64–7.56)	5.93 (5.42–6.44)	5.48 (4.88–6.08)	<0.001
Female, <i>weighted % (95% CI)</i>	47.2 (43.7–50.7)	49.9 (44.6–55.1)	51.0 (45.2–56.7)	0.43
Census region, <i>weighted % (95% CI)</i>				
Northeast	20.3 (16.8–24.3)	15.4 (11.6–20.2)	14.9 (10.7–20.2)	
Midwest	27.3 (23.6–31.3)	27.1 (21.5–33.5)	9.1 (6.4–12.8)	
South	37.2 (32.8–41.9)	49.6 (43.2–56.1)	34.1 (27.4–41.6)	
West	15.2 (12.1–18.9)	7.8 (5.2–11.8)	41.9 (35.7–48.4)	<0.001
Health insurance, <i>weighted % (95% CI)</i>				
Any private	75.9 (72.8–78.8)	44.6 (39.3–50.1)	41.6 (35.5–48.0)	
Public only	20.8 (18.1–23.8)	51.4 (45.9–56.8)	53.5 (47.1–59.7)	
Uninsured	3.2 (2.2–4.8)	4.0 (1.9–8.2)**	4.9 (3.2–7.5)	<0.001
Income level, <i>weighted % (95% CI)</i>				
Low (<200% poverty line)	28.5 (25.4–31.9)	58.3 (51.9–64.4)	60.2 (54.1–66.1)	
Middle (200–400% poverty line)	36.3 (32.9–40.0)	27.7 (22.6–33.4)	25.2 (20.7–30.4)	
High (>400% poverty line)	35.2 (31.8–38.7)	14.0 (10.3–18.7)	14.6 (10.1–20.6)	<0.001
Asthma, <i>weighted % (95% CI)</i>	12.1 (10.0–14.5)	26.8 (21.5–32.9)	17.7 (13.6–22.7)	<0.001
Allergies, <i>weighted % (95% CI)</i>	21.6 (18.7–24.9)	20.9 (17.0–25.5)	18.4 (14.9–22.5)	0.46
Duration of eczema follow-up, <i>weighted % (95% CI)</i>				
One round	10.2 (8.3–12.5)	8.7 (6.3–12.1)	9.4 (6.9–12.7)	
Two rounds	23.1 (20.1–26.4)	15.6 (11.8–20.2)	19.9 (16.1–24.4)	
Three rounds	19.1 (16.4–22.2)	19.3 (15.2–24.0)	20.3 (16.1–25.4)	
Four rounds	28.3 (25.0–31.9)	26.5 (22.3–31.2)	27.9 (23.2–33.0)	
Five rounds	19.3 (16.5–22.3)	30.0 (25.4–34.9)	22.5 (18.4–27.3)	0.01
Panel number, <i>weighted % (95% CI)</i>				
Panels 6–9	39.7 (35.6–43.9)	30.2 (24.5–36.6)	28.6 (23.9–33.9)	
Panels 10–13	31.5 (27.8–35.4)	35.6 (30.7–40.9)	41.0 (35.8–46.5)	
Panels 14–17	28.8 (24.7–33.3)	34.2 (28.8–40.0)	30.4 (24.9–36.4)	0.003

All estimates take into account the complex survey design and population-based weights unless otherwise noted.

\* P-values were calculated using the Rao-Scott design-based chi-squared test for categorical variables and the global F-test from linear regression for continuous variables.

\*\* Point estimate may not be considered stable according to the Agency for Healthcare Research & Quality.

**Table II**  
**Weighted percentages and odds of reporting any ambulatory visit for eczema among all individuals with eczema**

Medical Expenditures Panel Surveys, 2001–2013; unweighted N=2,043; weighted N=2,917,222

	Ambulatory visit for eczema			
	No Weighted % (95% CI)	Yes Weighted % (95% CI)	OR <sub>unadj</sub> (95% CI)*	OR <sub>adj</sub> (95% CI)**
Overall Race/ethnicity	40.4 (37.8–43.2)	59.6 (56.8–62.2)	-	-
Non-Hispanic white	38.0 (34.3–41.8)	62.1 (58.2–65.8)	1.00 (Ref)	1.00 (Ref)
Non-Hispanic black	48.1 (42.9–53.4)	51.9 (46.6–57.1)	0.66 (0.51–0.86)	0.69 (0.51–0.92)
Hispanic white	41.9 (36.8–47.2)	58.1 (52.8–63.2)	0.85 (0.64–1.12)	0.90 (0.64–1.28)

All analyses accounted for the complex survey design and population-based weights unless otherwise specified

\* Unadjusted odds ratio (OR<sub>unadj</sub>) and 95% confidence intervals (95% CI)

\*\* Adjusted odds ratio (OR<sub>adj</sub>) and 95% confidence intervals (95% CI) were adjusted for age (continuous), sex, census region, health insurance, household income, comorbid asthma, duration of eczema follow-up, and panel number

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**Table III**  
**Number of ambulatory visits for eczema among individuals who accessed medical care for eczema**

Medical Expenditures Panel Surveys, years 2001–2013; unweighted N=1,207; weighted N=1,737,369

	Ambulatory visits for eczema		
	Mean per year (95% CI)*	IRR <sub>unadj</sub> (95% CI)**	IRR <sub>adj</sub> (95% CI)***
Overall Race/ethnicity	1.38 (1.30–1.47)	-	-
Non-Hispanic white	1.35 (1.24–1.46)	1.00 (Ref)	1.00 (Ref)
Non-Hispanic black	1.49 (1.32–1.66)	1.78 (1.17–2.70)	1.68 (1.10–2.55)
Hispanic white	1.42 (1.22–1.62)	1.36 (0.86–2.15)	1.44 (0.91–2.27)

All analyses accounted for the complex survey design and population-based weights

\* The mean estimated number of ambulatory visits per year was calculated by dividing the number of ambulatory visits for eczema over the two-year follow-up period by the number of rounds of eczema follow-up and multiplying by the expected 2.5 rounds of follow-up per year.

\*\* Unadjusted incidence rate ratios (IRR<sub>unadj</sub>) and 95% confidence interval (95% CI) accounted for duration of eczema follow-up using the exposure parameter specification

\*\*\* Adjusted incidence rate ratios (IRR<sub>adj</sub>) were adjusted for age (continuous), sex, census region, health insurance, household income, comorbid asthma, and panel number, accounting for duration of eczema follow-up using the exposure parameter specification

**Table IV**  
**Number of prescriptions obtained for eczema among individuals who accessed medical care for eczema**

Medical Expenditures Panel Surveys, 2001–2013; unweighted N=1,207; weighted N=1,737,369

	Prescriptions obtained for eczema		
	Mean per year (95% CI)*	IRR <sub>unadj</sub> (95% CI)**	IRR <sub>adj</sub> (95% CI)***
Overall Race	1.30 (1.21–1.39)	-	-
Non-Hispanic white	1.22 (1.11–1.34)	1.00 (Ref)	1.00 (Ref)
Non-Hispanic black	1.53 (1.36–1.70)	1.33 (1.13–1.57)	1.22 (1.01–1.46)
Hispanic white	1.37 (1.13–1.61)	1.12 (0.91–1.38)	1.16 (0.93–1.44)

All analyses accounted for the complex survey design and population-based weights.

\* The mean estimated number of prescriptions obtained for eczema per year was calculated by dividing the number of prescriptions obtained for eczema over the two-year follow-up period by the number of rounds of eczema follow-up and multiplying by the expected 2.5 rounds of follow-up per year.

\*\* Unadjusted incidence rate ratios (IRR<sub>unadj</sub>) and 95% confidence intervals (95% CI) accounted for the duration of eczema follow-up using the exposure parameter specification.

\*\*\* Adjusted incidence rate ratios (IRR<sub>adj</sub>) and 95% confidence intervals (95% CI) were adjusted for age (continuous), sex, region, health insurance, household income, comorbid asthma, and panel number, accounting for the duration of eczema follow-up using the exposure parameter specification

**Table V**  
**Weighted percentages and odds of reporting an ambulatory dermatology visit for eczema among individuals who accessed medical care for eczema**

Medical Expenditures Panel Surveys, 2002–2013; unweighted N=1,075; weighted N=1,738,199

	Ambulatory dermatology visit for eczema			
	No Weighted % (95% CI)	Yes Weighted % (95% CI)	OR <sub>unadj</sub> (95% CI)*	OR <sub>adj</sub> (95% CI)**
Overall Race/ethnicity	83.2 (80.0–85.9)	16.8 (14.1–20.0)	-	-
Non-Hispanic white	84.5 (80.2–88.0)	15.5 (12.0–19.8)	1.00 (Ref)	1.00 (Ref)
Non-Hispanic black	78.0 (71.7–83.2)	22.0 (16.8–28.3)	1.53 (0.97–2.43)	1.82 (1.06–3.14)
Hispanic white	82.8 (76.1–88.0)	17.2 (12.0–24.0)	1.13 (0.67–1.88)	1.85 (1.03–3.33)

All analyses accounted for the complex survey design and population-based weights

\* Unadjusted odds ratios (OR<sub>unadj</sub>) and 95% confidence intervals (95% CI)

\*\* Adjusted odds ratio (OR<sub>adj</sub>) and 95% confidence intervals (95% CI) were adjusted for age (continuous), sex, census region, health insurance, household income, comorbid asthma, duration of eczema follow-up, and panel number

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