

# Racial differences in wRVU compensation for pediatric dermatology visits may be driven by laser procedures

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## INTRODUCTION

- Previous studies have demonstrated disparities in access to pediatric dermatology care for children based on geography and race<sup>1-3</sup>
- Previous analysis of an adult dermatology practice suggests that reimbursement inequities could play a role in access disparities<sup>4</sup>
- Laser treatment is procedure that might be more commonly performed in children with lighter skin<sup>5</sup>
- We explored whether the racial and sex disparities in wRVUs per encounter seen in adults translate to the pediatric population and, if so, whether these disparities could be explained by laser destruction of cutaneous vascular lesions

## METHODS

- Retrospective analysis of billing and demographics data was conducted for all pediatric outpatient dermatology encounters at Duke University from 9/1/2016 - 12/31/2020
- Procedures and diagnoses were identified with CPT and ICD-9/ICD-10 codes, respectively

### Exclusion Criteria:

- Age >18 years
- Patients missing age, sex, or race data
- Visits classified as nursing, pathology, lab, research, scheduling, laser hair removal, post-operative, cosmetic, video, or telephone
- Visits with a catch-all CPT code (17999)

**Primary outcome:** wRVUs generated per encounter

### Statistical Analysis:

- Univariable and multivariable linear regression models to study association between wRVUs per encounter and race, age, sex, and insurance type
- Mediation analysis via difference method to identify association of laser treatment of cutaneous vascular lesions (CPT codes 17106-17108) with observed race disparities in wRVUs/encounter after adjusting for age, sex, insurance
- An additional mediation analysis that adjusted for these same variables and diagnoses of hemangioma and congenital malformations

## DISCLOSURES

The authors have no relevant disclosures/conflicts of interest to declare.

## RESULTS

**Table 1. Patient and visit characteristics for outpatient pediatric encounters. Data presented as count (%) unless otherwise noted.**

	White (N=13036, 58.1%)	Black (N=5176, 23.1%)	Asian (N=1143, 5.1%)	Other* (N=3079, 13.7%)	Total (N=22434)
<b>Sex</b>					
Female	7247 (55.6%)	3027 (58.5%)	662 (57.9%)	1703 (55.3%)	12639 (56.3%)
Male	5789 (44.4%)	2149 (41.5%)	481 (42.1%)	1376 (44.7%)	9795 (43.7%)
<b>Age, years; mean (SD)</b>	9.3 (5.9)	8.6 (5.6)	9.0 (5.9)	8.3 (5.7)	9.0 (5.8)
<b>Total RVUs charged</b>					
Mean (SD)	1.64 (0.89)	1.46 (0.46)	1.43 (0.45)	1.52 (0.61)	1.57 (0.76)
Range	(0.18-12.28)	(0.48-5.29)	(0.35-5.19)	(0.48-6.21)	(0.18-12.28)
<b>Insurance</b>					
Commercial	10084 (77.4%)	1819 (35.1%)	893 (78.1%)	784 (25.5%)	13580 (60.5%)
Medicaid	2395 (18.4%)	3209 (62.0%)	226 (19.8%)	2135 (69.3%)	7965 (35.5%)
Self-pay	175 (1.3%)	49 (0.9%)	20 (1.7%)	74 (2.4%)	318 (1.4%)
Other	496 (3.8%)	141 (2.7%)	15 (1.3%)	114 (3.7%)	766 (3.4%)
<b>Hemangioma</b>	2247 (17.2%)	148 (2.9%)	86 (7.5%)	371 (12.0%)	2852 (12.7%)
<b>Congenital malformations</b>	239 (1.8%)	21 (0.4%)	4 (0.3%)	24 (0.8%)	288 (1.3%)
<b>Neoplasm of uncertain behavior</b>	328 (2.5%)	28 (0.5%)	9 (0.8%)	27 (0.9%)	392 (1.7%)
<b>Laser treatment</b>	640 (4.9%)	6 (0.1%)	7 (0.6%)	68 (2.2%)	721 (3.2%)
<b>Premalignant lesion destruction</b>	23 (0.2%)	1 (0.0%)	0 (0.0%)	3 (0.1%)	27 (0.1%)
<b>Biopsy</b>	191 (1.5%)	56 (1.1%)	11 (1.0%)	30 (1.0%)	288 (1.3%)
<b>Benign excision</b>	1283 (9.8%)	181 (3.5%)	38 (3.3%)	225 (7.3%)	1727 (7.7%)

\*Other includes American Indian or Alaskan native, native Hawaiian or other Pacific, 2 or more races, or multiracial.

**Table 2. Factors associated with wRVUs of outpatient pediatric dermatology encounters**

Variable	RVUs per encounter mean (SD)	Univariable		Multivariable	
		β (95% CI)	p-value	β (95% CI)	p-value
Age per year	NA	-0.013 (-0.014, -0.011)	<0.001	-0.014 (-0.015, -0.012)	<0.001
<b>Sex</b>					
Male	1.58 (0.76)	reference		reference	
Female	1.56 (0.75)	-0.01 (-0.03, 0.01)	0.30	-0.01 (-0.03, 0.01)	0.51
<b>Race</b>					
White	1.64 (0.89)	reference		reference	
Black	1.46 (0.46)	-0.18 (-0.20, -0.15)	<0.001	-0.19 (-0.22, -0.16)	<0.001
Asian	1.43 (0.45)	-0.21 (-0.25, -0.16)	<0.001	-0.21 (-0.25, -0.16)	<0.001
Other	1.52 (0.61)	-0.12 (-0.15, -0.09)	<0.001	-0.14 (-0.17, -0.10)	<0.001
<b>Insurance type</b>					
Commercial	1.58 (0.83)	0.04 (0.01, 0.06)	<0.001	0.06 (-0.06, 0.18)	0.33
Medicaid	1.54 (0.61)	-0.04 (-0.07, -0.02)	<0.001	0.07 (-0.05, 0.19)	0.25
Self-pay	1.56 (0.68)	0.00 (-0.09, 0.08)	0.92	0.03 (-0.08, 0.14)	0.56
Other	1.64 (0.80)	0.08 (0.02, 0.13)	0.006	0.11 (-0.02, 0.24)	0.085

- Laser treatment of cutaneous lesions accounted for 62.4% of racial differences (95% CI: 52.9-71.9%) for Black race, 60.5% (95% CI: 45.8-75.1%) for Asian race, and 53.3% (95% CI: 31.7-74.9%) for Other races
- After adjusting for diagnoses of hemangioma and congenital malformations, laser treatment accounted for 28.8% of racial differences (95% CI: 19.6-38.0%) for Black race and 28.9% (95% CI: 13.5-44.3%) for Asian race.

## CONCLUSION

- Results build upon previous work suggesting that procedures that are less likely to be used in racial minorities, and yet command higher wRVU, may drive racial disparities in dermatology care
- These incentives could lead to financial pressures from health systems on clinicians to spend a greater proportion of practice time on laser procedures, taking away valuable time for management of other dermatologic conditions
- Findings highlight the importance of examining reimbursement policy to ensure it does not create undesirable incentives
- Additional resources should be devoted to train and support pediatric dermatologists to improve the current state of the field and prevent the magnification of inequities in access.

### Limitations:

- Data were from a single academic center
- Considered only outpatient pediatric encounters and excluded laser treatment visits that required more intensive sedation/anesthesia in hospital procedural rooms
- Retrospective billing data relies upon accurate coding of visits

### Future Research:

- Current research captures data through 2020. wRVU compensation for evaluation and management services was increased in 2021. This analysis could be revisited with post-2021 data to investigate changes in relationship observed here

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