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## INTRODUCTION

Caries is the most common chronic childhood disease in the United States, disproportionately affecting certain populations<sup>1</sup>. Disparities in oral healthcare can profoundly affect quality of life and result in underutilization of dental services<sup>2</sup>. Factors that affect utilization of dental services include geographic location, socioeconomic status, and race/ethnicity<sup>3</sup>. While Medicaid and Children's Health Insurance Program (CHIP) are programs that work to address such inequities, low-reimbursement rates, increased failed appointments, and increased administrative work result in decreased participation by providers in these programs<sup>4</sup>.

**The objective of this cross-sectional study was to assess the geographic distribution of practicing (AAPD) pediatric dentists and compare sociodemographic characteristics of US counties with and without pediatric dentists.**

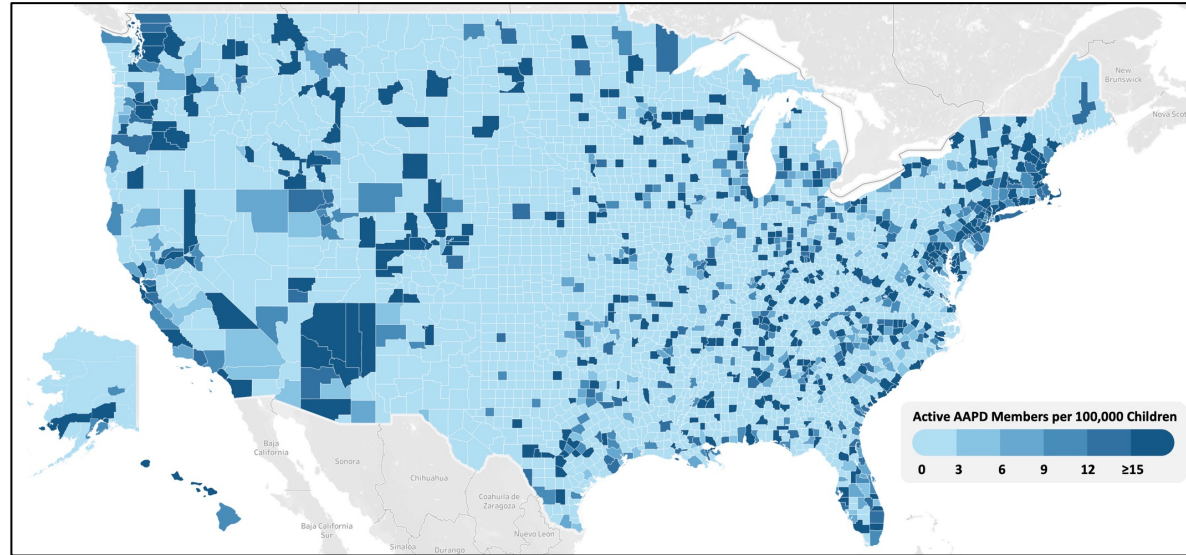


Figure. County-level density of active AAPD pediatric dentists in the United States per 100,000 children

## DISCUSSION

- There is a disproportionate distribution of pediatric dentists in the US that is influenced by certain sociodemographic factors.
- Geographically, there is a higher concentration of pediatric dentists in New England, Mid Atlantic, South Atlantic, and Pacific regions as well as counties that are more suburban. Counties lacking pediatric dentists are more often rural. Metro counties fall in between.
- Economically, there is a higher concentration of pediatric dentists in counties with higher median household incomes.
- Counties with a higher concentration of pediatric dentists are more likely to have educated populations.
- Counties lacking a pediatric dentist have a higher proportion of White children and a higher proportion of children enrolled in Medicaid. Counties with higher concentrations of pediatric dentists have fewer Hispanic children.

## METHODS

The analysis was a national cross-sectional review of all AAPD members appearing in the 2022 Membership Directory as an active pediatric dentist. A single practice zip code of each active AAPD pediatric dentist was identified. Compiled locations were used to identify the total number of active AAPD pediatric dentists in each US county. County sociodemographic characteristics were compared:

- among counties with and without at least one AAPD pediatric dentist
- based on density of AAPD pediatric dentists in the county

Sociodemographic factors were obtained from 2020 American Community Survey 5-year estimates. County rurality was determined through Rural-Urban Continuum Codes. Significance of differences across groups was assessed through an unpaired t-test (continuous variables) or chi-squared test (categorical variables). Statistical analyses were conducted with Stata 17.0. A density map was generated with Tableau.

## RESULTS

7,332 active AAPD pediatric dentists were identified in 913 (29.0%) of 3,143 U.S. counties. A higher concentration is seen in the New England, Mid Atlantic, South Atlantic, and Pacific regions (Figure).

Counties with at least one pediatric dentist were more likely to be metro ( $p < 0.0001$ ), have a higher median household income ( $p < 0.0001$ ), multi-racial ( $p < 0.0001$ ), and Hispanic ( $p < 0.0001$ ) children, and have a higher frequency of adults with a 4-year college education ( $p < 0.0001$ ). Counties without an AAPD pediatric dentist were more often rural ( $p < 0.0001$ ), had a higher proportion of White children ( $p < 0.0001$ ), and a higher proportion of children with Medicaid ( $p < 0.0001$ ) (Table 1).

Counties with a higher density of pediatric dentists ( $\geq 12.0$  members per 100,000 children) were more often non-metro/suburban ( $p < 0.0001$ ), had a slightly higher proportion of White children ( $p = 0.0076$ ) and lower proportion of Hispanic children ( $p < 0.0001$ ), and had a higher frequency of adults with a 4-year college education ( $p < 0.0001$ ) (Table 2).

1. U.S. Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, Md.: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000.  
 2. Reynolds PP. A legislative history of federal assistance for health professions training in primary care medicine and dentistry in the United States, 1963-2008. Acad Med 2008;83(11):1004-1014.  
 3. Dye BA, Arevalo O, Vargas CM. Trends in pediatric dental caries by poverty status in the United States, 1988- 1994 and 1999-2004. Int J Pediatric Dent 2010;20(2): 132-43.  
 4. Damiano PC, Brown ER, Johnson JD, Schetz JP. Factors affecting dentist participation in a state Medicaid program. J Dent Educ 1990;54(11):638-43.

Table 2. Comparison of United States county sociodemographic characteristics based on local density of active AAPD pediatric dentists

County Sociodemographic Factor	Pediatric Dentists per 100,000 Children in County	
	1 – 11.9	$\geq 12.0$
<b>N (Counties)</b>	465	448
<b>Rurality (N, %)</b>		
Metro	380 (81.7)	303 (67.6)
Non-Metro or Suburban	85 (18.3)	121 (27.0)
Rural	0 (0.0)	24 (5.4)
<b>Household Median Income (2021 Dollars, SD)</b>	62,413 (14,662)	65,410 (19,590)
<b>Pediatric Racial and Ethnic Distribution (% SD)</b>		
White	70.5 (16.9)	73.6 (0.9)
Black or African American	11.4 (12.5)	9.7 (13.0)
Asian	2.6 (3.2)	3.0 (4.5)
American Indian and Alaska Native	1.2 (4.9)	1.8 (8.0)
Native Hawaiian and Pacific Islander	0.1 (0.7)	0.2 (1.1)
Two or More Races	8.4 (4.0)	7.8 (5.2)
Hispanic	18.9 (17.7)	14.0 (13.3)
<b>Pediatric Insurance Distribution (% SD)</b>		
Uninsured	5.1 (3.3)	5.0 (3.5)
Medicaid	38.2 (12.1)	36.4 (13.2)
Employer-Provided Commercial Insurance	52.8 (12.7)	54.2 (13.2)
<b>Adults <math>\geq 25</math> with Higher Education (% SD)</b>		
High School or Higher	88.9 (4.9)	89.8 (4.9)
Bachelor's (4-Year College) or Higher	27.8 (8.5)	31.4 (13.2)

Table 1. Comparison of United States county sociodemographic characteristics based on presence of active AAPD pediatric dentists

County Sociodemographic Factor	Pediatric Dentist Located in County	
	No	Yes
<b>N (Counties)</b>	2,230	913
<b>Rurality (N, %)*</b>		
Metro	479 (21.8)	683 (74.8)
Non-Metro or Suburban	1,108 (50.4)	206 (22.6)
Rural	613 (27.9)	24 (2.6)
<b>Household Median Income (2021 Dollars, SD)</b>	51,399 (11,618)	63,884 (17,312)
<b>Pediatric Racial and Ethnic Distribution (% SD)</b>		
White	79.7 (19.5)	72.0 (17.7)
Black or African American	9.2 (29.2)	10.6 (12.8)
Asian	0.7 (1.6)	2.8 (3.9)
American Indian and Alaska Native	2.7 (9.9)	1.5 (6.6)
Native Hawaiian and Pacific Islander	0.1 (0.4)	0.2 (0.9)
Two or More Races	5.8 (5.1)	8.1 (4.6)
Hispanic	12.6 (17.1)	16.5 (15.9)
<b>Pediatric Health Insurance Distribution (% SD)</b>		
Uninsured	6.6 (5.7)	5.0 (3.4)
Medicaid	42.7 (14.5)	37.3 (12.7)
Employer-Provided Commercial Insurance	46.9 (14.0)	53.4 (13.0)
<b>Adults <math>\geq 25</math> with Higher Education (% SD)</b>		
High School or Higher	86.9 (6.3)	89.4 (4.9)
Bachelor's (4-Year College) or Higher	19.8 (7.3)	29.6 (11.2)