

# ASSESSING INFANT FLUORIDE USE AND FLUORIDE DISSEMINATION FROM NON-DENTAL PROVIDERS

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## Background

- Early childhood caries (ECC) can impact more than oral health, including systemic health, intellectual development, and social development. To address ECC, need to understand oral hygiene practices for infants and current sources of information regarding fluoride use
- The American Academy of Pediatric Dentistry recommends children younger than age 3 years use smear or rice-size amount of fluoride toothpaste.
- Non-dental providers, such as primary care physicians, see infants more frequently than dentists. Therefore, they have more opportunities to provide preventive oral health services (POHS), including fluoride education and fluoride varnish application.

## Hypothesis and Objective

**Objective:** to assess prevalence of fluoride education delivery and fluoride varnish application for infants by non-dental providers and current oral hygiene practices and fluoride acceptance of caregivers of infants.

- H<sub>0</sub>1: At least 50% of pediatric medical residents are providing the recommended fluoride dental education and fluoride varnish services to their patients.
- H<sub>0</sub>2: At least 50% of infant caregivers use the recommended amount of fluoride toothpaste twice a day when brushing their children's teeth.
- H<sub>0</sub>3: There is no correlation between infant dmfs/dmft scores and recommended fluoride toothpaste use.

## Methods

- In this cross-sectional study, study participants included caregivers of infants (age 0–3 years) who presented for their child's first dental exam at the University of Illinois Chicago College of Dentistry (UIC COD) and UIC pediatric medicine residents (UIC IRB #2023-0612).
- Following consent, infant caregivers were surveyed regarding their perceptions of fluoride use and current oral hygiene practices for their children and demonstrated their current use of toothpaste.
- The amount of toothpaste was measured by assessing photographs of the toothpaste amount. Additionally, dmfs/dmft (decayed, missing, filled surfaces/teeth) scores were recorded.
- Pediatric medicine residents at UIC were surveyed to assess non-dental provider comfort and prevalence in providing fluoride education and fluoride varnish services.
- Descriptive and bivariate analysis were performed using one-sided exact binomial tests and t-tests.

## Results

### Caregivers Demographics and Child Caries

- Caregivers (N=48) mostly female (85%) and White including Hispanic (54%). Caregiver children mean age 27.4 months (SD=9.1)
- Majority reported they brush their infant's teeth twice a day (56.2%), every day (Table 1). Most reported using fluoride toothpaste, but 31.2% did not (Table 1).
- Majority of caregivers responded that they did not receive fluoride education or fluoride varnish application from their pediatrician.
- Children's mean dmft = 3.88 and mean dmfs = 9.79 (Table 2).
- 68.8% of caregivers used too much toothpaste, none used too little (Table 3).

### Pediatric Medicine Residents

- 23 pediatric medicine residents completed the survey. Majority (91.3%) did not consistently provide fluoride education (Table 4), and 69.6% never applied fluoride varnish for their patients (Table 4).
- Only 9 strongly agreed or agreed they will apply fluoride varnish for infants in their practice after residency (Figure 1). The main reasons listed as to whether fluoride varnish application will be utilized were lack of time and lack of education/training.

	dmft	dmfs
Mean (Std Dev)	3.88 (4.34)	9.79 (11.48)
Median	4.00	7.50
Mode	0.00	0.00
Range	0–19	0–45

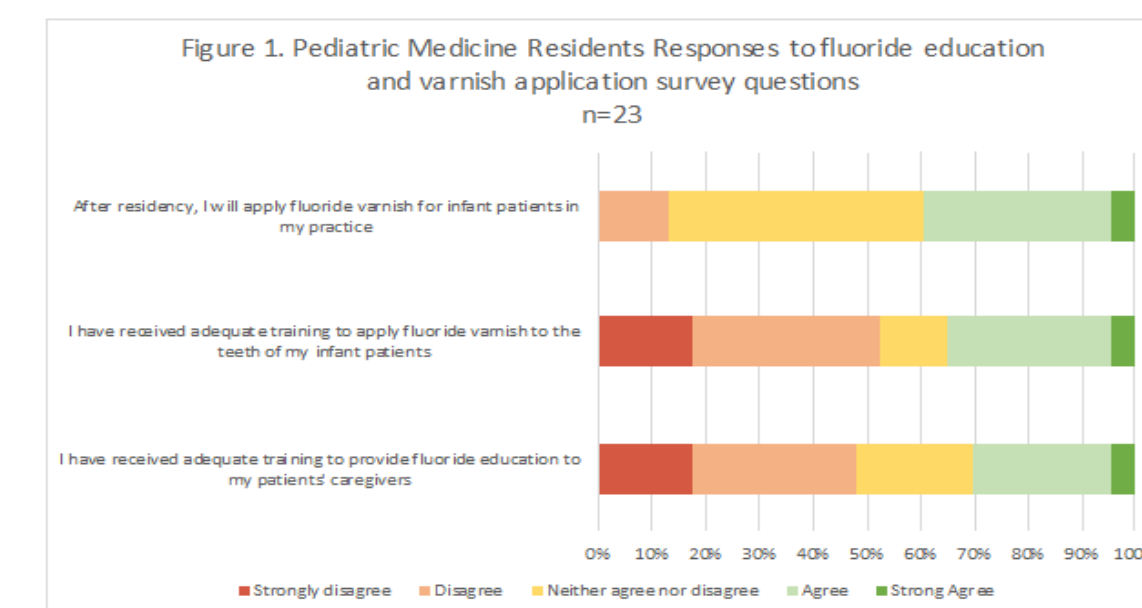
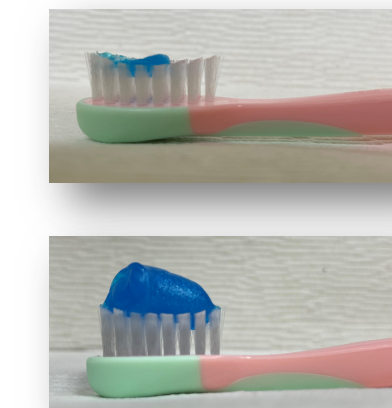


Figure 2a and 2b. Examples of caregiver toothpaste application for infants



	n (%)
Current infant toothbrushing habit	
Brushing once a week	0 (0)
Brushing once a day, every day	21 (43.8)
Brushing twice a day, every day	27 (56.2)
Does parent use fluoride toothpaste for their infant?	
Yes	33 (68.8)
No	15 (31.2)
Fluoride information received from pediatrician before dental first visit?	
Yes	17 (35.4)
No	31 (64.6)
Received fluoride varnish application in medical office?	
Yes	6 (12.5)
No	42 (87.5)
Toothpaste demonstration amount	
Too little	0 (0)
Right amount	15 (31.2)
Too much	33 (68.8)

	n (%)
Toothpaste demonstration amount	
Too little	0 (0)
Right amount	15 (31.2)
Too much	33 (68.8)
	p-value
dmfs and toothpaste amount	0.56
dmft and toothpaste amount	0.83

	n (%)
How often do you provide fluoride education to caregivers of infants (ages 0–3)?	
Every wellness visit	0 (0)
When you notice the first tooth in the infant's mouth	2 (8.7)
Sporadically if time allows for fluoride education in the appointment	13 (16.5)
Never, I ask the caregiver to schedule an appointment with a dentist	8 (34.8)
Have you ever applied fluoride varnish for an infant?	
Yes	7 (30.4)
No	16 (69.6)

## Conclusions

- Most infant caregivers do not use appropriate amount of fluoridated toothpaste for infants.
- Pediatric medicine residents did not consistently provide fluoride education or varnish applications to infant caregivers.
- Future studies should explore the relationship between caregiver oral health literacy and fluoride refusal and barriers to fluoride education and fluoride varnish application.
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