

Diet and Caries Experience in an Infant Oral Health Program

Irene Hwang, DDS¹, Elizabeth A. Shick, DDS, MPH², Emily H. Cooper, MS³, Anne R. Wilson, DDS, MS^{1,2}, Megan Weber DMD, PhD^{1,2}, Bruce Dye DDS, MPH²

¹Children's Hospital Colorado Pediatric Dentistry, ²University of Colorado School of Dental Medicine, ³Research in Outcomes for Children's Surgery, University of Colorado School of Medicine



Children's Hospital Colorado

Background

Establishing preventive dental care through infant oral health (IOH) programs sets the foundation for a lifetime of prevention awareness¹. For caregivers with young children, access to an IOH program establishes opportunities for dental providers to impart oral health promotion and anticipatory guidance including age-appropriate prevention, proper use of fluorides, oral hygiene, and dietary counseling^{2,3,4}. Defined as the presence of smooth-surface caries before the age of three, severe-early childhood caries (S-ECC) is the strongest predictor for future caries experience in a child. As such, IOH programs are viewed as a cost-effective means to reduce S-ECC, particularly among high-risk groups⁵. The importance and implementation of IOH programs have been published for decades⁶, yet there is a paucity of large-scale studies evaluating the clinical significance of these programs. Thus, this large-scale study performed within the Cavity-Free at Three (CFAT) clinic at Children's Hospital Colorado Dental Center aims to retrospectively review and establish baseline data regarding dietary habits and caries rates of this patient population.



Methods

- Retrospective chart review of 1531 new patient charts from 2010-2012 in the CFAT program
- Caries risk assessment and visual examination to evaluate caries status completed at initial visit
- Isolated the dietary risk factors and caries experience measured as decayed/filled teeth (dft) from data for analysis
- Multivariable logistic regression model used to determine relationship of demographic data, dietary habits, and caries experience

Results

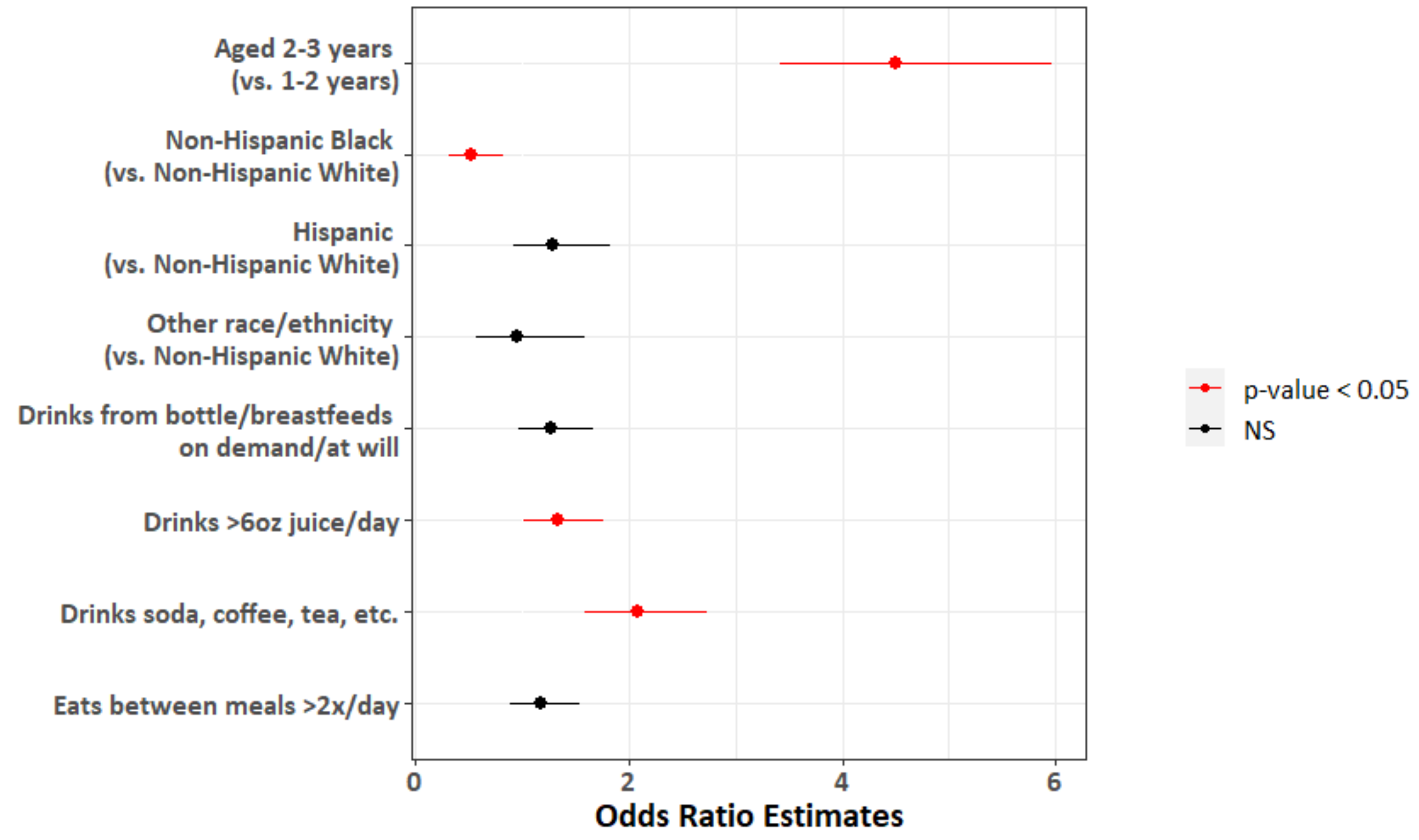
	No dft (N=1,177)	≥ 1 dft (N=354)	Overall (N=1,531)
Sex			
Female	575 (48.9%)	178 (50.3%)	753 (49.2%)
Male	602 (51.1%)	176 (49.7%)	778 (50.8%)
Race			
Non-Hispanic White	258 (21.9%)	66 (18.6%)	324 (21.2%)
Non-Hispanic Black	221 (18.8%)	36 (10.2%)	257 (16.8%)
Hispanic	594 (50.5%)	221 (62.4%)	815 (53.2%)
Other	104 (8.84%)	31 (8.76%)	135 (8.82%)
Age (years) at initial visit			
Mean (SD)	1.84 (0.552)	2.30 (0.444)	1.95 (0.563)
Median (Q1, Q3)	1.76 (1.36, 2.28)	2.36 (2.00, 2.68)	1.93 (1.45, 2.41)
Age group at initial visit			
1-2	728 (61.9%)	90 (25.4%)	818 (53.4%)
2-3	449 (38.1%)	264 (74.6%)	713 (46.6%)

Table 1. Demographics and Caries Experiences

- Mean dft for the study population was 1.15
- Odds of developing caries increased with age
- Odds of developing caries decreased among the Non-Hispanic, Black population
- Consuming juice or other sugar-sweetened beverages in amounts above daily recommendation increased odds of developing caries
- Snacking more than 2 times a day did not increase odds of developing caries

Conclusions

- Additional need for dietary guidance of caregivers in IOH programs is recommended
- Longitudinal studies regarding dietary habits and childhood caries is merited



Graph 1. Odds Ratio for Caries Experience

Acknowledgements

Support was provided by Research in Outcomes for Children's Surgery, Center for Children's Surgery, Children's Hospital Colorado, University of Colorado School of Medicine

Citations

1. Bhaskar V, McGraw KA, Divaris K. The importance of preventive dental visits from a young age: systematic review and current perspectives. Clin Cosmet Investig Dent. 2014 Mar 20;6:21-7.
2. Fraihat N, Madae'en S, Bencze Z, Herczeg A, Varga O. Clinical Effectiveness and Cost-Effectiveness of Oral-Health Promotion in Dental Caries Prevention among Children: Systematic Review and Meta-Analysis. Int J Environ Res Public Health. 2019 Jul 25;16(15):2668.
3. Weintraub et al. Identification of caries risk factors in toddlers. J Dent Res 90(2):209-214, 2011
4. Weintraub et al. Fluoride varnish efficacy in preventing early childhood caries. J Dent Res 85(2):172-176, 2006
5. Lee JY, Bouwens TJ, Savage MF, Vann WF Jr. Examining the cost-effectiveness of early dental visits. Pediatr Dent. 2006 Mar-Apr;28(2):102-5; discussion 192-8.
6. Ramos-Gomez FJ. A model for community-based pediatric oral health: implementation of an infant oral care program. Int J Dent. 2014;2014:156821.