

Food deserts and pediatric oral health status in an under-resourced urban community

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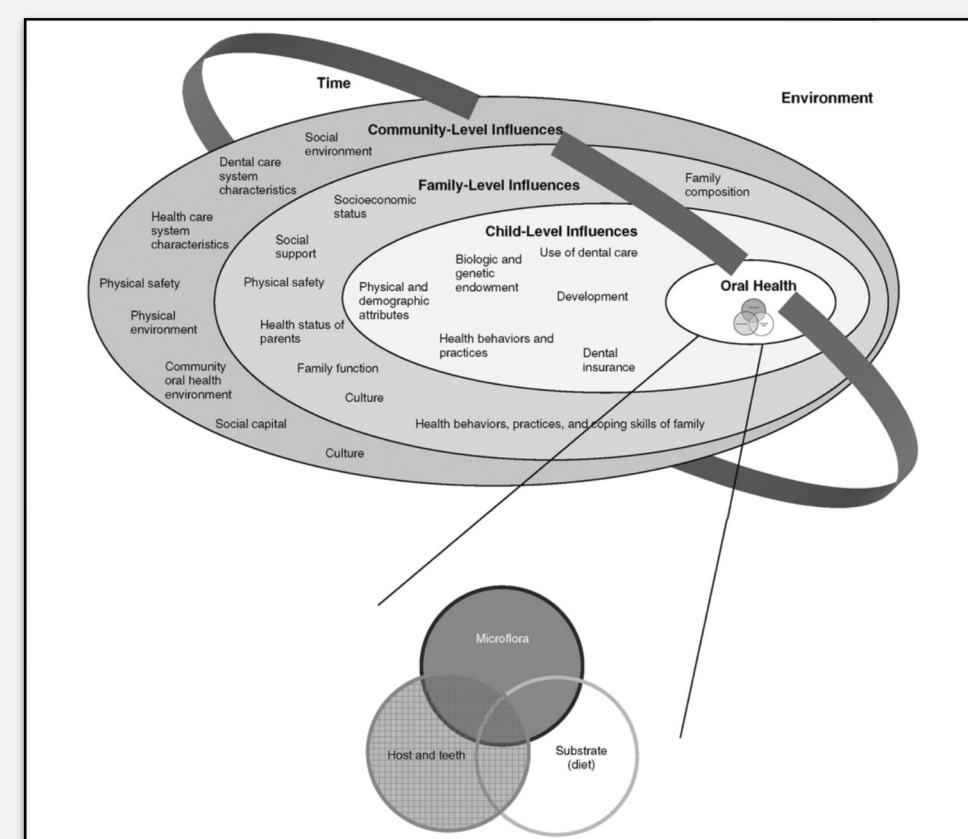
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Purpose

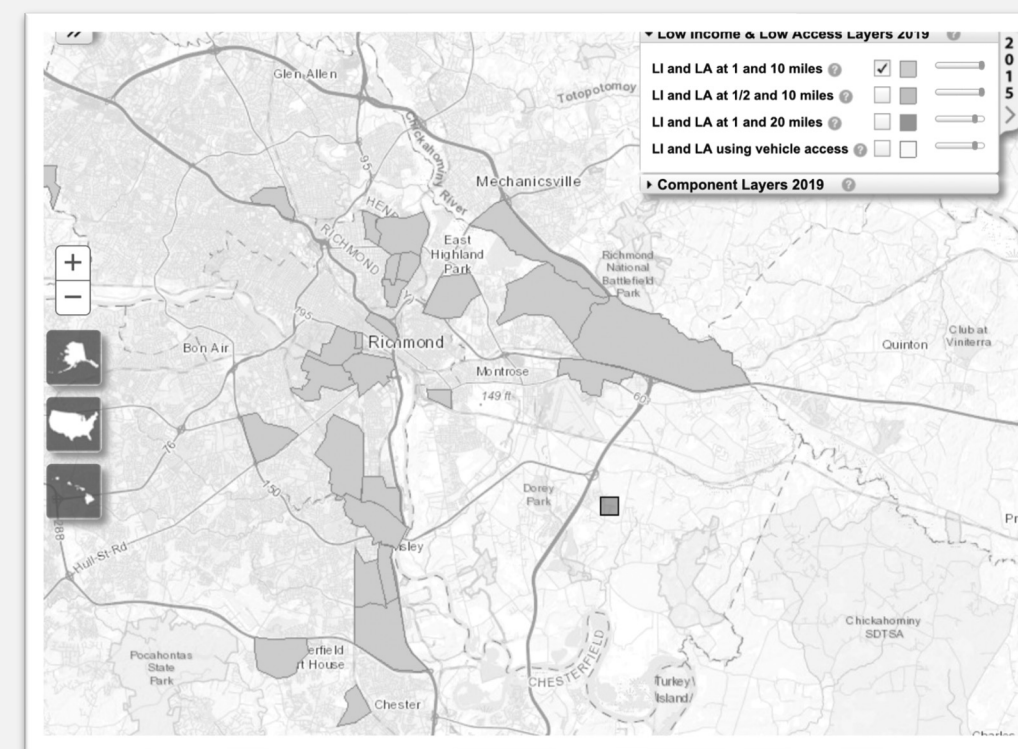
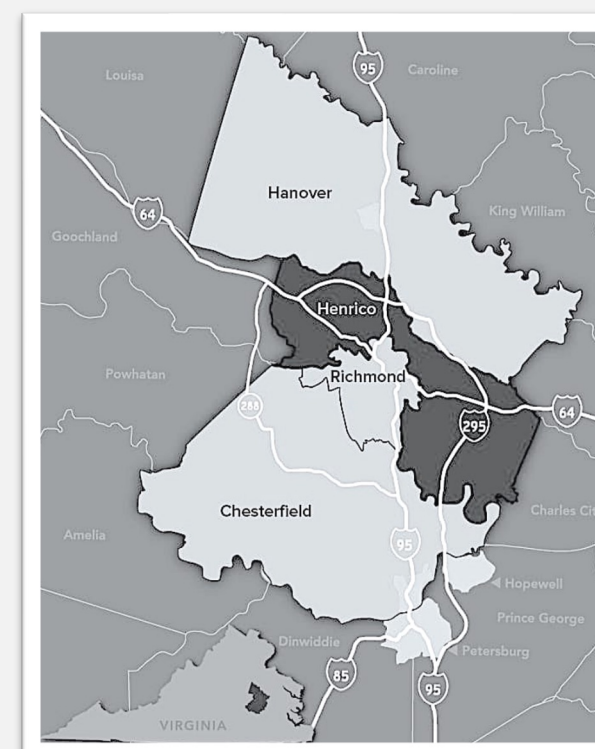
- To better understand the health issues faced by residents of east Henrico County, Virginia, an under-resourced urban community
- To better understand the association between living in a food desert and pediatric dental problems

Background

- An individual's dental health is impacted by a multitude of factors. Fisher and Owens suggested a model that includes inputs ranging from the microscopic level (e.g. individual-level influences, including genetics, microflora) to the macroscopic level (e.g. community-level influences including physical and social environment, culture)



- A food desert is defined as an "area in the United States with limited access to affordable and nutritious food, particularly such an area composed of predominantly lower income neighborhoods and communities"
- There have been few studies that have provided evidence of a direct link between living in a food desert and a higher incidence of pediatric dental problems
- Henrico County is a mostly urban county making up the larger metropolitan area of Richmond, Virginia. The eastern portion of the county has a large underserved population



Methods

- A community-academic partnership was established between VCU's iCubed Oral Health Core and the Henrico Student Wellness Coalition to identify and address the psychological, social and nutritional contexts of dental and overall health in the surrounding community
- iCubed Oral Health Core conducted a survey of the residents of the eastern Henrico community to better understand health issues faced by inhabitants
- To study the association between living in a food desert and dental problems in children, data from the iCubed Oral Health Project was analyzed
- Hypothesis:** Living in a food desert in east Henrico County, with limited access to healthy foods, would lead to an increase in pediatric oral health problems
- Primary predictor:** Living in a food desert; proxy question was utilized.
- Primary outcome variable:** Whether the child had experienced dental pain
- Control variable at the child level:** The child having had a dental visit within 12 months, ethnicity
- Control variable at the family level:** parent's level of education
- Responses were summarized with descriptive statistics.
- Logistic regression was used to model the association between residing in a food desert and history of dental pain for the child.
- Variables with marginal statistical significance in the bivariate analysis were included and backwards elimination was used to reach a parsimonious model.
- Significance level was set at 0.05 SAS for all analyses.

Results

- 374 of 634 respondents reported having children and responded question regarding access to fresh produce/ healthy groceries.
- 14% of respondents disagreed or strongly disagreed that they had access to healthy produce and were categorized as living in a food desert.
- Significant bivariate association between a child having a dental visit within the last 12 months, the child's ethnicity, the guardian's education level, and self-reporting a child experiencing pain.

Results (continued)

- Moderate association between access to affordable produce and experiencing dental pain.
- The relationship between perceived condition of the mouth and access to affordable produce was not statistically significant, however, those who reported not residing in a food desert were 1.5 times more likely to perceive their child's mouth condition as "Excellent," "Very Good," or "Good."
- Those that lived in a food desert had 2.22 times increased odds of reporting dental pain for a child than those who were not considered to live in food deserts.

| | Child Experienced Dental Pain (Y) | P-value |
|---|-----------------------------------|------------------|
| Child-Level | | |
| Child Visit Dentist w.in 12mo | Yes | 3.37 (1.44-7.88) |
| | No | Reference |
| Ethnicity | Hispanic | 2.30 (1.29-4.12) |
| | Non-Hispanic | Reference |
| Family-Level Influences | | |
| Education | College or Beyond | 2.82 (1.18-6.74) |
| | Some College or Trade | 0.92 (0.42-2.02) |
| | High School or Less | Reference |
| Community-Level Influences | | |
| Neighborhood Access to Affordable Produce | Yes | Reference |
| | No | 2.22 (1.07-4.62) |

Conclusion

There does appear to be a direct association between living in a food desert and risk of pediatric dental problems, based on analysis of data from residents of east Henrico County, Virginia. Additional population-based studies would be beneficial to improve our understanding of this association, which in turn could support the allocation of resources for targeted outreach and public health interventions.

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