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Association of Food Deserts and Pediatric Hospitalization Rates

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Background

- Nearly 40 million United States residents live in areas with limited access to affordable and nutritious foods (i.e. food deserts)
- Data evaluating the association of food deserts and health is limited in children

Objectives

- Describe differences in hospitalization rates for children based upon their residence within a food desert and describe any differences among reasons for hospitalization

Methods

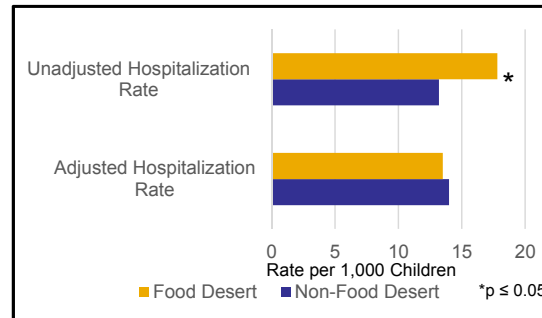
- Retrospective cross-sectional study
- United States Department of Agriculture's Food Access Research Atlas used to determine food deserts at the census tract level
- Included children ≤18 years old in the Kansas City metropolitan area in 2016 in census tracts where ≥80% of children hospitalized were at the children's hospital
- Hospital data and American Community Survey was used to determine hospitalization rates for each census tract
- Overall and service line analyses were adjusted for poverty rate

Census Tract Characteristics

	Overall	Non-Food Desert	Food Desert	p
Number of Census Tracts	460	397 (86.3)	63 (13.7)	
Urban Census Tract	382 (83)	324 (81.6)	58 (92.1)	0.04
Low vehicle access	101 (22)	71 (17.9)	30 (47.6)	<.001
Poverty Rate	10.4 [5.1, 18.9]	8.6 [4.3, 16]	21.5 [14.6, 30.7]	<.001
Median Household Income	55429.5 [40896, 75852]	58966 [43173, 80300]	41250 [34786, 50685]	<.001
Child population	944 [618.5, 1367.5]	948 [629, 1373]	902 [602, 1204]	0.27
Median Age of Children	9.5 [8.8, 10.3]	9.7 [8.8, 10.4]	9 [8.7, 9.6]	0.003
Race				
Non-Hispanic White	81.2 [65.2, 88.9]	81.5 [67.3, 88.9]	75.6 [47.7, 88.7]	0.15
Non-Hispanic Black	5.7 [2, 13.4]	5.6 [1.9, 12.2]	8.7 [3.3, 30]	0.009
Hispanic	5.3 [2.6, 8.9]	5.2 [2.6, 8.8]	5.6 [2.5, 9.6]	0.7
Other	4.6 [2.7, 7.1]	4.7 [2.8, 7.2]	3.7 [2.1, 6.7]	0.08

n (%), [interquartile range]

Overall Hospitalization Rate



Results

- 460 census tracts were included (13.7% food deserts, 86.3% non-food deserts) with 482,623 children and 6,638 hospitalizations
- In unadjusted analyses, pediatric hospitalization rates were higher in food deserts compared to non-food deserts
- When adjusted for poverty differences resolved
- Poverty adjusted hospitalization rates stratified by service line did not differ based upon food desert status except for cardiac hospitalizations

Discussion

- Our results suggest that residing in food deserts may not affect children's hospitalization rates and any differences may instead be a result of poverty
- Efforts in alleviating poverty may be more effective in improving child health than directly addressing food deserts
- Limitations:
 - Hospitalizations may be too distal a measure for adverse health outcomes and food deserts may be associated with other sequelae such as malnourishment or obesity
 - Food access as measured by the USDA food desert definition may not significantly affect child health