

2019

Association of Food Deserts and Pediatric Hospitalization Rates

Laura Plencner

Children's Mercy Hospital, lplencner@cmh.edu

Matthew Hall

Molly Krager

Children's Mercy Hospital, mkkraeger@cmh.edu

Henry T. Puls

Children's Mercy Hospital, htpuls@cmh.edu

Jessica L. Markham

Children's Mercy Hospital, jlmarkham@cmh.edu

See next page for additional authors

Follow this and additional works at: <https://scholarlyexchange.childrensmercy.org/posters>

Part of the [Community Health and Preventive Medicine Commons](#), and the [Pediatrics Commons](#)

Recommended Citation

Plencner, Laura; Hall, Matthew; Krager, Molly; Puls, Henry T.; Markham, Jessica L.; Kerns, Ellen; and Bettenhausen, Jessica L., "Association of Food Deserts and Pediatric Hospitalization Rates" (2019). *Posters*. 80.

<https://scholarlyexchange.childrensmercy.org/posters/80>

Authors

Laura Plencner, Matthew Hall, Molly Krager, Henry T. Puls, Jessica L. Markham, Ellen Kerns, and Jessica L. Bettenhausen

Association of Food Deserts and Pediatric Hospitalization Rates

Laura M. Plencner, MD^a, Matthew Hall, PhD^{a,b}, Molly Krager, MD^a, Henry T. Puls, MD^a, Jessica L. Markham, MD, MSc^a, Ellen Kerns^c, and Jessica L. Bettenhausen, MD^a

^aChildren's Mercy Kansas City, Kansas City, MO; ^bChildren's Hospital Association, Lenexa, KS; ^cChildren's Hospital and Medical Center, Omaha, NE

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

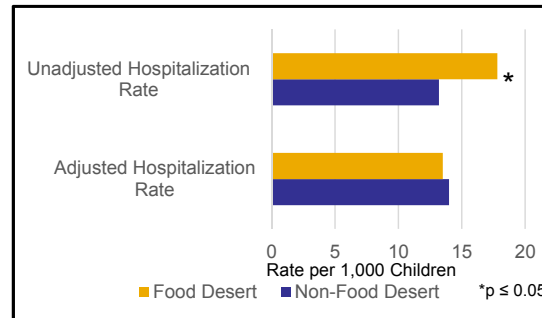
- Retrospective cross-sectional study
- United States Department of Agriculture's Food Access Research Atlas used to determine food deserts at the census tract level
- Included children ≤18 years old in the Kansas City metropolitan area in 2016 in census tracts where ≥80% of children hospitalized were 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