

HEALTHY AND AFFORDABLE FOOD RESOURCES

A Study of Two King County, WA Neighborhoods with High Numbers of American Indian/Alaska Native Residents



PROJECT BRIEF

Background

American Indians and Alaska Natives (AI/AN) in King County, WA have high rates of obesity (36.3%) compared with the general population (20.1%).¹ This health disparity is of great concern because obesity increases an individual's risk of premature death and many chronic diseases including coronary heart disease, stroke, high blood pressure, type 2 diabetes and some cancers.²

Consuming a low calorie diet rich in vitamins, minerals and fiber is a critical component of the current guidelines for treating obesity.³ A growing body of research suggests that the neighborhood food environment influences a person's consumption of healthy food and their body mass index (BMI).⁴ Greater access to supermarkets has been linked to healthier food intake and lower BMI.⁵⁻⁹ Conversely, proximity to convenience stores has been associated with less produce consumption and higher BMI.^{6,7}

In addition to the location of healthy food retailers, the price of food can influence consumption.¹⁰ This issue may be particularly relevant to the AI/AN population in King County, WA since a high percentage of the population lives below the federal poverty level (25.1%).¹

Although further research is needed to describe the specific pathways by which the food environment influences an individual's health, initial studies suggest that improving access to affordable healthy food could be a promising public health intervention to address obesity in vulnerable communities. A detailed description of the local food environment is critical for making targeted improvements and evaluating interventions.

Purpose

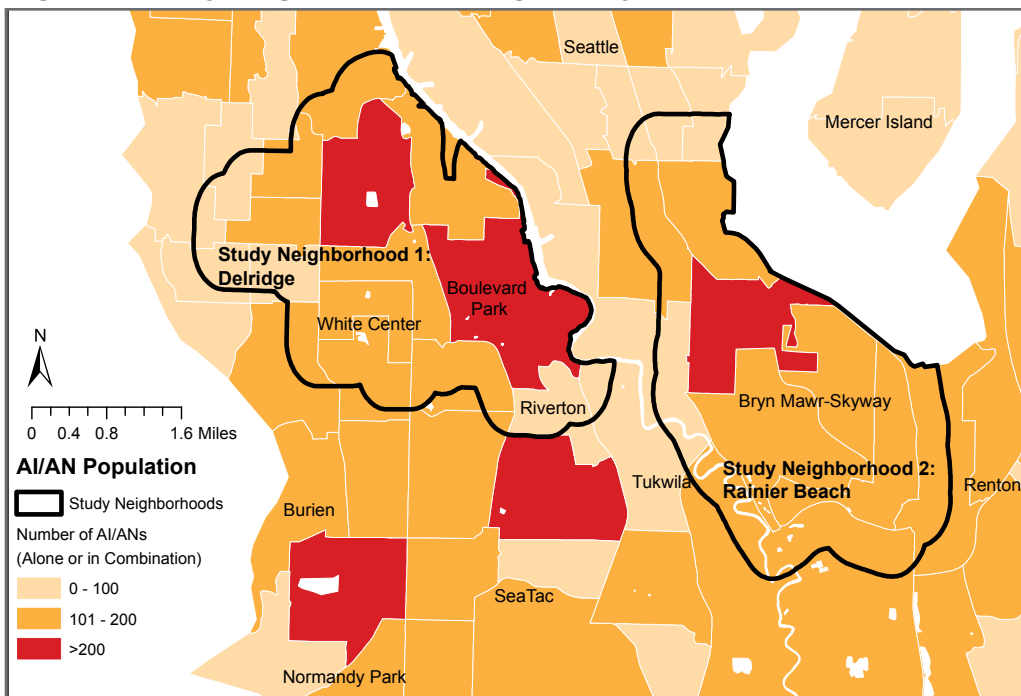
To inform health program development and advocate for policies that increase the availability of affordable produce, the Urban Indian Health Institute enumerated the price and availability of produce in two King County, WA neighborhoods.

Specifically, we asked the following questions:

- What food outlets are located in neighborhoods with high numbers of AI/AN residents?
- Which food outlets sell fresh produce and how much does it cost?
- Which food outlets accept Nutrition Program for Women, Infants and Children (WIC) and Supplemental Nutrition Assistance Program (SNAP)?
- Where are fast food restaurants located?
- What additional food resources (community gardens, food banks, farmers markets) are available?



Figure 1: Study Neighborhoods, King County, WA



Data Source: U.S. Census Bureau, 2010

Methods

We used ArcGIS to map the AI/AN population and the percentage of the general population below the federal poverty level in each census tract in King County, WA. We selected Delridge and Rainier Beach as the two study neighborhoods by identifying contiguous census tracts with high numbers of AI/AN residents (Figure 1) and a high percentage of the population with income below the federal poverty level. To capture food outlets within walking distance, we included a half mile buffer around these neighborhoods and excluded areas isolated by natural boundaries.

We identified supermarkets, grocery stores and convenience stores by searching the business licenses maintained by the cities of Seattle, Renton and Burien. We found additional stores using a targeted search of Google Maps and added stores that were identified while conducting the assessment. All stores in the study area were notified of the study and informed that their participation was voluntary.

Each store was surveyed in person by study staff and the variety of produce was assessed using selected questions from the Nutritional Environment Measurement Survey for Stores (NEMS-S). Stores were categorized using the criteria described in Table 1.

To determine the affordability of produce, we noted the price of apples at all stores and used the weight of a medium apple (128g)¹¹ to compare prices of vendors

who sold produce by piece rather than weight. We also identified stores that accepted SNAP and WIC.

Restaurants were identified through Public Health - Seattle & King County restaurant inspection records. Restaurants were categorized as fast food if food was paid for while ordering and the restaurant had no wait staff. Specialty vendors such as coffee shops were not counted as fast food restaurants.

The fast food restaurant density was calculated by dividing the number of fast food restaurants by the area of the study neighborhoods.

Finally, ArcGIS was used to map food banks, community gardens and farmers markets identified through Seattle Department of Neighborhoods, King County Community Garden Program, Puget Sound Fresh and Seattle Human Services Department.

Table 1: Definitions of Food Outlets

| Category | Definition |
|---------------------------------|---|
| Fruit and Vegetable Vendor | Primarily sells fruits and vegetables |
| Grocery | 1-4 cash registers Stocks items used for cooking |
| Supermarket | ≥ 5 cash registers Stocks items used for cooking |
| Drug Store | Primarily a pharmacy |
| Convenience Store | Primarily sells snacks and drinks |
| Convenience Store (Gas Station) | Associated with a gas station Primarily sells snacks and drinks |
| Fast Food Restaurant | Food is paid for while ordering No waitstaff Food trucks included |

Table 2: Availability of Produce, Delridge and Rainier Beach Neighborhoods, Seattle, WA, January-February 2012

| | Number of Stores | % with Medium or High Variety of Produce Available* |
|---------------------------------|------------------|---|
| Fruit and Vegetable Vendor | 4 | 75.0% |
| Grocery Store | 14 | 64.3% |
| Supermarket | 11 | 100.0% |
| Convenience Store | 35 | 17.1% |
| Convenience Store (Gas Station) | 15 | 6.7% |
| Drug Store | 5 | 0.0% |

* $\geq 30\%$ of NEMS produce items

Results

Of the 101 stores identified through business license records and supplemental searches, 84 stores agreed to participate, were opened for business and were surveyed including 50 convenience stores, 5 drug stores, 4 fruit and vegetable stands, 14 grocery stores and 11 supermarkets. Only 14.0% of convenience stores, including those associated with gas stations, had at least a medium variety of produce available. All supermarkets, 75.0% of fruit and vegetable vendors and 64.3% of smaller grocery stores had at least a medium variety of available produce.

Of the stores surveyed, 81.0% accepted SNAP but only 13.1% accepted WIC, including 54.5% of supermarkets and 14.3% of smaller grocery stores. Compared to supermarkets, produce was less expensive at small grocery stores and more expensive at convenience stores.

In the study neighborhoods, 25.9% of the restaurants and cafes were categorized as fast food restaurants. Fast food restaurants tended to be located along major traffic routes. The Delridge neighborhood had a fast food restaurant density of 2.06 restaurants per square mile and the Rainier Beach neighborhood had a fast food restaurant density of 0.98 restaurants per square mile.

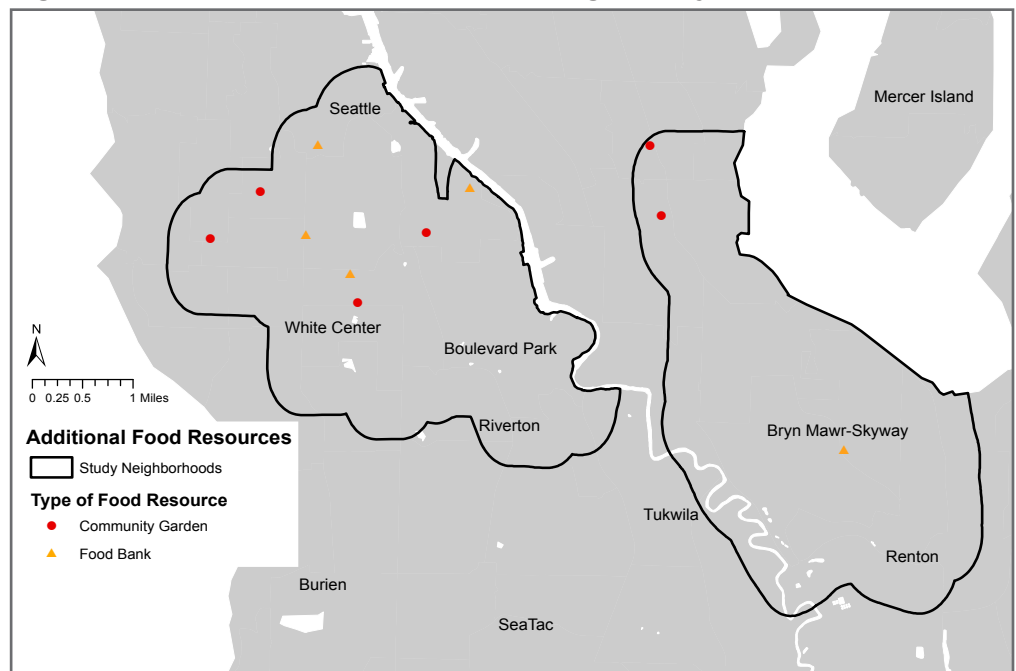
Spatial analyses of the location of food banks, community gardens and farmers markets revealed that these food

resources were not distributed evenly throughout the neighborhoods (Figure 2). No farmers markets were found in either neighborhood.

Conclusion

Surveys that canvas food outlets allow for detailed descriptions of the availability and price of produce. Although a moderate variety of produce was not consistently available in small grocery stores in our study neighborhoods, it was typically less expensive than produce at supermarkets. Although additional data is needed to determine residents' purchasing patterns, these data suggest that increasing the availability of produce in small stores may improve residents' access to produce.

Figure 2: Additional Food Resources, King County, WA



Data Sources: Seattle Department of Neighborhoods, King County Community Garden Program and Seattle Human Services Department

The analyses in this study reveal several gaps in access to healthy foods in neighborhoods with high numbers of AI/ANs. First, the lack of stores accepting WIC in the study neighborhoods is concerning. Assisting qualified stores with the WIC application process may be one way to improve access to affordable healthy food for families with young children. The lack of farmers markets in the study neighborhoods also offers an opportunity to improve access to healthy food. It will be critical for farmers markets to accept WIC and SNAP benefits.

Future Directions

Describing the neighborhood food environment and its impact on public health is complex. This study offers a description of the locations of fast food restaurants and the availability of produce at stores. However, it does not explore residents' purchasing patterns, food intake, access to traditional foods nor does it compare the availability of healthy foods in the study areas to other neighborhoods. Further qualitative and quantitative research will be needed to explore the following questions:

- At which stores do residents shop?
- What form of transportation do residents use to get to grocery stores?
- What foods do residents purchase?
- How do residents decide what foods to purchase?
- Does greater access to healthy foods encourage people to eat healthy foods?
- How do grocery stores and convenience stores decide which foods to stock and advertise?
- Do AI/AN residents have access to traditional foods?

To address these questions, community members will play a critical role in assessing their community's food resources and advocating for changes in the neighborhood food landscape.

Acknowledgements

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