

**Understanding the Food Insecurity Need
of Cancer Patients in Forsyth County,
NC:**

**Identifying Current Resources and
Potential Interventions within the
Healthcare System and Community**

*Spatial Justice Studio Fellows
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Project Overview

We work in the field of public health and recognize that non-clinical factors contribute to a population's overall health. Understanding patient's social determinants of health (SDOH) is vital to effectively managing a patient's health outcomes. Therefore, addressing the SDOH of healthy food access creates a pathway for patients to be supported while contributing to the overall health of the population. Additionally, our personal experiences in supporting the cancer survivorship of those that are close to us, highlights the issues of food insecurity here in North Carolina and beyond.

The goal of the project was to understand the food insecurity need of cancer patients in Forsyth County, NC by identifying current resources and potential interventions within the healthcare system and community.



Pictures by freshidea and Jenwit

Project Activities

We interviewed community non-profits that are currently working to mitigate food insecurity in Forsyth County, NC. This allowed us to get a sense of the food access issue in the city. In addition, we interviewed individuals from the Atrium Health Wake Forest Baptist cancer care community to get an idea of the perception of food insecurity in patients and what is being done to address those needs.

Local Non-Profits

- HOPE – Scott Best
- Cancer Services – Julie Lanford
- Positive Wellness Alliance – Kristiana Moore
- Clemmons Food Pantry – Mike Sullivan
- 2nd Harvest Food Bank – Scott Bowen
- Door Dash – Doug Murphy
- Community Care Clinic - Michelle

Health Care Services Contacts

- Faith Health Program Coordinator- (Angela Brown)
- OCHE Manager of Population Health Navigator Team (Emily Corpus)
- (AHWFB Dieticians)- (Wendy Watson and Emily Henderson)
- Fresh Food Rx , Lead Researcher-(Rachel Zimmer, DNP, NP)
- One Charlotte Health Alliance Mobile Food Pharmacy- (Latoya Mallard, MPH)
- Downtown Health Plaza – (Kimberly Montez, MD)

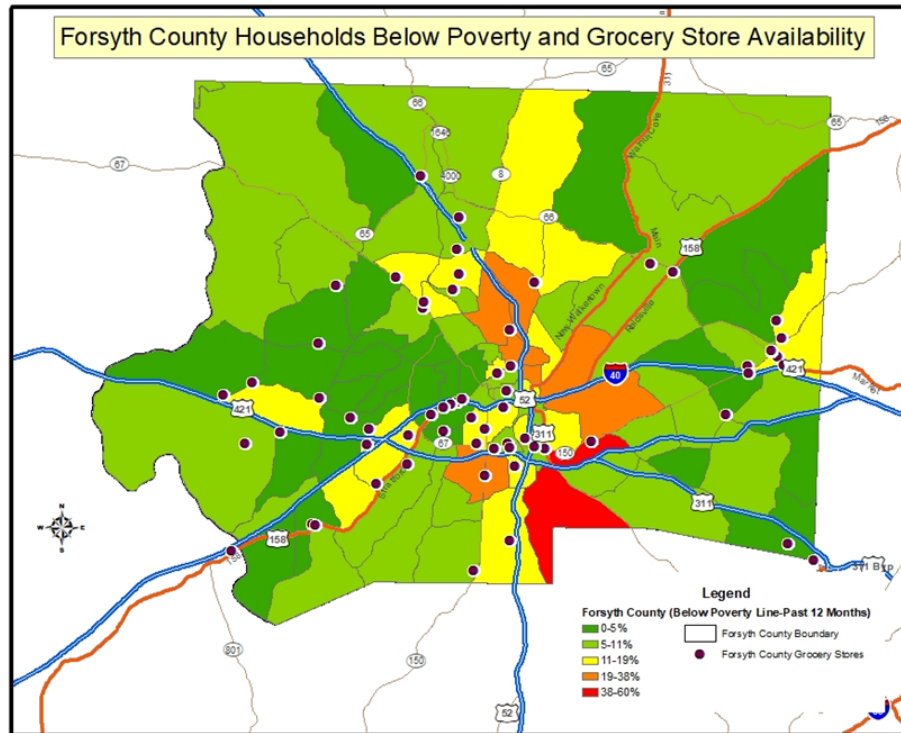
Worked with the North Carolina Cancer Registry to first obtain cancer incidence data from the 26 cancer catchment areas for Atrium Wake Forest Baptist Health.

- The Cancer Registry initially sent surface cancer density based on census tracts for our catchment areas.
- Due to the regional displays being pixelated, we submitted a request for data to have the number of cancer patients per census tract for 2015-2019. We were able to access this data and add it into our map. With the help of our ArcGIS data support team, we were able to normalize data to correlate with the 2010 census population tracts.
- Due to issues related to the inability to acquire age-adjusted rates, and the limited ability to display the data gathered from the NC Cancer Registry, we did not use this data in our final report.
- We chose to reference the North Carolina All Cancer Incidence Rates (2016-2020) map from the State Center for Health Statistics.

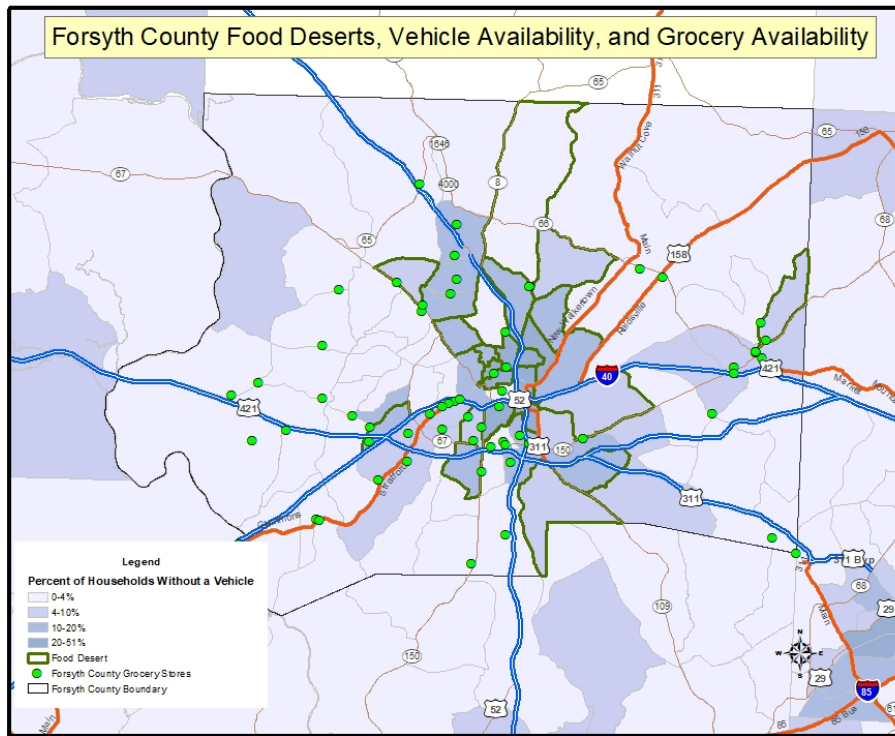
We also work worked closely with Joseph Sloop and Dave Toren to navigate ESRI software, including ArcGIS mapping support and story mapping.

We published an op-ed in the Winston Salem Journal (May 2023)

Results

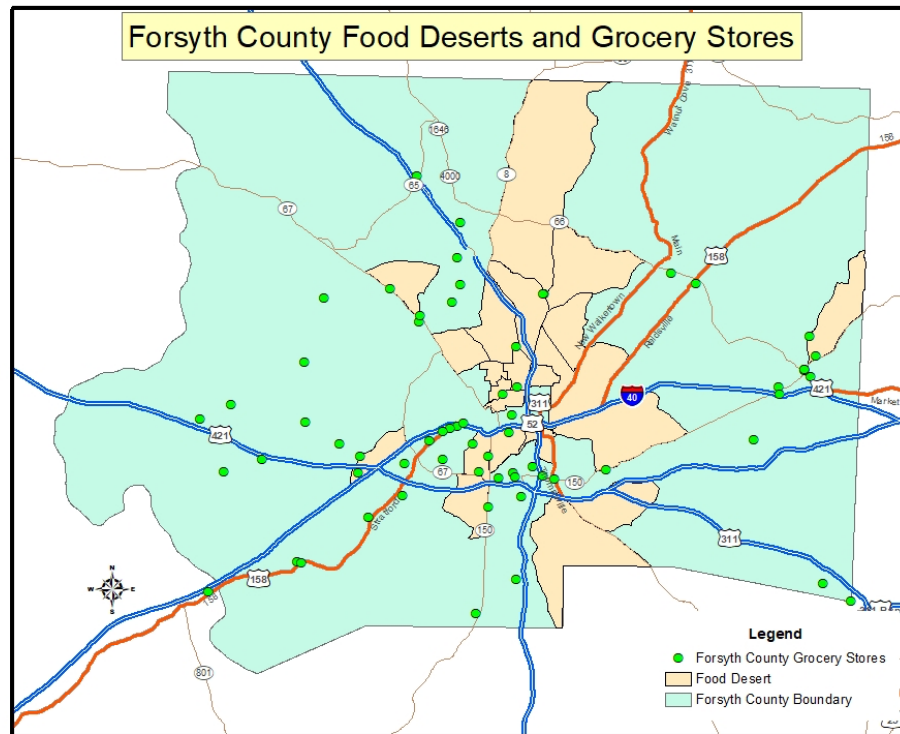


Inadequate access is often linked to poverty, although, other competing factors influence food insecurity such as neighborhood conditions, access to food and transportation barriers. In the US, nearly 40 million people have an annual income that falls below the poverty line which impacts a household's ability to access quality food. Closer to home, approximately 14.2 percent of Forsyth County residents live below the federal poverty line (higher than the state poverty rate and 10% higher than the national poverty rate). As visualized on the map, several census tracts that have high percentages of households living below the poverty line (red or orange tracts) also have limited access to grocery stores. ^{4,13-17}



Neighborhood conditions may affect physical access to food. For example, people living in some urban areas, rural areas, and low-income neighborhoods may have limited access to full-service supermarkets or grocery stores. Unfortunately, many times people in these areas often rely on convenience stores to buy food. Convenience stores may have higher food prices, lower-quality foods, and less variety of foods than supermarkets or grocery stores. Access to healthy foods is also affected by lack of transportation and long distances between residences and supermarkets or grocery stores.⁹⁻¹²

Vehicle availability data accessed from the [ArcGIS Living Atlas](#), food desert data from [Map Forsyth](#), and vehicle availability from [ArcGIS Community Analyst](#).



According to the 2018 Food Research and Action Center, Forsyth County has one of the highest rates of food hardship in the nation. Food deserts are areas that have limited access to a grocery store or supermarket. They are defined by the USDA as census tracts where 33 percent of the population lives more than a mile from a large grocery store or supermarket. Forsyth County has 21 food deserts. It placed seventh in the nation as a metropolitan statistical area with the highest rate of food hardship.⁸

The grocery store data was pulled from Esri's Community Analyst using the NAICS 44511003 code for stores. This industry comprises establishments generally known as supermarkets and grocery stores primarily engaged in retailing a general line of food, such as canned and frozen foods; fresh fruits and vegetables; and fresh and prepared meats, fish, and poultry. Included in this industry are delicatessen-type establishments primarily engaged in retailing a general line of food.

Experience As SJS Fellows

This was a very eye-opening experience, as we learned more about issues that contribute to spatial injustice. The opportunity to gain knowledge about food insecurity, the hurdles faced by cancer patients, and who is doing work to address issues of food access has fostered additional ideas about how this project could be expanded for future impact. We were also able to connect with other SJS Fellows during the fellowship, which provided exposure and perspective about other work being done throughout the city. We are hopeful the relationships established both with the SJS leaders/team members but also the other Fellows will continue after the project providing the potential for future collaborations.

Challenges

One of the challenges that we faced was accessing the most current cancer data. Due to the short-term nature of our research, we did not go through an IRB process in the interest of time. Receiving de-identified census tract level data related to cancer incidence created some delays and restrictions on what could be shared publicly. These delays and restrictions reduced what we could report in terms of cancer data in Forsyth County and other catchment areas of the Atrium Wake Forest Baptist Health Comprehensive Cancer Center.

We also experienced a learning curve related to the use of ArcGIS software. This was a challenging, but enjoyable experience as we navigated the different elements of the application to produce our social determinants of health maps.
