

FOOD INSECURITY AMONG LOW-INCOME FAMILIES AS AN ECONOMIC SOCIAL
DETERMINANT OF HEALTH IN DURHAM COUNTY, NORTH CAROLINA

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A Capstone Project submitted to the faculty at the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Public Health in the Leadership in Practice Concentration or Nutrition Concentration in the Gillings School of Global Public Health.

Chapel Hill
2022

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ABSTRACT

Bailey Caudle, Chad Logan, Brittany Njoku, Jessica Pettersson: Food Insecurity Among Low-Income Families as an Economic Social Determinant of Health in Durham County, North Carolina
(Under the Direction of Zunair Ahsan, Kim Truesdale, Becky Slifkin)

Economic stability in Durham County, North Carolina, includes household food insecurity. Food insecurity is a lack of consistent access to healthy, affordable foods. County initiatives to increase food security exist, but many low-income families still suffer from food insecurity. Food insecurity is associated with various short- and long-term health effects, including poor academic performance, malnutrition in children, and increased susceptibility to obesity, diabetes, and heart disease. To alleviate this, an evidence-based ridesharing program that transports County residents to and from participating grocery stores at a reduced cost is proposed to reduce transportation barriers for low-income families. The ridesharing proposal will be designed, evaluated, and implemented through partnerships with various educational, community, and nonprofit stakeholders.

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COMMON PROPOSAL

Problem Statement and Goals

Within the Healthy People 2030 initiative, one category is Economic Stability, which has an overall goal to “help people earn a steady income that allows them to meet their health needs” and includes topics like food security, family income, employment, educational attainment, and more (*Economic Stability - Healthy People 2030* | *Health.Gov*, n.d.). Food insecurity is defined by the U.S. Department of Agriculture as “a household-level economic and social condition of limited or uncertain access to adequate food” (*USDA ERS - Definitions of Food Security*, n.d.).

Durham County is about 300 square miles, has a population of approximately 312,000 residents, and is rich in health care and higher education resources (*Durham County Community Health Assessment 2020*, n.d.). In 2021, the poverty rate in Durham County was 13.3% and 10.3% of households received SNAP benefits (Census Bureau Data, 2021). Black and Latinx persons in Durham County have a significantly higher poverty rate (16.69% and 24.87%, respectively) than white persons (7.09%) (U.S. Census Bureau, 2021). Durham County residents reported that their most common reason for not eating healthy foods was the time required to prepare foods (24.4% of 2019 survey respondents), and the second most common was cost (15.7% of 2019 survey respondents) (*Durham County Community Health Assessment 2020*, n.d.). As acknowledged by Durham County Public Health, “food choices are based on a variety of factors including affordability, access, nutrition education and knowledge, taste preferences, culture, environmental and social cues” (*Durham County Community Health Assessment 2020*, n.d.). In 2020, Feeding America’s Map the Gap Initiative reported that 18.8% of children (<18 years old) in Durham County were food insecure (*Overall (All Ages) Hunger & Poverty in the United States | Map the Meal Gap*, n.d.). Of those children, it is estimated that 77% of their households are eligible for federal nutrition programs, like SNAP/EBT (*Overall (All Ages) Hunger & Poverty in the United States | Map the Meal Gap*, n.d.). In 2015, the most recent data, the USDA determined that 26% of Durham County had

low access to grocery stores (*USDA ERS - Go to the Atlas*, n.d.). The USDA defines low access in urban areas as living more than a mile from a grocery (*USDA ERS - Go to the Atlas*, n.d.). Addressing this barrier would improve food access in Durham County.

Programmatic Change

Transportation is one of the major barriers individuals and families face when it comes to accessing food resources. Research shows that food insecurity can be directly associated with lack of owning an automobile, being able to pay for gas, or both. Areas of high poverty, historically marginalized communities, and food deserts receive less access to food resources as well (Durham County, Department of Public Health – Community Health Assessment 2020). As a result of the COVID-19 pandemic, families have also been less inclined to use public transportation. The rideshare company, Lyft, has conducted several successful grocery access program pilots in cities across the nation including pilots in Raleigh and Charlotte, North Carolina. From August 2019 to January 2020, Lyft, Loaves & Fishes and other community partners collaborated on a grocery access pilot in Charlotte, North Carolina, where 75 families living in food deserts were provided with discounted rides to grocery stores, farmers markets, and food pantries (loaves, 2019).

Providing low-cost transportation options allows individuals and families larger food choice options that are able to meet their dietary needs and that are also culturally appropriate. By providing low-cost transportation to choose their own food it also reduces the stigma and shame that is sometimes associated with participating in food assistance programs. This program would increase access to healthier food options and provide families with the choice in where they buy their groceries. It would also reduce the time and cost of traveling to grocery stores.

As a part of the LYFTUP Grocery Access Program the Durham County Health Department in conjunction with several Durham County food banks and community resources will partner with grocery stores and food banks in Durham County to provide subsidized Lyft rates to SNAP income eligible

individuals who register. Participant outreach and registration will be conducted via social media, media outlets, schools, community health clinics, WIC and SNAP programs, and in coordination with the community partners. A pre, mid-point, and post survey will be conducted by the Durham County Health Department and collected from registered participants. Upon the launch of the program registered participants will have ride credits added to their accounts at the first of each month. When participants are wanting to shop, they open the Lyft app and enter their destination. Ride credits are then automatically applied to rides to and from participating grocery providers.

Budget

This program will be primarily funded by the Lyft and their Grocery Access Program. Additional funding provided through grants will be used for outreach and for personnel to assist with registration and program evaluation. A \$250,000 budget has been provided for this program. \$200,000 of this budget will be utilized for a 2-year salary (\$50,000/year) for personnel. This staff's responsibilities will include management of the program, community outreach and registration of participants, community partners liaison, and facilitation of the program evaluation and data analysis. The remaining \$50,000 will be used for an awareness campaign and outreach materials to assist with educating the community about this program and enrolling eligible participants.

Stakeholders

The CDC recommends engaging stakeholders that are implementers, decision makers, participants, and partners (*Identifying and Determining Involvement of Stakeholders*, 2022). Implementers for a rideshare intervention would include Lyft. The United Way currently has the infrastructure and resources to perform this type of work. Participants would include low-income families that currently benefit from government assistance. Partners will include the local grocery stores and local corporate companies that seek opportunities to give back to the community of their employees, in addition to food banks, school systems, and the health care community. Stakeholder relationships are in Figure A.1.

After stakeholder identification, an analysis was performed using the CATWOE tool (Table A.1). CATWOE is an analysis tool that gathers different viewpoints on a common issue. CATWOE explores who each stakeholder views as the customer, actor, and owner, as well as how they perceive the transformation, worldview, and environment. The results of the analysis can help to guide the implementation of a program or intervention. This information can then be used to create a root definition for each stakeholder. From there, a power influence grid and Give-Get grid can be created to prepare for stakeholder engagement. (Tables A.2 and A.3). Lyft (*implementer*) Having piloted the Lyft Grocery Access Program, as a stakeholder, they seek to increase access to healthy foods by providing affordable transportation to alleviate food insecurity. United Way (*decision maker*) The United Way seeks to improve lives by mobilizing the community to reduce food insecurity. SNAP recipients (*participants*) SNAP recipients seek to increase food security by updating federal policies to provide more support for low-income families. Food Lion Feeds (*partner*) As a grocery store chain with a nonprofit that supports hunger relief efforts, they seek to help families put nutritious meals on the table by supporting hunger relief initiatives to support children at risk of hunger.

Although each stakeholder has varying views, the customers identified by all are those who may be experiencing food insecurity. Lyft and the United Way and Food Lion Feeds see themselves as actors in the transformation while SNAP recipients see the government as the actors. All stakeholders seek to help increase food security.

Ideally, the stakeholders would co-create with the implementation team. A closer look at the power influence grid gives insight to how each stakeholder should be engaged. Lyft and the United Way have notoriety that will aid in the transformation. They both have the needed infrastructure and assets for the transformation. Both are also identified as high interest and high power; thus, they should be managed closely. For varying reasons, SNAP participants and Food Lion Feeds have both been identified as having low power and high interest. They have valuable information and experiences to contribute to the transformation. They should be engaged by keeping them informed.

Engagement and Accountability Plan

An engagement plan will ensure that all stakeholders are encouraged to collaborate with the implementation team. Not all stakeholders have the same power or influence to make change, but they all have a desire to see a transformation. With the expertise of each stakeholder, the implementation team can successfully plan a successful intervention that increases access to grocery stores. The implementation team will gather stakeholders to discuss the program in a collaborative meeting. Through the use of stakeholder mapping, empathy mapping, nominal group technique and continued meetings (Table A.4), each stakeholder will have the opportunity to contribute to the program implementation.

Program Evaluation

The program evaluation will use a cross-sectional study and consist of a mixed methods approach capturing both quantitative and qualitative data. This study will assess how the Grocery Access Program impacted food insecurity and access to healthy food in Durham County. All Durham County participants who apply and meet SNAP income eligibility and register for the program will be required as a part of their participation in the program to complete an online survey delivered to their email address at key three points, prior to participation in the program or at the time of program registration, at 6-months, and one year or completion of the program. Survey distribution, collection, and data analysis will be completed by the two program staff hired for the program implementation and evaluation in the Durham County Health Department office.

The short-term outcome objective this program hopes to achieve is over a one-year period 2,000 Durham residents who are SNAP eligible will have registered and utilized the Grocery Access program with participants taking an average of 4 round trips to a participating grocery store per month. Additional outcomes this evaluation will measure is that food insecurity decreased among participants as a result of utilization of the program and fruits and vegetables were purchased more frequently as a result of participation in the program.

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APPENDIX A: COMMON PROPOSAL FIGURES AND TABLES

Table A.1: CATWOE Analysis

Stakeholder: Lyft (implementers)	Root Definition: Increase access to healthy foods by providing affordable transportation to alleviate food insecurity.
Customer	Those in the community without reliable transportation
Actor	Lyft drivers
Transformation	Increase access to healthy foods
Worldview	Provide transportation to select grocery stores at an affordable flat rate (\$2.50)
Owner	Lyft leadership
Environment	Program currently under pilot in select cities across the nation

Stakeholder: United Way (decision-makers)	Root Definition: Improve lives by mobilizing the community to reduce food insecurity.
Customer	Those in the community who face food insecurity
Actor	United Way volunteers
Transformation	Increase food security
Worldview	Food security leads to better health outcomes
Owner	United Way leadership
Environment	Limited to the geographic location that it serves

Stakeholder: SNAP Recipients (participants)	Root Definition: Increase food security by updating federal policies to provide more support for low income families.
Customer	SNAP recipients without reliable transportation
Actor	Government policies
Transformation	Provide more support to those in need
Worldview	Government assistance should extend beyond SNAP benefits
Owner	The government
Environment	Funds for household expenses are prioritized, not to include grocery

	transportation on a regular basis
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Stakeholder: Food Lion (partner)	Root Definition: Help families put nutritious meals on the table by supporting hunger relief initiatives to support children at risk of hunger.
Customer	Those in need in the community
Actor	Food Lion Feeds
Transformation	Increase food security
Worldview	Help families put nutritious meals on the table
Owner	Food Lion Feeds
Environment	Limited to operating in geographic locations in which they operate

Table A.2: Stakeholder Power Analysis Grid

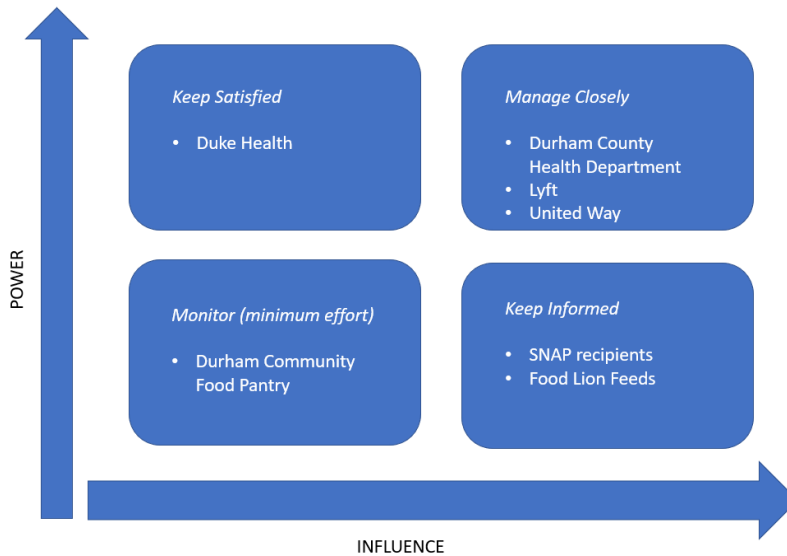


Table A.3: Give-Get Grid

Stakeholder	Gives	Gets
Durham County Department of Health	Source of funding to subsidize ridesharing rides	The opportunity to expand access and services to low-income families

Lyft (Ridesharing company)	Discounted rides to low-income families	Publicity and expansion of its service to underrepresented demographics
United Way	Additional funding to the ridesharing program and connections as an NPO	The ability to extend their reach, while improving economic stability for families
Durham Community Food Pantry	Supplemental support by providing free meals and advice as an NPO	The opportunity to partner with different stakeholder and implement different practices
Food Lion and other grocery stores	Access to stores as a preferred grocery store in partnership with Lyft	Publicity and a documented track record of working with low-income families
Duke Health	Recommendations on food-support initiatives to supplement	Partnership opportunity to improve health conditions for low-income families

Figure A.1: Rich Picture of Food Insecurity

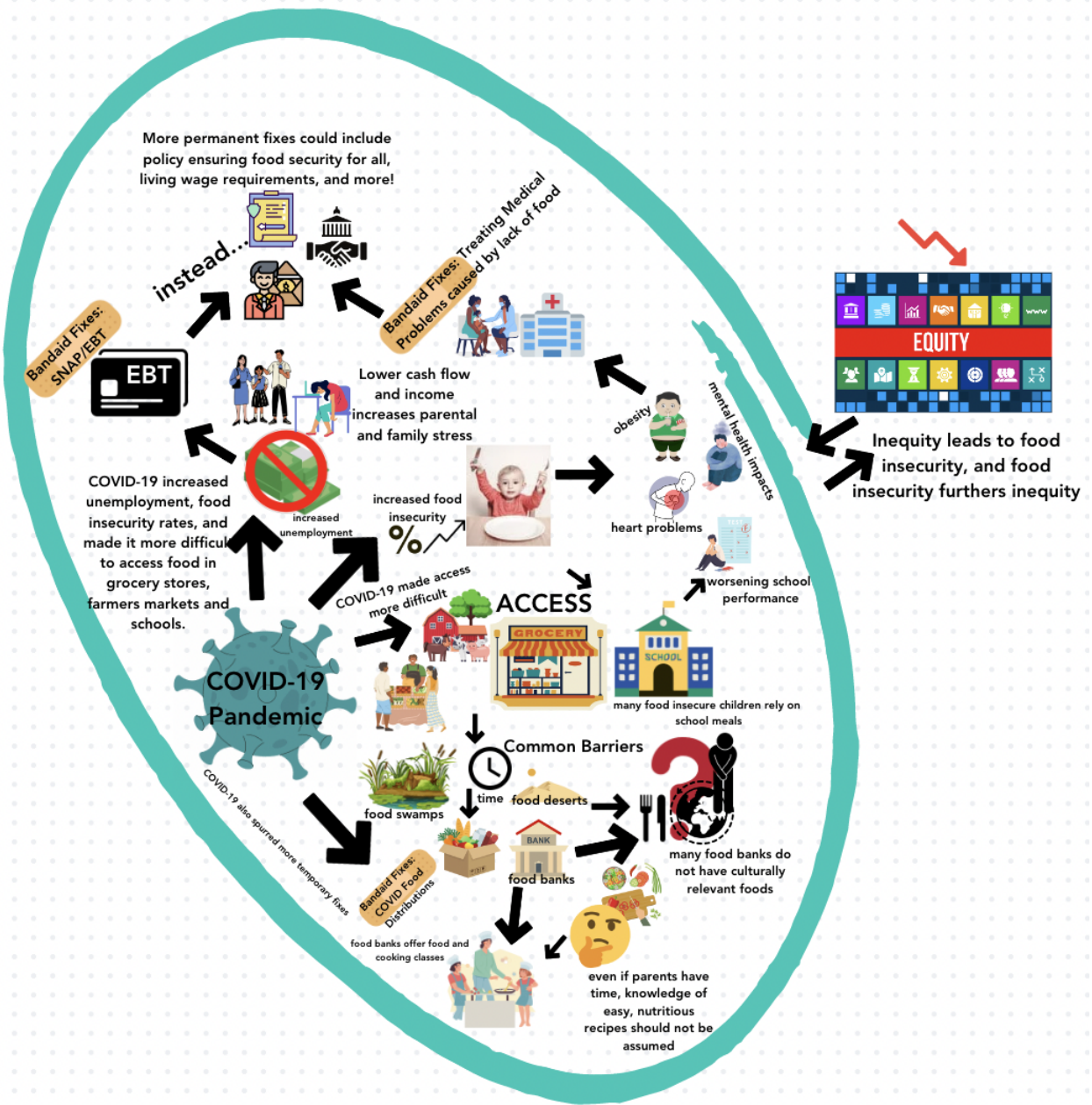
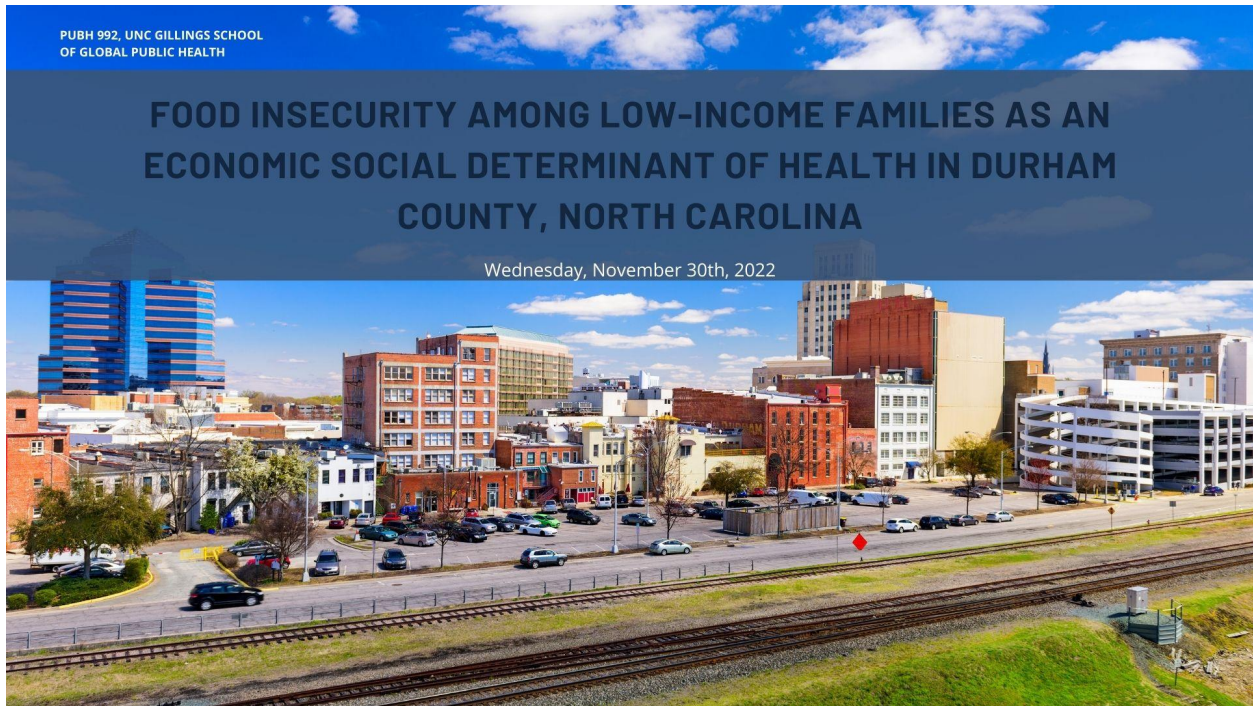


Table A.4: Engagement Methods

Engagement Method	Purpose
Stakeholder Interviews	To garner information from each stakeholder to see what they perceive is the problem, what resources they can provide and what level of involvement they desire. Helps to form advisory board
Memorandum of Understanding	Provide clarification of roles and responsibilities for each stakeholder involved.
Stakeholder Mapping	To create a visual representation to depict influences, barriers, and support to the proposed program.
Empathy Mapping	To capture knowledge about those experiencing food insecurity due to unreliable transportation.
Nominal Group Technique	To address any areas of concern that arise from the empathy mapping and stakeholder mapping.
Meetings	Provide continuous communication for all parties involved.

Appendix A.2 Group Presentation Slides and Script



Bailey: Welcome to our presentation. We are the Economic Stability Group and we have chosen to focus on Food Insecurity Among Low-Income Families as an Economic Social Determinant of Health in Durham County, North Carolina.

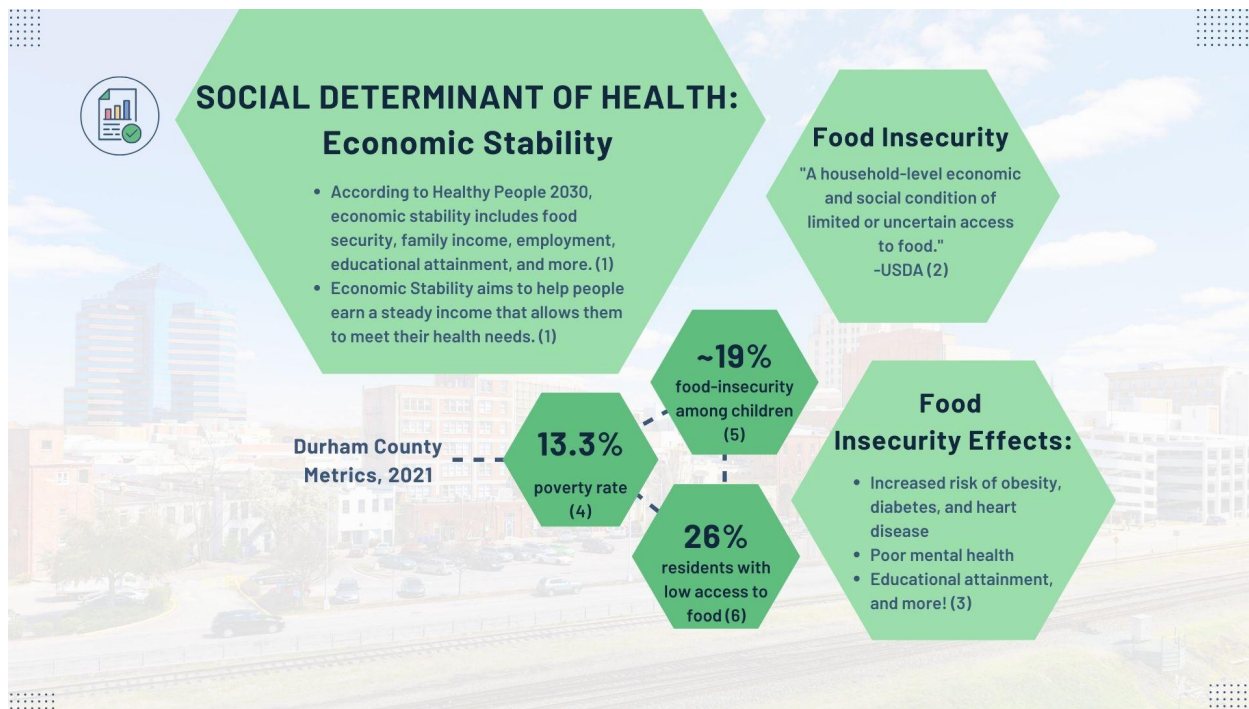
Presentation Overview

-  **SDOH Background**
-  **Priority Population**
-  **Nutrition Program Proposal**
-  **Necessary Stakeholders**
-  **Proposed Budget**
-  **Program Evaluation**
-  **Engagement and Accountability Plan**

Our Team

- Bailey Caudle**
Leadership in Practice
- Chad Logan**
Leadership in Practice
- Brittany Njoku**
Leadership in Practice
- Jessica Pettersson**
Nutrition

Chad: Here you can see the overview of our presentation, we will start with background, move into program specific information, and then move on to implementation. Our team consists of myself, Bailey and Brittany who are Leadership in Practice Students and Jessica who is a nutrition student.



Chad: Economic stability is one of the five key domains of social determinants of health. These are the economic and social circumstances that affect individual and group health status and well-being. This stability allows people to earn a steady income and meet their health needs.

Durham County is one of the most diverse counties in North Carolina, with rich and robust higher education resources and quality health care. However, Durham County has a poverty rate close to 12%, which is higher than the national average of 10%. Additionally, many families are food insecure, defined as limited access to adequate and healthy foods due to social and economic conditions.

Within the county, approximately 26% of all residents have low access to food, which occurs when an individual or family lives further than one mile from grocery stores in urban areas.

Food insecurity and low access to foods can lead to adverse health outcomes such as an increased risk of heart disease, obesity, diabetes, and poor mental health.

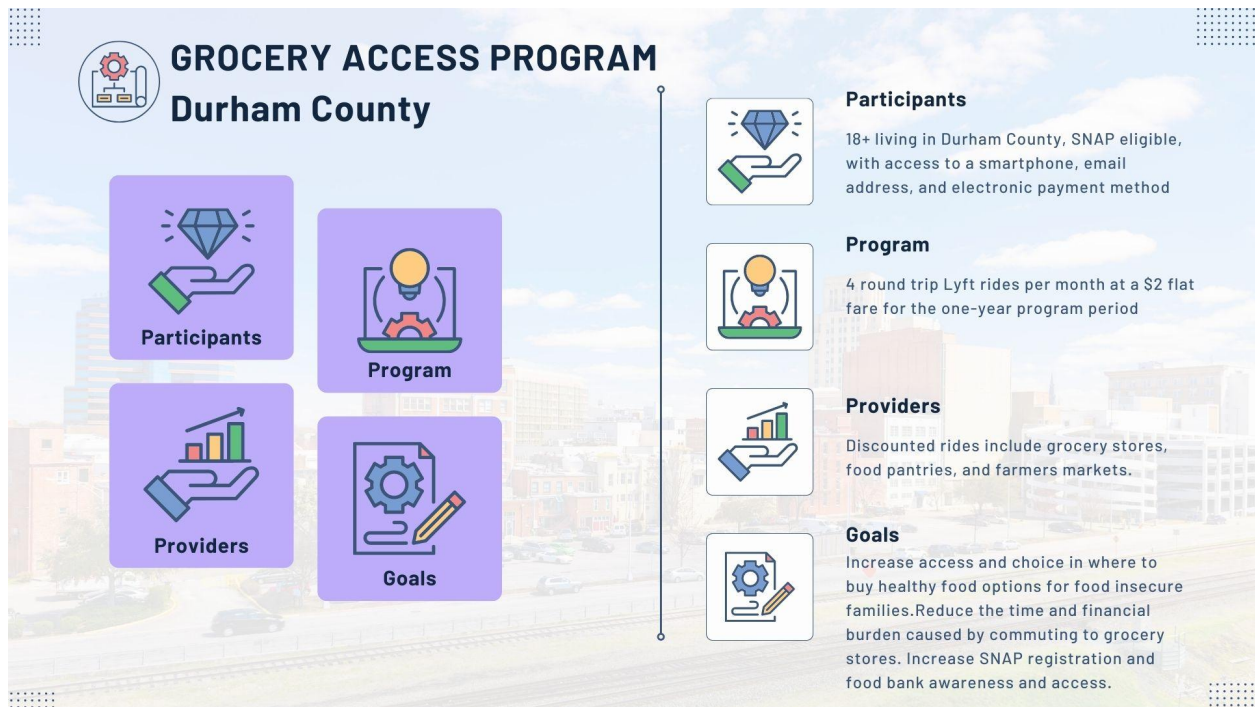
Next, Bailey will talk about our priority population.



Bailey: Our priority population is low-income individuals and families. I will now talk about some of the factors that led us to choosing this population:

- a. Barriers to food security: Time, #1 reported reason, 24.4%
- b. 10.3% of households in D.C. report receiving SNAP
- c. 26% low access to food, and additionally COVID-19 has caused hesitancy surrounding use of public transportation
- d. Food security is impacted by affordability, access, nutrition, education, knowledge, taste preferences, culture, environmental, and social cues
- e. Out of children in durham county approx ~19% are food insecure, and of that group, 77% of their households are eligible to receive federal nutrition assistance, like SNAP
- f. Low-income and food insecurity is not equitably distributed, and Black and Latinx bear the health burden considerably more than their white counterparts.

Based on these factors, we believe that addressing low-income food insecurity would be a good choice for Durham County Commissioners. Next, Jessica will speak about our proposed nutrition program.



Jessica: Our proposed solution for Durham County is an evidence-based Grocery Access Program which has been previously and successfully implemented in over 14 cities across the U.S., including Raleigh and Charlotte, North Carolina. In collaboration with Lyft, local food banks and grocery stores, the Grocery Access Program would provide SNAP eligible Durham County residents with 4 round trip Lyft rides per month at a \$2 discounted flat fare to and from local grocery stores and food pantries over a one-year period.

Participants would need to be 18 years or older, living in Durham County, SNAP eligible, with access to a smartphone, email address, and electronic payment method to be able to create and access a Lyft account. Participants would receive program information and be able to register online and at any of our participating stakeholder locations.

Upon the launch of the program registered participants will have ride credits added to their accounts at the first of each month. When participants are wanting to shop, they open the Lyft app and enter their destination. Ride credits are then automatically applied to rides to and from participating grocery providers.

The goals for this program are to:

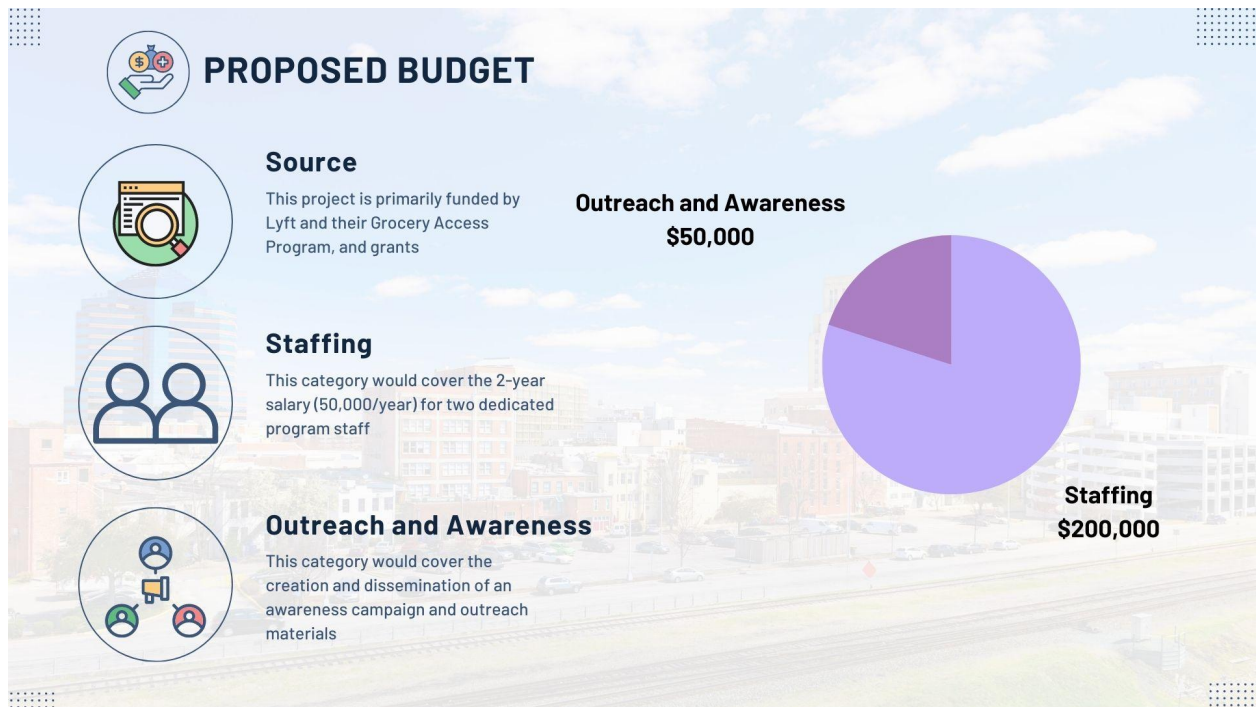
First, Increase access and choice in where to buy healthy food options for food insecure families.

Second, Reduce the time and financial burden caused by commuting to grocery stores.

Third, Increase SNAP registration and food bank awareness and access.



Brittany: Following the CDC’s guidance for identifying stakeholders, we identified implementers, decision-makers, partners, and participants. We then used the CATWOE analysis to describe each stakeholder and proceeded to assess their power and interest in the program. The mission statement for our implementer, Lyft, is to reimagine the world's transportation. They desire to use technology to change the way our world works. Lyft sees the community without reliable transportation as the customer. Our decision-makers, United Way, mission statement is to improve lives by mobilizing the caring power of communities around the world to advance the common good. They view those facing food insecurity as the customers and see themselves as the owners and actors -much like Lyft. Food Lion Feeds was identified as a partner because they believe when we come together, we’re stronger as a community. With their slogan “put hope on the table”, this nonprofit sees itself as actors and owners in the transformation. SNAP recipients without reliable transportation are directly impacted by this program. They see themselves as the customers.



Jessica: This program will be primarily funded by Lyft with an additional \$250,000 provided from grants that will be utilized for personnel and program outreach and awareness. \$200,000 of the grant funds will be used for a 2-year salary (\$50,000/year) for personnel. Staff responsibilities will include but are not limited to, implementation, management, and evaluation of the program. The remaining \$50,000 will be used for an awareness campaign and outreach materials to assist with educating the community about this program and enrolling eligible participants.



Jessica: The program evaluation will use a mixed methods approach capturing both quantitative and qualitative data. This study will assess how the Grocery Access Program impacted food insecurity and access to healthy food in Durham County. All Durham County participants who apply and meet SNAP income eligibility and register for the program will be required as a part of their participation to complete an online survey delivered to their email address at three key points: at the beginning of the program, at 6-months, and at completion of the program. Survey distribution, collection, and data analysis will be completed by the two staff hired for the program implementation and evaluation. Dissemination of results will consist of a published study in a public health journal, an Internal report disseminated to stakeholders and funders, and a public report of findings published on the County Health Department website.



Brittany: The engagement plan will serve as an outline for the implementation team to engage stakeholders. An advisory committee will be formed from the previously identified stakeholders. The advisory committee will be responsible for providing input and identifying challenges as well as provide guidance to the implementation team. There will be two sets of strategies used: individual, which will gather information as well as clarify roles and responsibilities, and group, which will map out resources and gather information. Individual strategies include stakeholder interviews and MOUs. Stakeholder interviews will focus on what each stakeholder sees as the main problem and what they would like to see done in response to it. MOUs will serve as partnership contracts and clearly describe roles and responsibilities for each agency. Group strategies will include stakeholder mapping, empathy mapping, nominal group technique and regularly scheduled meetings. Stakeholder and empathy mapping will capture knowledge about those experiencing food insecurity due to reliable transportation and create a visual representation of the environment (influences, barriers and supports). Nominal group technique will be used to address any areas of concern raised by the empathy and stakeholder mapping. Regularly scheduled meetings will keep everyone in the know.



Thank you for your time!

QUESTIONS?

Bailey: Thank you for your time and consideration. We will now take questions.



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APPENDIX B: BAILEY CAUDLE’S INDIVIDUAL DELIVERABLES

Appendix B.1 Problem Statement

Food Insecurity Among BIPOC Children in Durham County

Social Determinant of Health (SDoH)

The United States (US) Department of Health and Human Services (DHHS) has established specific goals as part of the Healthy People 2030 initiative. One of the categories of this initiative is Economic Stability, which includes topics like food security, family income, employment, educational attainment, and more (*Economic Stability - Healthy People 2030 | Health.Gov*, n.d.). The overall goal of the Economic Stability objective is to “help people earn a steady income that allows them to meet their health needs” (*Economic Stability - Healthy People 2030 | Health.Gov*, n.d.). A significantly impactful SDoH is childhood food insecurity, which is acknowledged via the following objectives: reduce household food insecurity and hunger (NWS-01) and eliminate very low food security in children (NWS-02) (*Economic Stability - Healthy People 2030 | Health.Gov*, n.d.). In 2021, the poverty rate in Durham County was 13.3% (Census Bureau Data, 2021). The 2019 Durham County Community Health Assessment Survey reports that 10.2% of survey respondents said they skipped meals because they didn’t have money (*Durham County Community Health Assessment 2020*, n.d.). However, Black and Latinx residents were more likely to report skipping meals, at 14.9% and 12.6% respectively, while white residents reported skipping meals at 6.6% (*Durham County Community Health Assessment 2020*, n.d.). This demonstrates a pattern of need that is consistent across many SDoH, and points to an imperative to address health inequities across Durham County (*Durham County Community Health Assessment 2020*, n.d.).

Geographic and Historical Context

Within North Carolina, Durham County is located within the Piedmont region and is about 300 square miles. Durham is the only city within county boundaries, with other small towns surrounding (*Durham County Community Health Assessment 2020*, n.d.). The population of the county is

approximately 312,000 residents, making it the sixth most populous county in the state. White, non-Hispanic residents account for about 52%, Black, non-Hispanic residents account for about 37%, Hispanic residents account for 13.5%, and Asian/other residents account for 11.6% (*Durham County Community Health Assessment 2020*, n.d.).

In its history, Durham County has gone through many transitions. A once agricultural county transformed into an area of high economic activity in the late 19th century, when the Duke family and their corporation (their companies included American Tobacco, Liggett & Myers, R.J. Reynolds, and P. Lorillard) experienced massive growth and brought many people and businesses to the county. “Historically, the African American community has been a driving force in the development of Durham in terms of business, education, and health care” and the City of Durham has long been referred to as Black Wall Street (*Durham County Community Health Assessment 2020*, n.d.). The most recent nickname afforded the city regarding industry is “City of Medicine” because of the Duke Hospital System, medical school, research entities, and more (*Durham County Community Health Assessment 2020*, n.d.). Additionally, Durham County has a rich history of political action organizations and active faith-based groups that promote advocacy for the community.

In spite of the diverse and storied history of Durham, high levels of health inequities and disparities between racial and ethnic groups are present in the population (*Durham County Community Health Assessment 2020*, n.d.).

Priority Population

“In Durham, as in most places in the US, Black and Brown people experience higher rates of economic insecurity, and a host of health concerns as well. The two are linked and are a consequence of years of institutional and systemic racism” (*Durham County Community Health Assessment 2020*, n.d.). The 2019 Durham County Community Health Assessment Survey reports that 10.2% of survey respondents said they skipped meals because they didn’t have money (*Durham County Community Health Assessment 2020*, n.d.). However, Black and Latinx residents were more likely to report skipping meals,

at 14.9% and 12.6% respectively, while white residents reported skipping meals at 6.6% (*Durham County Community Health Assessment 2020*, n.d.). In 2020, Feeding America’s Map the Gap Initiative reported that 18.8% of children (<18 years old) in Durham County were food insecure (*Overall (All Ages) Hunger & Poverty in the United States | Map the Meal Gap*, n.d.). Therefore, while it is extremely important to address childhood food insecurity overall, childhood food insecurity among BIPOC children should be a priority in the County’s approach to addressing SDoH.

Measures of problem scope

As acknowledged by Durham County, “food choices are based on a variety of factors including affordability, access, nutrition education and knowledge, taste preferences, culture, environmental and social cues” (*Durham County Community Health Assessment 2020*, n.d.). Food insecurity is defined by the U.S. Department of Agriculture as “a household-level economic and social condition of limited or uncertain access to adequate food” (*USDA ERS - Definitions of Food Security*, n.d.). Specifically within Durham County, the most common reason reported for not eating healthy foods was the time required to prepare foods (24.4% of 2019 survey respondents), and the second most common was cost (15.7% of 2019 survey respondents) (*Durham County Community Health Assessment 2020*, n.d.). As previously mentioned in the introduction, one in ten Durham County residents have reported skipping meals or eating smaller meals because of lack of money (*Durham County Community Health Assessment 2020*, n.d.). Feeding America reported that “of the 14% of food insecure individuals in North Carolina, 25.1% were African Americans, 15.7% were Hispanic and 9.4% were white” (*Durham County Community Health Assessment 2020*, n.d.).

Rationale

Childhood food insecurity has long lasting impacts on an individual’s health and wellbeing, especially if experienced within the first three years of life (*Children and Families*, 2022). Children who experience food insecurity face health and educational problems. Food insecurity can be classified as physical neglect, regardless of the intention of the parent, as a lack of food negatively impacts the health

of a child. Because of that, food insecurity is an Adverse Childhood Experience (ACE) that can lead to toxic stress, which impairs cognitive and emotional development, in addition to health (*Children and Families*, 2022). Children who are food insecure are also more likely to miss school or perform poorly (*Children and Families*, 2022). Additionally, childhood food insecurity negatively impacts the efficiency of the U.S. workforce (*Children and Families*, 2022).

Disciplinary Critique

As public health leaders, it is a top priority to engage with and listen to stakeholders. Stakeholders in Durham County have identified economic stability as one of their priorities, i.e. housing, gentrification, living wage (*Durham County Community Health Assessment 2020*, n.d.). In the 2016 Community Health Assessment, poverty was ranked 3rd in the list of top priorities for Durham County residents (*Durham County Community Health Assessment 2020*, n.d.). Additionally, there is no biological/health cause for the existing health inequities in Durham. Instead, racism is responsible for creating and perpetuating health disparities. In order for Durham County to address the SDoH, they must address racism as a contributing factor and adopt a race-based lens for addressing the root causes of health inequities.

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Appendix B.2: Stakeholder Analysis

Introduction to Problem

The 2019 Durham County Community Health Assessment Survey identified that 10.2% of respondents reported skipping meals due to financial limitations. However, the percentage rose to 14.9% and 12.6% respectively among Black and Latinx residents. Among white residents of Durham County, only 6.6% reported skipping meals due to finance (*Durham County Community Health Assessment 2020*, n.d.). As acknowledged by Durham County, “food choices are based on a variety of factors including affordability, access, nutrition education and knowledge, taste preferences, culture, environmental and social cues” (*Durham County Community Health Assessment 2020*, n.d.). In 2020, Feeding America’s Map the Gap Initiative reported that 18.8% of children (<18 years old) in Durham County were food insecure (*Overall (All Ages) Hunger & Poverty in the United States | Map the Meal Gap*, n.d.). Of those children, it is estimated that 77% of their households are eligible for federal nutrition programs, like SNAP/EBT (*Overall (All Ages) Hunger & Poverty in the United States | Map the Meal Gap*, n.d.). In 2015, which is the most recent year available, the USDA determined that 26% of Durham County had low access to grocery stores (*USDA ERS - Go to the Atlas*, n.d.). The USDA defines low access as living more than a mile from a grocery in urban areas, or more than 10 miles if in a rural area (*USDA ERS - Go to the Atlas*, n.d.). “In Durham, as in most places in the US, Black and Brown people experience higher rates of economic insecurity, and a host of health concerns as well. The two are linked and are a consequence of years of institutional and systemic racism” (*Durham County Community Health Assessment 2020*, n.d.). Therefore, while it is extremely important to address childhood food insecurity overall, childhood food insecurity among BIPOC children should be a priority in the County’s approach.

With this information in mind, a program that addresses the high number of food-insecure children and the 26% of Durham County that is categorized as low-access to groceries would be a great step forward for Durham County. One such program would be creating a partnership between rideshare apps/companies like Uber, Lyft, etc., grocery stores, and SNAP/EBT to increase physical and financial

access to food in Durham County. This type of program has been piloted nationally and within the state of North Carolina successfully in Charlotte and Raleigh with Lyft (*Lyft Launches Grocery Access Program in Select Markets*, n.d.). The Charlotte pilot partnered with Loaves & Fishes, a local food bank, to provide eight - \$2 flat fare rides to food insecure individuals. The flat fare ride tickets were provided to individuals who were enrolled in SNAP/EBT and were redeemable within the service area to grocery stores, farmers markets, and food banks that accepted SNAP/EBT benefits (*Lyft Launches Grocery Access Program in Select Markets*, n.d.). If possible, it would also be recommended to increase SNAP/EBT value during these Lyft-sponsored trips, similar to how many farmers markets increase the value of SNAP/EBT dollars on certain days. A program like this would address the transportation needs of the 26% of Durham County residents with low access to grocery stores, and would directly impact the 77% of food-insecure children in Durham County who qualify for SNAP/EBT.

Identification of Stakeholders and Rationale

If Durham County Commissioners were to select this initiative, interaction and communication with key stakeholders would be crucial for optimal implementation. Key stakeholders include Durham County families and residents, food banks, rideshare companies like Lyft, Uber, etc., and nonprofits. Additional stakeholders include grocery stores, farmers markets, local government officials, health care providers/community, and school systems. Each of these stakeholder groups are included for different reasons, and would contribute to and benefit from this initiative in various ways.

Within the key stakeholder group, residents and families are the primary participant in this program and therefore would need to be consulted early, often, and consistently in the creation, implementation, and evaluation of this program. Residents who are food-insecure especially will be able to contribute via sharing experiences, perspectives, and ideas on what is needed to improve food security. While this group has high interest in this program, they have low power as they do not have the direct ability to create the program and/or policy to create the program. Next, rideshare companies like Lyft are crucial partners, as they and their drivers are providing the transportation assistance. These companies

have high power in this situation, as the program is not possible without their cooperation, and financial support of the rides. They are however low interest, as improving food security does not directly benefit their profits or drivers' positions. Finally, non-profits and food banks are the last key stakeholders for this program. Their participation and advocacy would increase participation in the program, spread awareness of the benefits of the program, and potentially provide the funding/support for increasing SNAP/EBT dollar value at participating locations. Their high interest and relatively high power in this program make them vital partners moving forward. These key stakeholders should not only be consulted and updated, but program creators should also hold themselves accountable to any goals set with this group of stakeholders.

Additional stakeholders include grocery stores and farmers markets, local government, school systems, and the health care community. Grocery stores, food banks, and farmers markets as participating locations in the program hold power because they determine the availability of participating locations. Without these establishments, free rides would not impact food security. Their involvement can be as simple as accepting SNAP/EBT, or as complex as offering incentives to shop their establishment, specific shopping days/times to encourage participation, etc. Because their participation can vary, they are not considered a key stakeholder, but their potential to collaborate should not be ignored. Local government is another stakeholder that may have limited scope, but can increase program participation. While this program is not one that requires implementation or policy at the county level, county officials in SNAP/EBT offices can encourage and advertise participation in this program when they are helping someone apply, answering questions about enrollment, or sending the renewal information. Therefore, local governments should be included as a stakeholder as they are an early partner in SNAP/EBT participation. The last two stakeholders should be included for the same reason: school systems and health care environments have become SNAP/EBT "outposts," where individuals and families seeking a different service (education, healthcare, counseling, etc.) often have the opportunity to be screened for SNAP/EBT eligibility and to apply for benefits. Because of this, a program with no acknowledgement of

the role that school systems and health care systems play in enrolling individuals in SNAP/EBT would miss out on the opportunity to engage with an entire group of people who are enrolled in SNAP/EBT.

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Appendix B.2.a: Stakeholder Analysis Tables and Figures

Figure B.2.a.1: Power Analysis Grid

High Power	<p style="text-align: center;">Ride share apps</p> <p>Grocery stores/farmers market</p>	<p style="text-align: center;">Non profits</p> <p style="text-align: center;">Local government</p>
Low Power		<p style="text-align: center;">Food banks</p> <p style="text-align: right;">Health care</p> <p style="text-align: center;">Families/residents</p> <p>School systems</p>
	<p style="text-align: center;">Low Interest High Interest</p>	

Appendix B.3: Engagement and Accountability Plan

Statement of Purpose

The purpose of this proposal is to provide a connection between the individuals and families who receive SNAP/EBT benefits and the grocery stores/farmer's markets that honor those SNAP/EBT dollars. The availability of transportation, whether personal or public, is a factor to be considered in addressing food insecurity. U.S. Hunger has collected 129,445 food insecurity surveys from "individuals who have requested food assistance due to financial uncertainty or an inability to find sufficient food in their area" since 2020 (Communications, 2022). Of those surveys, 42.6% of respondents reported they lack transportation to get to the grocery store (Communications, 2022). Additionally, the lack of good public transportation availability most heavily impacts low-income and Black households (Baek, 2016). It is important to remember that in situations where individuals and families do not have personal transportation and/or rely on public transportation, obtaining food can take a longer amount of time, as the individual/family is dependent on less direct public transportation, availability of a friend, etc. In Durham County, 24.4% of survey respondents reported that eating healthy was too time consuming (Durham County Community Health Assessment 2020, n.d.). Therefore, in order to address food insecurity among low-income individuals and families in Durham County, the county commissioners should address transportation among low-income individuals/families.

Engagement Plan Rationale

The purpose of this Engagement and Accountability Plan (EAP) is to communicate with, investigate, and explore the motivations of the involved stakeholders. Additionally, the EAP will serve to connect resources, secure potential contributions, understand concerns, and establish goals with the stakeholders. We must conduct stakeholder engagement in order to ensure that this program is the right next step for this community, will be supported, and has sufficient buy-in for program success.

Additionally, without proper stakeholder engagement, predicting problems and troubleshooting would not be as comprehensive as a program that had been run by the community and partners.

Engagement Methods

A variety of methods will be used to gain stakeholder perspectives and participation. Two of those methods will be Individual Interviews and Community Resource Mapping. Individual interviews will be conducted with a representative sample of SNAP/EBT participants before the Lyft Grocery Access Program is put into place. This is not only to determine if they truly believe that this program could address a barrier to their food security, but to also ask about alternatives that they think would be better. If a pattern emerges of an alternative program, the recommendation would be to not continue with implementation of this program and go back to the drawing board. If yes, the next engagement method can be used. The second engagement method is Community Resource Mapping. This would be conducted as an in-person event to map out grocery stores/farmers markets, high concentrations of SNAP/EBT participation, and potential key grocery locations, as well as barriers to ride share participation like traffic, road construction, etc. Additionally, if grocers are identified that do not accept SNAP/EBT that participants would like to shop with, pursue enrolling those grocers in SNAP/EBT.

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Appendix B.3.a: Engagement and Accountability Tables and Figures

Table B.3.a.1 MOU Outline

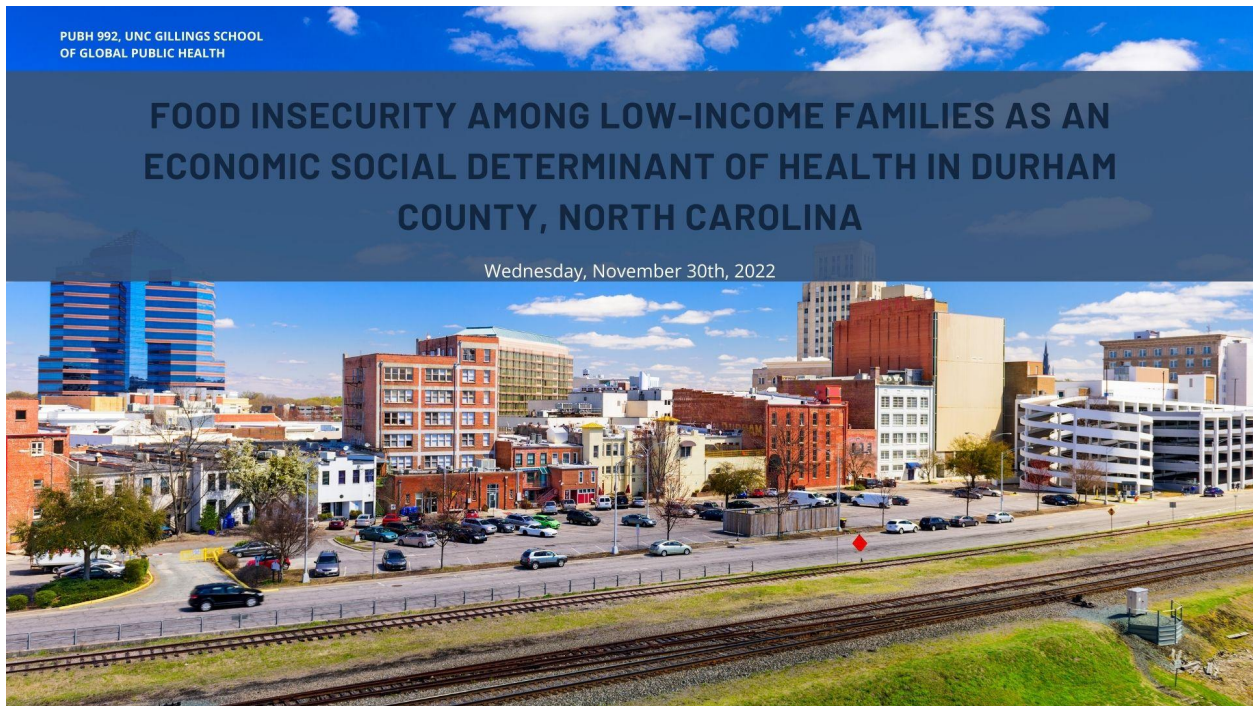
- 1) Identify the backbone agency
 - a) Durham County Public Health – coordinate between local health departments, rideshare apps, grocers, etc. Backbone = coordinator and ring master
- 2) Identify the partner/stakeholder who will be responsible and accountable (RASCI Analysis Table B.4.a.1).
 - a) Rideshare apps: Lyft, responsible and accountable. Program intervention is not possible without their participation. Accountable because they will determine the number of vouchers available, distribution, creation of accounts, etc.
- 3) Set forth common expectations, vision, and values for the group.
 - a) Expectations: honesty, SMART goals, commitment, equity, active listening
 - b) Vision: We can work together to create a healthier and more connected Durham.
 - c) Values: Durham community, equitable access to health and food,
- 4) Establish specific goals (aims), milestones and metrics to assess progress.
 - a) Convene guiding a group of stakeholders to present ideas, present engagement plan steps, and what to expect.
 - b) Conduct individual interviews with SNAP/EBT participants before moving forward
 - c) Present results of interviews and appropriate next steps based on those results.
 - d) Community Asset Mapping
 - e) Reconvene the entire group for an update, new concerns that could be presented, etc.
 - f) Determine how many participants and partners are still on board after engagement strategies conducted & results distributed.
 - g) Draft an implementation plan & receive feedback
 - h) Implement plan

- i) Enroll participants
- j) Reconvene stakeholder group after 1st month, 3 months, 9 months, 2 years.

Table B.3.a.2 RASCI Analysis

Who is...	Policy/Program Transformation	Rationale For Partner Participation
Responsible = owns the problem / project	Durham County Public Health (local government) & Lyft (Rideshare app)	Lyft and Durham County Public Health will work together the most to get this project off the ground. DCPH would be essentially the coordinator of the team, offering meeting space, etc., and is therefore one of the responsible parties, but not otherwise participative.
Accountable = ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those <i>responsible</i>	Lyft and Grocery Stores	These partners would be accountable as they are the 2 involved most heavily in the success or failure of the intervention. Without either of these partners, this intervention would not be possible.
Supportive = can provide resources or can play a supporting role in implementation	Nonprofits Food banks Health care community School systems	Nonprofits and food banks could provide additional funding, community knowledge, and recruitment of participants. Additionally, the health care community and school systems can be places where individuals are enrolled in SNAP and get access to this program.
Consulted = has information and/or capability necessary to complete the work	Low-income families	Families can inform the team about what their biggest obstacles are to food security, map out the food resources in their neighborhoods and their closest grocery stores, and provide feedback during the evaluation phase.
Informed = must be notified of results, process, and methods, but need not be consulted	Durham County Public Health Leadership	DCPH Leadership should be informed for reporting/monitoring reasons, but otherwise would not need to be consulted.

Appendix B.4: Individual Presentation Slides and Script



Bailey: Welcome to our presentation. We are the Economic Stability Group and we have chosen to focus on Food Insecurity Among Low-Income Families as an Economic Social Determinant of Health in Durham County, North Carolina.



Bailey: Our priority population is low-income individuals and families. I will now talk about some of the factors that led us to choosing this population:

- g. Barriers to food security: Time, #1 reported reason, 24.4%
- h. 10.3% of households in D.C. report receiving SNAP
- i. 26% low access to food, and additionally COVID-19 has caused hesitancy surrounding use of public transportation
- j. Food security is impacted by affordability, access, nutrition, education, knowledge, taste preferences, culture, environmental, and social cues
- k. Out of children in durham county approx ~19% are food insecure, and of that group, 77% of their households are eligible to receive federal nutrition assistance, like SNAP
- l. Low-income and food insecurity is not equitably distributed, and Black and Latinx bear the health burden considerably more than their white counterparts.

Based on these factors, we believe that addressing low-income food insecurity would be a good choice for Durham County Commissioners. Next, Jessica will speak about our proposed nutrition program.

Thank you for your time!

QUESTIONS?



Bailey: Thank you for your time and consideration. We will now take questions.

APPENDIX C: CHAD LOGAN'S INDIVIDUAL DELIVERABLES

Appendix C.1: Individual Problem Statement

Social Determinant of Health

According to Healthy People 2030, 1 in 10 people in the United States live in poverty (Healthy People 2030 n.d.). In Durham County, North Carolina, the poverty rate is slightly higher at 11.7% (U.S. Census Bureau, 2021). Those who live in poverty have difficulties affording basic necessities such as housing, health care and healthy foods. Economic stability is the ability of people to afford and access resources essential to life. Those without economic stability are subjected to living impoverished, while also becoming more susceptible to negative health outcomes. Childhood food insecurity is one such way that negative health outcomes can come about as a result of not having economic stability. Food insecurity is the inability to access affordable, healthy foods. Short-term effects of food insecurity in children can lead to malnutrition, poor academic performance, and behavioral problems. Long-term effects of food insecurity are linked to obesity, diabetes, heart disease, and high blood pressure (Healthy People 2030 n.d.).

Geographic and Historical Context

Durham County, with a population of 326,126, is the sixth largest county in North Carolina by population (U.S. Census Bureau, 2021). It is one of the most diverse counties in North Carolina and is one of eight counties in the state that account for 50% of the state's black population (Tippett, 2015). Durham County is part of the Research Triangle area in North Carolina, which is home to three major universities, in addition to a variety of pharmaceutical and biotech companies. Though economic opportunities appear abundant in this region, many areas, including Durham County, are still recovering from policies, such as redlining, that impacted some of these opportunities from its residents. Redlining is the refusal by banks to loan money to people that live in an area deemed to be a poor investment. These areas tend to be

majority low-income and minority residents. The effects of economic stability on food insecurity within the county can be seen from the inclusion of “Obesity, Diabetes, and Food Access” as a top five health priority since 2018 (Healthy Durham, 2022). There are current food security initiatives already in progress in Durham County; including the Durham Co-op, which is a community-owned grocery store; the Durham Food Pantry; and the hiring of the county’s first Food Security Coordinator, Mary Oxendine, in 2021 (Durham County Food Security: Durham County 2021).

Priority Population

Due to the disparities seen when comparing white households to Black and Latinx households, I think the focus should be on childhood food insecurity as it pertains to Black and Latinx persons under 18. Black and Latinx are the two largest minorities in the county, accounting for 35.9% and 13.8% of the county population, respectively (U.S. Census Bureau, 2021). Within the Durham County Public School System, Black and Latinx make up 74.4% of the student population (District Facts & Figures, 2022). The significance of this is that poverty and food insecurity rates for both Black and Latinx are higher than North Carolina averages. The poverty rates for Black and Latinx persons are 16.69% and 24.87%, respectively, compared to 7.09% for white persons. It is reflected in the household median incomes for Durham County families. In 2018, the white household median income was \$76,962. In Black and Latinx households, the median incomes were \$42,417 and \$44,004, respectively (Healthy Durham, 2022). That is a more than \$30,000 wage gap, which highlights just how stark the disparities are between the races.

Measures of Problem Scope

In 2018-2019, the food insecurity rate in Durham County was 11.3%. For children, the rate was even higher at 18.8% (Food Bank of NC, 2021). Food insecurity rates for Black, Latinx, and White persons were 21%, 19%, and 7%, respectively (Hunger & Poverty in Durham County, 2020). These rates have shown some signs of decreasing in recent years, however, the rates for children remain high at 20%

in 2020 (Food Bank of NC, 2021). During the 2020-2021 school year, over 52% of children in Durham County received free or reduced lunch according to the Durham County Public School System (District Facts & Figures, 2022).

Rationale/Importance

Combating food insecurity is directly related to fighting poverty, as healthy foods tend to cost slightly more per meal. Without economic stability, it is difficult for communities to afford basic living necessities. Children in the US with very-low food security don't typically have enough to eat, which can impact school performance and lead to negative health outcomes. This is especially true when looking at Black and Latinx children, who have the highest rates of childhood obesity (CDC, 2022). Improving child food insecurity will help reduce and eliminate some of the many negative health outcomes that are associated with it.

Disciplinary Critique

Economic stability is a fundamental determinant that should be addressed by public health leaders, considering its impacts on health, health access, and quality of life. Having access to healthy foods is something that should be equitable and attainable by all peoples, regardless of their race, ethnicity, or zip code. Economic stability is more than just access to affordable and nutritious foods. It includes access to affordable housing, employment opportunities, and acceptable living wages. Given the impacts that economic stability has on the other social determinants of health, such as health care access and education access, improving economic stability should be a top priority. Many of the inequities seen in the US can be attributed to disparities related to income and access. By focusing on potential solutions to improve some of these economic disparities, improvements in other areas might come about more easily.

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Appendix C.2 Stakeholder Analysis

Introduction

Understanding social determinants of health are important when examining underlying causes of inequities. In addressing which social determinant of health the Durham County Commissioners should prioritize, they should prioritize economic stability. Economic stability is the ability of people to afford and access resources essential to life. These resources include access to healthy foods, affordable housing, and health care. Durham County's primary focus will be on food insecurity in low-income families and their ability to access healthy foods. To improve access to healthy foods, I recommend a pilot allowing ridesharing companies, such as Lyft & Uber, to offer residents discounted trips to local grocery stores. To adequately address the issue around access to healthy foods, it's essential to identify potential stakeholders and the roles that they might have.

Stakeholders

The first stakeholder identified are the low-income families directly impacted by the county's food insecurity. Food insecurity has a direct correlation with the income levels of families. Those who make less than a certain amount of money or fall under the federal poverty line have more difficulty affording healthy foods. In Durham County, Black and Latinx persons have a significantly higher poverty rate (16.69% and 24.87%, respectively) than white persons (7.09%) (U.S. Census Bureau, 2021). The median income for families is also lower in Black and Latinx persons (\$42,417 and \$44,004, respectively) compared to white persons (\$76,962) (Healthy Durham, 2022).

Since low-income families are affected the most when it comes to accessing healthy foods, including them as a stakeholder is essential to understand their needs; any proposed intervention, such as the ridesharing pilot, should come after families can provide their input. Based on the developed impact matrix, low-income families should be considered high interest/low-medium influence. They are the primary consideration of the intervention; however, their impact is limited to suggestions and ideas as opposed to financial capital.

The next stakeholder would be ridesharing companies. On the impact matrix, ridesharing companies are listed as a medium-high interest, with high impact. They are high impact primarily because they would be responsible for providing transportation for families to and from grocery stores. As a stakeholder in this intervention, they would give inputs on how much to charge families, how often rides occur in a given month, and how far they are willing to travel. Only some people have access to a personal vehicle, and public transportation can be tricky to navigate when carrying groceries. Low-income families are more likely than anyone else to use public transit because of the costs involved in purchasing and maintaining a car. Providing this service would provide reliable transportation for families to buy food. This implementation's consideration as a solution stems from successful pilots from Lyft in Washington, D.C. In its D.C. pilot, riders automatically received a promo code that charged \$1.25 per ride to participating local grocery stores. The local food bank subsidized the remainder of the fare up to \$20 (Lyft, 2019).

The next identified stakeholders are food banks and other nonprofits in Durham, NC. Examples of this could be the Durham Food Pantry, Food Bank of Central and Eastern NC, or the Durham County Health Department. The primary role of the food banks, nonprofits, and other community organizations in this intervention is to subsidize the ride fares from the ridesharing companies so they can provide discounted rides for low-income families. Food banks are listed in the impact matrix as both high impact and high interest. The high impact comes from their ability to help subsidize and offset rideshare fare costs for families. Providing this discount is vital in ensuring transportation is accessible and affordable for families. The high interest from these stakeholders comes from the goal of these organizations to provide food and food resources to low-income families. In addition to subsidizing rideshare fares, food banks and nonprofits such as the Durham Food Pantry provide food to those who cannot afford it on their own.

The final stakeholder identified is medical companies. The role of medical companies as a stakeholder would be to provide health-related recommendations and support programs for families to

achieve better nutrition. Within medical companies, you have physicians, nutritionists, and registered dieticians who are involved in the lives of their patients and want to see them healthy. Medical personnel would not be directly involved in the ridesharing intervention but will provide knowledge to families on ways to improve their health by offering nutrition assistance. Medical companies are listed as medium-high interest and medium impact. They are interested in providing resources, recipes, and nutrition programs to the people they care for. Their influence is limited to a supplementary role for the proposed intervention. Still, it represents a stakeholder with a unique medical approach to economic stability as a social determinant of health.

Summary

The stakeholders that have been identified are people and organizations that would have the most to offer in this intervention. The ridesharing companies would provide transportation assistance to low-income families, removing barriers to accessing healthy foods. The local food banks and nonprofits would subsidize the transportation within Durham to offset the fare costs, which makes the whole intervention possible. Medical companies and personnel can provide information that would include resources and programs that would help families. Low-income families are the population of interest in this intervention and have the most to give regarding which stores they prefer, what hours work best, and which areas in Durham are most needy. The impact matrix will help to understand each stakeholder better. The level of impact and interest they have is helpful because it offers a simple yet effective visualization of the identified stakeholders. The influence and impact of each stakeholder in addressing the food insecurity element of economic stability are the beginning steps of developing a solution to addressing food insecurity.

Appendix C.2.a: Stakeholder Analysis Figures and Tables

Table C.2.a.1: Impact Matrix

Stakeholder	Role	Interest	Impact
Lyft/Uber/Ridesharing companies.	Provide transportation services to families at a discounted rate	Medium-high	High
Low-income families	Main customers, provide insight into their food needs	High	Low-medium
Local food banks/ Local nonprofits	Provide food free-of-charge to families in need/ Provide funding and support to discount rideshare services	High	High
Medical companies	Can provide and recommend food-support programs for families to help achieve better nutrition	Medium-High	Medium High

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Appendix C.3 Engagement & Accountability Plan

Engagement and Accountability Plan

Introduction

Economic stability in Durham County, NC, is essential so families can meet their health needs. Food insecurity is one metric that reflects a family's financial strength and income level. Durham County has a poverty rate of 11.7%, slightly higher than the national average of 10% (U.S. Census Bureau, 2021). Those living in poverty have difficulty affording necessities such as housing, health care, and healthy foods.

In 2018-2019, the food insecurity rate in Durham County was 11.3%. For children, the rate was higher at 18.8% (Food Bank of NC, 2021). Addressing food insecurity in low-income families in the county is essential to improving economic stability. Low-income families have difficulty accessing and purchasing healthy foods due to financial constraints, including transportation barriers. The Rideshare Grocery Access Program is designed to reduce transportation barriers by offering low-income families discounted rides to and from participating grocery stores. The program will ensure that families have reliable and affordable transportation and will save them money to purchase food for their families.

Stakeholder Engagement Purpose

The accompanying stakeholder engagement plan details how the program coordinators will partner with the different stakeholders to implement the Rideshare Grocery Access Program successfully. The project describes the various engagement methods at the individual and group levels to ensure a collaborative implementation process. These engagement strategies will be used to identify and establish the roles of how each stakeholder will be involved while incorporating each stakeholder's input into the final implementation.

Engagement Methods

Different stakeholder engagement methods will be utilized to understand stakeholder perspectives and thoughts on the proposal. The first method will be focus groups to obtain information regarding their

preferences and opinions (O'Haire et al., 2011). The focus group will consist of two members representing each of the primary stakeholders and a moderator to facilitate the discussion. After introducing the topic of the ridesharing proposal, each person will be given two minutes to state their views on the proposal and any suggestions they might have. After two minutes, the discussion becomes more open, allowing other participants to respond and give feedback on the topic. The focus group will ensure that each stakeholder has the opportunity to share their views on the proposal while also persuading other stakeholders on any changes they recommend (see Table C.3.a.1).

The next engagement strategy is to use a give-get grid. The give-get grid is a valuable group-level tool that gets different stakeholders to list their contributions to the effort and what they expect to receive. For the ridesharing proposal, each stakeholder will list what they can give and what they hope to receive in return (see Table C.3.a.2).

The next strategy to gather input from stakeholders will be the nominal group technique (see Table C.3.a.3). The nominal group technique is a problem-solving ideas-generating activity in which individuals' ideas are collected and combined in a face-to-face, non-threatening group environment (O'Haire et al., 2011). Like focus groups, this method encourages participants to express their opinions and create a list of priorities. Other members then rank the priorities, making a structured method of idea exchange. Each member gets an opportunity to create a list, creating an ideal strategy for engagement. In the context of this proposal, the first topic might be for each member to give ideas on how to advertise the ridesharing proposal to the local community.

As different engagement methods are utilized to gather input from all stakeholders, creating an MOU or memorandum of understanding is also essential. The MOU, which is an individual level strategy, will clearly define the roles, responsibilities, and goals between the Durham County Health Department and the ridesharing company. An outline of this document is in the following section..

With the engagement of stakeholders, it is also necessary to identify the roles and responsibilities of each stakeholder. A RASCI analysis (see Table C.3.a.4) visually presents stakeholders' different roles

in this proposal. The Durham County Department of Health and Lyft are responsible for the task because they will work in tandem to provide discounted rides for families. The health department directory and advisory board members are accountable and oversee how the program operates. Nonprofits, partnering grocery stores, and medical companies are supportive in their role by providing additional resources and programs to families. Low-income families are consulted and can offer information about how the program might work in their neighborhoods and which grocery stores they would prefer to have access to. Health department board members are informed and updated on program progress.

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Appendix C.3.a: Engagement and Accountability Plan Figures and Tables

Table C.3.a.1: Focus group

Step 1.	Bring all stakeholders to the table
Step 2.	Moderator prepares a guide to lead the discussion on the Ridesharing Program
Step 3.	Session will last for 90 minutes and be led by the moderator
Step 4.	Questions and comments from stakeholders
Step 5.	Analyze the session and present findings in a written report for each stakeholder

Table C.3.a.2: Give-Get Grid

Stakeholder	Gives	Gets
Durham County Department of Health	Source of funding to subsidize ridesharing rides	The opportunity to expand access and services to low-income families
Lyft (Ridesharing company)	Discounted rides to low-income families	Publicity and expansion of its service to underrepresented demographics
United Way	Additional funding to the ridesharing program and connections as an NPO	The ability to extend their reach, while improving economic stability for families
Durham Community Food Pantry	Supplemental support by providing free meals and advice as an NPO	The opportunity to partner with different stakeholder and implement different practices
Food Lion and other grocery stores	Access to stores as a preferred grocery store in partnership with Lyft	Publicity and a documented track record of working with low-income families

Duke Health	Recommendations on food-support initiatives to supplement	Partnership opportunity to improve health conditions for low-income families
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Table C.3.a.3: Nominal Group Technique

Questions: Each stakeholder will give their answers before a vote is held to determine the most agreed upon solutions.	<ol style="list-style-type: none"> 1. What are the top three ways to advertise the ridesharing proposal to the public? 2. What are the best additional supports to supplement the program? 3. What are ways to encourage families to apply for SNAP?
Rankings	After listing ideas, please rank (1 being the top preference).

Table C.3.a.4: RASCI Analysis

Who is...	Policy/Program Transformation	Rationale For Partner Participation
Responsible = owns the problem / project	Durham County Department of Health & Lyft	The health department would be the ones subsidizing the rides that Lyft offers at a discount to families.
Accountable = ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those <i>responsible</i>	Health Department directors & advisory board members	The directors and board members authorize the program to happen and oversee how it is implemented in the community.

<p>Supportive = can provide resources or can play a supporting role in implementation</p>	<p>Nonprofits (United Way, Durham Co-op, Durham Community Food Pantry) Lyft Partnering grocery stores (Food Lion, Lowe's, Aldi, Harris Teeter) Medical companies</p>	<p>Nonprofits provide resources such as food Grocery stores partner with Lyft to help families Staff from medical companies can also recommend food-support programs for families.</p>
<p>Consulted = has information and/or capability necessary to complete the work</p>	<p>Low-income families</p>	<p>Families provide useful information about what grocery stores they prefer and how much help they require.</p>
<p>Informed = must be notified of results, process, and methods, but need not be consulted</p>	<p>Health department board members</p>	<p>Board members should be up to date on program progress for evaluation purposes.</p>

Table C.3.a.5: Memorandum Of Understanding

Memorandum of Understanding

Between

Durham County Health Department and Lyft (Ridesharing Company)

This Memorandum of Understanding (MOU) sets forth the terms and understanding between the Durham County Health Department and Lyft to reduce transportation barriers in an effort to help families that are food insecure.

Background

The partnership between the listed parties is important towards reducing transportation barriers for food insecure low-income families. Low-income families are less likely to have access to affordable, healthy foods, and this includes reliable transportation to and from grocery stores.

Purpose

Common Goals

- Reduce transportation barriers for low-income families while traveling to and from grocery stores.
- Increase access to affordable and healthy food options within the county.
- Increase the utilization of alternative forms of transportation.

Vision: We envision a community where all families are able to access healthy, affordable foods, without barriers.

Values: Respect, equity, honesty, open-mindedness, teamwork, caring

Metrics

- **Short-term (1-2 years)**
 - Increase the percentage of families eligible for SNAP benefits that are enrolled by 25% in year one.
 - Increase the percentage of families with SNAP benefits that have reliable transportation by 30% in year one.
 - Increase the utilization of alternative forms of transportation by 20% within two years.
- **Long-term (3-5 years)**
 - Decrease the percentage of families listing transportation as a barrier to accessing healthy foods by 50% in five years.
 - Reduce the percentage of low-income families with low-food security by 1.5% within five years.

Milestones

- December 2022 – Beginning of Ridesharing Grocery Access Program
- March 2023 – First quarterly progress update
- June 2023 – Second quarterly progress update
- September 2023 – Third quarterly progress update
- December 2023 – One year progress update; reevaluation of program goals and metrics
- March 2024 – Quarterly progress update
- June 2024 – Quarterly progress update
- September 2024 – Quarterly progress update
- December 2024 – Program evaluation and progress update

The above goals and metrics will be accomplished by undertaking the following activities:

- All involved parties will participate in monthly meetings.
- All parties must communicate in a timely, professional manner and voice disagreement appropriately.
- Surveying local families on their satisfaction with the program.
- Engage in continuous quality improvement centered around bettering the program

Roles

Durham County Health Department

- Provide guidance and support for the Lyft Ridesharing Grocery Access proposal
- Serve as a point of contact for stakeholders
- Promote best practices to support low-income families
- Engage with local grocery stores for program implementation
- Oversee proposal logistics in collaboration with Lyft

Lyft

- Provide access to reduced-fare ridesharing for low-income families in the county

- Promote program through advertising
- Engage with local families to agree on locations of pickup

Review

The initial MOU should be reviewed by the internal leaders and partners in addition to the external stakeholders. We are recommending that a meeting be held with the internal team to identify concerns, challenges, and red flags with the first MOU draft. After all feedback has been received, a second draft will be developed. Once approved by the internal team it will be reviewed by the external partners, revised, and finalized.

Duration

This MOU is at-will and may be modified by mutual consent of authorized officials from the Durham County Health Department and directors from Lyft. This MOU shall become effective upon signature by the authorized officials and will remain in effect until modified or terminated by any one of the partners by mutual consent. In the absence of mutual agreement by the authorized officials from this MOU shall end on December 1, 2024.

Contact Information

Durham County Department of Health

Rodney Jenkins

Health Director

_____ Date:

Lyft

Kristin Sverchek

President of Business Affairs

_____ Date:

Appendix C.4: Individual Presentation Slides and Script

Presentation Overview

- SDOH Background
- Priority Population
- Nutrition Program Proposal
- Necessary Stakeholders
- Proposed Budget
- Program Evaluation
- Engagement and Accountability Plan

Our Team

- Bailey Caudle**
Leadership in Practice
- Chad Logan**
Leadership in Practice
- Brittany Njoku**
Leadership in Practice
- Jessica Petterson**
Nutrition

Chad: Here you can see the overview of our presentation, we will start with background, move into program specific information, and then move on to implementation. Our team consists of myself, Bailey and Brittany who are Leadership in Practice Students and Jessica who is a nutrition student.

SOCIAL DETERMINANT OF HEALTH: Economic Stability

- According to Healthy People 2030, economic stability includes food security, family income, employment, educational attainment, and more. (1)
- Economic Stability aims to help people earn a steady income that allows them to meet their health needs. (1)

Food Insecurity

"A household-level economic and social condition of limited or uncertain access to food."
-USDA (2)

Food Insecurity Effects:

- Increased risk of obesity, diabetes, and heart disease
- Poor mental health
- Educational attainment, and more! (3)

Durham County Metrics, 2021

- 13.3%** poverty rate (4)
- ~19%** food-insecurity among children (5)
- 26%** residents with low access to food (6)

Chad: Economic stability is one of the five key domains of social determinants of health. These are the economic and social circumstances that affect individual and group health status and well-being. This stability allows people to earn a steady income and meet their health needs.

Durham County is one of the most diverse counties in North Carolina, with rich and robust higher education resources and quality health care. However, Durham County has a poverty rate close to 12%, which is higher than the national average of 10%. Additionally, many families are food insecure, defined as limited access to adequate and healthy foods due to social and economic conditions.

Within the county, approximately 26% of all residents have low access to food, which occurs when an individual or family lives further than one mile from grocery stores in urban areas.

Food insecurity and low access to foods can lead to adverse health outcomes such as an increased risk of heart disease, obesity, diabetes, and poor mental health.

Next, Bailey will talk about our priority population.

APPENDIX D: BRITTANY NJOKU'S INDIVIDUAL DELIVERABLES

Appendix D.1 Problem Statement

Poverty

World Vision defines poverty as “lacking enough resources to provide the necessities of life—food, clean water, shelter and clothing” (What is poverty? It's not as simple as you think, 2022). One would not readily associate poverty with Durham County, North Carolina. Durham County is considered one of the healthiest counties in North Carolina with only 18% of the adult population reporting to be in poor or fair health and 16% of children living in poverty (*County Health Rankings & Roadmaps*, 2022). Studies show an association between poverty and food insecurity (Wight et al., 2014). Food insecurity is defined as “a lack of consistent access to enough food for an active healthy life” (*What Is Food Insecurity in America?*, n.d.). Nineteen percent of children were found to be food insecure in Durham County in 2018-2019 (*Food Bank of Central & Eastern North Carolina: 2019-2020 County Profiles*, n.d.).

Geographic and historical context

Located in the piedmont region of North Carolina, Durham County rests in the foothills between the coastal plains and the mountains. Of the 292 square kilometers that Durham County occupies, only 2.13 square kilometers are covered by water (*Durham, North Carolina*, 2022). Durham is home to Duke University, one of the most prestigious higher learning institutions in the nation and North Carolina Central University, a historically black college that served as the first civil rights struggle in North Carolina (*Durham, North Carolina*, 2022). With a huge emphasis on healthcare and education, Durham's economy also includes many pharmaceutical and startup tech companies (*Durham, North Carolina*, 2022). Durham County is fairly diverse with 43.4% white, 35.9% African American and 13.8% Hispanic or Latino (*U.S. Census Bureau QuickFacts*, n.d.). The median household income for Durham North Carolina is \$61,962 per year with an unemployment rate of 3.1 (*U.S. Census Bureau QuickFacts*, 2021).

Priority Population

According to USDA, food insecurity is measured in 3 categories: food insecurity in households with children, food insecurity among children and very low food security among children (*USDA ERS - Child Food Insecurity*, n.d.). The priority population will consist of school-aged children with a focus on those attending elementary schools in Durham County. The rate of food insecurity among children in the nation is 15.2%. The rate of food insecurity among children in North Carolina is 19.3% and 19.1% of children in Durham North Carolina (*Child Food Insecurity: Map the Meal Gap*, n.d.; *Food Bank of Central & Eastern North Carolina: 2019-2020 County Profiles*, n.d.).

Measure of problem scope

With over 31,000 children enrolled, 62.2% receive free or reduced lunch in Durham Public Schools (*District Facts & Figures / District Data*, n.d.). Only 19% of the student population are white; 41.6% African American, 32.8% Hispanic or Latino, and 6.6% multiracial, American Indian, Hawaiian or Pacific (*District Facts & Figures / District Data*, n.d.).

One of the contributing factors of food insecurity is affordability. In 2016, it was estimated that healthier food cost approximately \$1.50 more per person per day (Stroot, 2020). With the median income of \$62,812, \$1.50 can negatively impact a budget (QuickFacts: Durham County, North Carolina, 2021).

Rationale

Childhood food insecurity has been linked to obesity (Pan et al., 2012). Studies have shown that people who are food insecure are 32% more likely to be obese (Stroot, 2020). Childhood obesity can lead to adult obesity. Obesity can lead to increased risks of diabetes, heart disease, stroke and even cancers (Stroot, 2020). It is also “associated with retinal and renal complications, nonalcoholic fatty liver disease, obstructive sleep apnea, polycystic ovarian syndrome, infertility, asthma, orthopedic complications, and increased rates of cancer” (Kelsey M, 2014). Low income and minority populations are disproportionately affected.

In an interview with Dr. Dana Rice, Assistant Professor at UNC’s Gillings School of Public Health, Rev. Shannon Spencer, founder of 12 Baskets Café, noted that people have specific visions and

stereotypes of what poverty is with no *real* idea of what it looks like in their neighborhood (Spencer, Shannon, n.d.). As a public health leader, she believes it is her responsibility to raise awareness of real-life poverty and does so through her Poverty Scholar program.

Disciplinary Critique

In order to achieve health equity, public health leaders must seek to address social determinants of health because they have an upstream effect on health (*Health Equity | CDC, 2022*). Social determinants of health, by definition, are “conditions in which people are born, grow, live, work and age” (May 10 & 2018, 2018). The best planned interventions and programs can only serve those in need when they address the barriers to health. By giving attention to these determinants, barriers to health are minimized and the children of Durham County North Carolina can lead healthy adult lives.

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Appendix D.2: Stakeholder Analysis

Introduction

In comparison to other counties in North Carolina, Durham County is considered one of the healthiest counties in North Carolina with 18% of the adult population reporting to be in poor or fair health and 16% of children living in poverty (*County Health Rankings & Roadmaps*, 2022). Studies show an association between poverty and food insecurity (Wight et al., 2014). Food insecurity is defined as “a lack of consistent access to enough food for an active healthy life” (What is Food Insecurity, 2022). Nineteen percent of children were found to be food insecure in Durham County in 2018-2019 (2018-2019 Durham County Profile, 2019). Stroot et al. has found “access to a car...plays a more decisive role, than access to a full service supermarket, in determining an individual’s consumption pattern” (Stroot, 2020).

There are numerous food programs, including school based, government, religious and community programs, that aid those experiencing food insecurity, but none currently offer any transportation aid. Including rideshare companies in the food insecurity interventions has produced promising results (Gonzalez, 2021). Lyft has started to pilot the Lyft Grocery Access Program in which they provide affordable transportation to local grocery stores. The pilot is in select cities across the country, including Charlotte and Raleigh North Carolina (Appel, 2019). The proposed food insecurity program will consist of the Lyft Grocery Access Program with sponsorship from local food programs.

Expanding the Lyft Grocery Access Program to include Durham County will aid to alleviate poverty induced food insecurity. We intend to provide discounted transportation to participating Food Lion stores. Those receiving SNAP benefits will be able to use them at the store but for those without SNAP benefits, Food Lion will support by supplying them with gift cards. Discounted fare that can be used as often as needed to the grocery store, along with gift cards will help drastically to improve food security. Growing this program to include more grocery stores will allow for a greater impact in the community.

Identification of Stakeholders

The CDC recommends engaging stakeholders that are implementers, decision makers, participants, and partners (*Identifying and Determining Involvement of Stakeholders*, 2022). Implementers for a rideshare intervention would include Lyft. Decision makers have been identified as the United Way. The United Way currently has the infrastructure and resources to perform this type of work. The name recognition alone will provide credibility and sustainability. Participants would include low-income families that currently benefit from government assistance. Partners will include the local grocery stores and local corporate companies that seek opportunities to give back to the community of their employees.

Stakeholder Analysis

After stakeholder identification, an analysis was performed using the CATWOE tool (Table D.2.a.1). CATWOE is an analysis tool that gathers different viewpoints on a common issue. CATWOE explores who each stakeholder views as the customer, actor, and owner, as well as how they perceive the transformation, worldview, and environment. The results of the analysis can help to guide the implementation of a program or intervention. This information can then be used to create a root definition for each stakeholder. From there, a power influence grid can be created to prepare for stakeholder engagement (Table D.2.a.2).

Lyft (implementer) Having piloted the Lyft Grocery Access Program, as a stakeholder, they seek to increase access to healthy foods by providing affordable transportation to alleviate food insecurity. They view those in the community without reliable transportation as the customer. Leadership at Lyft takes ownership and sees the drivers as actors in the transformation. They believe providing transportation to select grocery stores at an affordable flat rate can increase access to healthy foods. The perceived environment is the cities in which they pilot the program. Lyft was identified as having high interest and high power and should be managed closely.

United Way (decision maker) The United Way seeks to improve lives by mobilizing the community to reduce food insecurity. They view those facing food insecurity as the customer. Much like Lyft, the United Way also takes ownership and sees the volunteers as the actors to increase food security.

They understand that food security leads to better health outcomes, but they are limited to the areas in which they have established infrastructure. The United Way was identified as having high interest and high interest and high power and should be managed closely.

SNAP recipients (participants) SNAP recipients seek to increase food security by updating federal policies to provide more support for low-income families. They view themselves as the customer and see the government as the owner and the actor. They perceive the environment as limited funds in which securing food may not be the priority (ie, housing and utilities bill). They see the transformation as providing more support for lower income households in need. SNAP recipients were identified as having high interest and low power and should be kept informed.

Food Lion Feeds (partner) As a grocery store chain with a nonprofit that supports hunger relief efforts, they seek to help families put nutritious meals on the table by supporting hunger relief initiatives to support children at risk of hunger. Food Lion Feeds sees themselves as the actor and owner of the transformation. They see those in need in the community as the customer and endeavor to increase food security. The environment is perceived to be the geographic locations in which Food Lion gift cards are accepted. Food Lion Feeds was identified as having high interest and low power and should be kept informed.

Although each stakeholder has varying views, the customers identified by all intersect at those who may be experiencing food insecurity. Lyft and the United Way and Food Lion Feeds see themselves as actors in the transformation while SNAP recipients see the government as the actors. All stakeholders seek to help increase food security.

Ideally, the stakeholders would co-create with the implementation team. A closer look at the power influence grid gives insight to how each stakeholder should be engaged. Lyft and the United Way have notoriety that will aid in the transformation. They both have the needed infrastructure and assets for the transformation. Both are also identified as high interest and high power; thus they should be managed closely. For varying reasons, SNAP participants and Food Lion Feeds have both been identified as having

low power and high interest. They have valuable information and experiences to contribute to the transformation. They should be engaged by keeping them informed.

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Appendix D.2.a: Stakeholder Analysis Tables and Figures

Table D.2.a.1: CATWOE Analysis

Stakeholder: Lyft (implementers)	Root Definition: Increase access to healthy foods by providing affordable transportation to alleviate food insecurity.
Customer	Those in the community without reliable transportation
Actor	Lyft drivers
Transformation	Increase access to healthy foods
Worldview	Provide transportation to select grocery stores at an affordable flat rate (\$2.50)
Owner	Lyft leadership
Environment	Program currently under pilot in select cities across the nation

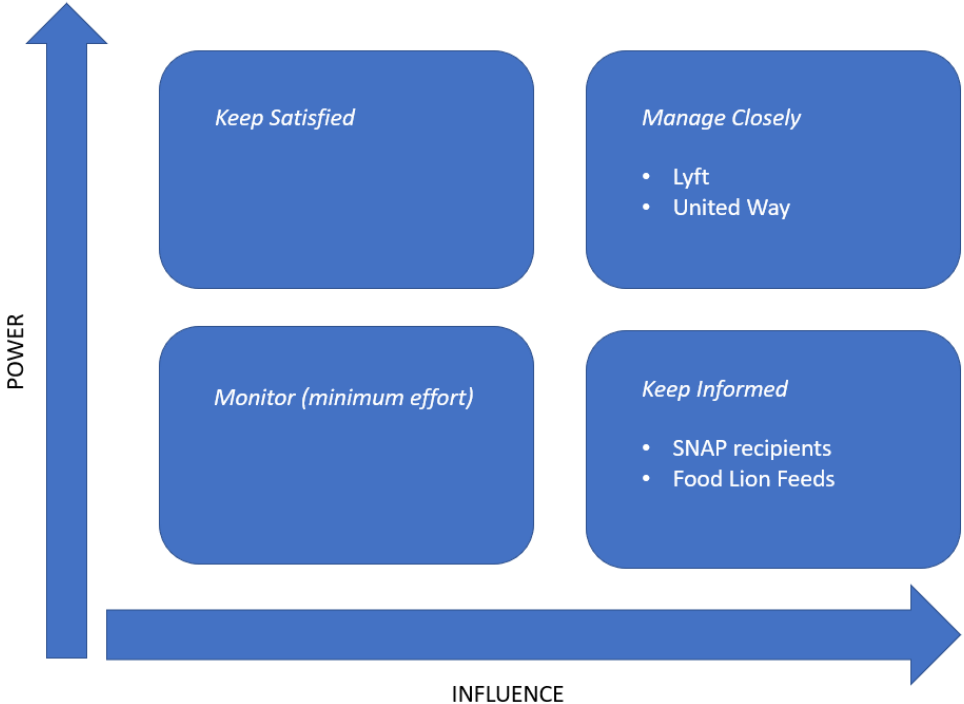
Stakeholder: United Way (decision-makers)	Root Definition: Improve lives by mobilizing the community to reduce food insecurity.
Customer	Those in the community who face food insecurity
Actor	United Way volunteers
Transformation	Increase food security
Worldview	Food security leads to better health outcomes
Owner	United Way leadership
Environment	Limited to the geographic location that it serves

Stakeholder: SNAP Recipients (participants)	Root Definition: Increase food security by updating federal policies to provide more support for low income families.
Customer	SNAP recipients without reliable transportation
Actor	Government policies
Transformation	Provide more support to those in need
Worldview	Government assistance should extend beyond SNAP benefits

Owner	The government
Environment	Funds for household expenses are prioritized, not to include grocery transportation on a regular basis

Stakeholder: Food Lion (partner)	Root Definition: Help families put nutritious meals on the table by supporting hunger relief initiatives to support children at risk of hunger.
Customer	Those in need in the community
Actor	Food Lion Feeds
Transformation	Increase food security
Worldview	Help families put nutritious meals on the table
Owner	Food Lion Feeds
Environment	Limited to operating in geographic locations in which they operate

Table D.2.a.2: Power Influence Grid



Appendix D.3: Engagement and Accountability Plan

Statement of Purpose

Studies show an association between poverty and food insecurity (Wight, Kaushal, Waldfogel, & Garfinkel, 2014). Food insecurity is defined as “a lack of consistent access to enough food for an active healthy life” (What is Food Insecurity, 2022). In 2018, nineteen percent of children were found to be food insecure in Durham County North Carolina (2018-2019 Durham County Profile, 2019). Children living in poverty may experience food insecurity due to a parent or guardian’s lack of reliable transportation. There are numerous food programs, including school based, government, religious and community programs, that aid those experiencing food insecurity, but none currently offer any transportation aid. Including rideshare companies in the food insecurity interventions has produced promising results (Gonzalez, 2021). In an effort to eliminate the barrier of unreliable transportation for low income families, the team proposes expanding the Lyft Grocery Access Program in Durham North Carolina.

Proposal Rationale

The Lyft Grocery Access Program has been piloted in different cities across the nation since 2018 (Removing Transportation Barriers to Healthy Food, 2019). This program is designed to provide reduced and often flat rate rides to local grocery stores for the community. Utilizing the CDC’s recommendation for engaging stakeholders, Lyft, United Way, Supplemental Nutritional Assistance Program (SNAP) recipients, and Food Lion Feeds have been identified as key stakeholders for this intervention. An engagement plan will ensure that all stakeholders are encouraged to collaborate with the implementation team. Not all stakeholders have the same power or influence to make change, but they all have a desire to see a transformation. With the expertise of each stakeholder, the implementation team can successfully plan a successful intervention that increases access to grocery stores.

Stakeholders

The CDC recommends engaging stakeholders that are implementers, decision makers, participants, and partners (*Identifying and Determining Involvement of Stakeholders*, 2022). Implementers for a rideshare intervention would include Lyft. Decision makers have been identified as the United Way. The United Way currently has the infrastructure and resources to perform this type of work. The name recognition alone will provide credibility and sustainability. Participants would include low-income families that currently benefit from government assistance. Partners will include the local grocery stores and local corporate companies that seek opportunities to give back to the community of their employees.

Engagement Plan

The engagement plan will serve as an outline for the implementation team to engage stakeholders. An advisory committee will be formed from the previously identified stakeholders. There will be two sets of strategies used: individual, which will gather information as well as clarify roles and responsibilities, and group, which will map out resources and gather information.

These members will have an initial meeting in which the facilitator from the implementation team will guide the members through group engagement methods. These methods include stakeholder mapping, empathy mapping, and nominal group technique. After the initial meeting, the advisory committee will meet weekly for the first month to discuss next steps.

Engagement Methods

Individual strategies

Stakeholder Interviews will be conducted prior to the first advisory board meeting. These interviews will focus on what each stakeholder sees as the main problem and what they would like to see done in response to it. Questions will be designed to reveal what resources the stakeholder possesses and what level of inclusivity they desire.

Memorandum of Understanding will be sent to each stakeholder. This document will serve as a partnership contract and clearly describe the roles, resources, and responsibilities that each stakeholder has agreed to. See appendix for examples.

Group strategies

Stakeholder mapping will be used to create a visual representation to depict influences, barriers, and support to the proposed program. The Lyft Grocery Access Program has been implemented in other cities across the nation for a few years. To implement this program in Durham, North Carolina, the implementation team, along with key stakeholders, need to have a visual representation to refer to ensure success in this county. Each stakeholder offers a unique perspective on the issue so having all stakeholders involved will create a common basis for the intervention.

Empathy mapping will be used to capture knowledge about those experiencing food insecurity due to unreliable transportation. This information will be vital as it will reinforce the proposed program. Truly understanding what challenges this group faces to access healthy foods will provide additional guidance as well as encourage the team to address these barriers. This exercise will balance power among the stakeholders as SNAP participants will share personal stories.

Nominal group technique will be utilized to address any areas of concern that arise from the empathy mapping and stakeholder mapping. Although this program has been implemented in other areas across the country, Durham County will present its own unique challenges. Nominal group technique will foster creative solutions in a nonthreatening group environment. There are varying levels of influence and power among the identified stakeholders so working within an inclusive and collaborative environment is of high importance.

Regularly scheduled meetings will ensure proper communication for everyone involved. These meetings will discuss the progress of the program as well as address any issues that may arise during the program. For those stakeholders that have been identified as having low influence and low impact, these meetings

will be a great opportunity to keep them actively engaged in the program. Stakeholders who have been identified as having high influence and high impact will provide a progress report at these times.

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APPENDIX D.3.a: Engagement and Accountability Plan Figures and Tables

Table D.3.a.1: MOU

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (MOU) is entered into by and between Durham County Health Department and Lyft. The Durham County Health Department is responsible for responding to the public health needs of the Durham County community. Lyft is a national rideshare company that provides transportation.

Purpose

The purpose of this MOU is to provide clear expectations and understanding for all parties involved in the program to reduce food insecurity by increasing access to healthy foods. Collaborative relationships are needed to address such complex issues. The purpose of the Lyft Grocery Access Program is to remove the barrier of transportation for those experiencing food insecurity in Durham County, North Carolina.

Roles and Responsibilities

The Durham County Health Department will serve as the lead agency and primary partner in the Lyft Grocery Access Program. The main mission of the Durham County Health Department is to respond to the needs and expectations of the community. They will be responsible for facilitating the program. These responsibilities include providing appropriate resources as needed, facilitating meetings as agreed upon, and analyzing metrics of the program. These metrics include the number of individuals utilizing the program, how frequently, and what geographic location they originate.

Lyft will serve as the main implementing partner for the Lyft Grocery Access Program in Durham County, North Carolina. The main mission of Lyft is to change the way the world works, ride by ride. They will be responsible for providing unlimited transportation to and from local grocery stores at a discounted, or

free, rate. Lyft will also be responsible for collecting metrics of the program. These metrics include the number of rides provided, the frequency and geographic location.

Expectations

It is expected that each partner in this collaboration will keep the implementation team informed of any issues and challenges that may arise or prevent them from fulfilling their assigned responsibilities. All partners are expected to participate and attend 95% of the scheduled group meetings.

Program Metrics

Both partners agree to the following metrics as measures of progress:

- Percentage of low-income families listing transportation as a barrier to healthy foods.
- Percentage of low-income households that are eligible for SNAP benefits that are currently enrolled.
- Percentage of SNAP recipients that report having reliable transportation.
- Amount of reduced or free rides provided to grocery stores
- Average distance of free or reduced ride to grocery store provided by Lyft
- Average amount of free or reduced rides requested by SNAP recipients

Modifications and Termination

Both parties are allowed to make modifications or terminate this agreement with written notice.

Durham County Health Department
Representative signature

Lyft Grocery Program
Representative signature

Table D.3.a.2: Engagement Methods

Engagement Method	Purpose
Stakeholder Interviews	To garner information from each stakeholder to see what they perceive is the problem, what resources they can provide and what level of involvement they desire. Helps to form advisory board
Memorandum of Understanding	Provide clarification of roles and responsibilities for each stakeholder involved.
Stakeholder Mapping	To create a visual representation to depict influences, barriers, and support to the proposed program.
Empathy Mapping	To capture knowledge about those experiencing food insecurity due to unreliable transportation.
Nominal Group Technique	To address any areas of concern that arise from the empathy mapping and stakeholder mapping.
Meetings	Provide continuous communication for all parties involved.

Table D.3.a.3 RASCI Analysis

RASCI Levels

Who is...	Policy/Program Transformation	Rationale For Partner Participation
Responsible=owns the problem / project	Lyft	They have piloted this program in other areas across the nation.
Accountable=ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those responsible	Implementation team	In a co-creating space, the implementation team should facilitate.
Supportive=can provide resources or can play a supporting role in implementation	United Way	They currently have a lot of resources, including financial, to support the initiative.
Consulted=has information and/or capability necessary to complete the work	SNAP recipients	They have firsthand knowledge of the needs of the community.
Informed=must be notified of results, process, and methods, but need not be consulted	Food Lion Feeds	They want to be a partner and provide additional food to those that need it. They will only be supplying gift cards.

Appendix D.4: Individual Presentation Slides and Script



Brittany: Following the CDC’s guidance for identifying stakeholders, we identified implementers, decision-makers, partners, and participants. We then used the CATWOE analysis to describe each stakeholder and proceeded to assess their power and interest in the program. The mission statement for our implementer, Lyft, is to reimagine the world's transportation. They desire to use technology to change the way our world works. Lyft sees the community without reliable transportation as the customer. Our decision-makers, United Way, mission statement is to improve lives by mobilizing the caring power of communities around the world to advance the common good. They view those facing food insecurity as the customers and see themselves as the owners and actors -much like Lyft. Food Lion Feeds was identified as a partner because they believe when we come together, we’re stronger as a community. With their slogan “put hope on the table”, this nonprofit sees itself as actors and owners in the transformation. SNAP recipients without reliable transportation are directly impacted by this program. They see themselves as the customers.



Brittany: The engagement plan will serve as an outline for the implementation team to engage stakeholders. An advisory committee will be formed from the previously identified stakeholders. The advisory committee will be responsible for providing input and identifying challenges as well as provide guidance to the implementation team. There will be two sets of strategies used: individual, which will gather information as well as clarify roles and responsibilities, and group, which will map out resources and gather information. Individual strategies include stakeholder interviews and MOUs. Stakeholder interviews will focus on what each stakeholder sees as the main problem and what they would like to see done in response to it. MOUs will serve as partnership contracts and clearly describe roles and responsibilities for each agency. Group strategies will include stakeholder mapping, empathy mapping, nominal group technique and regularly scheduled meetings. Stakeholder and empathy mapping will capture knowledge about those experiencing food insecurity due to reliable transportation and create a visual representation of the environment (influences, barriers and supports). Nominal group technique will be used to address any areas of concern raised by the empathy and stakeholder mapping. Regularly scheduled meetings will keep everyone in the know.

APPENDIX E: JESSICA PETTERSSON'S INDIVIDUAL DELIVERABLES

Appendix E.1: Individual Problem Statement

Social Determinant of Health (SDoH)

Healthy People 2030 defines the social determinants of health (SDOH) as “the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks” (Social Determinants of Health, 2022). One of these social determinants, economic stability, describes earning potential that allows a family to sustain independent, safe, healthy living conditions (Social Determinants of Health, 2022). One of the Healthy People 2030 goals is to decrease the number of children who are food insecure (Social Determinants of Health, 2022). Food insecurity is defined as not every family member in a household having reliable access to a sufficient quantity of affordable, nutritious food or when there is a disruption of food intake or eating patterns due to a lack of money and other resources (NCJustice.org, 2017).

Geographic and historical context

Each day in North Carolina, more than half a million households do not have enough food to eat (NCJustice.org, 2017). North Carolina currently has the 10th highest rate of food insecurity in the nation. People facing hunger in North Carolina are estimated to report needing \$719,879,000 more per year to meet their food needs (NCJustice.org, 2017).

Priority Population

In North Carolina 38.8% of households receiving SNAP benefits have children. According to the NC Department of Public Instruction, nearly one million children in North Carolina are at risk of hunger and 1 in 5 children struggles with hunger (NCJustice.org, 2017). In Durham County from 2018-2019 16.5% of the overall population are food insecure and 19.1% of children live in food insecure homes. 31.9% of children receive free/reduced school meals in Durham County (foodbankcenc.org, 2019).

Measures of problem scope

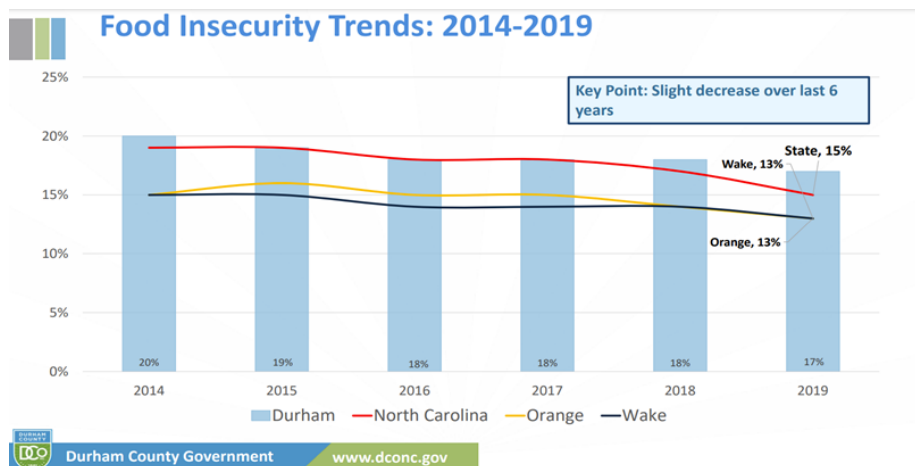


Figure E.1.a.1 <https://www.dconc.gov/home/showdocument?id=30398>

As shown in the graph above, from the Durham County Demographic and Economic Trends Data Report, food insecurity in Durham County has been slightly decreasing over the last 6 years (dconc.gov, 2019). However, this number has consistently remained above the state average and additional measures should be taken to further decrease the number of people experiencing food insecurity.

Food insecurity is not experienced equally by everyone. In North Carolina food insecurity was higher in households with children. Female-headed households also experience higher rates of food insecurity (NCJustice.org, 2017), as well as those residing in rural and low-income areas (FRAC, 2019). Additionally, Black and Latinx families experienced food insecurity at a rate of 21.8 percent and 18 percent for Black and Latinx families, respectively, compared to white families (8.8 percent) (NCJustice.org, 2017). In Durham County the 2019 Community Health Assessment survey found that “about one in 10 people (10.2%) reported skipping meals because they didn't have enough money to buy food. Black residents (14.9%) were significantly more likely than white residents (6.6%) to have skipped a meal either sometimes or frequently in the past year. The likelihood of skipping meals for Hispanic or Latino residents was 12.6%” (dcpublikealth.org, 2020).

Rationale/Importance

While government programs such as the Free School Lunch Program are helping to reduce the rate of food insecurity, rates of food insecurity continue to increase due to lack of funding and underutilization. More than 693,000 North Carolina students participated in the free or reduced-price lunch program during the 2014-2015 school year. Only 16 percent of those children received free summer meals (Nokidhungrync, 2017). When children are hungry, they cannot thrive. Children who live in food insecure households are more likely to do worse in school, experience developmental impairments, face higher risks of health conditions and hospitalization, and overall, begin life at a serious disadvantage (FeedingAmerica, 2021).

Disciplinary critique

This is an issue that concerns parents, school systems and personnel, and national and local governmental leaders and programs. The devastation of the 2020 Coronavirus pandemic is also predicted to lead to the worst rates of food insecurity in the United States in years, nearly doubling the number of people experiencing food insecurity globally and in communities across the country, making this issue an urgent priority for families in North Carolina and Durham County (NPR, 2020). There are also significant racial disparities in nutrition and food access. Historical redlining practices by the U.S. government have contributed to the low number of grocery chains being built in black, indigenous, and People of Color (BIPOC) neighborhoods. Because of this, BIPOC residents are more likely to live in areas with less access to healthy food options when compared to white residents (Durham County, Department of Public Health – Community Health Assessment 2020).

Over the past few years Durham County has begun to combat this issue through several initiatives such as a COVID-19 Food Security Task Force, creating a food Security Coordinator position to support the community to create a strong and equitable food system for residents to find affordable and healthy food, and End Hunger Durham. There is also the Durham County Food and nutrition services, WIC and

SNAP benefits, meals on wheels Durham, and Food for Durham programs as well as the Durham County food banks (dconc.gov, 2022). Most of these initiatives have only recently been started in the past few years in response to the COVID-19 pandemic. Additional programs and policies will be needed to bolster current programs and aid in reducing the number of children who are food insecure in Durham County and provide more equitable food access.

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Appendix E.2: Evidence-based Nutrition Program

Nutrition Program Analysis and Implementation

Problem Statement

Reducing food insecurity in low-income families in Durham County.

Introduction

Healthy People 2030 defines the social determinants of health (SDOH) as “the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks” (Social Determinants of Health, 2022). One of these social determinants, economic stability, describes earning potential that allows a family to sustain independent, safe, healthy living conditions (Social Determinants of Health, 2022). One of the Healthy People 2030 goals is to decrease the number of children who are food insecure (Social Determinants of Health, 2022). Food insecurity is defined as not every family member in a household having reliable access to a sufficient quantity of affordable, nutritious food or when there is a disruption of food intake or eating patterns due to a lack of money and other resources (NCJustice.org, 2017). Low-income and minority residents are the most vulnerable to food insecurity (Child Care Services Association - Duke Office of Durham and Community Affairs, 2022). While there are several programs and policies currently in effect in Durham County to address food insecurity additional programs are needed to reduce the number of individuals and families who are experiencing food insecurity and provide more equitable food access.

Evidence Based Nutrition Policy or Program

In Durham County, 12% of residents are food insecure and 8% have limited access to healthy foods (Durham County, North Carolina, n.d.). The U.S. Department of Agriculture (USDA) categorizes 20-30% of Durham residents as having low access to a grocery store (as of 2015). Durham County is also rated 6.9 on a scale of 0 (worst) to 10 (best) for factors that contribute to a healthy food environment.

These factors include proximity to healthy foods, access to healthy foods and income. In Durham County, more than 46% of children live in low-income households. These individuals are disproportionately affected by obesity, diabetes and food insecurity. In Durham County, “25.6% of children ages 2-4 from families with low incomes are overweight or obese” (Child Care Services Association - Duke Office of Durham and Community Affairs, 2022).

Transportation is one of the major barriers individuals and families face when it comes to accessing food resources. Research shows that food insecurity can be directly associated with lack of owning an automobile, being able to pay for gas, or both. Areas of high poverty, historically marginalized communities, and food deserts receive less access to food resources as well (Durham County, Department of Public Health – Community Health Assessment 2020). As a result of the COVID-19 pandemic families have also been less inclined to use public transportation. The rideshare company, Lyft, has conducted several grocery access program pilots in cities across the nation. The program began in 2019 in Washington D.C. and provided over 5,000 Lyft rides to families to grocery stores and cut their average shopping commute time by nearly one-half. Lyft partnered with Washington DC based nonprofit Martha’s Table where they enrolled more than 400 families in the program, thereby providing them access to fresh and healthy food outside of their community (Access to healthy food - the lyft up Grocery Access Program, 2022).

The success of the program in D.C. enabled further expansion to 13 other cities including pilots in Raleigh and Charlotte, North Carolina. From August 2019 to January 2020, Lyft, Loaves & Fishes and other community partners collaborated on a grocery access pilot in Charlotte, North Carolina, where 75 families living in food deserts were provided with discounted rides to grocery stores, farmers markets, and food pantries. Residents received eight one-way \$2 flat rate rides each month (loaves, 2019). Providing low-cost transportation options allows individuals and families larger food choice options that are able to meet their dietary needs and that are also culturally appropriate. By providing low-cost

transportation to choose their own food it also reduces the stigma and shame that is sometimes associated with participating in food assistance programs. This program would increase access to healthier food options and provide families with the choice in where they buy their groceries. It would also reduce the time and cost of traveling to grocery stores.

Evidence Based Outcomes

- Short term outcome objective: Over a two-year period 2,000 Durham residents who are SNAP eligible will have registered and utilized the Grocery Access program with participants taking an average of 4 round trips to a participating grocery store per month.
- Long-term impact: Within 5 years there will be a 10% increase in food insecure individuals in Durham County who have access to transportation to a grocery store as measured by a community health assessment.

Evidence Based Implementation Strategies and Activities

As a part of the LYFTUP Grocery Access Program the Durham County Health Department in conjunction with several Durham County food banks and community resources will partner with grocery stores and food banks in Durham County to provide Lyft rides at a discounted rate for one year to eligible individuals who register. Stakeholders will determine program parameters and income eligibility and identify which grocery stores are to participate in the program. Participant outreach and registration will be conducted via social media, media outlets, schools, community health clinics, WIC and SNAP programs, and in coordination with the community partners. A pre, mid-point, and post survey will be conducted by the Durham County Health Department and collected from registered participants. Upon the launch of the program registered participants will have ride credits added to their accounts at the first of each month for one year. When participants are wanting to shop, they open the Lyft app and enter their destination. Ride credits are then automatically applied to rides to and from participating grocery providers.

Stakeholders

The potential stakeholders of this program are Durham County Health Department staff who will be spearheading this initiative and conduct the program evaluation and analysis. The company Lyft and the community food resources non-profits and food banks are also stakeholders who we will partner with to implement this program. Additional stakeholders include grocery store chains who we will coordinate with to participate in this program and provide additional funds to subsidize costs. As well as, the media outlets, schools, community health clinics, WIC and SNAP program staff who will be instrumental with outreach to make residents aware of this program and assist with registering participants.

Budget

This program will be primarily funded by the Lyft and their Grocery Access Program. Additional funding provided through grants will be used for outreach and for personnel to assist with registration and program evaluation. A 250,000 budget has been provided for this program. 200,000 of this budget will be utilized for a 2-year salary (50,000/year) for personnel. This staff's responsibilities will include management of the program, community outreach and registration of participants, community partners liaison, and facilitation of the program evaluation and data analysis and results dissemination. The remaining 50,000 will be used primarily for an awareness campaign and outreach materials to assist with educating the community about this program and enrolling eligible participants.

Conclusion

Transportation is just one of the many barriers individuals and families face in order to access healthy foods. There are many individuals who are dealing with food insecurity that may not be able to leave their house at all. In some cases, people may not be able to afford even the subsidized fare or afford nutritious food that is available at the grocery store. This program also does not address language and knowledge barriers when it comes to accessing food resources and cooking nutritious meals. There are also significant racial disparities in nutrition and food access. Historical redlining practices by the U.S.

government have contributed to the low number of grocery chains being built in black, indigenous, and People of Color (BIPOC) neighborhoods. Because of this, BIPOC residents are more likely to live in areas with less access to healthy food options when compared to white residents (Durham County, Department of Public Health – Community Health Assessment 2020). This program will help to improve greater access to healthy food options to individuals living in low-income and minority communities that have been historically marginalized and potentially, overall, reduce the number of individuals and families who are food insecure in Durham County.

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Appendix E.3: Program Implementation and Evaluation

Economic Nutrition Program Evaluation

Problem Statement

Reducing food insecurity in low-income families in Durham County.

Evaluation Plan

For people experiencing food insecurity in Durham County, transportation is one of the biggest barriers to accessing healthy foods (Durham County, Department of Public Health – Community Health Assessment 2020). The Grocery Access Program provides discounted Lyft rides to grocery stores for SNAP income eligible residents of Durham County for one year. This study will assess how the Grocery Access Program impacted food insecurity and access to healthy food in Durham County. All Durham County participants who apply and meet the income eligibility and register for the program will be required as a part of their participation in the program to complete an online survey delivered to their email address prior to participation in the program, at 6-months, and one year or completion of the program. Survey distribution, collection, and data analysis will be completed by the two program staff hired for the 2 year program implementation in the Durham County Health Department office.

Study design/data collection:

The evaluation will use a cross-sectional study and consist of a mixed methods approach capturing both quantitative and qualitative data. Some quantitative data will be collected from the Lyft app from program participants and shared by Lyft with the program team. The variables collected from the Lyft app data include how many participants went to the grocery store and how often, the average time participants reported spending in transit to or from the grocery store, the average length and distance of the Lyft ride, and the average cost of each ride. Through an email survey both quantitative and qualitative data will be collected about participants' food insecurity status, barriers to accessing healthy foods, how they usually travel to the grocery store, and how often fruits and vegetables are purchased prior, during,

and as a result of the program. Demographic data will also be collected and will consist of sex, age, household size, race and ethnicity, educational attainment, and employment status.

Sample and sampling strategy

All participants, once registered, will agree to participate in the three surveys as a requirement for participation in the program. Follow-up will occur three times through email at each survey interval. If a survey is not completed at an interval and has not responded to the three email follow-ups, they will be contacted by one of the program staff by phone to attempt follow-up and data collection.

Specific measures

The outputs the study will measure are the number of Lyft rides, what grocery store was traveled to most frequently, frequency of purchasing fruits and vegetables, the average time participants reported spending in transit to or from the grocery store, the average length and distance of the Lyft ride, and the average cost. Participants will also be asked about food insecurity status, barriers to accessing healthy foods, how they usually travel to the grocery store, and how often fruits and vegetables are purchased prior, during, and as a result of the program.

The short-term outcome objective this program hopes to achieve is over a one-year period 2,000 Durham residents who are SNAP eligible will have registered and utilized the Grocery Access program with participants taking an average of 4 roundtrips to a participating grocery store per month. Additional outcomes this evaluation will measure is that food insecurity decreased among participants as a result of utilization of the program and fruits and vegetables were purchased more frequently as a result of participation in the program.

Timing

Evaluation will occur with survey distribution at three tie points during the one-year of program implementation. These three time points are prior to participation in the program or at the time of program registration, at 6-months, and one year or completion of the program. Follow-up will occur three times through email at each survey interval. If a survey is not completed at an interval and has not responded to

the three email follow-ups, they will be contacted by one of the program staff by phone to attempt follow-up and data collection.

Analysis plan

A mixed methods approach will be used. Analysis will focus on the change in survey variables from baseline over the three program intervals. Quantitative data will be analyzed using the most current version of STATA software. Statistical significance will be established at $\alpha = 0.05$ and variables will be assessed using paired sample t-tests and chi square tests. To analyze qualitative data thematic analysis will be used.

Sources of funding

Federal grant funds will be the main source of funds for the evaluation of the program. \$200,000 of these funds will be utilized for a 2-year salary (50,000/year) for two personnel. Staff responsibilities will include management of the program, community outreach and registration of participants, community partners liaison, and facilitation of the program evaluation and data analysis and report creation and dissemination.

Data use and dissemination

Data will be used to determine program effectiveness and inform future program efforts and continuation of the program in Durham County. Results of this study will be published in a public health Journal. Internal and public reports will be developed to disseminate study results to program stakeholders and the general public. The internal report with evaluation findings will be disseminated first to program stakeholders and key partners and funders. After disseminations of the internal report, evaluation findings will be published and publicly available on the Durham County Health Department website.

Conclusion

Access to healthy foods is an important social determinant of health and food access strategies such as the Grocery Access Program need to be studied in public health research. Through a collaborative and interdisciplinary effort between the Durham County Health Department, Durham County food banks,

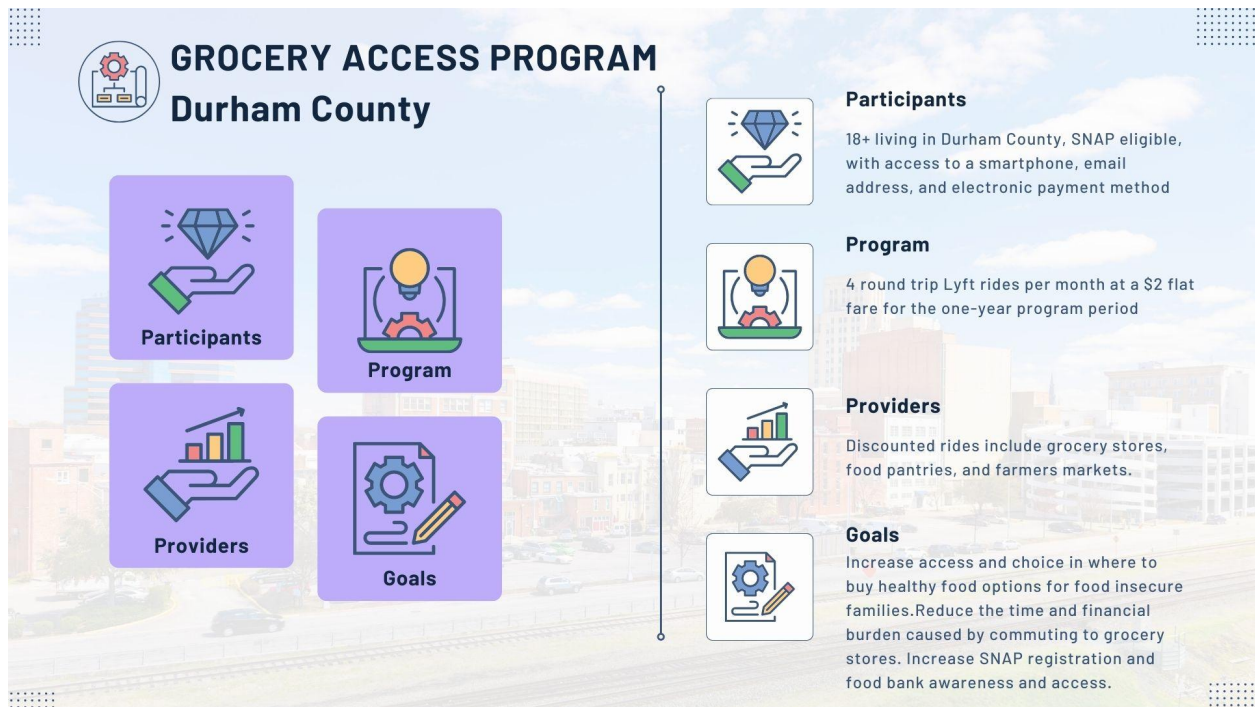
Lyft, and other stakeholders, findings from this study could be used to improve equitable food access, nutrition, food security, and health outcomes for residents of Durham County.

References

Durham County, Department of Public Health – Community Health Assessment 2020 (March, 2022)

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Appendix E.4: Individual Presentation Slides and Script



Jessica: Our proposed solution for Durham County is an evidence-based Grocery Access Program which has been previously and successfully implemented in over 14 cities across the U.S., including Raleigh and Charlotte, North Carolina. In collaboration with Lyft, local food banks and grocery stores, the Grocery Access Program would provide SNAP eligible Durham County residents with 4 round trip Lyft rides per month at a \$2 discounted flat fare to and from local grocery stores and food pantries over a one-year period.

Participants would need to be 18 years or older, living in Durham County, SNAP eligible, with access to a smartphone, email address, and electronic payment method to be able to create and access a Lyft account. Participants would receive program information and be able to register online and at any of our participating stakeholder locations.

Upon the launch of the program registered participants will have ride credits added to their accounts at the first of each month. When participants are wanting to shop, they open the Lyft app and enter their destination. Ride credits are then automatically applied to rides to and from participating grocery providers.

The goals for this program are to:

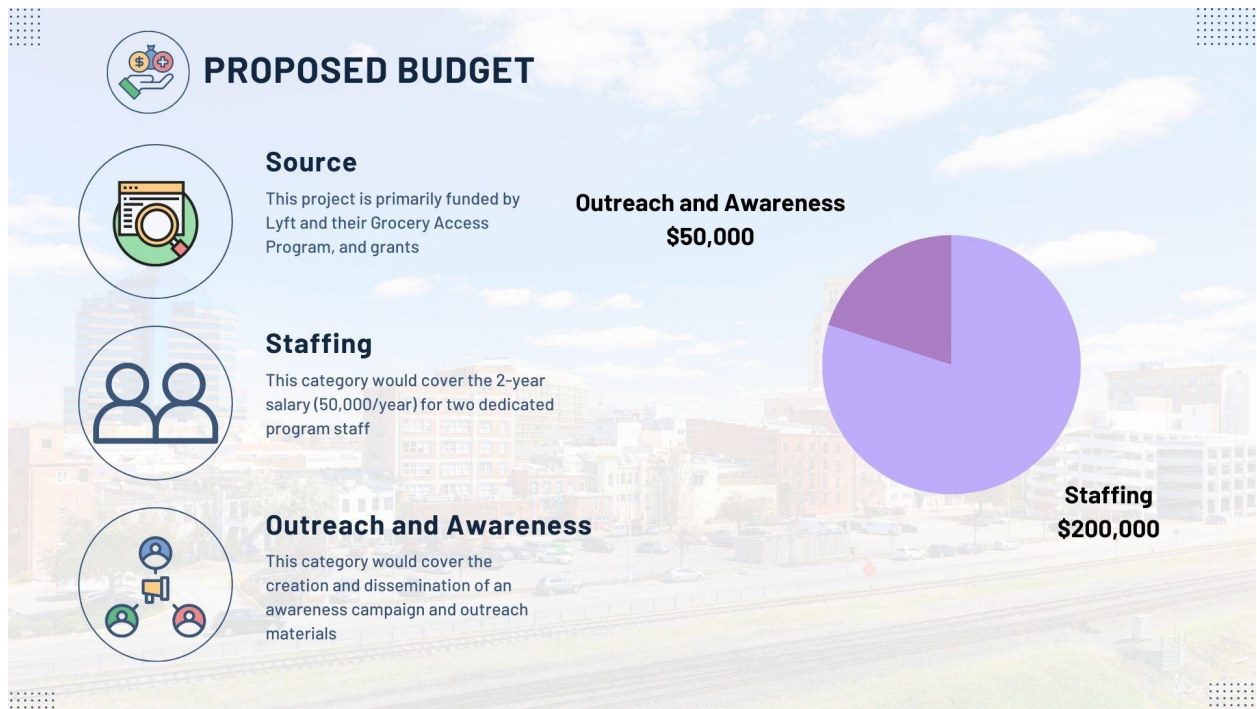
First, Increase access and choice in where to buy healthy food options for food insecure families.

Second, Reduce the time and financial burden caused by commuting to grocery stores.

Third, Increase SNAP registration and food bank awareness and access.



Jessica: The program evaluation will use a mixed methods approach capturing both quantitative and qualitative data. This study will assess how the Grocery Access Program impacted food insecurity and access to healthy food in Durham County. All Durham County participants who apply and meet SNAP income eligibility and register for the program will be required as a part of their participation to complete an online survey delivered to their email address at three key points: at the beginning of the program, at 6-months, and at completion of the program. Survey distribution, collection, and data analysis will be completed by the two staff hired for the program implementation and evaluation. Dissemination of results will consist of a published study in a public health journal, an Internal report disseminated to stakeholders and funders, and a public report of findings published on the County Health Department website.



Jessica: This program will be primarily funded by Lyft with an additional \$250,000 provided from grants that will be utilized for personnel and program outreach and awareness. \$200,000 of the grant funds will be used for a 2-year salary (\$50,000/year) for personnel. Staff responsibilities will include but are not limited to, implementation, management, and evaluation of the program. The remaining \$50,000 will be used for an awareness campaign and outreach materials to assist with educating the community about this program and enrolling eligible participants.