ADDRESSING FOOD INSECURITY IN FAMILIES LIVING BELOW THE FEDERAL POVERTY LEVEL IN DURHAM COUNTY

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A Capstone Project submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Public Health in the Public Health Leadership Program, Nutrition, and Health Policy and Management.

Chapel Hill
2023

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ABSTRACT

Naomi Brown, Isabella Morello Rodriguez, Chelsea Phillips, and Amy Sun: FOOD INSECURITY AMONGST FAMILIES LIVING AT OR BELOW THE FEDERAL POVERTY LEVEL IN DURHAM COUNTY
(Under the direction of Oscar Fleming PhD and Kenisha Cantrell PhD)

Households at or below the Federal Poverty Level (FPL) are at risk for food insecurity. By improving education and awareness for healthy food access, families that reside in food insecure areas tend to experience a disproportionate amount of barriers linked to poor health outcomes. In noting this, Durham County also reflects a higher incidence of skipping meals and indulging in poor nutrition behaviors.

Our proposed intervention is a longitudinal cohort study of dietitian led nutrition education. Eligible program participants will be followed through from implementation until August 30, 2025. The evaluation measures will be done via the Hunger Vital Sign™ survey and the Federal Food Security Determination Survey. A total of the points will be used to obtain the point and percentage of difference at every survey administration for each individual household. Success will be measured by decreasing point scores. This indicates decreased food insecurity amongst our target population.

Keywords: *Nutrition, Education, Nutrition Education, Food Insecurity, Federal Poverty Level*

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FPL - Federal Poverty Level

Chapter 1: COMMON PROPOSAL

Problem Statement and Goals

The United States Department of Health and Human Services defines social determinants of health as "the conditions in the environments where people are born, live, learn, work, play, worship, and age that affects a wide range of health, functioning, and quality-of-life outcomes and risks". The social determinants of health are recognized as highly influential on individual and population health, however, narrowing in on specific contexts can provide insight into parts of a system that may need refining. Within the subset of social and community context, food insecurity is identified as another social determinant of health. Food insecurity can be defined as "the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways." (Healthy People, 2023). Food insecurity causes a myriad of issues including chronic health conditions such as Type II Diabetes, high blood pressure, heart disease, and obesity along with psychological and behavioral issues. More than this, children struggling with food insecurity have an increased risk of being in poor health and struggling in school (Feeding America, n.d.).

According to the 2019 Durham County Community Health Assessment survey, 25.3% of respondents in the Countywide sample were at or below 200% of the federal poverty level (Durham County Community Health Assessment 2020, n.d.). The US census reported 14.1% of Durham living below the poverty line especially in Black and Latino families as 18.4% were Black and 26.8% or Hispanic with only 10.5% being White (Durham County Community Health Assessment 2020, n.d.). It is crucial to consider how living below the federal poverty level can impact food security in households among families in Durham County. Moreover, according to the 2018 Community Health Assessment, it was reported that 13.5% of Durham County residents were food insecure. It is important to mention this number was largely represented by

African American and Hispanic communities, as race and ethnicity play an important role in health disparities (Durham County Community Health Assessment 2020, n.d.). For those reasons, families living at or below the FPL within Durham County are the priority population.

Addressing food insecurity in families living below the federal poverty level needs to be intersected with addressing health disparities including chronic conditions, income, access, and more social determinants of health within the social and community context. The goal is to introduce a program or policy concerned with nutrition education in an effort to improve the rate of food insecurity among families living under the FPL in Durham County. Social and community context is highly important and quite influential on our priority population. Without addressing this social determinant of health, the risks low-income families face are heightened every day. With the risk of food insecurity leading to chronic conditions and higher rates of morbidity, addressing these issues from the equity lens is vital.

Public health leaders must be involved in addressing social determinants of health in vulnerable populations in order to better community health, population health and the quality of health in the county. By starting at micro levels, such as addressing social and community context in Durham county in order to minimize food insecurity among families living below the federal poverty level, public health leaders can pave the way toward sustainable change. In doing so, bettering population health among marginalized or underrepresented groups will demonstrate health equity efforts toward improving health disparities in the priority population. With this being improved through the implementation of a program, the county of Durham can flourish as a united front.

Policy and Programmatic Change

The intervention runs from program implementation until August 30, 2025. The intervention will be bi-weekly, dietitian-led education sessions and the experimental group will

be the program attendees at or below the federal poverty level. The evaluation methods will be via quantitative data using the Hunger Vital Sign™ survey and the Federal Food Security Determination Survey. The surveys will be administered when a household at or below the federal poverty level attends its first dietitian-led education session. The surveys will be distributed at education sessions which each household will attend one year after their initial session and every year thereafter until August 30, 2025.

A dietitian-led nutritional education program can have a plethora of benefits for the priority population. Diet education provides knowledge of how to work with limited resources and improve nutritional status. Dietitian-led patient education has shown significant improvements in health status and outcomes (Oronce, et al, 2021). Additionally, diet education in a low-income population can improve food security status as increased knowledge of food management skills is protective against food insecurity. For example, the Expanded Food and Nutrition Education Program (EFNEP) has been effective in its ability to improve food security as well as promote behavior changes that will enhance food security status, dietary intake, and thus health outcomes. More efficient expenditure of funds on higher nutritionally dense foods and learning about meal prepping and budgeting can improve food security. EFNEP has been shown to improve resource management amongst families when provided with diet education including food preparation tips, healthful food selection, and budgeting, especially amongst low-income households. For example, EFNEP participants in Tennessee were able to save $123-$234 per year compared to their non-educated counterparts (Farrell, 2013). EFNEP is a community outreach nutrition education program for low-income populations and provides a good outline for a dietitian-led nutrition education intervention.

One short-term objective of would be by August 30, 2025, the rate of reported food insecurity reported in households at or below the FPL amongst 10% of program attendees will decrease by 2% as measured by the Hunger Vital Sign™ survey and the Federal Food Security Determination Survey (Appendix A and Appendix B). First, a task force will be established consisting of community outreach members, project managers, dietitians, and researchers. A dietitian-led nutrition education curriculum should be created and connections with food banks/food distribution sites and community centers should be established. Community outreach members/volunteers will go into Durham to assist households in filling Hunger Vital Sign™ surveys and the Food Security Determination Survey Out (Children's Health Watch, 2022). Households can be concurrently assessed for income to determine if they are at or below the FPL. If both criteria (food insecurity and income below the FPL) are met, they should be offered transport to a site of nutrition education. Dietitians should administer these two surveys at the first education session and annually until August 30th , 2025. Then diet education, cooking demonstrations, and advice should be provided based on the curriculum or specific household needs.

Community Partners

Prioritized community partners have a significant influence to address this SDoH and leverage their involvement appropriately. NC Department of Health and Human Services, Durham County Commissioner, Durham County Department of Public Health, Durham County, and Department of Social Services: Food and Nutrition Services may all have high power, their interest is low. These individual partners prioritize the many disparities within Durham County which makes their interest low due to additional urgent issues, leaving residents vulnerable to inequitable policies and structures (2021-2022 Durham County Profile, 2022). Although there

may be hindrances to their indirect and direct impact, their impact on the community would be transformative when heavily involved. Food security organizations End Poverty Durham, Food Bank of Central and Eastern NC and Urban Ministries of Durham are considered partners with high interest and high power due to the nature of their individual services to Durham county residents. Their hands-on approach and program relationship with the community creates a trusting relationship and their resources are conducive to combat food insecurity. Their influence can leverage power in Durham County by continuing to provide the nutritional foods to community members and their impact therein is known to attract those with low-income. Additionally, community partners Durham County and the National School Lunch Program may have high interest in those suffering from food insecurity, their power is low and regulated. These community partners may go through various lengths to ensure food and nutrition information is spread throughout the community, but state policies and regulations hinder these partners to sustain their mission continuously when they are highly influential.

Engagement and Accountability Plan

To encourage adequate and quality engagement among stakeholders, developing methods that guarantee improvement and commitment are key for implementation of change. Specifically this can be promoted among methods of open ended discussions, focus groups, individual interviews, surveys and informational documents. Initially, we will begin with the use of open ended discussions, which allows collaboration and communication regarding barriers and awareness purposes of benefits offered for the EFNEP program. This can be encouraged through the timing of design, improvement and education which will be assessed among performance measures conducted through surveys/interviews. These methods of timing will be tracked bimonthly and will be focused on providing a combination of in person/online communication

that fosters a cohesive approach for improved learning. An additional method used can be focus groups which host themed huddles/discussions in a structured setting to note any differences among perspectives. This would be measured among interviews conducted at a quarterly frequency with timing to improve. These opportunities will increase the variety and richness of deep conversation for increasing the expected outcome of team building. Lastly, informational documents/education resources are formatted to provide outreach and continuous education to stakeholders. This would be promoted among informational and recorded reviews on a monthly basis and will encourage timing to design, improve and educate. Moreover, this format will aid in building an understanding of goals and strengthen purpose by setting individual expectations for roles (See Table 1).

Program Evaluation

Our evaluation is a longitudinal cohort study. The scores from The Hunger Vital Sign™ survey (See Appendix A), a validated and peer-reviewed journal-cited resource used to identify food insecurity, and the Food Security Determination Survey (See Appendix B), screening intended to assess the level of food insecurity: high, marginal, low or very low. Points from 0 to 2 have been assigned to each of the questions on both surveys. The higher the score, the greater the level of food insecurity. A total of the points scored on each survey between the two systems will be used to obtain the point and percentage of difference at every survey administration for each individual household. Our goal is to see a trend of decreasing point scores which is indicative of decreased food insecurity amongst our target population.

References

Durham County Department of Public Health 2020. (n.d.). NCDHHS. Durham County Community Health Assessment 2020. https://schs.dph.ncdhhs.gov/units/ldas/cha2020/2020-DURHAM-CHA.pdf

Farrell, J. A. (2013). The Impact Of Nutrition Education On Food Security Status And Food-related Behaviors Food-related Behaviors . ScholarWorks@UMass Amherst. https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=2204&context=theses

Importance of Nutrition on Health in America. Feeding America. (n.d.). https://www.feedingamerica.org/hunger-in-america/impact-of-hunger/hunger-and-nutrition

Oronce, C. I. A., Miake-Lye, I. M., Begashaw, M. M., Booth, M., Shrank, W. H., & Shekelle, P. G. (2021). Interventions to Address Food Insecurity Among Adults in Canada and the US: A Systematic Review and Meta-analysis. JAMA health forum, 2(8), e212001. https://doi.org/10.1001/jamahealthforum.2021.2001

The Hunger Vital SignTM. Children's HealthWatch. (2022, June 24). https://childrenshealthwatch.org/public-policy/hunger-vital-sign/

Social Determinants of Health. Social Determinants of Health - Healthy People 2030. (n.d.). https://health.gov/healthypeople/priority-areas/social-determinants-health

Appendices

Figure 1: The Hunger Vital Sign™ Survey

(1) Within the past 12 months we worried whether our food would run out before we got money to buy more

- Often True (2 points)
- Sometimes True (1 point)
- Never True (0 points)

(2) Within the past 12 months the food we bought just didn't last and we didn't have money to get more[8]

- Often True (2 points)
- Sometimes True (1 point)
- Never Ture (0 points)

*Points set by our program to collect quantitative data

Figure 2: The Federal Food Security Determination Survey

(1) In the last 6 months is the following statement often, sometimes, or never true for you: "The food that I bought just didn't last, and I didn't have the money to get more."

- Often true (2 points)
- Sometimes true (1 point)
- Never true (0 points)

(2) In the last 6 months, is the following statement often, sometimes, or never true for you: "I couldn't afford to eat balanced meals."

- Often true (2 points)
- Sometimes true (1 point)
- Never true (0 points)

(3) In the last 6 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?

- Yes (1 point)
- No (0 points)

(4) If you answered "Yes" to the previous question, how often did this happen?

- Almost every month (2 points)
- Some months but not every month (1 point)
- Only 1 or 2 months (0 points)

(5) In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

- Yes (1 point)
- No (0 points)

(6) In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food?

- Yes (1 point)
- No (0 points)

*Points set by our program to collect quantitative data

Figure 3: Rich Picture

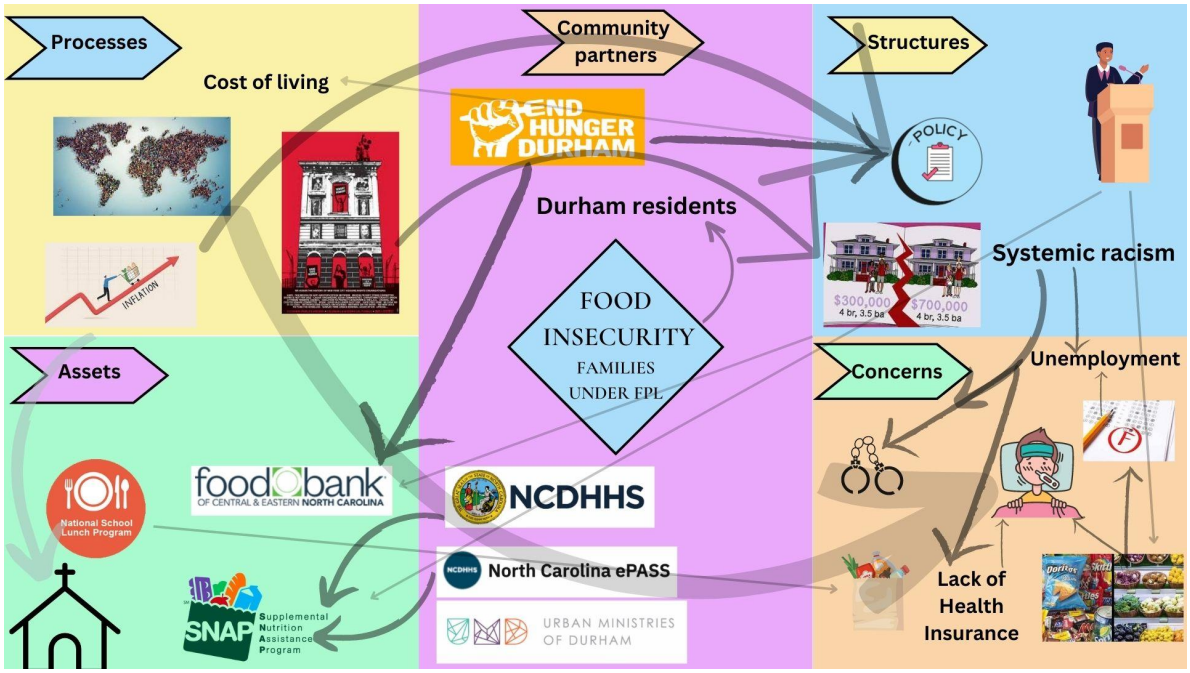


Table 1: RASCI Analysis

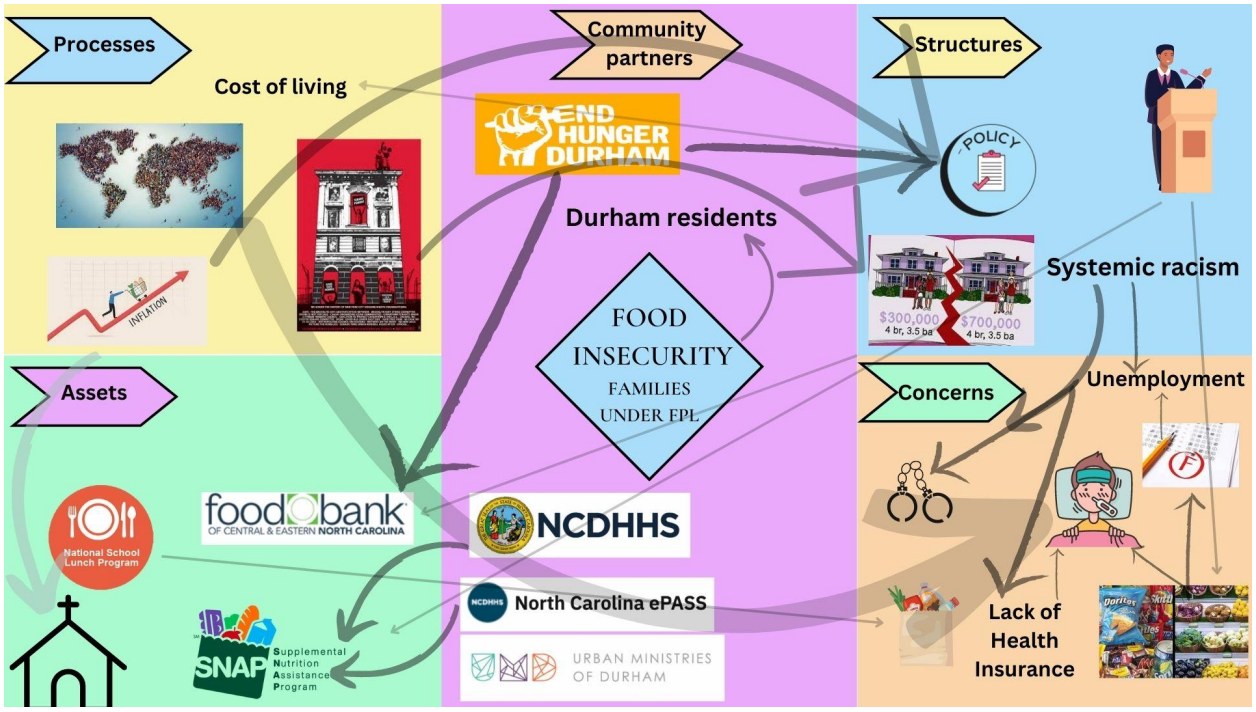
RASCI Table		
Policy/Program – Briefly summarize your proposed policy/program changes		
RASCI Levels Who is…	**Community Partners**	**Rationale**
Responsible=owns the challenge/ project	• Durham County Commissioner • NC DHHS • Durham County Public Health Department	• Carries power and influence to approve programs and generate policies that can work in Durham County to address food insecurity in low-income households
Accountable=ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those *responsible*	• Public Health Department • NC DHHS • Durham County Public Health Department	• Promote health services and health promotion programs that protect communities from communicable diseases, epidemics and contaminated food and water (NCPPHD, 2023). • Capability to inform, educate, and empower people about health issues. Mobilize community partnerships to identify and solve health

		problems. Develop policies and plans that support individual and community health efforts (NCDHHS, 2023).
Supportive=can provide resources or can play a supporting role in implementation	• Urban Ministries of Durham • Food Bank of Central and Eastern NC • End Poverty Durham • Reaching Out To Durham County • Health professionals (i.e., Dieticians) • Food and Nutrition services • Durham County Public Health Department	• Individual resources and programs will be able to have direct access to community members and support their needs • DCoDPH: Through collaboration, supporting food security organizations with their needs to continue to address food insecurity act and create ways to spread nutrition diet lead programs in Durham County
Consulted=has information and/or capability necessary to complete the work	• Durham County Public Schools • Department of Social Services	• Have the capability to provide physical space for nutrition program

Informed=must be notified of results, process, and methods, but need not be consulted	● Durham county residents ● National School Lunch Program	● Personal and real time experiences to assist in the collaboration process for key partners to address food insecurity, offer feedback, solutions, and concerns on ongoing barriers. ● Operating in public and nonprofit private schools and residential childcare institutions, NSLP will continue to support nutritionally balanced, low-cost, or free lunches to children (NSLP, 2023)

INDIVIDUAL APPENDICES

Appendix A: Rich Picture



Appendix B: Naomi Brown's Individual Deliverables

Appendix B.1: SDOH Analysis

SDoH: Social and Community Context

The social determinants of health are the conditions in which people are born, grow, live, work and age. These conditions are formed by the division of money, power, and resources at global, national, and local levels. "The social determinants of health are mostly responsible for health inequities, which are unfair and avoidable differences in health status" (Bailey, 2022). Food insecurity amongst families that live in Durham County, North Carolina who are living at or below the Federal Poverty Level is a social determinant of health (SDoH). This means there may be long-term impacts of the problem. Non-medical factors that influence health outcomes and can also be more important than health care or lifestyle choices in influencing health outcomes, such as low income and food insecurity. While short term effects can lead to malnourishment and extreme health conditions. The 2019 Durham County Community Health Assessment Survey reports that 10.2% (1 in 10 residents) cut the size of their meals or skip meals (Table 1). Increasing community and social support is a major objective of the Healthy People 2030 initiative, with special requirements for vulnerable populations such as families affected by living below the federal poverty line, (Singh, 2021). Making this reoccurring SDoH a priority is prevalent and vital to address health inequities within the community of Durham County (Durham County Community Health Assessment 2020, n.d.).

Geographic and Historical Context

Durham County census reported a population of approximately 332,680 residents, making it the 6th most populated county in North Carolina (Census, n.d.). Durham county is

recognized for its diversity, businesses, HBCU as well as civic engagement, innovation and roots in the tobacco and textile industries. Additionally, Durham County has a rich history of faith-based and political organizations with roots that expand decades promoting advocacy, support, and engagement within the community. Durham county is also known as the City of Medicine within healthcare, research, and education in major industries. Although, with many trailblazing laurels, Durham County still experiences high rates of health inequities and disparities between racial and ethnic groups (Durham Community Health Assessment 2020, n.d.).

U.S. Census Bureau American Community Survey estimated 14.1% of Durham's population lived below the poverty line in 2019. Poverty was particularly prevalent among the county's Black and Hispanic populations with 18.4% and 26.8%, compared to 10.5% of the white population (Durham Community Health Assessment 2020, n.d.).

African American and Hispanic populations in Durham are currently experiencing higher rates of economic deprivation. Both demographics are more likely than whites to have low wage or hourly jobs which allows various higher paid workers to keep their jobs during the COVID-19 pandemic. Additionally, studies have shown that during the pandemic, African American and Hispanic populations lost employer-sponsored health care coverage at an excessively higher rate than white people. This inequity increases disparities in insurance coverage, which include out-of-pocket costs and increasing the likelihood of food insecurity. (NCDHHS, 2020).

Practices and Policies that Address SDOH

To date, Durham County has established activities for community residents to participate in, such as COVID-19 Food Security Task Force, which is an emergency operation food contract

that spent $1 million to help provide food for people in need. As well as the Food Security Coordination a strong and equitable food system that provides healthy and affordable foods to the community of Durham County. Other notable practices such as Reaching Out to Durham Hungry, Feed the Sheep of Durham Food Pantry and many others (DCOBC, 2023).

Priority Population

Durham County families that live at or below the federal poverty level are the priority population. It is reported that food insecurity and families living at or below the federal poverty line has a strong correlation between poverty and poor health. This is likely due to food insecurity, exposure to critical living and working conditions and increased exposure to pollution. In Durham County, "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" (Community Health Assessment 2020, n.d.). Within many communities in the United States, it is common to see this disparity. It was reported in the Durham County Community Health Assessment that within the last 12 months, 14.9% of African Americans and 12.6% of Hispanics cut the size of meals or skipped meals because there wasn't enough money to purchase food (Table 1). Food prices drastically affect food purchasing decisions. It is also important to acknowledge that food security is vitally an issue of poverty (Community Health Assessment 2020, n.d.).

Measures of SDOH

According to the 2019 Durham County Community Health Assessment survey, 25.3% of respondents in the Countywide sample were at or below 200% of the federal poverty level (Durham County Community Health Assessment 2020, n.d.). Respondents reported poverty as

the 12th leading issue that affects their quality of life. Additionally, other related responses that ranked higher were affordable housing, gentrification, and low-wage jobs. More than 10.1% of all families in Durham County reported families whose income in the past 12 months were below the poverty level (Table 2). On a state level, families in North Carolina are currently living at 32.6 percent at or below the federal poverty line making Hispanic and African Americans the most vulnerable populations at risk of food insecurity (Table 3) (DCONC, 2023). Additionally, the assessment reports that there has been a corresponding rise in enrollment in programs such as the Supplemental Nutrition Assistance Program (SNAP) and Medicaid which is designed to serve low-income families (Durham County Community Health Assessment 2020, n.d.).

Rational/Importance

Food insecurity amongst families that live at or below the federal poverty level has a direct impact on health. In Durham County, before the COVID-19 pandemic, about 1 in 4 Latino and 1 in 6 African American residents skipped meals or ate less food due to low income, making it unaffordable. The effects of the pandemic have made it even harder for people to have enough money to buy food and sustain it, especially amongst Black, Indigenous, and People of Color (BIPOC) families (DCONC, 2023). No resident should have to be troubled about when they need to skip a meal to save money, stretch food out for the rest of the month, or worry about where their next meal will come from to feed their families.

Disciplinary Critique

As public health leaders, it is important to recognize that across the United States, incomes vary widely across many determinants of health. Food insecurity can pose an extensive financial burden for poor and low-income families. It is one of the contributing factors as to

why families in Durham County who are at or near the poverty level are more likely to report poorer health status than families with higher incomes, which can be in correlation to food insecurity (NCDHHS, 2020). Public health leaders are called to address low-income families suffering from food insecurity as they deserve the opportunity to have stable and healthy lives as the rest of the well-off population, as it is a human right to all citizens of Durham County (NCDHHS, 2020).

References

Bailey, N. (2022). Social Determinants of Health. UNC Center for Health Equity Research. https://www.med.unc.edu/cher/cher-term/social-determinants-health/#:~:text=The%20social%20determinants%20of%20health,global%2C%20national%20and%20local%20levels.

DCOBC. (2023). *Durham County Food Security: Durham County*. Food Security. https://www.dconc.gov/county-departments/departments-a-e/cooperative-extension/food-security

Durham County Department of Public Health 2020. (n.d.). NCDHHS. Durham County Community
Health Assessment 2020. https://schs.dph.ncdhhs.gov/units/ldas/cha2020/2020-DURHAM-CHA.pdf

Singh, R., Javed, Z., Yahya, T., Valero-Elizondo, J., Acquah, I., Hyder, A. A., Maqsood, M. H., Amin, Z., Al-Kindi, S., Cainzos-Achirica, M., & Nasir, K. (2021). Community and Social Context: An Important Social Determinant of Cardiovascular Disease. (“Community and Social

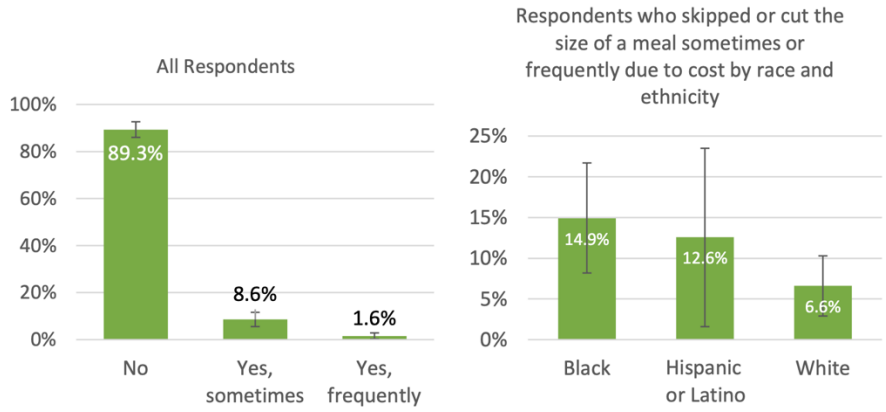
Context: An Important Social Determinant of ...") *Methodist DeBakey cardiovascular journal*, *17*(4), 15–27. https://doi.org/10.14797/mdcvj.846

U.S. Census Bureau: Durham County, North Carolina. United States Census Bureau. (n.d.)., from https://www.census.gov/quickfacts/durhamcountynorthcarolina

World Health Organization. (2023). Social Determinants of Health. World Health Organization. https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1

Appendix B.1.a: Figures and Tables SDOH Analysis

Table 1: In the last 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?

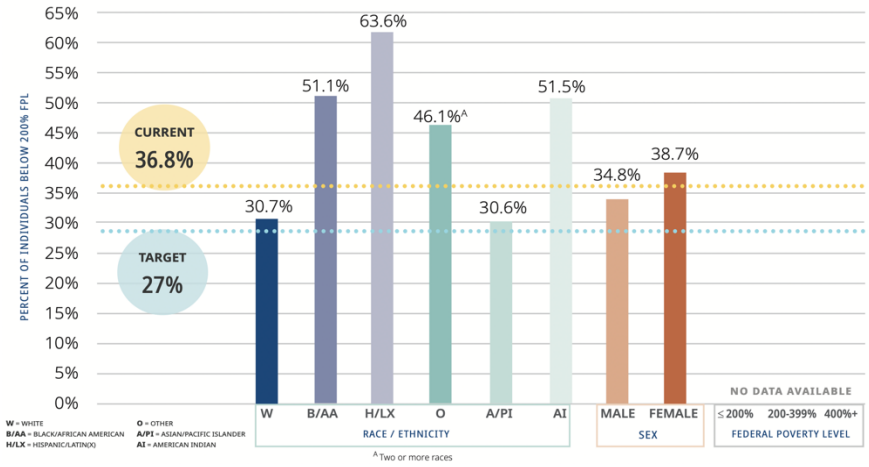


(Durham County Community Health Assessment 2020, n.d.)

Table 2: Families Whose Income in the Past 12 Months were Below the Poverty Level, Durham County, 2019

Family Make-Up	Percentage
All Families	10.1%
With related children of the household under 18 years	16%
Married Couple Families	3.9%
Families with female household lead, no husband present	27.6%
White families	6%
Black families	16.2%
Hispanic Families	22.4%

(Durham County Community Health Assessment 2020, n.d.)
Table 3: Percent of individuals below 200% FPL across populations in North Carolina and distance to 2030 target



(Healthy North Carolina 2030, 2020)

Appendix B.2: Community Partner Analysis

Social Determinant of Health and Program/Policy Transformation

Social and Community Context SDOH is the focus of helping individuals attain the support they need in the places where they are born, live, work, and engage in everyday lifestyles and increase social and community support. Durham County families that live at or below the federal poverty level are reported to have food insecurity and those families have a strong correlation between poverty and poor health. Nearly 600,000 individuals are unable to consistently access enough nutritious food to live a healthy, active life. (2028-2019 Durham County Profile, 2019). The policy transformation in the essence of Social and Community Context is to include a dietitian-led nutritional education program that benefits the community. Diet education in a low-income population can improve knowledge of how to work with limited

resources to improve nutritional status, resulting in better health outcomes based on the services offered from food banks and community gardens. Increased knowledge of food nutrition management skills is a protective tool against food insecurity (Sun, 2023). It is important to make this information accessible to the community and with this knowledge it will increase health outcomes. This plan can be measurable with clear objectives for delivery of service. This can be done by determining if individuals have ever participated in nutrition education and benefited as well as nutrition assessment tools for those that participate with food security organizations.

Community Partner Mapping and Analysis

There are many potential community partners that hold a significant influence to address this problem such as, End Poverty Durham, Food Bank of Central and Eastern NC and Urban Ministries of Durham. These are all considered to be community partners with high interest and high influence due to the nature of their programs being set within the community and the hands-on approach each organization gives. Their resources are conducive to combat food insecurity (See Figure 1). Their influence can leverage power in Durham County by continuing to provide the nutritional foods to community members and their impact therein is known to attract those with low-income. While these community partners are deemed highly interested and influential, other partners such as the residents of Durham County and the National School Lunch Program have high interest in those suffering from food insecurity, their power is low and regulated. These community partners may go through various lengths to ensure food and nutrition information is spread throughout the community, but state policies and regulations hinder these partners to sustain their mission when they are highly influential. While NCDHHS, Durham County Commissioner, Durham County Department of Public Health, Durham County

Department of Social Services: Food and Nutrition Services may all have high power, their interest is low (See Figure 1). These individual partners prioritize the many disparities within Durham County which makes their interest low due to additional urgent issues. Although policies take a long time to be approved and implemented while families are still hungry, their impact on the community would be transformative when heavily involved.

Prioritizing the involvement of these community partners will make systemic changes in food insecurity amongst families living at or below the federal poverty line in Durham County. This task force should be established consisting of community outreach members, project managers, dietitians, and researchers within every community partner entity. A dietitian-led nutrition education program should be created and connections with food banks/food distribution sites and community centers should be established (Sun, 2023).

According to the 2018-2019 Durham County Profile, 49,600 people were food insecure although 68,633,529 meals were provided in the county (See Figure 2). Food banks work daily to sustain families while building solutions to hunger through programming and partnerships, empowering counties such as Durham to thrive (2028-2019 Durham County Profile, 2019). Access to these services can create barriers such as transportation and access to a variety of healthy foods making influence participation and equitable representation difficult for community partners.

Worldview Explanation

Community partners such as Durham County community residents and Durham County Health Department are two key influenceable task force members to implement this change for individual reasons. Durham County residents have lived experiences. With their knowledge of historical and active solutions to address food insecurity, their engagement gives a

birds-eye-view of what is happening within the community, who it is affecting directly and able to voice the opinions and concerns of those struggling to put meals on their tables. The shared experiences with those within their community addresses communication barriers that may have historically been shut out due to other priorities. Residents' voices are strong and impactful which gives the rest of the community a right to be heard and fed (See Figure 3).

Durham County Health Department mission is to address food insecurity in vulnerable populations such as Seniors, African American, Latino households, and families with children. DCHD has a task force and provides information about federal nutrition programs. Through their funding towards End Hunger Durham, El Centro Hispano, and Meals on Wheels, DCHD can leverage so much more influence through funding other known food banks and disseminating educational diet-nutrition information to the public.

Conclusion

Durham County can support food insecure households by implementing the dietitian-led nutritional education program. This would entail additional funding towards food banks to offer a variety of healthy foods to food insecure families as well as educational information to help families choose healthy foods when available at food banks. The task force of the Urban Ministries of Durham, Food Bank of Central and Eastern, NC, End Poverty Durham, Reaching Out to Durham's Hungry, NCDHHS, Durham County Commissioner, Durham County Department of Social Services, and the National School Lunch Program are influential community partners to move this plan forward. Although key community partners Durham County residents and the Durham County Department of Public Health have the potential to bridge that gap between what the community needs and what is within the county's capabilities to expand. Durham County Health Department funds only three county food security

organizations (Warnock, 2021). Funding from the Health Department has a strength to expand the variety of healthy foods to so many families in Durham County and that strength should be shared graciously to other food security organizations. Questions for the Health Department would be what criteria do other food security organizations need to meet to have funding and how are non-profit grants selected for funding? Durham County residents have a large influence on implementation. Their voices combined can give a voice to speak on community needs, injustices, and quality of life. The impact of a collection of residents means ideas and concerns are prioritized and are not ignored. They will serve as a guide into who to sustain food security organizations within the community. It is important to know are all vulnerable populations being represented and how? Limitations to these partners is having them all work together to enhance their common goal to feed low-income families who struggle to put a meal on their table.

References

Durham County Food Security | Durham County. (n.d.). www.dconc.gov. Retrieved June 22, 2023, from https://www.dconc.gov/county-departments/departments-a-e/cooperative-extension/food-security

About End Hunger Durham – End Hunger in Durham. (n.d.). Retrieved June 22, 2023, from https://www.endhungerdurham.org/about/

Food Bank of Central & Eastern North Carolina. (2019). 2018-2019 Durham County Profile. Retrieved June 22, 2023, from http://foodbankcenc.org/wp-content/uploads/2019/11/2019-2020-County-Profiles_Durham.pdf

Office of Disease Prevention and Health Promotion. (2020). *Social and Community Context - Healthy People 2030 | health.gov*. Health.gov. Retrieved June 22, 2023, from

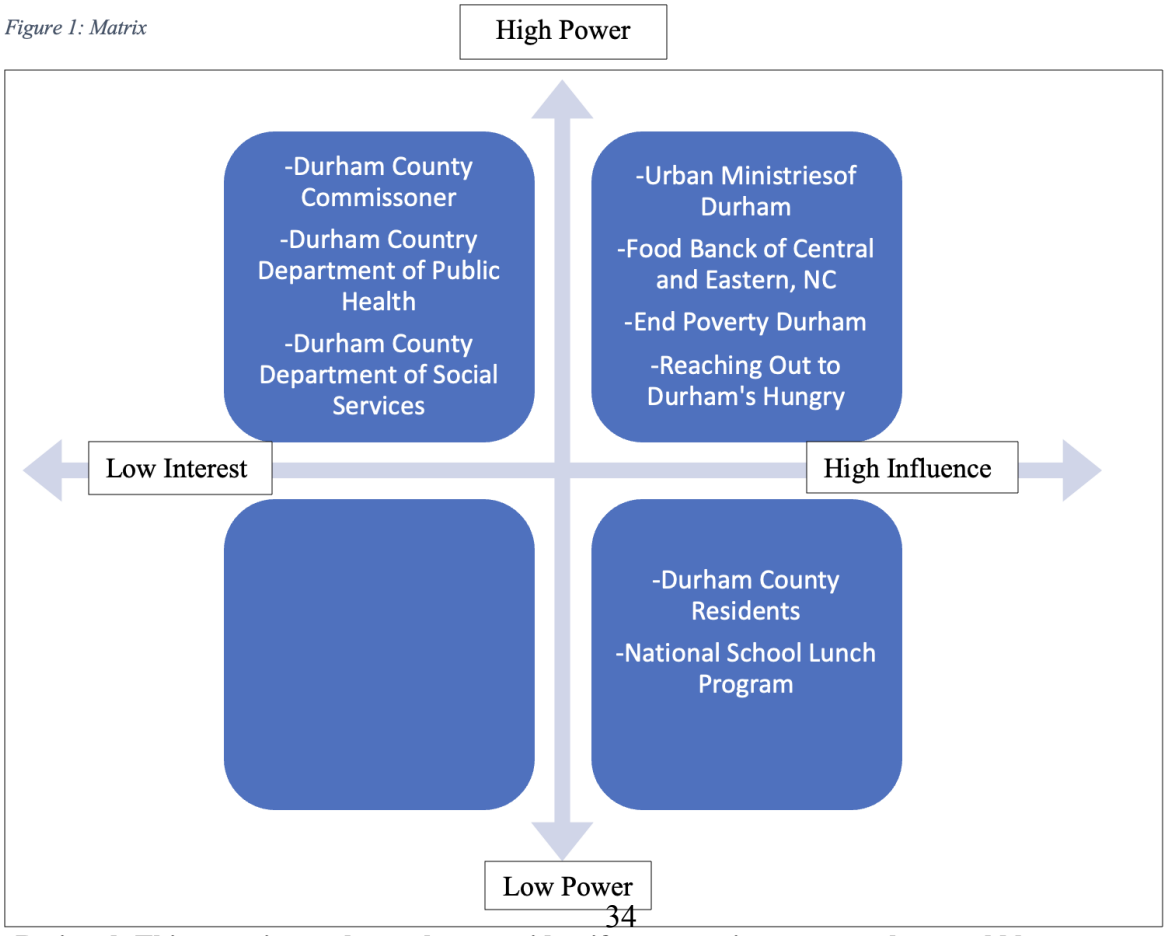
https://health.gov/healthypeople/objectives-and-data/browse-objectives/social-and-community-context

Sun, A. (2023). Retrieved June 22, 2023, from *Nutrition Program or Policy Analysis and Implementation*.

Warnock, K. (2021, February 11). *Food Security Update*. Durham County Health Department. Retrieved June 22, 2023, from https://www.dcopublichealth.org/home/showpublisheddocument/33844/637480515120270000

Appendix B.2.a: Community Partner Analysis Figures and Tables

Figure 1: Matrix

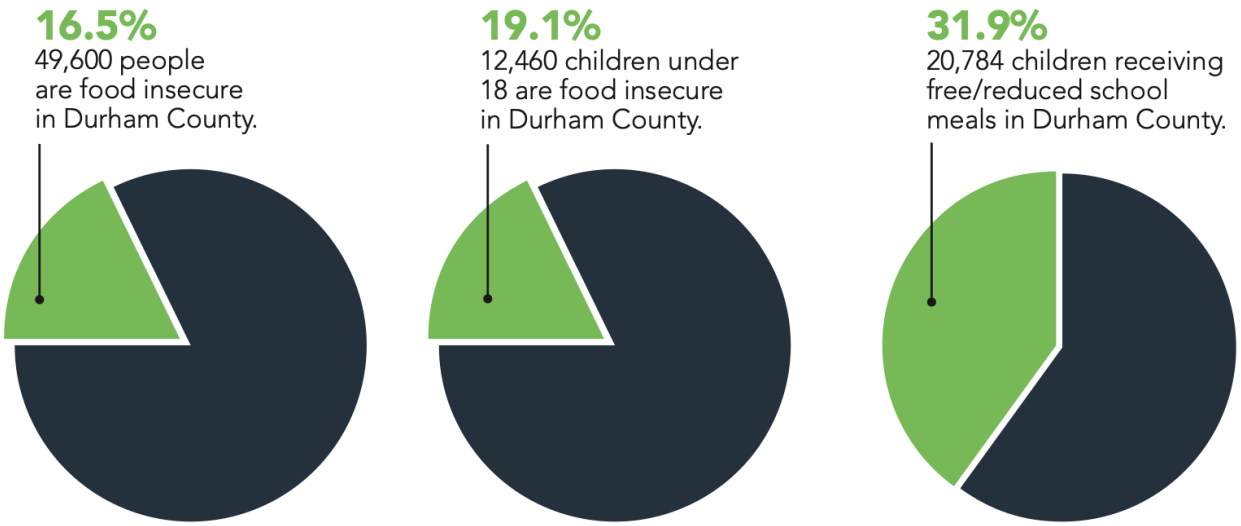


<u>Rational:</u> This mapping tool was chosen to identify community partners that would be an asset to addressing the SDOH in Durham County while incorporating a program/policy transformation to change systemic issues of food insecurity amongst low-income families.

Figure 2: 2018-2019 Durham County Profile

Food insecurity[1]	
Number of people who are food insecure	49,600
Percentage of people who are food insecure	16.5%
Children under 18 who are food insecure	12,460
Percentage of children under 18 who are food insecure	19.1%
Individuals over 65 who are living below the poverty level[2]	2,630

Hunger[3]	
Number of children receiving free/reduced school meals	20,784
Percentage of children receiving free/reduced school meals	31.9%
Unemployment[4]	
Percentage unemployment June 2019	4%



ADDRESSING NEEDS

Total lbs. of food distributed by the Food Bank in 2018-2019	80 million lbs.
Total meals provided in this county	68,633,529 meals
Total lbs. of food distributed in this county	5,747,993 lbs.

Source:

http://foodbankcenc.org/wp-content/uploads/2019/11/2019-2020-County-Profiles_Durham.pdf

Figure 3: CATWOE

Community Partner	Role	Root Definition
Durham County Community Resident (lived experience)	Serve as a voice within the community to advocate for families that live below the federal poverty line and are suffering from food insecurity by supplying local resources to the community.	Provide support for families within Durham County by expanding the knowledge of food insecurity in the county.
Durham County Health Department	Support food relief agencies, with reliable information, collaboration, and advocacy aimed at preventing hunger for those living below the federal poverty line.	DCHD will support the community to create a strong and equitable food system for residents to find affordable and healthy food ("Durham County Food Security | Durham County - DCONC"). Increase food security and build a stronger, more resilient food system (Warnock, 2021).

Appendix B.3: Engagement and Accountability Plan

Engagement Strategy Purpose

The engagement of community partners has significant impact in Durham County to address the SDoH of addressing food insecurity amongst families that live at or below the federal poverty line. Their individual roles as partners are essential by creating a variety of resources and programs to promote accessible and healthy foods to those that cannot afford to buy themselves (see table 1). These community partners will have capabilities to develop nutrition programs and partner with food security organizations aimed at both reducing hunger and improving diet-related health.

Priority Partner

Durham County Public Health Department (DCoDPH) mission is to partner with community partners to advance health equity and promote health and wellness for all (DCoDPH, 2023) They hold a high influence in addressing this SDoH and is possible through community-based organization partnerships. DCoDPH 2021 Food Security Updates addressed they are working to support existing food pantries and hunger relief programs (Warnock, 2021). DCoDPH also has the capability to facilitate conversations and survey partners to keep a pulse on food security and food pantry data that is accessible to residents of Durham County that are of low income. The causes of food and nutrition insecurity are multifarious, interconnected and originate from structural and economic constraints. Nutrition programs at federal, state, and local levels are designed with the goal of increasing food and nutrition security and reducing hunger by providing low-income individuals and families access to healthy food and nutrition education. While DCoDPH has the power to leverage these programs and its resources, so much more can be done in support of community members. By partnering with a larger variety of food security non-profit organizations and food banks, DCoDPH can support a larger population in Durham

County who do not have accessibility to their nutrition programs. The policy transformation is to include a dietitian-led nutritional education program that benefits the community and addresses food insecurity (Sun, 2023). In which DCoDPH can collaborate into fruition within Durham County.

Engagement Barriers and Facilitators

Impacts influenced by the Durham County Public Health Department, as they contribute and participate in efforts to address this SDoH by prioritizing the many disparities within Durham County are positive and negative. Transformative state policies take a long time to be approved and implemented while families are still hungry. This department's impact on the community would be transformative when heavily involved if policies were expedited and fair. “When equity is integrated into a health department’s operational infrastructure, it can elevate the agency’s response to public health emergencies by prioritizing the collection, reporting, and tracking of demographic data that is necessary to identify and respond to inequities” (Burwell-Naney et al, 2021). In 2019, the Congressional Research Service reported on 17 domestic food assistance programs, including direct cash assistance and food assistance programs. Overall, government assistance programs provide nine times the nutritional support of the charitable food sector (NCPRO, 2022). The department’s ability to fund and sustain food programs within Durham County such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), National School Lunch Program (NSLP) has proven in the past to work and can continue its participation in Durham County and considered strong and positive impacts to this SDoH. While the negative impact of not being enough information to provide a complete perspective from the nonprofit hunger-relief sector, and although surveys and

interviews are conducted to highlight impacted populations in Durham County, the perspective of those experiencing food insecurity is not incorporated in the Durham County Public Health Department analysis to fully account for those non-governmental organizations, which limits funding to those food banks, produce programs, other food security programs (NCPRO, 2022). This is a negative impact and creates a barrier to those suffering from food insecurity in Durham County. With a thorough analysis of those perspectives, it can in turn create positive impacts to appropriate funds fittingly.

Engagement Methods

There is considerable evidence that supports the effective role that participating alongside food security organizations plays in addressing food insecurity for those living at or below the federal poverty line. Engagement methods (see table 2) for the DCoDPH to participate in are focus groups in Durham County. These in-person or virtual conversations held quarterly will identify the percentage of satisfaction or dissatisfaction of services and resources provided on a federal, state, and local level to address food insecurity. This format will be constructed on a group level to design, engage and inform DCoDPH on this SDoH for record review to help change barriers. Individual interviews are also an engagement method that can be used bi-weekly over the course of 6 months to design, improve and sustain. By participating in interviews via phone and email with food security organizations to gather information from government officials and nonprofit organizations to develop a well-rounded understanding of food insecurity, barriers, limitations, and goals. This engagement method will be conducted on an individual level. The last engagement method will consist of surveys which will be conducted quarterly. This method will be collected through a database including age, gender, ethnicity, locations

within Durham County and of those who are being serviced for food insecurity based on their status on the federal poverty line via spreadsheet.

DCoDPH participation in this engagement method will help bridge the gap between food security organizations who are servicing their resources to the community and with this data will help the department understand which organizations need attention to expand their services. Evidence of the success of these three methods of engagement was shown through the North Carolina Pandemic Recovery Office analyzing food insecurity and policy responses to food insecurity before and after the disruptions caused by the COVID-19 pandemic (NCPRCO, 2022). During the pandemic, it provided an opportunity to examine the efficacy of policies that expand access and increase benefits for food and nutrition service recipients. Due to the efforts of qualitative, quantitative and community engagement, the North Carolina Pandemic Recovery Office identified findings of robust policy changes that would prevent a widespread increase in food insecurity, increased SNAP enrollment and benefits may not potentially increase food security but a high demand for it, and an intense increase in food supplied by nonprofits who helped keep food insecurity low (NCPRCO, 2022). Additionally, there are evidence-based strategies that have connected more children to food and nutrition programs and under the Community Eligibility Provision created by the Healthy, Hunger-Free Kids Act of 2010, high poverty schools and school districts can offer school meals at no charge for all students. Child Nutrition Program access and participation by underserved children and communities. There are still families with children that are missing out on these nutritional and health benefits from participating in WIC, federal food programs in schools, summer, and after school childcare settings (NCPRCO, 2022).

Engagement Leadership

Durham County Department of Public Health (DCoDPH) is identified as the partner that is key to lead engagements for Durham County's food insecurity crisis amongst low-income families. As well as Durham County residents and food security organizations such as Urban Ministries of Durham, Food Bank of Central and Eastern, NC, End Poverty Durham are the best actors for this SDoH (see table 1). NCDHHS and DCoDPH have the potential to bridge that gap between what the community needs and what is within the county's capabilities to expand. DCoDPH funds only three county food security organizations (Warnock, 2021). Funding from the Health Department has a strength to expand the variety of healthy foods to so many families in Durham County and that strength should be shared graciously to other food security organizations. Additionally, DCHD will support the community to create a strong and equitable food system for residents to find affordable and healthy food (DCONC, 2022). As well as increase food security and build a stronger, more resilient food system (Warnock, 2021). While residents of Durham County hold the key in real time to address food insecure issues. Their presence creates a strong and lasting relationship between state agencies and non-profit food secure organizations as it directly affects them and provides support for families within Durham County by expanding the knowledge of food insecurity in the county.

Durham County Department of Public Health can use collected data mentioned in the engagement methods (see table 2) to improve efforts to engage partners to address this SDOH by applying the feedback they receive to implement new strategies and policies that best benefit Durham County residents. Actions by County Commissioners can aid in this essential change by participating ***in*** long-range planning and managing the county budget and finances to appropriate

funds to food secure organizations as well as create new administrative policies to support participation for the betterment of securing food for Durham County residents.

References

Burwell-Naney, K., Mortiboy, M., Zitta, J. P., Stevens, E., Patterson, K., Salter, J. C., Easterling, M., Bickers Bock, L., Wood, H., Rayner, M., & Jenkins, R. (2021). Local Government Approaches to Combating COVID-19 Inequities: A Durham County Department of Public Health Perspective. *International journal of environmental research and public health*, *18*(12), 6544. https://doi.org/10.3390/ijerph18126544

Durham County Food Security | Durham County. (n.d.). www.dconc.gov. Retrieved June 22, 2023, from https://www.dconc.gov/county-departments/departments-a-e/cooperative-extension/food-security

National School Lunch Program. Food and Nutrition Service U.S. Department of Agriculture. (2023). https://www.fns.usda.gov/nslp

NC DHHS. (2023, April). *NC DHHS: North Carolina Department of Health and Human Services*. State Action Plan for Nutrition Security. https://www.ncdhhs.gov/ncdhhs-state-action-plan-nutrition-security-2023-2024/open

North Carolina Pandemic Recovery Office. (2022, April). Learning from the Pandemic: Lessons to Improve Food Insecurity in North Carolina. https://ncpro.nc.gov/lessons-improve-food-insecurity-nc/download?attachment

Sun, A. (2023). from *Nutrition Program or Policy Analysis and Implementation*

Warnock, K. (2021, February 11). *Food Security Update*. Durham County Health Department, from https://www.dcopublichealth.org/home/showpublisheddocument/33844/637480515120270000

Appendix B.3.a: Engagement and Accountability Plan Figure and Tables

Table 1: RASCI Table

RASCI Table		
Policy/Program – Briefly summarize your proposed policy/program changes		
RASCI Levels Who is…	**Community Partners**	**Rationale**
Responsible=owns the challenge/ project	● Durham County Commissioner ● NC DHHS ● Durham County Public Health Department	● Carries power and influence to approve programs and generate policies that can work in Durham County to address food insecurity in low-income households

Accountable=ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those *responsible*	• Public Health Department • NC DHHS • Durham County Public Health Department	• Promote health services and health promotion programs that protect communities from communicable diseases, epidemics and contaminated food and water (NCPPHD, 2023). • Capability to inform, educate, and empower people about health issues. Mobilize community partnerships to identify and solve health problems. Develop policies and plans that support individual and community health efforts (NCDHHS, 2023).
Supportive=can provide resources or can play a supporting role in implementation	• Urban Ministries of Durham • Food Bank of Central and Eastern NC • End Poverty Durham	• Individual resources and programs will be able to have direct access to community members and support their needs • DCoDPH: Through collaboration, supporting food security organizations with their needs to continue to address

	• Reaching Out To Durham County • Health professionals (i.e., Dieticians) • Food and Nutrition services • Durham County Public Health Department	food insecurity act and create ways to spread nutrition diet lead programs in Durham County
Consulted=has information and/or capability necessary to complete the work	• Durham County Public Schools • Department of Social Services	• Have the capability to provide physical space for nutrition program
Informed=must be notified of results, process, and methods, but need not be consulted	• Durham county residents • National School Lunch Program	• Personal and real time experiences to assist in the collaboration process for key partners to address food insecurity, offer feedback, solutions, and concerns on ongoing barriers. • Operating in public and nonprofit private schools and residential childcare

		institutions, NSLP will continue to support nutritionally balanced, low-cost, or free lunches to children (NSLP, 2023)

Table 2: Measurement Table

Engagement Method	**Related Facilitator(s) / Barrier**(s)	**Timing**	**Performance measure**		
			Description	**Data source**	**Frequency**
Focus groups	*Lack of a venue and support/participation for engaging on the issue*	*Design; Engage. Improve*	*In person conversations held. % of participants partially, completely satisfied comm. conversations*	*Participant survey data*	*Quarterly*
Individual Interviews	*Limited communication to access those members*	*Design: Improve; Sustain*	*Interviews via phone and email with food security organizations to gather information*	*Interviews*	*Bi-weekly for 6 months*

			from government officials and nonprofit organizations to develop a well-rounded understanding of food insecurity		
Surveys	*Limited perspectives*	*Improve*	*A database that collects age, gender, ethnicity, locations within Durham County that are being serviced for food insecurity.*	*Record review*	*Quarterly*

Memorandum of Understanding

Between

Durham County Public Health Department

and

Durham County Commissioner

July 2023

I. Purpose and Scope

Durham County Department of Public Health along with the support of key community partners aim to improve access to a variety of health foods in Durham County. By implementing a partnership with food security organizations and a diet-nutrition lead programs in needy communities within Durham County. The purpose of this program and collaboration is to increase access to healthy food to populations of food insecure residents in Durham County who are living at or below the federal poverty line.

II. Leadership and Team

Our team is led by Durham County Department of Public Health alongside key community partners, Durham County Department of Health and Human Services, Durham County Residents, Public Health Department Durham County Public Schools, Department of Social, National School Lunch Program, and a variety of food security organizations such as Urban Ministries of Durham, Food Bank of Central and Eastern NC, End Poverty Durham, Reaching Out To Durham County, Health professionals (i.e., Dieticians) and Food and Nutrition services.

III. Methods and Commitment

Sustaining the commitment as a team to address food insecurity amongst residents of Durham County living at or below the federal poverty line is dependent upon the networking system in place. Strategies to track performance will be conducted quarterly through focus groups by engaging in in-person conversations held. Also identifying the percentage of participants partially, completely satisfied community conversations (see Table 2). These focus

groups will be 5-7 individuals that can speak freely on any issues that have experiences or developments they would like to see happen to ensure food is being provided to low-income families. Individual interviews will be conducted bi-weekly over a span of 6 months by interviewing food security organizations via phone and email to gather information from government officials and nonprofit organizations to develop a well-rounded understanding of food insecurity in the area. We are committed to continuing to communicate with external partners to obtain relevant information to better address food insecurity and where services are needed (see RASCI Table in appendix). This will be conducted via surveys which will be conducted quarterly through spreadsheets for record review. These surveys will be collected in a database that identifies the age, gender, ethnicity, locations within Durham County participants that are being serviced for food insecurity. By utilizing this method, we will have an understanding as to who we are serving in what locations and identify regions in Durham County who are not. We will know success in our plan when diet-nutrition programs and resources are being incorporated with food security organizations and a wide spread of those organizations have been deployed throughout all sections of Durham County where food insecurity is most prevalent.

IV. Improvement Plan

Through data collected to identify participants who are satisfied or unsatisfied will be conducted quarterly by our nutritionist partner based on performance measures available. This data analysis will help the team understand the perspectives of those utilizing food security resources and what can be done better to reach all of Durham County. This will also aid in understanding some of those personal external factors that hinder participation. With this plan,

there can be an understanding if goals are being met and if the outcomes are seen through previous limited perspectives.

V. Rational for Allocation

DCoDPH has a responsibility to align diet-nutrition lead programs within Durham County through nutritionists. These programs offer education, training, resource management, food safety and food security. By utilizing these individuals, DCoDPHcan reach a variety of community members such as youth, elders, and families impacted the most by food insecurity. As well as through partnering with food security organizations mentioned in the RASCI table. Their individual capability to reach the community will be beneficial in not only serving those living with low income but to provide a variety of resources that community members may not know about such as diet-nutrition programs. This partnership reaches to NCDHHS, the national school lunch program, and Durham County schools to help get these programs and resources accessible. The responsibilities between DCoDPH as it pertains to the Durham County Commission are evident to have a large impact on the community to strengthen these programs and resources in Durham County.

VI. Review of Endorsement Goals

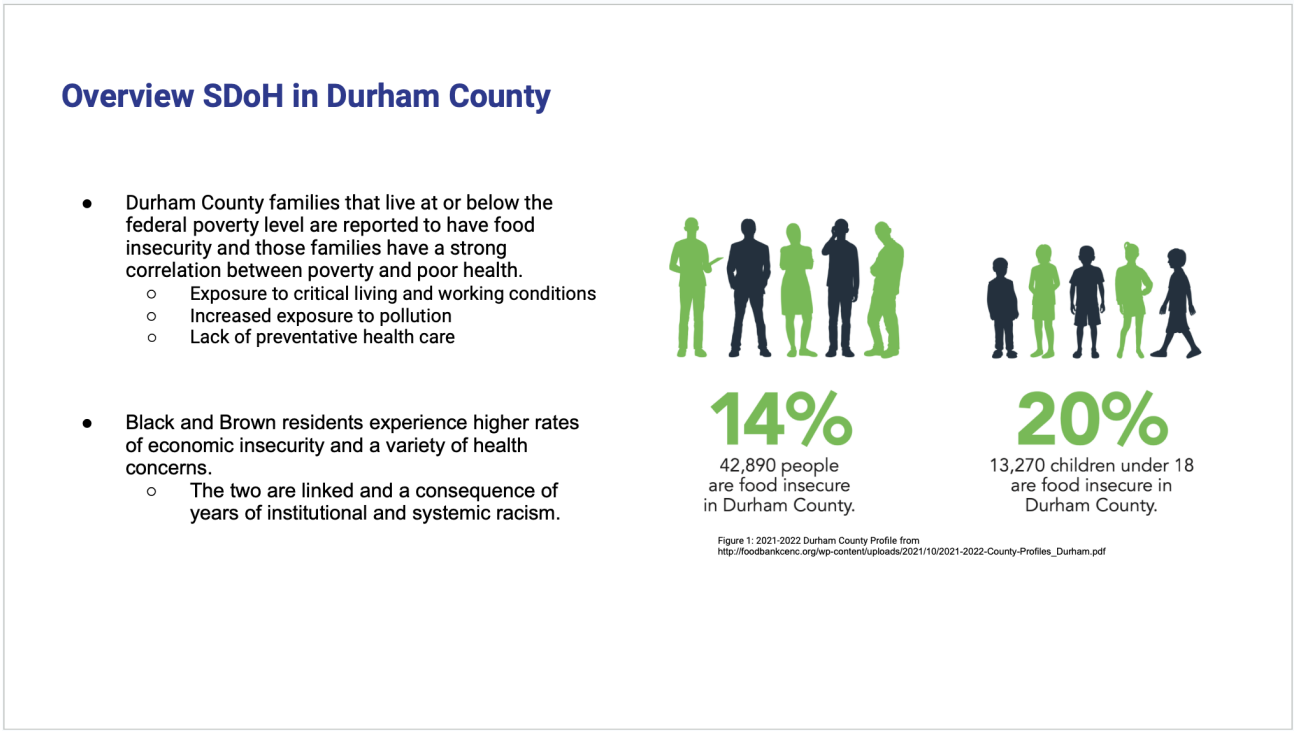
During this process our team will engage with key community partners appropriately when issues arise. When there are common goals in mind, based on those meeting goals a collective decision can be made.

VII. Publication and Dissemination Plan

As a team, all dissemination planning, data analysis, research, and demonstration will be collected during our stages of planning where all issues will be addressed, during the

implementation phase as well as during the evaluation stage. This way all changes can be made as a team before publication.

Appendix B.4: Individual Presentation Slides and Script



Social and Community Context SDOH is the focus of helping individuals attain the support their needs in the places where they are born, live, work, and engage in everyday lifestyles and increase social and community support. According to the Durham County Community Health Assessment, within the last 12 months, 1 of 10 families skip meals. 14.9% (15%) of African Americans and 12.6% (13%) of Hispanics cut the size of meals or skipped meals because they didn't have enough money to purchase food. Food prices drastically affect food purchasing decisions. It is also important to acknowledge that food security is vitally an issue of poverty

Appendix C: Isabella Morello Rodriguez's Individual Deliverables

Appendix C.1: SDOH Analysis

Social Determinant of Health (SDOH):

The social determinants of health are recognized as highly influential on individual and population health, however narrowing in on specific contexts can provide insight on parts of a system that may need refining. Health in the social and community context includes interpersonal connections, community programs, civic engagement and much more as intersected entities that impact the wellbeing of a given population. In short-term, social and community context can influence day to day life in ways like the characteristics of a neighborhood or community programs. In the long term, social and community contexts can highly impact mental health, physical health, economic stability, political climate and more. That is why addressing the social determinants of health often requires siloing of specific contexts in order to provide quality improvements to vulnerable populations [2].

Geographic and historical context:

Durham county has been known and recognized for being highly diverse, innovative and prioritization of engaging their community. The program, Partnership for a Healthy Durham, is a prime example of community and local government efforts in collaboration to initiate better quality health access [1]. Durham county meticulously outlined their goals and community priorities including affordable housing, poverty, mental health, and access to healthcare in 2020.

Social and community engagement thrives in Durham county as historically it has valued faith based organizations [1].

In the last 20 years, Durham's population has increasingly become more diverse in race and ethnicity while being home to over 311,000 residents, a 16% increase in population since 2010 according to the Durham County Community Health Assessment [1]. In 2019, 36.5% of residents were non-Hispanic African-Americans, 51.9% were non-Hispanic whites, 13.5% Hispanic and the remaining were made up of Native American, Asian, or other ethnicities better depicted in figure 3.01 (b) taken from the Durham County CHA [1]. Of those who were foreign born, 49.6% of them were born in Latin America, and 29.7% born in Asia. As far as age, Durham is made up of 52% female and 48% male with a median age of 35.4 years, which is younger than the average median age in North Carolina and the United States [1].

Though Durham is more ethnically diverse than it has been in the past, there are still persistent inequities that result from intersected social dynamics. Within the community and social context, factors such as discrimination, misrepresentation of minority populations, and lack of access and awareness of health services work against marginalized groups. Groups highly affected include the population of residents that live at or below the federal poverty level, which is made up of 31%, Hispanic or Latino residents, 20% Black residents and 19% Asian residents [1]. Only 17% of residents in Durham obtained incomes that fall above the federal poverty level [1]. Inequities within the historical context of social and community factors also impact factors such as housing through consistent red lining, and the lasting impact segregation and marginalization has on Durham. This is prevalent in the lack of affordability of housing in Durham leading to displacement of families and the inability to afford quality housing inevitably ending in homelessness or food insecurity. County efforts have addressed implementing the

support of social services, cultural sensitivity training to medical students and local agencies collaborating with government and shelters [1].

Priority Population:

Though all individuals of a given population are important, the priority population affected the most and at highest risk for food insecurity is any family living at or below the federal poverty level. In Durham alone, poverty is among the top priorities that residents within the county established as important [1]. In 2019, 25.3% of community residents were at or below 200% of the federal poverty level [1]. Of these residents, poverty was qualified as the 12th leading issue that impacted their lives and the quality of it [1]. The US census reported 14.1% of Durham living below the poverty line especially in Black and Latino families as 18.4% were Black and 26.8% or Hispanic with only 10.5% being White [1]. Families are highly impacted by poverty as child poverty had higher rates than reports for adults living in poverty, as one fifth of children in Durham County were living below the poverty line in 2019 [1]. Families living in poverty were affected in many ways, post the COVID-19 pandemic, as the increase of enrollments into SNAP and Medicaid programs paint a picture of necessary assistance needed by families, especially those who are within minority racial and ethnic groups. The table below, taken from the Durham County CHA, demonstrates the portion of the population in Durham county living below the poverty level by race and ethnicity between 2014 and 2018 [1].

It is important to consider how living in poverty and below the federal poverty level can impact food security in households among families in Durham county. As unemployment rates, structural racism, an unstable economy, and many more social and community factors play a role, food insecurity must be addressed in a timely manner. The rate of food and security in Durham in 2018 was 13.5% along with over $22 million needed to meet food needs [1]. In

addition, Black and Latino families were at higher risk of food insecurity than other ethnic groups living in poverty [1]. Considering the fact that Durham county has a flourishing food system, there are still people of color who are continuously disproportionately affected by issues such as structural oppression, higher rates of poverty and lowered food access [1]. According to the 2019 Durham county CHA, some residents had to travel almost 30 minutes just to get to a store to buy groceries [1]. Along with this, 10.2% reported having to skip a meal or limit the size of their meals due to insufficient funds for grocery shopping with Black residents being more likely than White residents to do so [1]. However, the USDA reported that the county's rate of food insecurity was higher than the national rate of food and security, resulting in North Carolina being the 10th hungriest state within the US [1]. Additionally, the USDA recognized that 20 to 30% of residents living in Durham had limited access to grocery stores [1].

Measures of SDOH:

Addressing food insecurity in families living below the federal poverty level needs to be intersected with addressing health disparities including chronic conditions, income, access and more social determinants of health within the social and community context. For starters, identifying the number of residents in Durham county that are enrolled in SNAP programs or other food assistance programs is critical. The SNAP program is one of the most used programs in North Carolina, serving nearly 40,000 residents in Durham alone, which creates a clear image of a larger issue at hand [1]. With more enrollments into SNAP, there is a growing correlation of families experiencing food insecurity and economic burdens [1]. Along with this, 64% of public schools in Durham County serve meals to students at free or reduced costs [1]. Even if a family can access a healthy grocery store, which most low income families live in zones in which fast food are common accessible options, they cannot afford the prices of fresh produce or healthy

diet options. Cost of food is one of the leading causes for low income families to skip meals or cut down on portion sizes, with Black families being disproportionately affected. Racial and ethnic disparities are not only prevalent but they are continuously oppressive. Figure 5.02 (a) from the Durham County CHA further illustrates reasons why residents do not eat healthy diets [1].

On the clinical side, food insecurity is associated with comorbidity. Chronic conditions and diseases can be directly linked to diet-related factors [1]. At-risk populations are not only experiencing poverty but also a multitude of compounding issues such as food insecurity, comorbidities, systemic racism, stigma and more.

Rationale/Importance:

Social and community context is highly important and quite influential on our priority population. Without addressing this social determinant of health, the risk low income families face are heightened every day. With the risk of food insecurity leading to chronic conditions and higher rates of morbidity, addressing these issues from the equity lens is vital. Potential positive impacts of doing so are endless. Improving rates of food insecurity need to be hand in hand with efforts to simultaneously improve systemic racism, employment rates, income gaps, access and racial disparities. The intersectionality of these factors do not work singularly, rather they work in a nonlinear fashion. Though systems approaches and narrowing into the priority population with equity in mind can make the world of a difference in population health, economic stability and quality of life for Durham residents.

Disciplinary critique

Public health leaders must be involved in addressing social determinants of health in vulnerable populations in order to better community health, population health and the quality of

health in the country. By starting at micro levels, such as addressing social and community context in Durham county in order to minimize food insecurity among families living below the federal poverty level, public health leaders can pave the way toward sustainable change. In doing so, bettering population health among marginalized or underrepresented groups will demonstrate health equity efforts toward improving health disparities in the priority population. Not only this, but economic stability can improve along with social engagement and overall satisfaction levels among residents. With this being improved, the county of Durham can flourish as a united front.

References

1. Durham County Community Health Assessment . (2020) NCDHHS. https://schs.dph.ncdhhs.gov/units/ldas/cha2020/2020-DURHAM-CHA.pdf

2. Knapp, T. (2018). The Social Determinants of Health in a community ... - sage journals. https://journals.sagepub.com/doi/abs/10.1177/1936724418785413

Appendix C.1.a: SDOH Analysis Figures and Tables

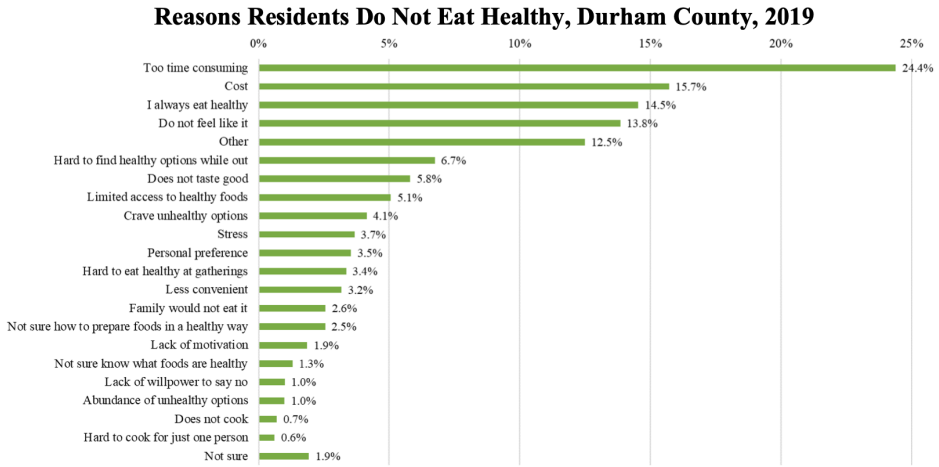


Figure 5.02(a) Reasons Residents Do Not Eat Healthy, Durham County, 2019[xiv]

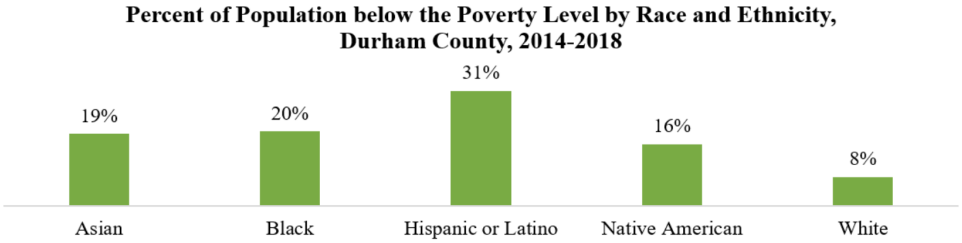


Figure 3.03(b) Percent of Population Below the Poverty Level by Race and Ethnicity, Durham County, 2014-2018[xx]

Race and Ethnicity in Durham County, 2015-2019[xiii]

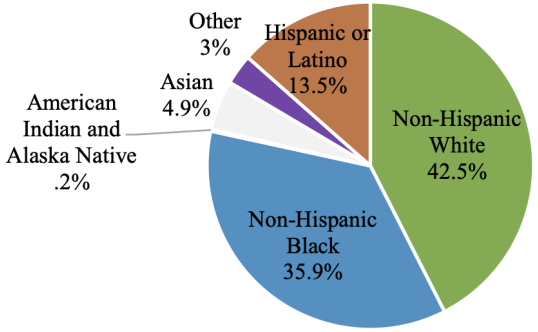


Figure 3.01(b) Race and Ethnicity in Durham County, 2015-2019

Appendix C.2: Community Partner Analysis

Introduction

The social determinants of health lay out an important role to play in the health and well-being of entire populations. Specifically speaking, within the social and environmental context, the determinants of health can either lead people towards flourishing health or towards a path of oppression, systemic racism and chronic conditions. As research has suggested, Durham county does not escape elevated rates of insecurities in chronic illnesses, poverty or food

insecurity. Though Durham county's community health assessment highlights the prosperous parts of overall population health, it is naive to neglect the increasing rate of families living at or below the federal poverty level (FPL). In Durham alone, over 14% of families are living in poverty [1]. National data has demonstrated clear associations between poverty and food insecurity, and Durham county data concurs. Additionally, addressing food insecurity among families living under the FPL requires clear attention to detail when it comes to racial disparities in the rate of those living in poverty. For example, over 30% of those living under the FPL are either Hispanic or Latino along with 20% being Black and 19% of Asian origin [1]. Over and above that, narrowing in on efforts to mitigate food insecurity could begin within the education system, specifically in providing nutrition courses at public schools. Education classes, led by certified dieticians, in public schools could provide children and their families with adequate food knowledge and confidence to make healthier decisions. Furthermore, education based nutrition policy can potentially carve a path toward bettering population health, improving food insecurity and dismantling systemic issues linked to poverty. In order to improve food insecurity among families living under the FPL, the work of introducing holistic food education policies does not fall on the shoulders of one group but rather on the collective unit that drives sustainable change.

Community Partner Mapping and Analysis

Stakeholders are key players in sparking change and creating momentum towards designing, developing and implementing health interventions. When deciding what partners to include on this approach, it was important to consider the impact and interest they may have. That being said, the stakeholders that will be working as a catalyst for change include Durham County Public Schools, North Carolina Department of Health and Human Services (NCDHHS),

Durham residents, Durham County Commissioners, Food Bank of Central and Eastern North Carolina, End Poverty in Durham, Durham County Department of Public Health, Durham County Department of Social Services and Food and Nutrition Services. Each stakeholder was picked as a key role based on relevance, interest and stake.

Power Matrix

Throughout the process of choosing who to include as critical pieces to the puzzle, the use of a Power Matrix was used. The Power Matrix allows for each stakeholder to be placed in a box concerned with their position of interest correlated with their position of power. When referring to the Power Matrix, one can see that most stakeholders have high levels of interest and high levels of power (Refer to Appendix A). This is important to consider due to the fact that innovative efforts can be used to progress development forward.

Stakeholder Rationale

Mapping out stakeholders according to interest and power was the first step in creating a task force. The rationale for each of the partners is unique, well thought out and analytical. To begin, Durham County Public Schools are important to include as they foster the majority of care during the week for children of families who are living below the FPL and would be a major component of health education dissemination. The NC DHHS works to ensure the health and well-being of Durham county residents, so they would be a bridge of trust from the research team, to the task force and eventually to the priority population. Durham residents are an integral part to the entirety of the process as they are the ones that hold meaningful connections, information on lived experiences and bargaining power. Durham county commissioners are crucial in progressing development forward and decision making, without their help none of this may come to fruition. Food banks currently help thousands of families and have created

meaningful relationships with those affected by food insecurity and poverty, deeming them an important role in the matter. End Poverty in Durham has also created roots in Durham with the priority population, meaning that they can provide the task force with knowledge and data on pressing issues. The Durham County Department of Public Health will serve as a hub for epidemiological data on prevalence rates, incidence rates and pertinent issues that residents face. The same will be for the Durham County Department of Social Services, as they can provide information on other social and household issues that could be influencing rates of poverty or food access. Food and nutrition services is the last partner of the task force and their role consists of pushing forward food policy initiatives in Durham County.

Facilitators and Barriers

Though the task force seems like a strong unit of partners, there is still consideration for factors that may serve as barriers that could potentially influence things like misrepresentation and participation. Systemic racism is still prevalent today across the nation and is revealed in Durham county as well. It may serve as a barrier due to the intersecting issues that come with systemic racism considering the majority of families living under the FPL are of minority races. Redlining and its historical implications are still present in 2023 [2]. With that being said, the potential of misrepresentation of families who are either not minority races or do not live in areas affected by redlining could become an issue. In order to mitigate that, thorough research on varying sectors in Durham is needed in collaboration with key partners. On the other hand, facilitators can be of added benefit to the project and policy change. Programs such as SNAP have helped thousands of families in North Carolina and can be a prospective role model to look up towards [1].

Worldview Exploration

A CATWOE analysis was conducted for two community partners. Firstly, Durham county residents who have lived experiences with issues aligned with our SDOH (refer to Appendix B). Secondly were County Commissioners who have high power but may have reasonable concerns for approving the implementation of nutrition education in schools (Refer to Appendix C).

The root definition for residents goes as follows: A system owned by commissioners where those living under the FPL are affected by food insecurity because it is hard to access affordable food and is often limited by food policy. The root definition for county commissioners would be: A system owned by funders where those who have high power are affected by funding restraints because allocating resources can be daunting and is limited by government entities. When comparing these root definitions, it is clear that there are distinct differences in the worldviews of residents and commissioners. For example, residents with lived experiences may participate in programs that are implemented for food security while commissioners would most likely facilitate the programs if funding is sufficient. Though these implications exist, it is imperative to distinguish the implications and barriers that can be mitigated through collaborative efforts within the task force.

Conclusions

Reflecting upon the community partner analysis reveals questions and concerns about the effectiveness of the task force. It is customary to question whether or not a task force will work together smoothly. This can be proposed as a limitation, as issues with communication and collaboration are likely to arise. It will be of utmost importance to maintain open communication channels, foundations of trust and respect as well as organized meetings for the task force. Through the use of these factors, there will be massive success. This demonstrates a major

strength of the analysis, as community partners outlined will be sure to spark change that can be sustainable and innovative.

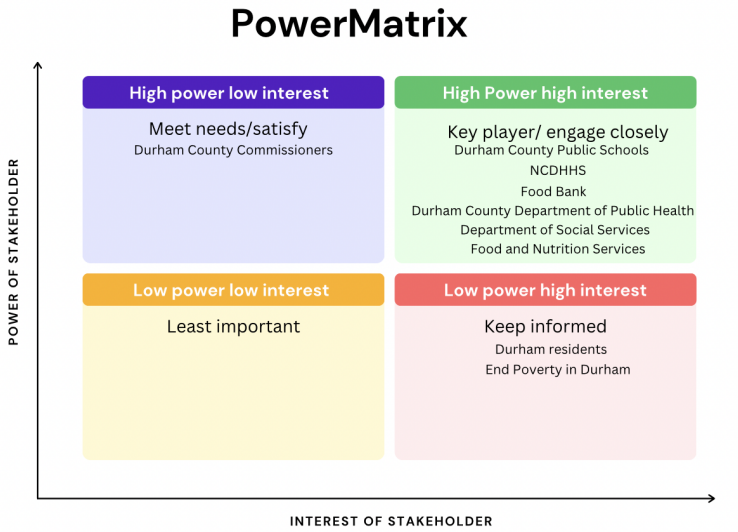
References

1. Durham County Community Health Assessment . (2020) NCDHHS. https://schs.dph.ncdhhs.gov/units/ldas/cha2020/2020-DURHAM-CHA.pdf

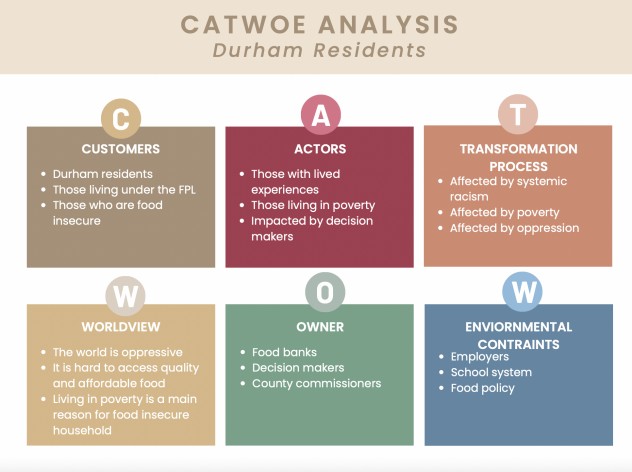
2. Mathewson, J., Qu, X., Rains, J., & Robers, M. G. (2023, April 28). *Increasing food access in historically redlined neighborhoods in Durham County, NC through Mobile Markets with Nutrition Education*. Carolina Digital Repository. https://cdr.lib.unc.edu/concern/masters_papers/gf06gc881

Appendix C.2.a: Community Partner Analysis Program Figures and Tables

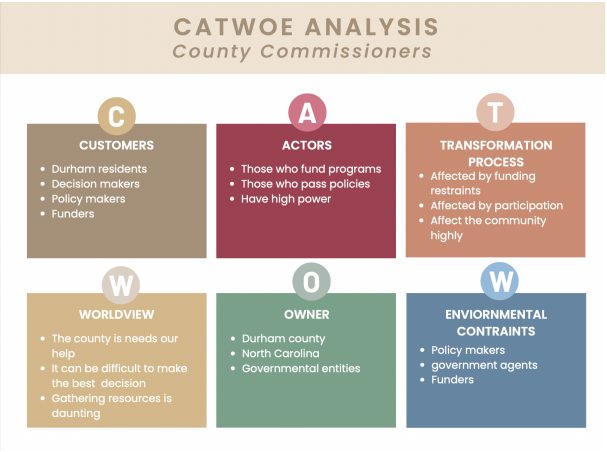
Appendix A. Power Matrix



Appendix B. CATWOE Analysis (Residents)



Appendix C. CATWOE Analysis (Commissioners)



Appendix C.3: Engagement and Accountability Plan

Purpose

Engagement of community partners is one of the top priorities for the research team as this is especially important when putting forth efforts to improve public health. In social context within the social determinants of health, it is necessary for collaborative based efforts to push the change wanted forward. In order for sustainable changes to be made, communities must come

together to tackle systemic based issues and wicked issues that play a role in their quality of life. With the health of dedicated research teams, hard working stakeholders and the engagement of community partners, sustainable and effective improvements can not only be designed but can also be adequately implemented. In this case, community partners can come together in an intersectional fashion to collaborate in bringing professionally led nutrition programs to families that are living below the federal poverty level in order to improve rates of food insecurity. Rather than downstream approaches, community partner engagement can foster relationships, build trust and ultimately bring long term systemic change.

Priority Partner

Though all community partners are of highest value to the development of the proposed program, the unique priority partner chosen for the analysis is the Durham county resident population. This decision was loosely made based on the principle that residents, especially those who are within the priority population, have lived experience with food insecurity and poverty. With this in mind, Durham residents can provide the research team with the information necessary to design a program to better food insecurity in the area. Though their role mostly falls under staying informed, they can still play a critical role when ensuring that the elements of the proposed policy is equitable, effective and sustainable. Without their input, the program would not do the priority population justice. Rather, the inclusion of residents allows a perspective or paradigm of the built world and social contexts that are influenced by food insecurity.

Engagement Barriers and Facilitators

It is key to keep in mind that the information provided by Durham residents are not just statistics. They are lived experiences of food insecurity and poverty often embedded with trauma and systemic oppression. One of the engagement barriers identified is hesitation to be involved

with efforts to develop the proposed program. To be specific, the barrier could present itself as a lack of participation from Durham residents due to social pressures associated with food insecurity.

Additionally, a second engagement barrier is that Durham residents may not have transportation to nutrition classes or may not be capable of accessing the program. This can be due to not having a vehicle or access to public transport as well as limited health literacy.

Lastly, an engagement facilitator would be that Durham residents may feel more inclined to participate in efforts to address the social determinant of health due to the fact that the program would be tailored to them. With their input, the design of the program will include specific factors that are taken into consideration when concerns are voiced.

Engagement Methods

In order to engage with the priority partner, three engagement strategies were identified. The first is to gather data through questionnaires. This would be done during the first year of implementation as a data gathering tool on food insecurity and residential concerns. It would be continued as an evaluation method in order to ensure that improvements are being made to the program. Far beyond the implementation phase, questionnaires would be sent out to further gather data on the sustainability of the program.

The next strategy is unstructured interviews conducted by Durham residents who volunteer. These will be conducted in the first year, prior to implementation in order to gather data and use it to improve the program. There will be follow up interviews passed the implementation phase as a tool to evaluate the sustainability of the program.

An online forum for residents to ask questions and communicate with other community partners is the last engagement strategy. This will be rolled out during the design and

implementation phases and serve as a tool for information. This will aid in evaluating the sustainability and scale of the program.

Measurement Table: Methods, Timing, and Measures Table

Engagement Method	Related Facilitator(s) / Barrier(s)	Timing	Performance measure		
			Description	Data source	Frequency
Questionnaires	Lack of participation due to health literacy	Design & Improve & Sustainability	# of questionnaires filled out % of participants participated % of high satisfaction rates	Participant survey data	Bi-annuanly
Unstructured Interviews	Lack of participation due to transportation	Design, Improve, Scale	# of interviews held # of residents that participated # of volunteers	Recorded interviews	Bi-monthly

Online forum	**Issues with accessibility** **Interest in voicing concerns**	**Design, Improve, Sustainability**	**% of online engagement** **# of residents joined** **# of questions answered** **% of satisfaction with platform**	**Online engagement**	**Ongoing**

Engagement Leadership

Leading engagement is a key player in a successful program. With that being said, the partners who should lead engagement for the county SDOH effort are the Durham County Commissioners and Durham County Public Schools. The rationale for these two partners is based on the fact that commissioners are responsible for the implementation of programs and policies while public schools provide a helping hand to families who may be experiencing food insecurity. With the two partners leading the engagement of the community, there would be a sense of trust that was previously established. Commissioners are held accountable not only to make decisions but explain the why behind those decisions. Additionally, being the lead of engagement means that there is more responsibility to tackle the social context within the SDOH with the collected data from the design and improvement phases. Public schools can also use data collected to further provide information and resources to families who live below the federal poverty level. They can also be the champions for change as county wide efforts can serve as a tool to improve accessibility and participation of partners.

Disciplinary critique

A memorandum of understanding will serve useful and as a way to encourage accountability and engagement leadership. It includes all parties interested and affected by the SDOH. In order to adhere to the timeline and engagement strategies, commitment is needed on all accounts. Goals must be reviewed and shared with all partners, stakeholders and team members. Durham County Public Schools, Durham residents and County Commissioners along with the research team are to be included in a MOU (See Appendix A).

Appendix C.3.a: Engagement and Accountability Plan Memorandum of Understanding

Appendix A: Memorandum of Understanding Between Durham County Public Schools, Durham residents, County Commissioners and Research Team

I. Purpose and Scope

The Purpose of this MOU is to outline responsibilities and deliverables for the County Commissioners and Research Team as key partners in the program. Commissioners will be funders/decision makers and the research team will fill the role of facilitators. All parties agree that the program deliverables will be carried out lawfully while in accordance with medical and research ethics. Additional members include Durham County Public Schools and Durham residents.

II. MOU Term

The MOU term will begin August 1st, 2023 and end on August 1st 2025. Within this timeframe, all deliverables for the program will be carried out. This does not include ongoing evaluation.

III. Principles of Engagement

Every member of the MOU agreement complies with the following:

1. Program deliverables will be carried out ethically by all parties.
2. Maintenance of open communication channels.
3. All parties are responsible for tackling obstacles using the equity lens.
4. All information concerning income of program participants will be held confidential.
5. Values of respect and kindness shall be enforced.

IV. County Commissioners Responsibilities

Partner agrees to the following:

1. Participate in meetings.
2. Allocate funds and resources.
3. Decision making on policy and program deliverables/implementation.

V. Research Team

Partner agrees to the following:

1. Provide design concepts to all parties.
2. Carry out all necessary responsibilities to propel the program forward.
3. Serve as a communication bridge between all parties.

VI. Program Metric

Partners agree to following metrics as progress measurements:

Short-term (1 year)

1. Households in priority population engagement will be at 35%.

    a. Measured by the number of families engaged in activities.

2. Questionnaires received will surpass 200.
    a. Measured by the number of questionnaires completed within the first year.

Long-term (2+ years)

1. Families living under the FPL who are food insecure will decrease by 25%.
    a. Measured by county data.
2. Food insecurity rates will decrease by 20% countywide.
    a. Measured by county data assessments.

VII. Program Milestones

Year 1

1. Inclusion of families under FPL in program activities.
2. Monthly meetings.
3. Progress evaluation.

Years 2 and beyond

1. Monthly meetings.
2. Annual meetings with all stakeholders.

VIII. Modification and Termination

1. Either party can cancel their participation at any time if there are challenges that come up.

IX. Effective Date and Signature

The MOU will go into effect once all signatures are collected.

County Commissioners:

Research Team:

Appendix B. RASCI Analysis

RASCI Table		
<u>Policy/Program</u> – Introduce nutrition education led by healthcare professionals into intersected sectors such as the education system in order to reduce food insecurity among families living under the federal poverty level in Durham County, NC.		
RASCI Levels Who is…	**Community Partners**	**Rationale**
Responsible=owns the challenge/ project	● Durham County Commissioner ● NC DHHS	● Owns the power to make decisions on policy, funding and sustainable changes. ● Owns the power to provide aid, information and accountability.
Accountable=ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those *responsible*	● Public Health Department ● NC DHHS	● Accountable to provide information to the residents and provide aid to the research team. ● Accountable for helping propel the project forward.
Supportive=can provide resources or can play a supporting role in implementation	● Food Bank of Central and Eastern NC ● End Poverty Durham ● Food and Nutrition services	● Can provide support to residents who are at risk for food insecurity. ● Can provide resources that they already use for the research team to inform the priority population with. ● Food and nutrition services can support the cause and provide a place for the research team to find information.

Consulted=has information and/or capability necessary to complete the work	• Durham County Public Schools • Department of Social Services	• Have the capability to provide physical space for nutrition program • Can be consulted to find data on children who are at highest risk for food insecurity.
Informed=must be notified of results, process, and methods, but need not be consulted	• Durham county residents	• Informed on the ongoing process of the rolling out of the program, development, implementation and evaluation.

Appendix C.4: Individual Presentation Slides and Script

Script:

-allows collaboration and communication regarding barriers and awareness purposes of benefits offered for the EFNEP program.

-encouraged through the timing of design, improvement and education which will be assessed

among performance measures conducted through surveys/interviews.

-tracked bimonthly

- combination of in person/online communication

-themed huddles/discussions in a structured setting (quarterly frequency)

-formatted to provide outreach and continuous education (informational and recorded reviews on a monthly basis)

Appendix D: Chelsea Phillips' Deliverables

Appendix D.1: Social Determinants of Health

Social Determinants of Health

Social Determinants of Health are indicators that determine the conditions of an individual's lifestyle (Bona & Keating, 2022). It's within these measures that we see communities experience a variety of outcomes that can either create or diminish the risk of exposure. Specifically, in the case of health outcomes, social determinants of health are consistent measures that are tracked among systems to explain the position, status, and privilege an individual possesses.

Within Durham County, changes revolving around community rebuilds and evolving community demands revealed new challenges linked to income. Specifically, Durham County's Health Priorities noted there is an overarching theme on new mechanisms needed for survival skills that determine whether an individual is accessible to equity and quality (Mortiboy & Hicks, 2020). One important priority regarding income and standard of living is food insecurity among families that live at or below the federal poverty line. This determinant becomes a pressing matter because it determines whether an individual has the availability of nutritious foods but reasonably determines the long-term impacts of poor health disclosures such as diabetes and obesity. According to the Community Health Assessment, in 2018, it was reported that 13.5% of Durham County residents were food insecure, which is a higher percentage, represented among African American and Hispanic communities (Mortiboy & Hicks, 2020).

Promoting attention to food insecurity would redefine measures that would guarantee increased acceptance for manageable health and encourage better health behaviors among communities affected in Durham County. In prior discussions of the short-term effects of diabetes and obesity linked to poor nutrition, this factor as well can

decrease long-term impacts of longevity and can increase the culture of poor eating among upcoming generations. It's noted that assessing equity and food system sustainability and advocating for food policy changes can help assist as being a recommendation for food access in Durham County. (Mortiboy & Hicks, 2020).

Geographic and historical context

In 2019, Durham County had an estimated population of 311,848 which displays a 16% increase when compared to the year 2010, which also exceeds the total percentage increase of the state of North Carolina (Mortiboy & Hicks, 2020). In Table 1, Durham County also offers a diverse population based on race and gender by having a community of 36.5% of African Americans, 13.5% of Hispanic or Latinos, 42.5% of Non-Hispanic Whites, and 8.1% for additional minority communities (Mortiboy & Hicks, 2020). Durham County also offers a variety of innovative institutes that offer education and research that help advance diversity such as Duke University and North Carolina Central University.

In addition to change, Durham also hosts historical features that address health equity and gentrification for minority-resided locations. By catering to diverse societies, previous efforts that address SDOH in Durham County include addressing multifactorial causes that can alleviate or aggravate an outcome for a specific community. Among Table 2, this new shift of education and community changes has increased more attention to the positive impacts it has created for revenue as Durham stands out as having a higher percentage of residents over the age of 25 with a bachelor's graduate or professional degree which tops both North Carolina and U.S. percentages. (Mortiboy & Hicks, 2020). However, as revenue increases, it also raises the cost of living and demands for affordability measures. In connection to a Community Health Assessment survey conducted in Durham, 25.3 % of respondents were at or below 200% of the federal poverty level (Mortiboy & Hicks, 2020). Data shows minority communities specifically

Hispanic, Black, and Asian groups report a higher risk for poverty in Durham County.

Priority Population

The priority population that is affected by food insecurity in Durham County are individuals that report income status of being at or below the FPL level. However, the rates become more specific for factors of household characteristics and race. It's noted that single mother households and households with incomes below the poverty line report a higher prevalence of food insecurity (Martin, 2022). In reference to Table 3, 32.1% of incomes are below the Federal Poverty line, and notes the differences seen among races in Durham. Families whose income in the past 12 months that were below the FPL level in Durham County were reflected in Table 4, which shows a larger percentage for Hispanic and Black families when compared to White families. In 2019, Black families report 16.2% of being below the FPL and Hispanic families report being at 22.4%. (Mortiboy & Hicks, 2020). These groups had more exposure to food insecurity revealing the need for factors of availability of nutritional options which guarantee the development of good health. According to the USDA, they categorize 20-30% of Durham residents as having low access to grocery stores, and rank Durham County on a scale of 6.9 out of 10 to deem factors that contribute to healthy food and income (Martin, 2022).

Measures of SDOH

The current data that report food insecurity in Durham County details 12.1% of Durham residents are food insecure and the top reasons that contribute to unhealthy eating are time consumption, cost, and low feelings of eating healthy. (*Durham Health Data* 2022). As well, the risk was heavily based on geographic region as low-income areas have a higher concentration of fast food and lower opportunities for healthy food choices. In Table 5, the differences in obesity are noted at statewide and national levels. Yet, healthy choices are limited in Durham County, over a three-year timeline of 2019- 2021, the county reported an average lower for obesity when

compared to North Carolina and the United States. In addition to health outcomes in this community, poverty heavily connects with income and race. Durham County reports, 14.1% of residents live in poverty and specifically Hispanic/Latino communities report an average of 29.7% when compared to 18% reflected among African Americans (*Durham Health Data* 2022).

Rationale/Importance

The social determinant of income for food insecurity should be a public health priority because it is a consistent measure that has been tracked and helps determine long-term outcomes for health. In 2019, it was reported that child poverty was higher than adults reporting that one-fifth of children were below the FPL level. (Mortiboy & Hicks, 2020). However, due to recent downfalls in the economy and employment status from the recent pandemic, individuals displayed more barriers concerning worse long-term outcomes when receiving aid based on income and health status. Job losses reported in 2020 revealed 61% of Latinx respondents and 44% of Black respondents either had or knew someone in the household to report job loss in comparison to 35% among white adults (Mortiboy & Hicks, 2020). By highlighting the need for improved long-term planning measures to combat food insecurity for individuals with income at/under the FPL level, would guarantee improved safety by lessening the incidence of petty crimes and be an initial start to create regulations to combat risk.

Disciplinary critique

The association between food insecurity and toxic stress presents a high correlation (Mortiboy & Hicks, 2020). The stress that is presented among families that are a single parent or below the FPL level experience a complexity of associated effects when experiencing poverty. According to the American Academy of Nursing and the American Academy of Pediatrics, long term assessments of screening for SDOH and facilitation of care coordination has become a

crucial mechanism for children's health (Francis et al., 2018). This acknowledges predispositions for higher tendencies of youth to exemplify childhood behavior problems, asthma, and food insecurity (Francis et al., 2018). As well as the outcomes of stress food insecurity creates for children, it also affects the entire household capacity as well. According to the data found, it's noted the top three reasons for low consumption of healthy foods are time consumption, costs, and the inclination of already eating healthy (Mortiboy & Hicks, 2020). Specifically, black residents report a 14.9% difference in being more likely than white residents to have skipped or cut a meal either sometimes or throughout the year. (Mortiboy & Hicks, 2020).

The role public health leaders play in addressing this SDOH is by understanding the overall impact food insecurity has on families and the impacts it creates at the individual level. To decrease these gaps noted among race and income in Durham County is including strategies that address root causes of food insecurity and assess the equity of food systems to guarantee sustainability and resilience during emerging issues that can increase barriers for those at/below the FPL level. (Mortiboy & Hicks, 2020).

References

Mortiboy, M., & Hicks, B. (Eds.). (2020). Durham County Community Health Assessment 2020. 2020 Durham County Community Health Assessment. https://schs.dph.ncdhhs.gov/units/ldas/cha2020/2020-DURHAM-CHA.pdf

Martin, A. (Ed.). (2022). *Food Security and nutrition assistance.* USDA ERS - Food Security and Nutrition Assistance. https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/

Durham Health Data. Partnership for a Healthy Durham. (2022). https://healthydurham.org/health data

Bona, K., & Keating, N. L. (2022). Addressing Social Determinants of Health: Now Is the Time. *JNCI: Journal of the National Cancer Institute*, *114*(12), 1561–1563. https://doi.org/10.1093/jnci/djac137

Francis, L., DePriest, K., Wilson, M., & Gross, D. (2018). Child Poverty, Toxic Stress, and Social Determinants of Health: Screening and Care Coordination. *Online Journal of Issues in Nursing*, *23*(3), 2. https://doi.org/10.3912/OJIN.Vol23No03Man02

Appendix D.1.a: SDOH Analysis Figures and Tables

Table 1:

Race and Ethnicity in Durham County, 2015-2019[xiii]

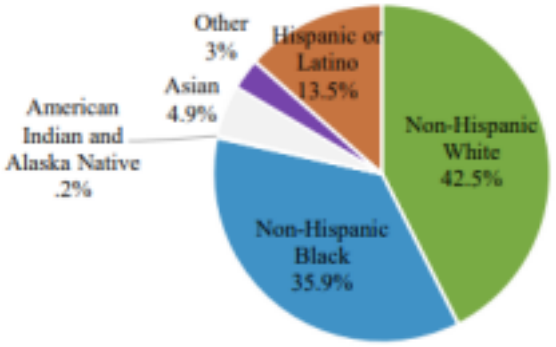


Figure 3.01(b) Race and Ethnicity in Durham County, 2015-2019

Table 2:

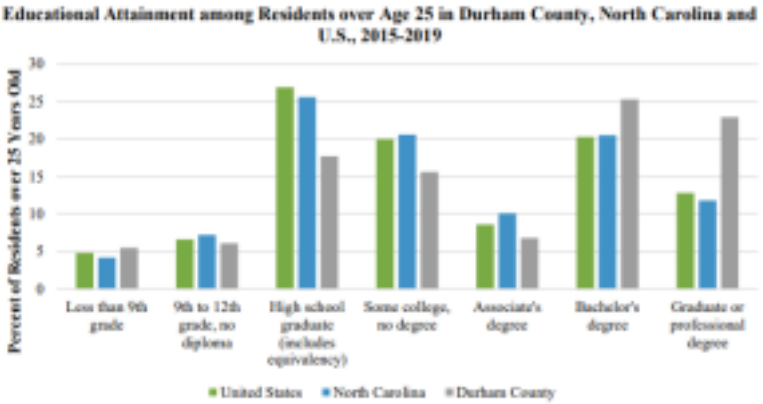


Figure 3.01(e): Educational Attainment among Residents over Age 25, Durham County, North Carolina and the U.S., 2015-2019[7]

Table 3:

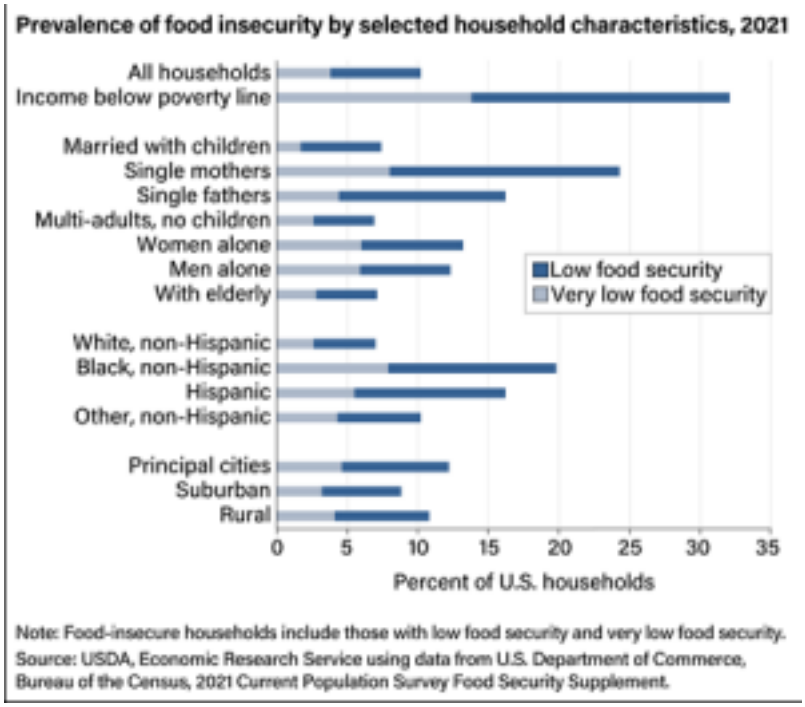


Table 4:

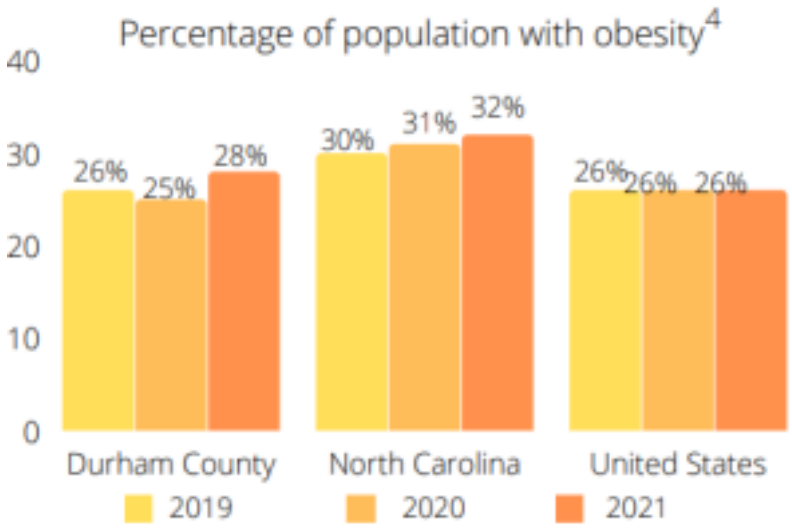
Table 4.01(a). Families Whose Income in the Past 12 Months were Below the Poverty Level, Durham County, 2019

Family Make-Up	Percentage
All Families	10.1%
With related children of the household under 18 years	16%
Married Couple Families	3.9%
Families with female household lead, no husband present	27.6%
White families	6%
Black families	16.2%
Hispanic Families	22.4%

Table 4.01(a). Family households below poverty level in 2019[xvii,xviii]

8

Table 5:



https://www.countyhealthrankings.org/explore-health-rankings/north-carolina/durham?year=2019

Appendix D.2: Community Partner Analysis

Introduction and Policy Transformation

The standard of living noted among national and statewide levels encompasses a fulfillment based on a scale for quality and access that promotes longevity. However, among the U.S., 89.8% of U.S. households reported being food insecure throughout the year 2021 (Martin, 2022). The correlation marked between income and standard of living becomes a determinant that predicts whether an individual has the availability of nutritious foods and determines the long-term impacts of poor health disclosures such as diabetes and obesity. However, among the 13.5% of Durham County residents that report food insecurity, African Americans and Hispanic communities comprise a higher percentage of poor health outcomes and decreased manageable health (Mortiboy & Hicks, 2020).

Specifically, the state of North Carolina has evolved over the past years due to recent demands for diversity, collaborations for healthcare, fostering improved educational institutions, and promoting districts for research. (Mortiboy & Hicks, 2020). Within these opportunities, this new shift of education and community changes has increased more attention only to the positive impacts it has created for revenue in Durham County. With revenue increasing, it also raised the cost of living and demands for affordability measures. In connection to a Community Health Assessment survey conducted in Durham, 25.3 % of respondents were at or below 200% of the federal poverty level (Mortiboy & Hicks, 2020). As we can see, this does pose a risk as there is only a 6.8% difference to the 32.1% of individuals in the U.S. affected by the income parameter (ex: FPL at or below 200%). (Martin, 2022).

Public policies that have guaranteed positive outcomes to combat food insecurity for individuals at/below the FPL line are federal nutrition programs. These programs include an

overall target to address families, children, and single adults that meet specified criteria which are administered through the United States Department of Agriculture. With poverty being a multifactorial wicked problem, offering opportunities for peer education among structural institutions promotes more literacy and advocates for improving these helpful resources. Specifically, practices/policies used among food insecurity for children offered recommendations that could strengthen the use and support for federal nutrition programs. These advantages mentioned are the use of pediatricians/direct providers for outreach. They indicate their supports aid in opposing rollbacks on policies that lessen SNAP benefits, improve access to programs among communities and encourage nutrition quality measures among school-based settings (Hartline-Grafton & Hassink, 2021). By acknowledging these improvements noted, it appears that federal assistance promotes strict guidelines that not only discount those in need but also contribute to lessening the set standards of promoting equitable measures. In correlation to Durham County, the data shows food store access has a lesser impact on food choices rather than factors related to financial resources, education, and taste preferences (Mortiboy & Hicks, 2020). So not only do public policies have to be regulated more but also promote nutritional components in the aid they provide to ensure food insecurity is truly lessened with quality options.

Community Partner Mapping and Analysis

Durham County offers multiple stakeholders that currently support measures to improve food insecurity for individuals at/below the FPL line. However, there is a difference reflected among these groups which are heavily based on interest and influence for this topic. I decided to utilize the stakeholder analysis as a tool to map out the processes and ideologies each stakeholder offers for promoting resources and support by transforming community-led approaches for nutrition education promoted among curricula. Within the stakeholder analysis, I

compiled a list of 10 direct/indirect stakeholders that play a part in the promotion of nutrition measures in Durham County. Acknowledging their interest and power creates short- and long-term outcomes within Durham County which would help define goals and expectations for transforming standard expectations for nutrition aid promotion for individuals at/below the FPL level.

Among the (9) noted stakeholders in the appendix, the outcome of stakeholders mapped were either high interest and low power or high interest and high power. In connection with the partners chosen for creating the most impact on nutrition education includes the Durham County Department of Health, Durham County Commissioners, End Poverty Durham, Food Bank of Central and Eastern NC, Durham County Cooperative Extension, and Durham Residents. Including these specific stakeholders becomes a crucial partnership that's prioritized for involvement. These connections would allow the promotion of evidence-based practices that create a holistic change for acceptance. Evidence-based practices guarantee decisions that are enabled and promoted within the boundaries based on the local context (Motani et al., 2019). This community personnel will be providing specific knowledge and implementations for benefits in the community and encourage improved health behavior among community sectors.

Two facilitating factors that would influence the equitable representation and participation of the key stakeholders I noted are, they each address structural racism and they have built trust with minorities in the community. In briefly addressing the historical impacts racism has fostered in Durham County, most of these partners originally based these strategies mainly on the support of providing equitable access to minorities, specifically BIPOC communities which include Black, Indigenous, and People of Color (Mortiboy & Hicks, 2020). However, in noting inequalities and structural barriers as a cause of poverty, they have built support among these communities as they provide outreach to educate the community about

these barriers and how to provide more awareness among those largely affected.

Worldview Exploration

In collecting the richness each stakeholder offered in promoting aid for low-income individuals at/below the FPL level, partners revealed a lived experience noted among the Durham Community. Specifically noted Table 3, displays a CATWOE analysis and a root definition for a single mother below the FPL level, and Table 4 displays a CATWOE analysis and root definition of End Poverty Durham organization. In noting the value learned when conducting CATWOE analysis on community partners, they as well offer a lens into their world which details how goals align and differentiate. While single mothers would prefer being taught methods for utilizing limited resources in their community, a community-based partnership for End Poverty Durham would maintain the standard of promoting healthy behavior by providing opportunities for the least privileged. With both community partners aligning with goals based on an individual and population level, helps reveal that roles can match, but differ in the means of power and control they have for transformation of change. However, with similarities noted between the two, the differences noted are who owns the impacted system. At the individual level for the single mother, the person in charge would be based on the state/federal government while for End Poverty Durham it's at the nonprofit level for Durham Department of Social Services and Community Partnerships. Although these groups differ in decision-making, the participation among these stakeholders offers great collaboration as they work together to lessen the outcome of the disparity noted among income and positive outcomes for healthy nutrition.

Conclusion

Due to the continuous history of ongoing disparities among Durham's disadvantaged

communities, I have a few questions regarding the necessary principles of humility, preparation/reflection, relationship focus, equitable partnership, and asset-based perspective among Duke's Office of Durham and Community Affairs. (*About Civic Engagement - Duke Office of Durham and Community Affairs*, 2021)

- How are you approaching this project- as a learner, an ally/advocate, a problem solver, or another role? Does this role affect your perspectives on aiding food insecurity in the Durham community?
- What skills in your role have you learned to guarantee more acceptance among individuals that are below FPL?
- What is your experience in collaborating with stakeholders from varied sectors to create a common goal?
- Do you believe your partnerships offer strengths that can improve food security in Durham County?
- What assumptions, ideas, or beliefs do you hold about this community? Are these thoughts relevant to history in the community or personal interactions?
- How do Durham residents at/below the FPL level engage with current programs/interventions offered? Are there any suggestions you believe would help improve acceptance?

The strengths my community analysis highlights are the guarantee of the safety and well-being of Durham County residents by providing short/long-term planning for the county needs among those impacted by income constraints of being at/below the FPL level. Among the determinants of income impacting food security, these collaborations detail helpful feedback that promotes improved education and engagement. A limitation noted among these

stakeholders is the skills and experiences reflected among the group. Due to their being a variety of community partners, there could be deficits in engagement but also expose gaps in knowledge of relevant factors for this community. With financial status being a sensitive topic for some, it's important to ensure stakeholders are aware of the delivery and communication methods used to aid this community.

Appendix D.2.a: Community Partner Analysis Program Figures and Tables

Table 1: List of Community Partners

Community Partners	**Sector**	**Power**	**Interest**
Durham County Department of Public Health	Government	High	High
Durham County Department of Social Services Food and Nutrition Services(NCDHHS)	Federal/Government	High	Medium
Durham County Commissioners	Government	High	High
End Poverty Durham	Non-profit	Medium	High
Urban Ministries of Durham	Non-profit	Low	Medium
Food Bank of Central and Eastern NC	Non-profit	Low	High
Durham County Cooperative Extension	Non-profit	Low	High
Durham Residents	n/a	Low	High

Durham Parks and Recreation	Community/Public	Low	Low

Table 2: Stakeholder analysis

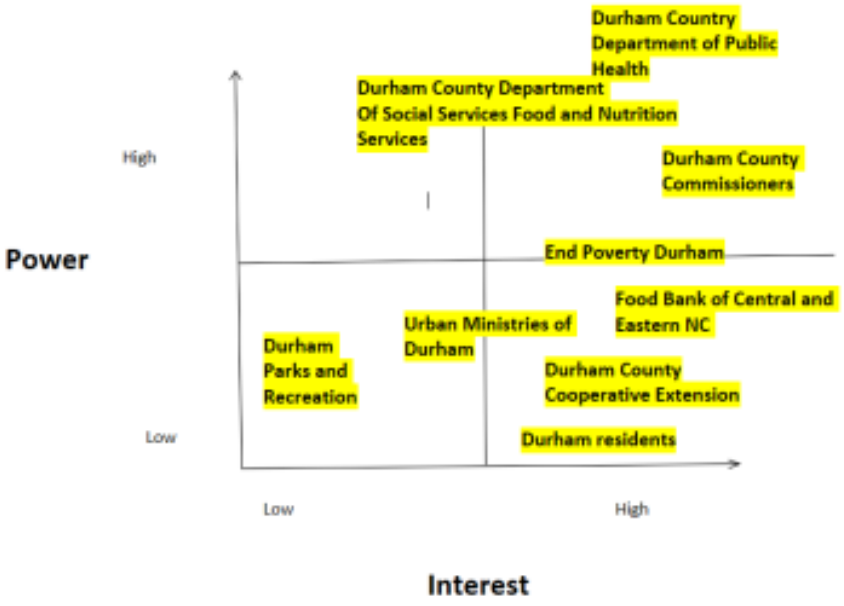


Table 3: CATWOE Analysis for single mothers below FPL level

CATWOE Step	**Improving nutrition education to promote healthy behavior**
Customers	Households that are at/below FPL, individuals who report poor health outcomes related to nutrition, Durham residents, and those who receive government aid
Actors	Community organizations, educators, and heads of households
Transformative	To teach parents how to utilize limited resources in their community to improve their nutritional status
Worldview	Low knowledge of education related to diet and proper nutrition encourages unhealthy eating
Owners	State government, the federal government, and policy regulators
Environment	Financial regulations, low community support, access constraints (ex: transportation/distance for resources)

Root Definition: To lessen exposure to food insecurity among single-parent households by encouraging the promotion of evidence-based practices within communities to help build knowledge and awareness for healthy behaviors related to nutrition.

Appendix D.3: Engagement and Accountability Plan

Statement of Purpose

The social determinant of income in Durham County has a high correlation to the richness and diversity offered in the city, which has increased attention to the disparity noted for food insecurity. Overall, the growth of Durham County revealed a major decline in health and wellness among incomes below the FPL which includes access to adequate nutrition. Food insecurity is defined as a household-level economic and social condition of limited or uncertain access to adequate foods (*USDA ERS - Definitions of Food Security*, n.d.). As well, households that experience food insecurity tend to have worse health outcomes, increased exposure to stress, and structural racism. By combatting this barrier seen among individuals at/below the FPL level, federal programs such as SNAP and Medicaid have been a historical resource used to address the income need for affordable healthy food choices (Mortiboy &Hicks, 2020). However, it's seen that the promotion of pre-existing resources doesn't fully encompass education and health promotion for healthier options which can create unexpected negative outcomes. In an effort to address this deficit noted among federal programs for low-income families, the team proposes The Expanded Food and Nutrition Education Program (EFNEP).

Our proposed plan for the Expanded Food and Nutrition Education Program (EFNEP) program, would supplement federal aid for nutrition by promoting nutrition education for low-income populations (*Expanded Food and Nutrition Education Program (EFNEP) | National Institute of Food and Agriculture*, n.d.). As well this program is divided into three sectors which include adult and youth evaluation and community impacts. However, the initial phase of this program in Durham County would be utilized among institutional settings for youth as an initial startup to introduce nutrition education within the school curriculum. The program offers

benefits on four core values of diet quality and physical activity, food resource management, food safety, and food security (*Expanded Food and Nutrition Education Program (EFNEP) | National Institute of Food and Agriculture*, n.d.). The use of paraprofessionals, volunteers, and peer educators would promote additional training offered among teachers to ensure competency for needed topics and improve the relationship among food for youth. Some positive outcomes that are expected are improved diets, increased physical activity levels, and cost-efficient planning (*Expanded Food and Nutrition Education Program (EFNEP) | National Institute of Food and Agriculture*, n.d.).

The focus our team wants to address in combating food insecurity in Durham County is to improve nutrition education and awareness among educational institutions for the youth. Among the Expanded Food and Nutrition Education Program, we will be utilizing a combination of direct/indirect community partners that will both drive the support and delivery of quality relationships among nutrition. The list of major stakeholders involved in the process is Durham County commissioners, the North Carolina Department of Health and Human Services, the Durham County Department of Public Health, Community organizations(Urban Ministries of Durham, Foodbank of Central and Eastern NC, End Poverty Durham, Reaching out to Durham County, Food Nutrition Services), Health Professionals/Divisions(Dieticians/Nutritionist and Local Clinics/Nurse office), Durham County Public Schools, Department of Social Services, Durham County Residents and the National School Lunch Program. The broad expertise these key stakeholders supply will guarantee a transformative approach that not only offers nutrition within institutional settings but fosters opportunities to apply improved nutritional decisions at home. As well as collaborating with the listed partners, they will be able to promote realistic

deliverables and track the progression of acceptance which will assist in the spread of aid to additional community groups.

Community Partner Selection

Dieticians/nutritionists will be directly providing one on one guidance to the youth through a combination of education and hands-on experience for healthy nutrition. In acknowledging this stakeholder, they become an integral partner to introduce food security and teach ways how to utilize healthy food options when provided with federal assistance aids. Their education will aid in increasing knowledge of the dangers/benefits of food items offered within their community and introduce methods of how to implement healthy eating choices using national guidelines (ex: MyPlate and Dietary Guidelines). Also, the implementation of the Expanded Food and Nutrition Education Program (EFNEP) will provide regulation for the approaches supported and develop best practices that are relevant to the current deficits noted for food insecurity. The support of this program also will cause an increased demand for dieticians/nutritionists in school settings as institutions lack qualified individuals that can improve success in building food security.

Influential Factors

By including the addition of dieticians/nutritionists, it's important to highlight factors that would increase support/rejection for providing aid in academic settings. Most nutritionists and dieticians are employees of hospitals, which are covered at the state, local and private levels (*Dietitians and Nutritionists*, n.d.). However, they can be represented at other levels such as the government, outpatient, residential care, or even self-employed but tend to be a lot less when compared to hospital settings. Its noted among their role of health promotion and health maintenance they access, counsel, and develop plans in relation to their nutrition goals

(*Dietitians and Nutritionists*, n.d.). In correlation to aiding academic settings, they wouldn't be able to perform evaluations through diagnostic measures (ex: labs and testing). We plan on addressing this barrier by measuring evaluations through surveys about individual physical activity which will help address a component for healthy behaviors regarding nutrition. As well with the community being youth, these surveys can be utilized through Kahoot games or questionnaires sent to phones via text to ensure participation is high.

As well as the progression of the EFNEP program, nutritionists will be collecting and tracking data on the progress of students. However, to ensure plans are specific at the individual level, there will be barriers to consent and privacy as these stakeholders will be documenting the progress of healthy behaviors at a comprehensive level, which includes reporting actions at school and at home. Our team acknowledges the value dieticians provide and will support this relay of needed information by providing consent forms to parents to include options for education to be only fostered in school, at home, or at both. This gives nutritionists the opportunity to still aid at an individualized level and tailors the experience of nutrition assessment. By promoting the various age groups served in the school system, our team plans on hosting discussions/meetings to acknowledge the plan used on specific age groups and note any exceptions included. To address factors of time commitment and attendance among stakeholders, we will offer incentives to the first 5 individuals who sign up for 6 monthly meetings and offer occasional dinner/lunch options for in-person meetings. In acknowledging the noted barriers among our community partners will guarantee increased engagement but rationalize plans that can be improved for nutritionists that are offering this program.

Engagement Methods

Open-ended discussions: Open-ended discussions are starter methods to promote outreach and build an understanding of individuals' views. This engagement tactic would address unlimited questions among the affected community and give the opportunity to represent oneself. Among these discussions, nutritionists can learn what tactics to promote to increase outreach and redefine goals learned specifically for the community. The value this provides among additional nutritionists is a cohesive approach that allows individuals to learn from one another.

Focus groups: Focus groups share very similar characteristics with open-ended discussions, but this will be in a more structured format where individuals can discuss perspectives, share opinions and team build. Based on the program addressing youth in academic settings, each nutritionist will offer a variety of richness based on the delivery they provided and the skills they had to apply. As well these focus groups tend to be larger and are typically controlled in a way that can cause deep conversations among a team. In support of this measure, allow more attention and support of conversations as engagement will be the expected outcome among the group of nutritionists.

Informational document: An informational document is a tool that aids in building an understanding for the goal of implementation and also strengthens goals among nutritionists. Due to nutritionists having various backgrounds, its crucial to provide reminders for expectations of the program and the efficacy of their role. These tools will be specific and broad enough to give clear directions of the purpose of engagement within the program.

Improvement Plan

Our Improvement plan will consist of data collected from satisfactory reviews conducted by nutritionists monthly based on the performance measured utilized. This information will

gauge what needed support can be improved for nutritionists and express feelings regarding practice in role. By promoting satisfactory reviews this will also give ideas for whether outcomes seen among the youth are expected from the EFNEP program as it could reveal aspects that aren't included in the goal of their role.

Accountability partners

In detailing the impact partners serve for the EFNEP program, the use of the MOU helped define engagement and purpose among the stakeholders who are responsible for the change. As well, by defining the commitment served among the team builds accountability and overall becomes a means of oversight for the EFNEP program. As well using the MOU, similar aspects were shared in the RASCI analysis and Measurement Table where we analyze the effort and time commitment it takes for stakeholders and help define the level of influence each person has within their level/role.

Appendix D.3.a: Engagement and Accountability Plan Figure and Tables

RASCI Table		
<u>Policy/Program</u> – Our team is proposing a program change targeted at nutrition education and community literacy offered among structural institutions. Specifically, this will be targeted more among youth/adolescents affected by food insecurity. These changes will involve the healthcare and educational sectors in Durham County. By promoting these strategies among the two divisions from a holistic approach encourages individual experiences and perspectives which can encourage the use of community partnerships that promote healthy foods and free resources that guarantee equity.		
RASCI Levels Who is…	Community Partners	Rationale
Responsible=owns the challenge/ project	● Durham County Commissioners	These two leaders that are responsible for the project will

	• North Carolina Department of Health and Human Services	both work together in short/long-term planning of Durham County's needs and help distinguish needed funding for structural institutions to promote literacy for the community. As well, NCDHHS would help strategize the priorities reported among the Durham community, which will help the County commissioners maintain regulations for the program.
Accountable=ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those *responsible*	• Durham County Department of Public Health • North Carolina Department of Health and Human Services	The North Carolina Department of Health and Human Services oversees the entirety of the state of North Carolina and can delegate deliverables to specific counties. In addition to their delegation, the Durham County Department of Public Health will then carry out those orders to community stakeholders specifically in Durham.
Supportive=can provide resources or can play a supporting role in the implementation	• Urban Ministries of Durham • Food bank of Central and Eastern NC • End Poverty Durham • Reaching out to Durham County • Health Professionals (ex;	Community Stakeholders in Durham County provide nutrition education and literacy to the community to address food insecurity among adults. The listed stakeholders are some

	Dietician/Nutritionist) ● Food and Nutrition Services	of the main organizations that have invested in networking with the community and have reputable status to serve the community
Consulted=has information and/or capability necessary to complete the work	● Durham County Public Schools ● Department of Social Services ● Local Clinics/Nurse office	In promoting resources to the youth, Durham County Public Schools and the Department of Social Services will be hosting these opportunities to educate. They also will be responsible for attaining the necessary professionals and verifying material shared to encourage valid and accurate information in programs
Informed=must be notified of results, process, and methods, but need not be consulted	● Durham County residents ● National School Lunch Program	To guarantee consistency among engagement and products offered, Durham County residents and the national school lunch program would be involved in the outcome results. The information shared among the two would increase acceptance and build support for programs

Measurement Table Template: Methods, Timing, and Measures Table

Engagement Method	**Related Facilitator(s) / Barrier**(s)	**Timing**	**Performance measure**		
			Description	**Data source**	**Frequency**

Open-ended discussion	Barriers to understanding and awareness purposes about the benefits nutritionists offer for the EFNEP program.	Design; Improve and Educate	● Promote a combination of in-person and online communications that builds understanding among nutritionists and fosters opportunities for improved learning.	● Surveys/Interviews	● Bimonthly
Focus Groups	Barriers to limited knowledge and collaboration for a common goal among the stakeholders	Improve	● Host themed huddles/discussions to acknowledge any differences noted among implementations.	● Interviews	● Quarterly
Consent form/Informational document	Barriers to lack of outreach for EFNEP program and community connection	Design; Improve and Educate	● Provide continuous education to newer team members and support individualized learning.	● Informational and record review	● Monthly

Memorandum of Understanding

Between

Dieticians and

Durham County Commissioners

I. Purpose and Scope

The collaboration among the North Carolina Department of Health and Human Services and additional direct/indirect key stakeholders work to promote equitable resources and aid among those affected by food insecurity. Through the proposal of the Expanded Food and Nutrition Education Program within academic settings for adolescent youth will provide opportunities of increased literacy and supplemental information that can build awareness of the connection between literacy and healthy eating.

II. Leadership and Team

Our team defines leadership as a shared relationship among the North Carolina Department of Health and Human Services and implementing stakeholders within academic and community settings. The stakeholders for academic and community settings include Urban Ministries of Durham, Food bank of Central and Eastern NC, End Poverty Durham, Reaching out to Durham County, Dieticians/Nutritionist, Durham County residents, Durham County Public Schools. Department of Social Services and Food and Nutrition Services.

III. Methods and Commitment

Our team will thrive on commitment and efforts to address food insecurity in Durham County by acknowledging team efforts and addressing diverse perspectives learned about the collaboration of stakeholders. This will be maintained by team building opportunities and open discussions to encourage learning as each stakeholder involved has an interest in food insecurity. By promoting this literacy program in school settings, we will maintain consistent efforts of collecting/tracking trends of data and offering opportunities of outreach for the program to build support. This can be promoted among Back to School Nights, local food drives, local focus groups and health fact sheets.

IV. Review and Endorsement Goals

Among the commitment and dedication, we have for ensuring this program is carried out accordingly, having various backgrounds can create opposition among our team. In addressing any disagreements, we will utilize anonymous voting as a system to acknowledge everyone's perspective while also highlighting the need of a general consensus.

Upon signing below all parties agree to the terms and condition of the MOU, effective until July 2024.

Durham County Commissioners

Signature: _____

Name: _____

Title: _____

Date: _____

Dieticians

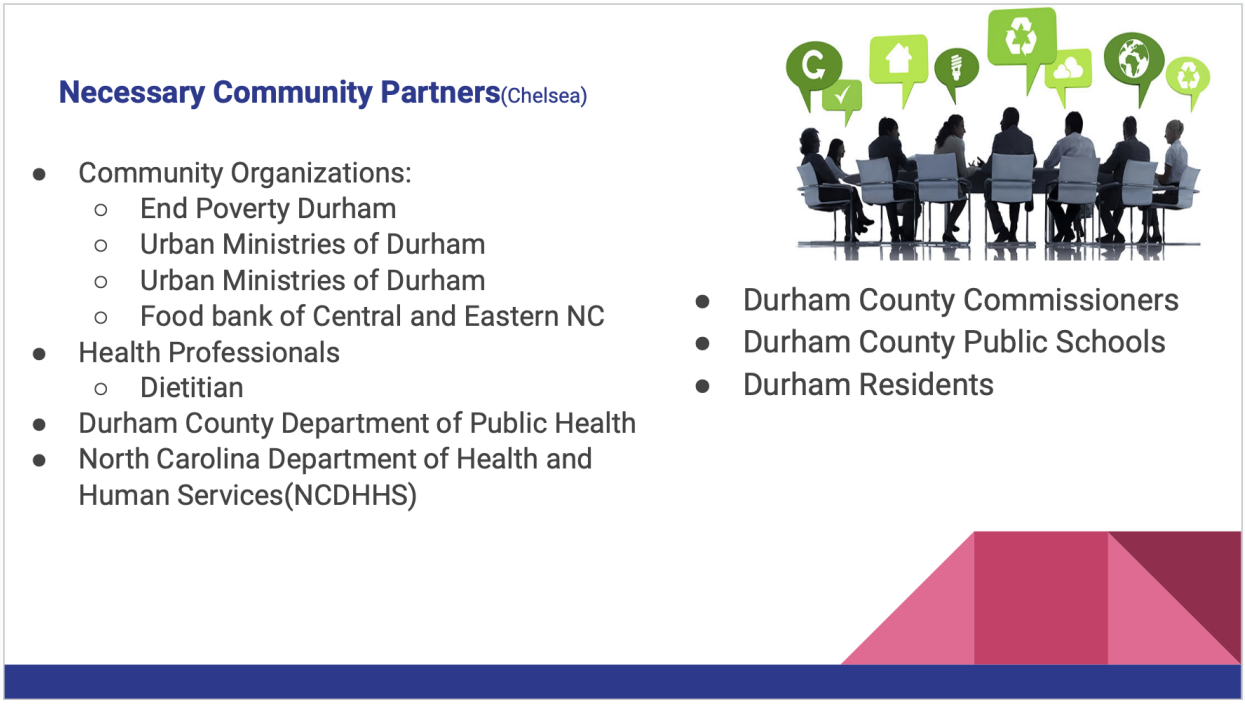
Signature: _____

Name: _____

Title: _____

Date: _____

Appendix D.4: Individual Presentation Slides and Script



Script: The necessary community partners are defined by critical aspects that are Defined among the RASCI table among roles of who's responsible, accountable, supportive, consulted, and informative. In a way we first begin with these forms of community organizations and health professionals that are defined as being supportive in providing resources/supportive roles in implementation. In a way they both collaborate in providing nutrition education and literacy to the community to address food insecurity. As well these forms of responsible level community partners are reflected among Durham County Commissioners and the NCDHHS. They both create short/long term planning of Durham County's needs and help distinguish needed funding for structural institutions in order to promote literacy in the community. Lastly we have the community affected which involves a combination of being informed and consulted. In order to build trust among the community and guarantee acceptance, first we would initially host opportunities to educate and attain necessary professionals that will verify information shared to encourage valid/accurate information. Once detailing the essential need, they will then be

informed during the process to maintain trust and guarantee consistency among engagement and products offered.

Appendix E. Amy Sun's Individual Deliverables
Appendix E.1: SDOH Analysis

Social Determinant of Health (SDOH):

The United States Department of Health and Human Services defines social determinants of health as "the conditions in the environments where people are born, live, learn, work, play, worship, and age that affects a wide range of health, functioning, and quality-of-life outcomes and risks". Within the subset of social and community context, food insecurity is a social determinant of health. Food insecurity is "the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways."[1] Food insecurity causes a myriad of issues including chronic health conditions such as type 2 diabetes, high blood pressure, heart disease, and obesity as well as psychological and behavioral issues. Children struggling with food insecurity have an increased risk of being in poor health and struggling in school[3]. The causes of food insecurity are wide-ranging and complex, from chronic underemployment, the cost of housing and healthcare to poverty. Research has shown a strong correlation between poverty to poor health, likely due to food insecurity amongst other issues[4]. According to Feeding America, many food-insecure people must choose between food and utilities, transportation, and medical care. Thus, the short-term issues with food insecurity could be financial pressure on a family promoting skipping meals at times[5]. Long-term effects that could result include homelessness evictions due to the inability to meet needs for rent, inability to travel to and between locations limiting job opportunities, and stigma associated with being food insecure affecting social relationships and acute health conditions that result in chronic conditions or overall poorer health outcomes.

Geographic and Historical context:

Durham County has approximately 333,000 residents as of July 1, 2022[6]. Poverty, as

defined by the Durham Community Health Assessment 2020, is "when a person lacks what they need to achieve a minimum standard of living." Poverty (a precipitating factor of food insecurity) was most prevalent and Black and Latinx populations. As of 2019 the average white family had the average Black family and Hispanic families, 8 times and 5 times respectively. Minorities often experience economic instability at a higher rate as a result of years of institutional and systemic racism. Because of policies in banking, education, and community investment, white households have had an advantage in maintaining access to high-paying jobs and building wealth. Due to the resounding effects of slavery, Jim Crow, and ongoing racism and discrimination, Blacks have not had the same level of intergenerational access to capital and finance. Higher rates of poverty are present in this minority and other minority populations[4]. To address the needs for food assistance, Durham County has been nothing short of proactive. For example, Durham Parks and Recreation is working with a local non-profit organization to provide free meals three days a week to youth and teens at the Teen Center and Weaver Street Recreation Center[4]. In 2014, the Durham Farmers Market began accepting SNAP/EBT benefits and Farm's Market Nutrition Program checks[7]. End Hunger Durham is an organization that works towards advocacy and offers resources to direct people to food banks[8].

Priority population:

Low-income and minority populations are disproportionately affected by food insecurity[4]. Thus, those living at or below the poverty line are experiencing a higher rate of food insecurity. According to the United States Department of Agriculture, "32.1% of households with incomes below the federal poverty line were food insecure" in 2021[9]. In North Carolina as a whole, 31% of individuals live below 200% of the federal poverty level in 2020[12]. Durham County fares better with estimates between 14.1% of the population living at or below the poverty line United States Census Bureau in 2019 to 25.3% of residents living at or below

200% of the federal poverty level according to the 2019 Durham County Community Health Assessment[4,6].

Measures of SDOH:

According to the United States Department of Agriculture, 10.2% of American households were food insecure in 2021. North Carolina is the 10th hungriest state in the nation[9]. In 2018, Durham County's food insecurity rate was higher than the national food insecurity rate at 11.5% but slightly better than the North Carolina state-wide average of 12.5%[4,10]. See Table 1 for a comparison of the percentages of food insecurity between the nation, state and county. According to the Community Health Assessment, $22,934,000 is estimated to meet food needs in Durham County, and SNAP provides financial nutritional assistance to 39,164 county residents.[4]

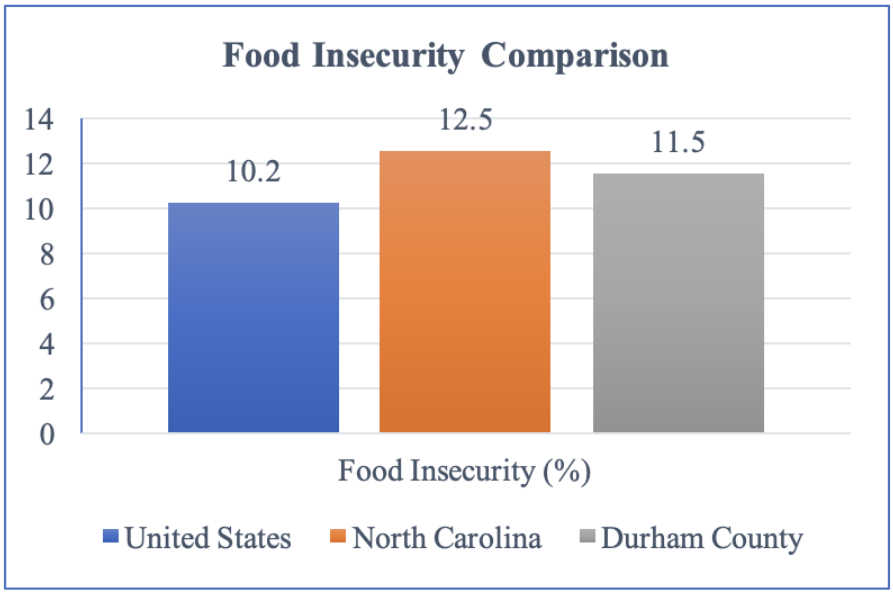


Table 1: A comparison of food insecurity across different geographic areas.

Rationale/Importance:

Durham County residents' nutritional status impacts the social and economic health of the state. Around 10.2% of residents reported skipping or cutting meals due to financial pressures. With the COVID-19 pandemic, as the Community Health Assessment mentions, the

rates of food insecurity and economic instability are likely to have increased[4]. For example, the number of residents receiving SNAP has increased to 40,061 in Durham County from the 39,164 residents previously mentioned in the Measures of SDOH section[11]. While this could be due to increased coordination in access, SNAP benefits are only offered to those with financial burdens. Those at the most financial burden would be those on or below the federal poverty line. As the Community Health Assessment States, "it is important to acknowledge that food security is fundamentally an issue of poverty."[4]

Disciplinary critique (Nutrition specific):

Food insecurity is an issue integrally tied to diet and nutrition. A public health dietitian would provide valuable insight into the nutritional status of the community and identify food insecurity tendencies. A dietitian will be able to work with the community to identify upstream causes of food insecurity and provide support to resolve issues downstream and improve the nutritional status of food-insecure residents. For example, SNAP and WIC are underutilized in the community[7]. Dietitians can assist with education. By focusing on those living at or below the poverty level, those most at risk (often communities of minority groups) will improve health equity across the community, decreasing the disparity amongst different races. Decreasing levels of food insecurity in the community can provide secondary benefits to the community. With an improvement in nutritional status, health conditions can be better managed, reducing the strain on the medical system and medical costs across the community. Better health precludes maintenance of employment. With better nutritional status, students are likely to improve their performance in school, leading to increased graduation rates. Decreased financial burdens also free up monetary funds to spend on local businesses which can be re-invested in the community in the future. Resolving food insecurity stands to generate a great deal of social and economic benefits for Durham County.

References

1. *Social Determinants of Health*. Social Determinants of Health - Healthy People 2030. (n.d.). https://health.gov/healthypeople/priority-areas/social-determinants-health 2. United States Department of Agriculture. (n.d.). *Measurement*. USDA ERS – Measurement. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u s/measurement/#:~:text=Food%20insecurity%20is%20the%20limited,foods%20in%20social ly%20acceptable%20ways

3. *Importance of Nutrition on Health in America*. Feeding America. (n.d.). https://www.feedingamerica.org/hunger-in-america/impact-of-hunger/hunger-and-nutrition 4. *Durham County Community Health Assessment 2020*. Durham County Public Health. (n.d.). https://www.dcopublichealth.org/home/showpublisheddocument/35452/63764275117127000 0

5. *Effects of hunger*. Feeding America. (n.d.-a). https://www.feedingamerica.org/hunger-in america/impact-of-hunger

6. U.S. Census Bureau quickfacts: Durham County, North Carolina. (n.d.). https://www.census.gov/quickfacts/durhamcountynorthcarolina

7. Stroot, H. (2020, November 20). *Food insecurity in Durham*. ArcGIS StoryMaps. https://storymaps.arcgis.com/stories/ec2242d555cf47d783ce6e4df3a6d587 8. *Home*. End Hunger in Durham. (n.d.). https://www.endhungerdurham.org/ 9. *Food Security and nutrition assistance*. USDA ERS - Food Security and Nutrition Assistance. (n.d.). https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting the-essentials/food-security-and-nutrition-assistance/

10. *Hunger in North Carolina*. Feeding America. (n.d.-b). https://www.feedingamerica.org/hunger-in-america/north

carolina#:~:text=What%20Hunger%20Looks%20Like%20in,of%20them%20353%2C450 % 20are%20children.&text=face%20hunger.,in%206%20children%20face%20hunger. 11. NCDHHS. (n.d.). Health Indicator: Poverty. https://schs.dph.ncdhhs.gov/units/ldas/docs/NCSHIP-2022-Indicator1-Poverty.pdf 12. *SNAP benefits recipients in Durham County, NC*. FRED. (2022, December 21). https://fred.stlouisfed.org/series/CBR37063NCA647NCEN

Appendix E.2: Nutrition Policy or Program Analysis

Introduction

Within the subset of social and community context of the social determinants of health, the issue of food insecurity amongst those living at or under the Federal Poverty Line (FPL) in Durham County, North Carolina is what the program (dietitian-led nutrition education) seeks to address. Food insecurity is "the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways." [1] Research shows that food insecurity is correlated with poverty[2]. In Durham, between 14.1% to 25.3% of the population live at or below the federal poverty line[3,4]. Food insecurity causes a myriad of poor outcomes. This program will aid food-insecure residents living at or below the FPL and generate social and economic benefits for Durham County as a whole.

Evidence-Based Nutrition Policy or Program

Food insecurity produces nutritional deficits. Poor nutrition leads to chronic, mental, and behavioral illnesses. Social issues include lower educational achievement, homelessness, unemployment, stigma, and crime[5]. Economic costs can result from the aforementioned issues; medical conditions cost the healthcare system and can lead to poor educational achievement or maintenance of employment[3]. Poor educational achievement leads to fewer employment

opportunities. Economically, people lack the capital to spend in the community, lack health insurance which costs the healthcare system, cannot afford stable housing which exacerbates health conditions, and may resort to crime. Food insecurity is tied to poverty. Minorities, as a result of institutional and systemic racism, experience economic instability at higher rates. Policies in banking, education, and community investment, ensured that white households had an advantage in maintaining access to high-paying jobs and building wealth[3].

A dietitian-led nutritional education program benefits the community. Diet education provides knowledge of how to work with limited resources and improve nutritional status. Dietitian-led patient education has resulted in improved better health outcomes[6]. Diet education in a low-income population can improve food security status. Increased knowledge of food management skills is protective against food insecurity. The Expanded Food and Nutrition Education Program (EFNEP) has been effective in its ability to improve food security as well as promote behavior changes that will enhance food security status, dietary intake, and thus health outcomes. More efficient expenditure of funds on higher nutritionally dense foods and learning about meal prepping and budgeting can improve food security. EFNEP has been shown to improve resource management amongst families when provided with diet education including food preparation tips, healthful food selection, and budgeting, especially amongst low-income households. For example, EFNEP participants in Tennessee were able to save $123-$234 per year compared to their non-educated counterparts[7]. EFNEP is a community outreach nutrition education program for low-income populations and provides a good outline for a dietitian-led nutrition education intervention.

Evidence-Based Outcome:

One short-term objective would be by August 30, 2025, the rate of reported food insecurity reported in households at or below the federal poverty line amongst 10% of program attendees will decrease by 2% as measured by the Hunger Vital Sign™ survey. Attending the education sessions is the first step in determining the impact on food insecurity. One long-term impact of the intervention will be that by August 30, 2028, the rate of reported food insecurity reported in households at or below the federal poverty line amongst 50% of program attendees will decrease by 2% as measured by the Hunger Vital Sign™ survey. The ultimate objective is to decrease reported food insecurity. The hope is that the program will be well-established and systematic to reach more households and increase nutrition knowledge.

Evidenced-Based Implementation Strategies

In implementing the plan, a task force should be established consisting of community outreach members, project managers, dietitians, and researchers. A dietitian-led nutrition education curriculum should be created and connections with food banks/food distribution sites and community centers should be established.

To capture a good portion of eligible households that are food insecure and at or below the FPL, community outreach members/volunteers will go into Durham to assist households in filling Hunger Vital Sign™ surveys out. The survey is a validated and peer-reviewed journal-cited resource used to identify food insecurity. It asks: (1) Within the past 12 months we worried whether our food would run out before we got money to buy more (2). Within the past 12 months the food we bought just didn't last and we didn't have money to get more[8]. Households can be concurrently assessed for income to determine if they are at or below the FPL. They should be offered transport to a site of nutrition education. Transportation to and from should then be coordinated. Dietitians should conduct a survey with nutrition knowledge

questions to assess baseline understanding at venues. Then diet education, cooking demonstrations, and advice should be provided based on the curriculum or specific household needs. Information can then be analyzed by researchers.

Levels of socioecological model affected by the program would be organizational/ community, interpersonal and individual. At a community level, the community as a whole would be able to receive the benefit of greater knowledge that can change the ideas around nutrition and improve health. Interpersonally, the program providers and recipients can interact with or between each other. Individuals would be conscious choices to choose more nutritional items and how to better manage their finances. Individuals would develop confidence in their actions, control over their situation and feel more food secure.

Community Partners

Partners include food banks located in Durham. Households could receive education in conjunction with picking up food. The food banks can be venues for education, capturing populations that are likely food insecure. Another partner that would function the same way would be the Urban Ministries of Durham Community Kitchen & Pantry[9]. SNAP and EFNEP could be educational partners to help capture audiences and share information. Local business partners allow dietitians to show budget-friendly and nutritionally dense foods available in the community. Schools would be good partners as venues to provide diet education to children and adolescents to build the skills needed for later on. End Hunger Durham works in food coordination so they could connect individuals with food banks that offer education[10].

Budget

Funding can be through grants from the government, community partners, or donors (Table 1 in Appendix)

Conclusion

The advantages of dietitian-led nutrition education would be providing households under or at the FPL with the skills to alleviate food insecurity in the long run. It would work to have many downstream effects and resolve a lot of the health, social and economic concerns, and is fairly straightforward. Disadvantages of the recommendation could include the fact that education may be perceived badly by another authority figure that may not necessarily understand the struggles. Another disadvantage would be that the long-term benefits of nutrition education may not be understood. A further disadvantage would be that education may be seen as a catch-all solution; families will still likely require financial support in addition to education. However, all individuals affected by poverty deserve access to food. Providing the skills to a marginalized population (the poor and often minorities) of the community ensures health equity.

References

1. *Social Determinants of Health*. Social Determinants of Health - Healthy People 2030. (n.d.). https://health.gov/healthypeople/priority-areas/social-determinants-health
2. *Food Security and nutrition assistance*. USDA ERS - Food Security and Nutrition Assistance. (n.d.). https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/
3. *Durham County Community Health Assessment 2020*. Durham County Public Health. (n.d.). https://www.dcopublichealth.org/home/showpublisheddocument/35452/637642751171270000
4. U.S. Census Bureau quickfacts: Durham County, North Carolina. (n.d.). https://www.census.gov/quickfacts/durhamcountynorthcarolina

5. *Importance of Nutrition on Health in America*. Feeding America. (n.d.). https://www.feedingamerica.org/hunger-in-america/impact-of-hunger/hunger-and-nutrition
6. Oronce, C. I. A., Miake-Lye, I. M., Begashaw, M. M., Booth, M., Shrank, W. H., & Shekelle, P. G. (2021). Interventions to Address Food Insecurity Among Adults in Canada and the US: A Systematic Review and Meta-analysis. *JAMA health forum*, *2*(8), e212001. https://doi.org/10.1001/jamahealthforum.2021.2001
7. Farrell, J. A. (2013). *The Impact Of Nutrition Education On Food Security Status And Food-related Behaviors Food-related Behaviors* . ScholarWorks@UMass Amherst. https://scholarworks.umass.edu/cgi/viewcontent.cgi?article=2204&context=theses
8. *The Hunger Vital SignTM*. Children's HealthWatch. (2022, June 24). https://childrenshealthwatch.org/public-policy/hunger-vital-sign/
9. Urban Ministries of Durham. (n.d.). https://umdurham.org/
10. *Home*. End Hunger in Durham. (n.d.). https://www.endhungerdurham.org/

Appendix E.2.a.: Nutrition Policy or Program Analysis Figures and Tables

Category	**Percent** (rounded)	**Cost/Year**	**How Funds Can Be Used**
Personnel	66%	$250,000	Team member salaries
Equipment	1.3%	$5,000	Cooking supplies, food, storage items
Office Space, Supplies, and Utilities	20%	$75,000	Space for meetings; worksite
Educational Materials	1.3%	$5,000	Handouts, printed education materials

Transportation	11%	$40,000	Help community members attend education sessions
Miscellaneous	1.3%	$5,000	Extraneous costs or unforeseen expenses

Appendix E.3: Evaluation Plan

Introduction

Within the subset of social and community context of the social determinants of health, the issue of food insecurity amongst those living at or under the Federal Poverty Line (FPL) in Durham County, North Carolina is what the program intervention (dietitian-led nutrition education) seeks to address. Food insecurity is "the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways." [1] Research shows that food insecurity is correlated with poverty[2]. In Durham, 14.1% to 25.3% of the population live at or below the federal poverty line[3,4]. Food insecurity causes a myriad of poor outcomes. The target population of eligible community members would be identified as households at or below the federal poverty line with food insecurity. Our intervention seeks to offer transportation to food banks and provide dietitian-led nutrition education sessions bi-weekly on topics including healthier and more nutritionally dense foods, how to utilize certain foods via food demonstrations, and important financially nutrition-relevant information such as budgeting. One short-term objective of the intervention would be by August 30, 2025, the rate of reported food insecurity reported in households at or below the federal poverty line amongst 10% of program attendees will decrease by 2% as measured by the Hunger Vital Sign™ survey and the Federal Food Security Determination Survey.

Evidence Based Evaluation Plan

Study design/data collection

The study design will be a longitudinal cohort study as the same group, program attendees at or below the federal poverty line, will be followed through a period of time from program implementation until August 30, 2025. The intervention will be bi-weekly dietitian-led education sessions and the experimental group will be the program attendees at or below the federal poverty line. The evaluation methods will be via quantitative data using the Hunger Vital Sign™ survey and the Federal Food Security Determination Survey. The surveys will be administered when a household at or below the federal poverty line attends its first dietitian-led education session. The surveys will then be at an education session the households attend one year after their initial session and every year thereafter until August 30, 2025.

Specific measures

The specific measures will be each individual household that is at or below the federal poverty line that attended an education session and scores from The Hunger Vital Sign™ survey (see Appendix A), a validated and peer-reviewed journal-cited resource used to identify food insecurity, and the Food Security Determination Survey (See Appendix B), screening intended to assess the level of food insecurity: high, marginal, low or very low. Points from 0 to 2 have been assigned to each of the questions on both surveys. The higher the score, the greater the level of food insecurity[5,6]. A total of the points scored on each survey between the two systems will be used to obtain the point and percentage of difference at every survey administration for each individual household. Our goal is to see a trend of decreasing point scores which is indicative of decreased food insecurity amongst our target population.

Timing

Obtaining the survey will occur at the beginning of bi-weekly dietitian-led nutrition education sessions. Then, the data will be analyzed by volunteers and research staff at the office to assess survey results for each respective household that is participating. Progress is defined as a decrease in the overall individual/total assessment point scores as lower scores indicate a reduction in the level of food insecurity. If progress does not occur, adjustments to the intervention should be made. As this is a newly implemented program, the program staff should meet twice weekly to adjust the intervention as needed whether it be to increase community participation, adjust education materials or adjust how the survey is administered. Talking to the community members that qualify when first doing the Durham County door-to-door screening, ones that receive food assistance from the food banks and ones that attend education sessions would be a method to obtain ideas about how to tailor interventions. In addition, having focus groups and talking to community partners would be helpful as well.

Analysis plan

The type of statistics will be quantitative. Both surveys have multiple-choice answers that correlate with a point score. The higher the score, the higher the instance of food insecurity. Percentages of change in survey scores for each household participating will be measured after every instance of attendance. The aim is to lower the point scores by 2% points from the baseline for 10% of the households that attend by August 30, 2025.

Sources of funding

Sources of funding will come from community partners as well as county-allotted money. Every quarter, there should be a fundraising event organized in the community. Looking into federal and state grants would be of other-while interest as well.

Data Use and dissemination

The data will be used to determine the value of dietitian-led diet education efforts in providing nutrition education and the impact on the level of food insecurity amongst Durham community households at or below the federal poverty level. This can be used to generate additional funding or assess the level of support that can be offered to these households. In addition, the data will be available for the community to assess methods of identifying those in the community that need food assistance. Depending on if results can be achieved, it may be able to demonstrate that while this intervention seeks to make an impact, a multifactorial interdisciplinary approach with county, state, or federal assistance may be needed. Data should be disseminated through a website in a concluding report after August 30th, 2025. that will be available to the public. Data should also be shared with local community partners, leaders, legislators, and the county health commissioner's office.

Conclusion

Food insecurity and the correlation with poverty highlight inequities within Durham community households. As nutrition is integrally tied to food insecurity, it will be important to build a collaborative network involving nutrition professionals (dietitians). Research has shown that diet education led by dietitians can provide overall beneficial outcomes in the levels of food insecurity. Working through an interdisciplinary team of program managers, volunteers, and researchers as well as community partners, this intervention can be introduced to community members and provided in ways that may reduce the rate of food insecurity. The short-term goal would be to decrease the rate of reported food insecurity reported in households at or below the federal poverty line amongst 10% of program attendees by 2% as measured by the Hunger Vital

Sign™ survey and the Federal Food Security Determination Survey by August 30, 2025. This would overall improve public health and increase health equity.

References

1. *Social Determinants of Health*. Social Determinants of Health - Healthy People 2030. (n.d.). https://health.gov/healthypeople/priority-areas/social-determinants-health
2. *Food Security and nutrition assistance*. USDA ERS - Food Security and Nutrition Assistance. (n.d.). https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/
3. *Durham County Community Health Assessment 2020*. Durham County Public Health. (n.d.). https://www.dcopublichealth.org/home/showpublisheddocument/35452/637642751171270000
4. U.S. Census Bureau quickfacts: Durham County, North Carolina. (n.d.). https://www.census.gov/quickfacts/durhamcountynorthcarolina
5. *The Hunger Vital SignTM*. Children's HealthWatch. (2022, June 24). https://childrenshealthwatch.org/public-policy/hunger-vital-sign/
6. Michigan State University. (n.d.). *What is food insecurity?*. MSU Student Food Bank https://foodbank.msu.edu/snap/what-is-food-insecurity.html#:~:text=Food%20insecurity%20is%20categorized%20into,and%20Very%20Low%20Food%20Security.

Appendix E.3.a: Evaluation Plan Appendices

Appendix A: The Hunger Vital Sign™ Survey

(1) Within the past 12 months we worried whether our food would run out before we got money to buy more

- Often True (2 points)
- Sometimes True (1 point)
- Never True (0 points)

(2) Within the past 12 months the food we bought just didn't last and we didn't have money to get more[8]

- Often True (2 points)
- Sometimes True (1 point)
- Never Ture (0 points)

*Points set by our program to collect quantitative data

Appendix B: The Food Security Determination Survey

(1) In the last 6 months is the following statement often, sometimes, or never true for you: "The food that I bought just didn't last, and I didn't have the money to get more."

- Often true (2 points)
- Sometimes true (1 point)
- Never true (0 points)

(2) In the last 6 months, is the following statement often, sometimes, or never true for you: "I couldn't afford to eat balanced meals."

- Often true (2 points)
- Sometimes true (1 point)
- Never true (0 points)

(3) In the last 6 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?

- Yes (1 point)
- No (0 points)

(4) If you answered "Yes" to the previous question, how often did this happen?

- Almost every month (2 points)
- Some months but not every month (1 point)
- Only 1 or 2 months (0 points)

(5) In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

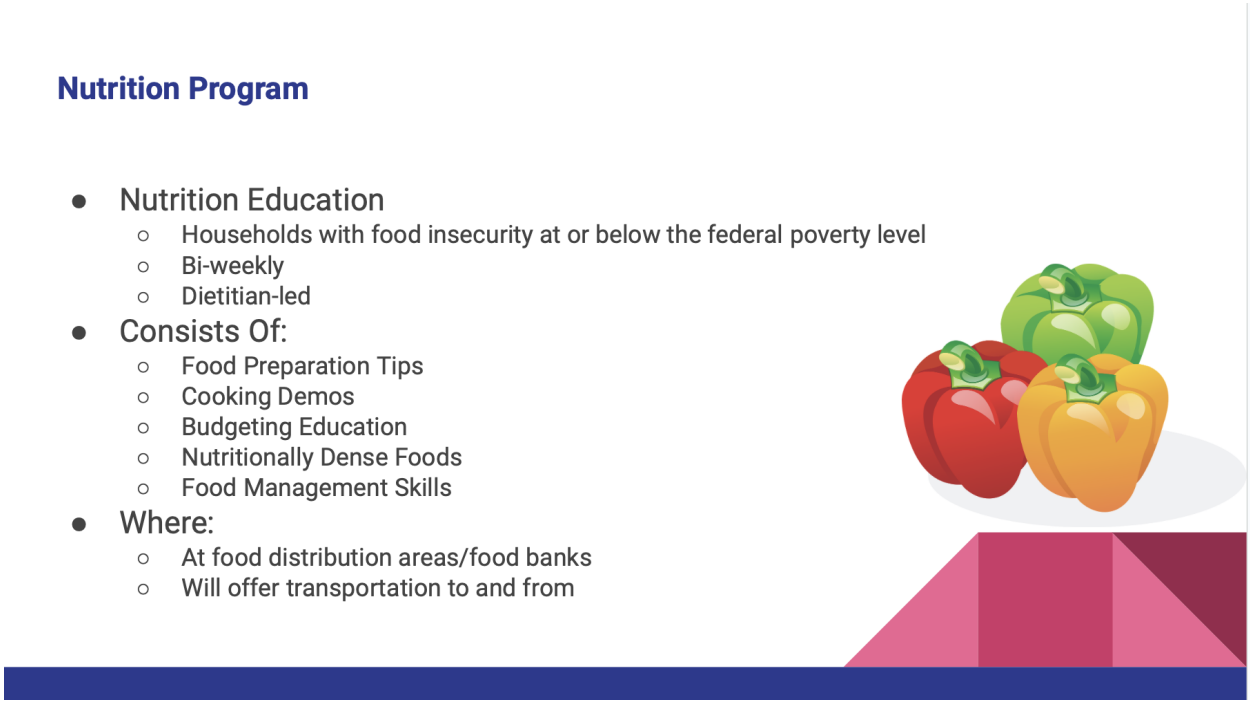
- Yes (1 point)
- No (0 points)

(6) In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?

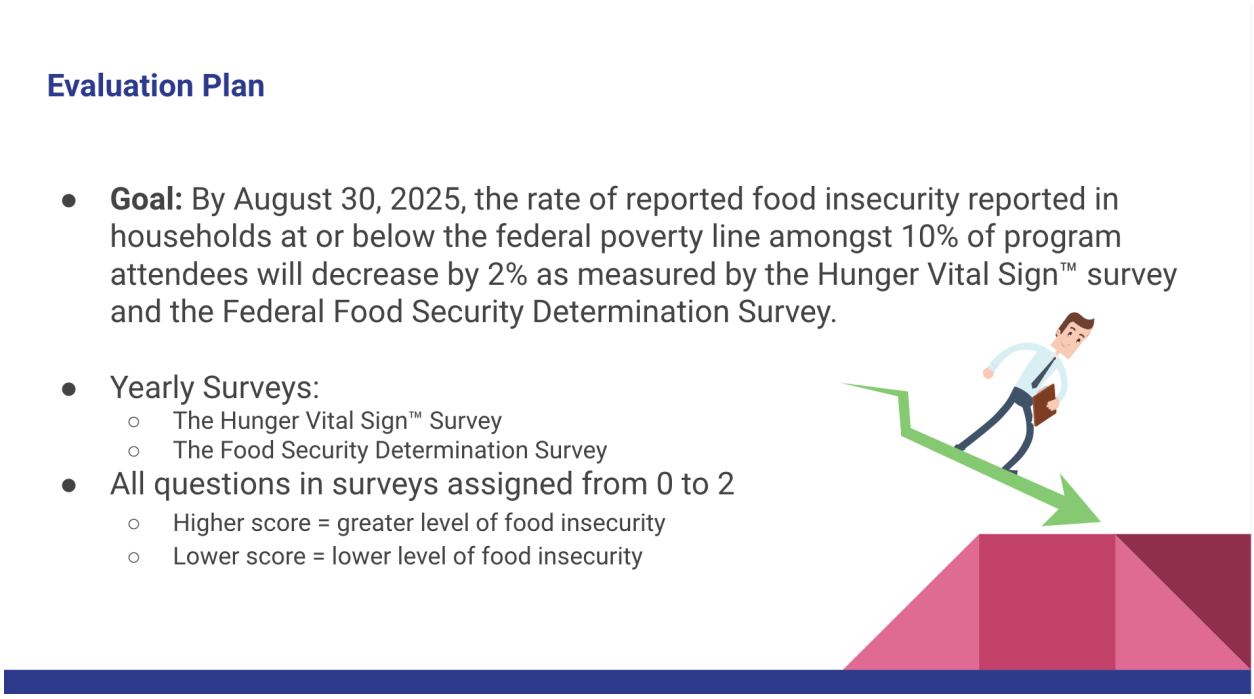
- Yes (1 point)
- No (0 points)

*Points set by our program to collect quantitative data

Appendix E.4: Individual Presentation Slides and Script



Script: Our program will be a bi-weekly dietitian led nutrition education series. We will be screening the community for eligible participants: households under the federal poverty level that are food insecure. We will be offering transportation to and from the education which will take place at food distribution areas/food banks. Nutrition education will cover a variety of topics and include hands on food demonstrations and kitchen equipment giveaways.



Script: Our goal is that by August 30, 2025, the rate of reported food insecurity reported in households at or below the federal poverty line amongst 10% of program attendees will decrease by 2% as measured by the Hunger Vital Sign™ survey and the Federal Food Security Determination Survey. Total of 8 questions which answers come as yes no or often, sometimes, never true. Each question answer was assigned a score from 0-2. The higher the score, the greater level of food insecurity. After 1 year, the surveys will be re-distributed to the households participating and look for a decrease in survey score. This will continue until August 30, 2025.