INCREASING FOOD ACCESSIBILITY AND MENTAL HEALTH RESOURCES TO PROMOTE ADOLESCENT WELL-BEING IN A RURAL COMMUNITY

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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 in the Gillings School of Global Public Health.

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ABSTRACT

Idia Enogieru, Hannah M Malian, Gabriella Statia, W.H. Davin Townley-Tilson, Laurin Watts:
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(Under the direction of Dana Rice and Seema Agrawal)

The Neighborhood and Built Environment is one of five Social Determinants of Health domains and is defined as where one lives, works, plays, and learns — all factors that affect one's health. Cleveland County, North Carolina has a high percentage of school-age children who live in poverty, and face greater adversities including financial hardships, food insecurity, and adverse childhood experiences. The objective of this proposal is to increase the proportion of schools with policies and practices that promote health and safety. To address these issues, the nutrition-focused recommendation is to increase access to healthy foods by providing free meals to all participating County School students by expanding the Community Eligibility Provision of the National School Lunch Program. The policy-focused recommendation is to implement the "Require All Schools to Staff Mental Health Counselors" policy, encouraging a sustainable mental health support system in schools.

Keywords: neighborhood, environment, nutrition, food accessibility, food security, food insecurity, poverty, school-age, students, mental health, rural community, policy

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LIST OF ABBREVIATIONS

ACE	Adverse Childhood Experience
ACTIVATE	Advancing Coordinated and Timely InterVentions, Awareness, Training, and Education
CATWOE	Customer, Actor, Transformation, Worldview, Owner, and Environment
CC	Cleveland County
CEP	Community Eligibility Provision
CHA	Community Health Assessment
ESD	Exclusionary School Discipline
ISP	Identified Student Percentage
MHCs	Mental Health Counselors
NC	North Carolina
NSLP	National School Lunch Program
RP	Restorative Practices
RASCI	Responsible, Accountable, Supporting, Consulted, and Informed
SBP	School Breakfast Program
SDoH	Social Determinants of Health
SNAP	Supplemental Nutrition Assistance Program
USDA	United States Department of Agriculture

COMMON PROPOSAL

Problem Statement and Goals

Social Determinants of Health (SDoH) are components of a person's environment that influence their health, well-being, and quality of life (US Dept. of Health and Human Services, 2020a). These factors range from individual characteristics and social norms to federal policies. The neighborhood and physical built environment is one of the five domains of the SDoH and is defined as where one lives, works, plays, and learns, and plays a drastic role in one's health (US Dept. of Health and Human Services, 2020a). People living in low-income neighborhoods are more likely to have less resources to promote a healthy life and more likely to be exposed to other risk factors, resulting in inadequate nutrition (High, 2017), substandard housing, racial and socioeconomic segregation, unsafe neighborhoods, inaccessible health care, and lack of community support (US Dept. of Health and Human Services, 2020a) & Public Schools First NC, 2020). Within the Neighborhood and Built Environment SDoH, the objective is to increase the proportion of schools with policies and practices that promote health and safety (US Dept. of Health and Human Services, 2020b).

Schools construct both the tangible and intangible parts of the environment. They provide the physical spaces for education, eating, and peer socialization, and subsequently the space to create and exchange norms and practices. Many communities rely on schools to educate and support the youth of the community, but if there are inadequate resources in and for schools, negative consequences can arise. In the short term, this results in schools not being able to provide students with the necessary means to support sufficient growth and development. Such impacts may lead to violence among students, increased involvement in risky behaviors, such as substance use and unprotected sex (Austin & Herrick, 2014; Centers for Disease Control and Prevention (CDC), 2021). Long-term impacts include prevalence of students pursuing higher education and substance-use related illness. Long-term health consequences include increases in spending on healthcare and the judicial system, contributing to existing inequities in the community, and perpetuating poverty and crime rates (Cleveland County Public Health Center, 2020).

In Cleveland County, three of the major issues identified in the 2019 Community Health Assessment as needing improvement are the percent of the population living at or below 200% of the federal poverty line, the number of children with Adverse Childhood Experiences (ACEs), and limited access to healthy foods. These health

indicators are directly related to the neighborhood and built environment. Of children under the age of 18, 27.5% experience poverty, demonstrating a disproportionate impact on children (Cleveland County Public Health Center, 2020). Indeed, the rate of food insecurity in Cleveland County is estimated to be 16.2% (~15,270 people impacted), which is higher than the North Carolina state average of 13.5% (Feeding America, 2021). In 2019, school-age children and adolescents (5-17 years) made up 19.3% of the county's population (~18,700 students) and it's estimated that 15% of students are impacted by food insecurity (Cleveland County Public Health Center, 2020). Moreover, of the K-12 students enrolled in the 2018-2019 school year, approximately 57.57% participated in the free or reduced school lunch program, which is higher than the state average of 56% for the same year (Cleveland County Public Health Center, 2020; National Center for Education Statistics). Furthermore, of 12th grade students in the county, 17.4% use tobacco and 36.3% use e-cigarettes (Cleveland County Public Health Center, 2020). With these statistics considered, the focus of the policies and programs will be on the youth student population. Therefore, goals of this proposal include improving access to healthy foods and mental health resources in schools.

Policy and Programmatic Changes

Nutrition Program:

The nutrition recommendation is for Cleveland County Schools to adapt the Community Eligibility Provision (CEP) program of the National School Lunch Program (NSLP) to improve access to healthy foods in schools (*Community Eligibility Provision: Planning and Implementation Guide*, 2016). The CEP expands the NSLP to provide all students with free meals at school, regardless of their previous NSLP program eligibility, therefore increasing participation in meals at school. In other states, participation in CEP has previously demonstrated improvements in academia, behavior, and dietary patterns. In South Carolina, evaluation data revealed significant increases in some test scores for students attending CEP participating schools, and in Tennessee, there was a decrease of 2.3 percentage points in disciplinary referrals (Hecht et al., 2020). Additionally, in Maryland, schools that were eligible but did not participate in CEP, had students who were twice the odds of living in a food insecure household compared to schools that were participating in CEP (Hecht et al., 2020). Children who are food insecure tend to consume more nutrition at school in comparison to students who are not food insecure, implying that schools are the ideal target for addressing child and teen undernutrition (Potamites et al., 2010).

Short term outcomes of this proposed policy include: (1) By March 1, 2023, the proportion of Cleveland County K-12 students enrolled in schools that participate in NSLP who are eligible to receive free school meals will

increase from 67.0% to 100% (Cleveland County Public Health Center, 2020; Potamites et al., 2010); and (2) By March 1, 2023, the proportion of Cleveland County K-12 students enrolled in schools that participate in NSLP that are able to participate in breakfast meal times at free (or reduced price) will increase from 57.57% to 100% (Cleveland County Public Health Center, 2020; Potamites et al., 2010).

Long term impacts of this proposed policy include: (1) By March 1, 2027, increase the proportion of children who are food insecure and marginally food insecure who receive free school meals (Fuller et al., 2021; Potamites et al., 2010); and (2) By March, 1, 2027, increase in academic performance scores, increased proportion of students with expected academic growth and on-time grade promotion, and decreased number of disciplinary referrals (Fuller et al., 2021; Potamites et al., 2010).

Policy Analysis:

The Require All Schools to Staff Mental Health Counselors (MHC) policy calls for the county commissioners to pass legislation requiring all schools in Cleveland County (CC) to staff a MHC. It moves toward a sustainable mental health support system for students regardless of their social and economic backgrounds by ensuring access to a MHC, and that instructors work in conjunction with these counselors to coordinate care to students. A key reason to support this policy is that it builds on the results in CC from Project ACTIVATE, the state-based initiative to provide and improve existing mental health services in the school settings across NC. According to the American School Counselor Association, counselors are in the best position to meet the developmental needs of all students (ASCA, 2020). Thus, reshaping the landscape with the staffing of mental health counselors optimizes them as a resource. One study even showed that 70–80% of children who receive any behavioral and/or mental health services receive them at school — a massive reason to invest in the school landscape (Atkins et al., 2010). Another reason to support this policy is because it addresses two of CC's major issues, poverty and children with Adverse Childhood Experiences (ACE). It does so in a transformative way because the impact school counselors have on students is multifaceted. The studied benefits of school counselors working with at-risk youth are numerous: children experiencing family problems report being helped by school counselors, counselors help integrate the students' family to the educational process, prevention of student suicide, and reducing student discipline problems (American Counseling Association, 2008). This will undoubtedly have a major public health impact, as creating healthy coping mechanisms can reduce substance use and improve mental and physical health among residents.

Stakeholders

To identify the key stakeholders and how they will participate in the CEP program, a tripartite framework was utilized. A rich picture was used to create a broad understanding of the people in the system (Appendix, Figure 1). A total of eight stakeholders were identified, then grouped and positioned on an interest and influence map by technical, social, political, and administrative asset groups. Representative stakeholders from each group were then further categorized using a CATWOE analysis, and were analyzed by their ability not only in participating in the school meal program system, but also by their ability to mediate transformative change incorporating the CEP expansion in Cleveland County. Students and their parents and families were identified as the users that had the most outcome-dependent impacts of the CEP program. School cafeteria staff are required physically to implement change, while dietitians and nutrition educators provide experiential food decision knowledge in implementing and assessing the program. CEP program expansion will require the involvement of food management companies and school administration to monitor and facilitate the required increase in food supplies. Ultimately, the Cleveland County Board of Education is responsible for the ownership of this project, while aligning with existing state and federal policies overseen by state and federal executive departments.

Budget

Personnel costs comprise the salaries for 30 counselors and a mental health coordinator who will work in the county's district office and manage the program across all schools. Other costs are training and personal development. The total personnel costs for year 1 = $1,880,000, for year 2 = $1,901,400, and for year 3 = $1,938,528. The coordinator will hire contracted evaluators to collect, process, analyze, and present data from the policy's implementation. Contracted personnel costs cover data collection, management, and analytic support. It also includes communications support so learnings and insights are shared with county stakeholders. The total contracted personnel costs for year 1 = $2,000, year 2 = $95,000, and year 3 = $200,000. Non-personnel costs cover: office supplies, furniture, computers, and technology, which encompasses multi-user software with secure data management that handles appointment scheduling, data tracking for simpler evaluation, and security for confidential notes about students. Administrative costs will account for 5% of total programmatic costs. The total non-personnel costs for year 1 = $242,150, year 2 = $191,658, and year 3 = $199,591. Lastly, the revenue sources are county funds, Project ACTIVATE funds, and foundation grants. The county is likely to supply the lowest amount, and the coordinator will apply for the majority of funds from Project ACTIVATE, and prominent foundations supplying

grants for mental health efforts in education. The total projected revenue for year 1 = $2,150,000, year 2 = $2,200,000, and year 3 = $2,350,000.

Engagement and Accountability Plan

Using the stakeholder power analysis from the stakeholders identified in above, an engagement plan that included a "give-get" and Delphi Framework for qualitative feedback was determined as most appropriate modalities for effective stakeholder engagement. Specifically, motivating stakeholders by expounding the virtues and benefits to the community of the CEP program should putatively increase participation. The Delphi framework would increase both continuous quality improvement while also allowing for meaningful involvement in the qualitative processes' implementation of CEP.

The North Carolina Department of Education, the Cleveland County Board of Education, the Cleveland County Health Department, and the Alliance for Health in Cleveland County will all be tasked to assess milestones and maintain rigor in our program accountability. Together, these organizations will oversee the program expansion County-wide, funding and upfront coverage costs, as well as progress reporting and policy oversight. To ensure that our goal that all school-age students in Cleveland County are food secure by 2030, we will survey all 18,000 students in Cleveland County biennially at the completion of the school year. We will track, through our food service providers, the number of meals served to correlate with the number of student meals required. Lastly, we will use state and health department data to analyze peripheral service reliance (e.g., families on WIC, SNAP, TANF) as well as monitor county-wide body-mass indices to assess nutritional metrics.

Program and Policy Evaluation

Nutrition Program Evaluation:

The evaluation study design will be a prospective cohort study, where subjects will serve as their own control based on baseline and post-implementation data. Evaluation tools include: descriptive data of interest regularly collected by the school, as well as surveys administered to students aged 12 and above and parents/guardians, and focus groups composed of parents/guardians. The descriptive data of interest includes: number of schools who participate and expand to the CEP option, meal participation rates by school, number of meals provided, and academic scores and disciplinary referrals by quarter, semester, and year. Focus groups and adapted surveys aim to measure an overall sense of student well-being, school breakfast purchase frequency and habits, quantity and frequency of breakfast consumption and consumption at school, level of stigma associated with

eating free school breakfast meals, and household food security status. The descriptive data will be obtained from school administration, with consent from students' parents. All students and parents/guardians will be invited to participate in surveys. Parents/guardians will be invited to participate in focus groups based on submitted survey responses. Baseline focus groups will be implemented 8 weeks prior to participation in CEP, then will be administered in a biannual timeline (after fall and after spring semester) for the first year, then once a year for the remaining study period. Surveys will also be administered pre, during and post-intervention. Baseline surveys will be completed spring semester before enrollment. Post enrollment, students will be surveyed bi-annually for the first year (fall and spring), then annually (each spring) for remaining years participating. To gather post-intervention surveys, graduated students/ students who left the school for other reasons will be invited to complete surveys in a remote format in the summer months following their departure.

Data analysis will consist of both qualitative and quantitative methods. Qualitatively, transcripts from focus groups will be coded for thematic analyses of responses that pertain to identification of barriers to program utilization, community perception of effectiveness on children's breakfast consumption and performance in school. All data will be stratified by the amount of time each school has been participating in CEP, SES, race, food security status, and school ISP%. Progress is important for program success and will be defined by an increase in the percent of participating schools, an increase in the number of students consuming free breakfasts, and the increased perception of a safe and welcoming school meal environment among students.

CEP enrollment occurs annually from April 1- June 30, and thus the proposed research timeline was created with pre-participation in CEP measurements occurring both after enrollment and prior to participation. In line with assessing the long-term impacts, the proposed intervention will end after 4 years.

Policy Evaluation:

The Require All Schools to Staff Mental Health Counselors (MHC) policy aims to reach students with ACEs and poor coping mechanisms thus, evaluation will determine how much of this population was served by the policy. This process measure will identify the number of students who show warning signs of life stressors and/or mental health issues as identified by teachers or health assessments and compare that with the number of students that utilize the mental health counselor. One outcome measure that will assess whether the policy addresses these intended issues is the number of students using substances like tobacco, e-cigarettes, and vapes. This will give an idea of the types of coping mechanisms used.

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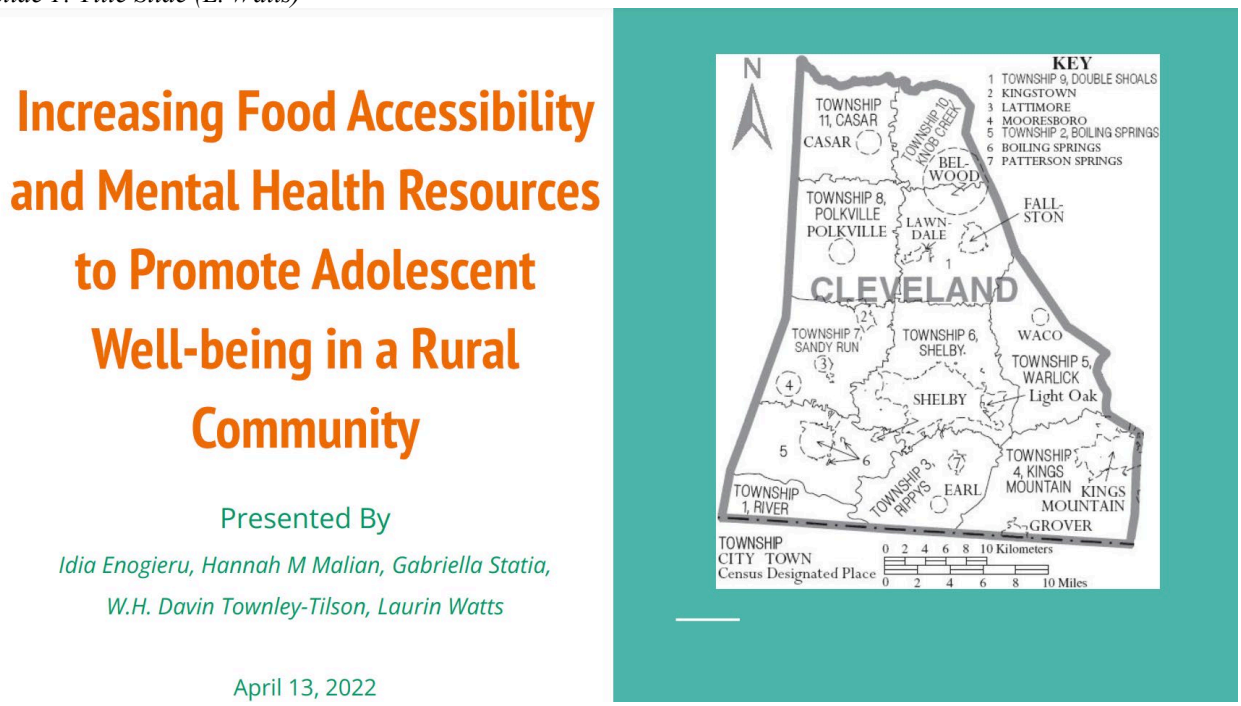
APPENDIX A. GROUP DELIVERABLE: RICH PICTURE

Figure 1: Rich Picture of schools, meals, and children's health in Cleveland County

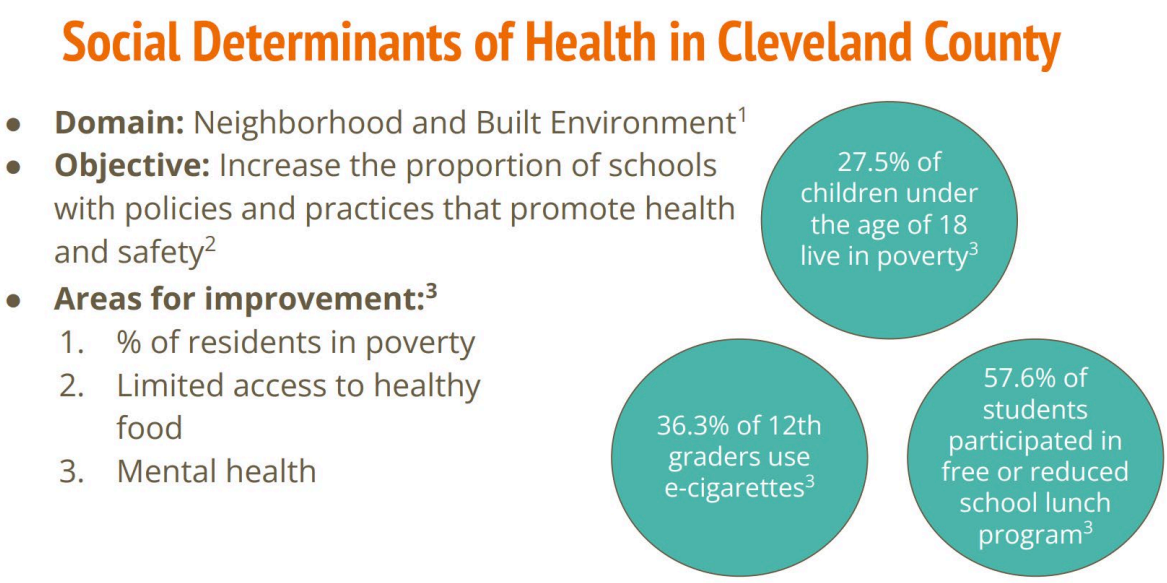
APPENDIX B: PRESENTATION SLIDES AND SCRIPT

Slide 1: Title Slide (L. Watts)



Hi everyone, my name is Laurin from Nutrition, and I am joined by Idia in Health Policy, Hannah and Gaby in Nutrition, and Davin in leadership. Today we will be talking about increasing food accessibility and mental health resources to promote adolescent well-being in a rural community, specifically Cleveland County. Furthermore, this presentation will cover a nutrition-based intervention and mental health policy to achieve these goals.

Slide 2: Social Determinants of Health in Cleveland County (L. Watts)



The Social Determinants of Health are factors in a person's environment that influence their health and well-being. The Neighborhood and Built Environment is a domain within the social determinants that encompasses the place where one lives, works, plays, and learns. The overall objective of focus for this presentation is to increase the proportion of schools with policies and practices that promote health and safety. So, what does the neighborhood currently look like in Cleveland County? The 2019 Community Health Assessment revealed 3 high priority areas for improvement as the percentage of residents living below the federal poverty line, children who have adverse childhood experiences, and limited access to healthy foods. All of which relate to the neighborhood and built environment, and in Cleveland County, disproportionately affect children's mental and physical health. The three statistics on the right highlight key health disparities, noting how a third of children under the age of 18 are in in poverty, over a third use e-cigarettes, and over half participate in free or reduced lunch programs.

Slide 3: Impacts (L. Watts)

Poverty, food insecurity, and substance use negatively influence a child's growth and development, increases violence and risky behaviors, and have long term impacts, such as the choice to pursue higher education, risk for developing health conditions, increases in spending on healthcare and judicial system, and further perpetuating existing inequities in the community. Given the high proportion of students who are living in poverty, are food insecure, and are utilizing school meals, it is apparent that students in Cleveland County need more support.

Slide 4: Nutrition Policy: Expansion of Community Eligibility Provision (G. Statia)

Nutrition Policy: Expansion of Community Eligibility Provision

CEP Enrollment in all National School Lunch Program participating K-12 schools

Identified high-poverty schools to provide school meals at no charge to all enrolled students if collective Identified Student Percentage (ISP) is at least 40%[6]

➢ County school district estimated ISP is 55%[7]

Meal reimbursement rate of ISP% x factor of 1.6 - 88% reimbursement of meals using Cleveland's estimated ISP (~$796,620 annually)[6]

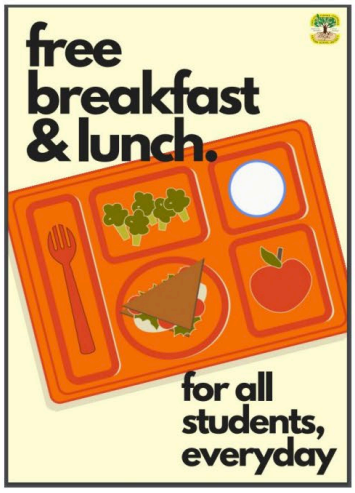
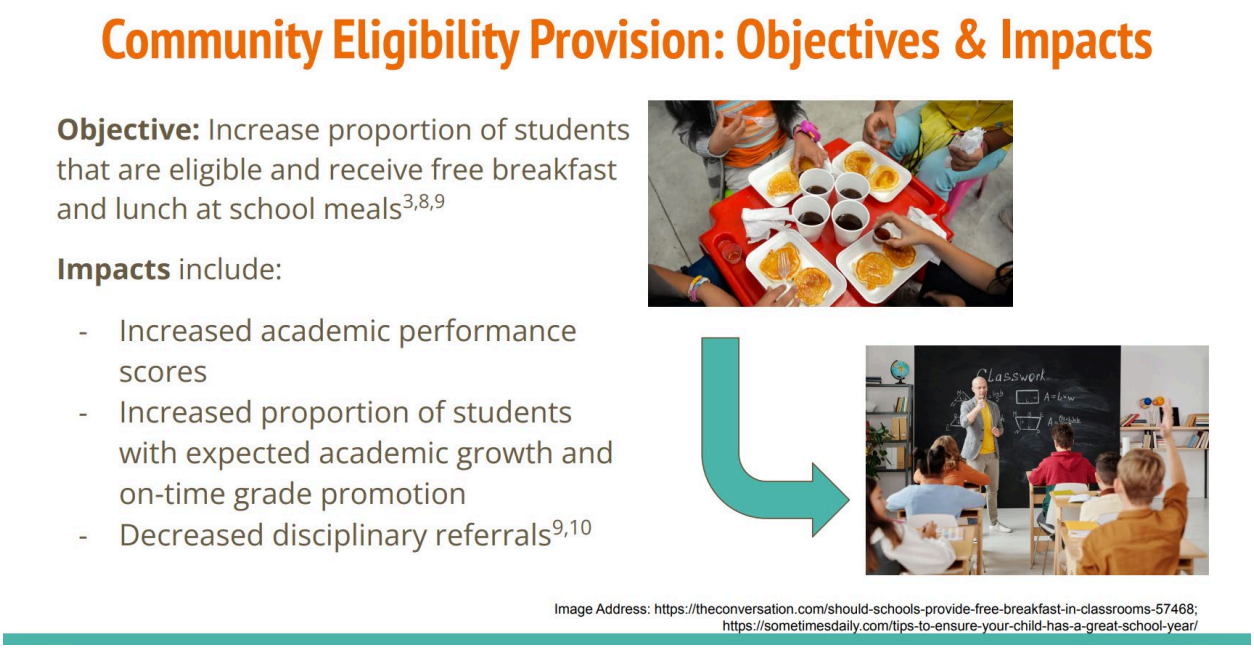


Image Address: https://www.blufordschools.org/o/bluford-unit-school-district-318/article/118768

To address the social determinant of health identified, the proposed nutrition-focused program is an enrollment expansion of the Community Eligibility Provision (CEP) to all National School Lunch Program (NSLP) participating schools in Cleveland. This provision allows high-poverty schools to provide school meals at no charge to all of their students based on the percent of student household participation in SNAP, TANF, or Medicaid, which represents their Identified Student Percentage (ISP). With an ISP of 55%, the whole school district is eligible to participate in the expansion. Under CEP, the USDA will reimburse the school district based on their ISP%, but this current ISP does not entirely cover meal costs. Currently, 13 of 29 of eligible Cleveland County schools participate in CEP, but the proposed intervention plan is to be adopted by all 29 schools, thereby reaching 100% participation.

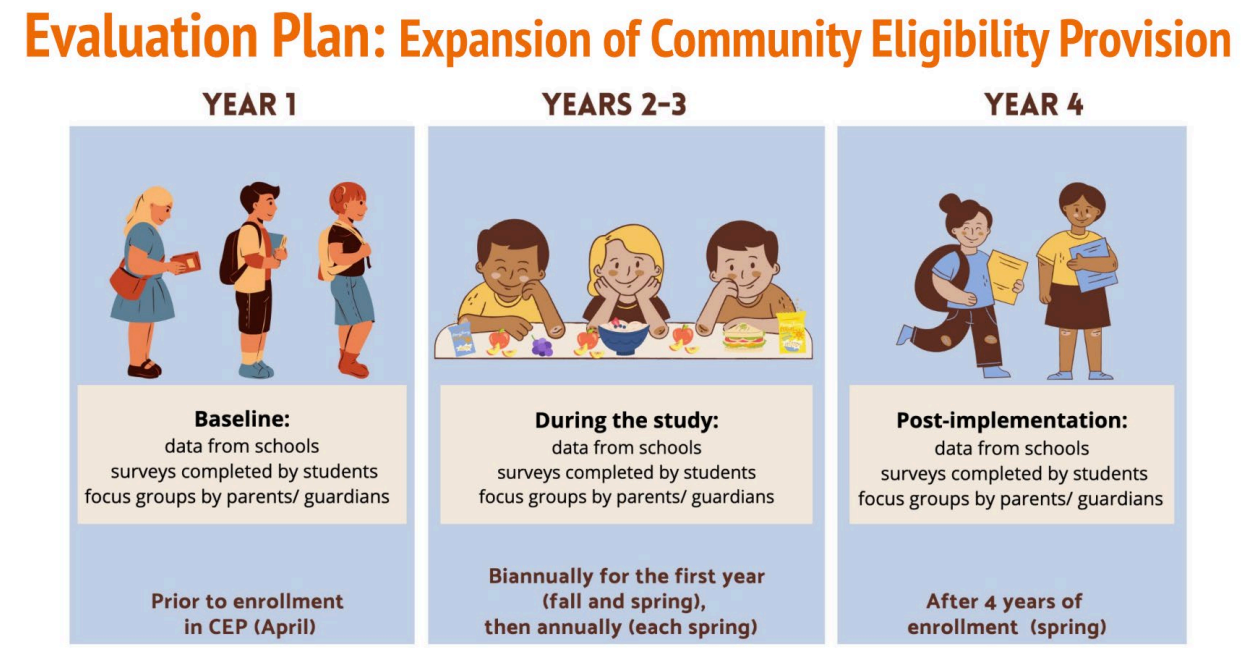
In the Cleveland County school district, 2-3rds of students qualify for the free or reduced-price school meal program, but only 58% participate. Given poverty's link to food insecurity, and that households with children disproportionately live in poverty in Cleveland, the policy is designed to increase the availability and access to free healthy school meals to all, regardless of income eligibility.

Slide 5: Community Eligibility Provision: Objectives & Impacts (G. Statia)



Based on the policy's design, the short-term outcome is to increase the proportion of students that are eligible and then able to receive free breakfast and lunch at school meals. Longer term, CEP enrollment has seen impacts in the following: an increase in academic performance scores, increased proportion of students with expected academic growth and on-time grade promotion, and a decreased number of disciplinary referrals.

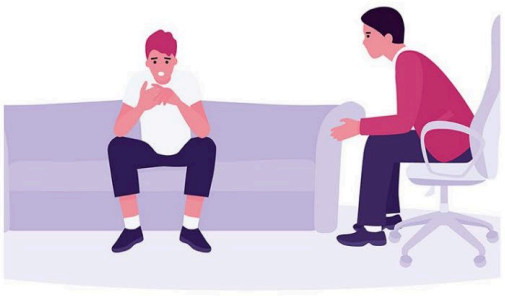
Slide 6: Evaluation Plan: Community Eligibility Provision (H.M. Malian)



The use an evaluation plan is needed to examine the impact of CEP and this slide serves as a visual representation of broadly what the evaluation of expanding CEP will look like. The evaluation of the program will be carried out in a prospective manner. This means that each student enrolled who participates will have their survey responses examined over time to see the effect of their school participating in CEP. The same measurements will be repeated over the four years to examine changes in variables, for example: school performance, food insecurity, feelings well-being, etc. Baseline measurements simply means that students and parents will participate in the surveys and focus groups respectively prior to the students schools' participating in CEP. Because these measurements will be obtained when the students have yet to receive benefits of CEP, we will then be able to use during-the-study and post-implementation measurements to examine changes as these two timepoints will be during and after students receive benefits. Overall, the way the study is set up is so we can examine what occurs before free and reduced-price meals are available to every student and after that availability increases.

Slide 7: Mental Health Policy: Require All Schools to Staff Mental Health Counselors (I. Enogieru)

Mental Health Policy: Require All Schools to Staff Mental Health Counselors



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https://nami.org/Blogs/NAMI-Blog/July-2021/How-School-Based-Mental-Health-Providers-Can-Help-Hispanic-Latinx-Students

Policy components:

1) Plan that ensures MHCs are working in conjunction with instructors, parents, & administrators to coordinate counseling
2) Funding for MHCs through county funds & grants
3) Robust data analysis to assess the effects of school MHCs on students' physical & mental health

The proposed mental health policy is the "Require All Schools to Staff Mental Health Counselors" policy. The policy willl ensure all public K-12 schools have a MHC, to enhance mental health services. There are 3 main components of this policy, which correlate with the policy's goals. The first and second components (*read on slide*). This will serve to meet the first goal of the policy, which is: Strengthen the school climate and built environment to establish enhanced student social skills and reduced burden on teachers.

The third component is (*read from slide*). This will serve to meet the second and 3rd goals of the policy, which is: To improve and diversify coping mechanisms during adolescence, leading to a decrease in substance use among teenagers, AND Improved youth (and later on adult) mental and physical health outcomes.

Slide 8: Budget for Mental Health Policy (I. Enogieru)

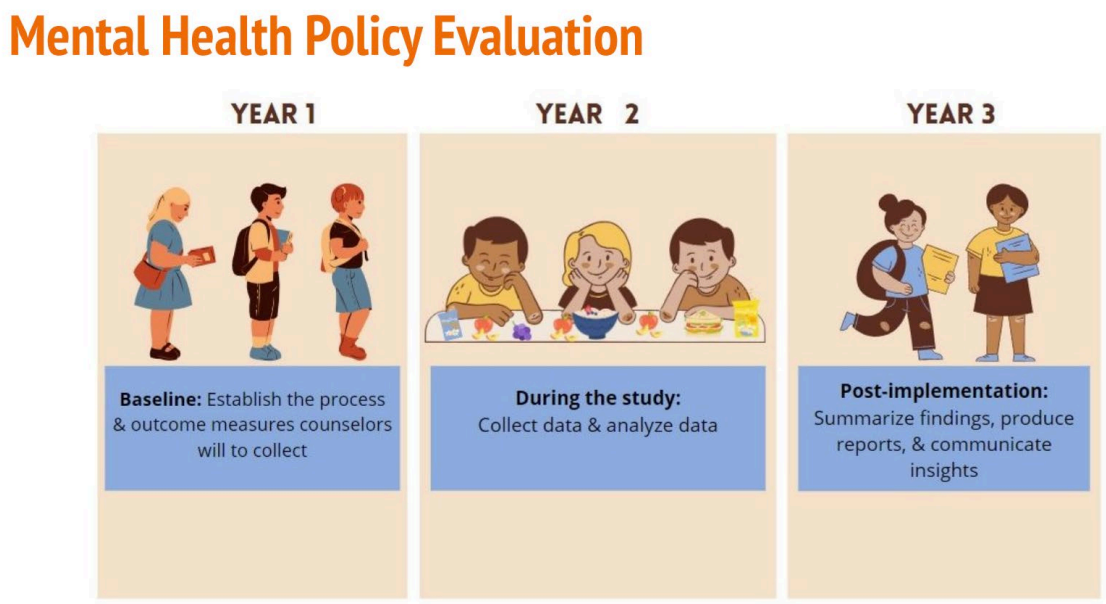
Budget for Mental Health Policy

	Year 1	Year 2	Year 3
Personnel	$1,880,000	$1,901,400	$1,938,528
Contracted Personnel	$2,000	$95,000	$200,000
Non-personnel	$242,150	$191,658	$199,591
Expected Revenue	$2,150,000	$2,200,000	$2,350,000

So the total expenses for this policy yield a little over $2 million a year, with the expected revenue to match. Expenses comprise: personnel: which asks to support Salaries for 30 MHCs & mental health coordinator, benefits, training and professional development; Contracted Personnel: for the purpose Evaluation & Data support, and communications support; Non-personnel: Office supplies, Computers, Admin, etc.; and Total Expenses: A little over $2 million each year.

Revenue sources: County education funds (provide the least), Project ACTIVATE Grants (state-based), Private Foundation Grants (providing the most $$$). The county is likely to supply the lowest amount, starting at $150,000 in year 1, $200,000 in year 2, and $350,000 in year.

Slide 9: Mental Health Policy Evaluation (I. Enogieru)



As for the evaluation,

Year 1: Contracted evaluators will establish the process and outcome measures counselors need to collect via their sessions

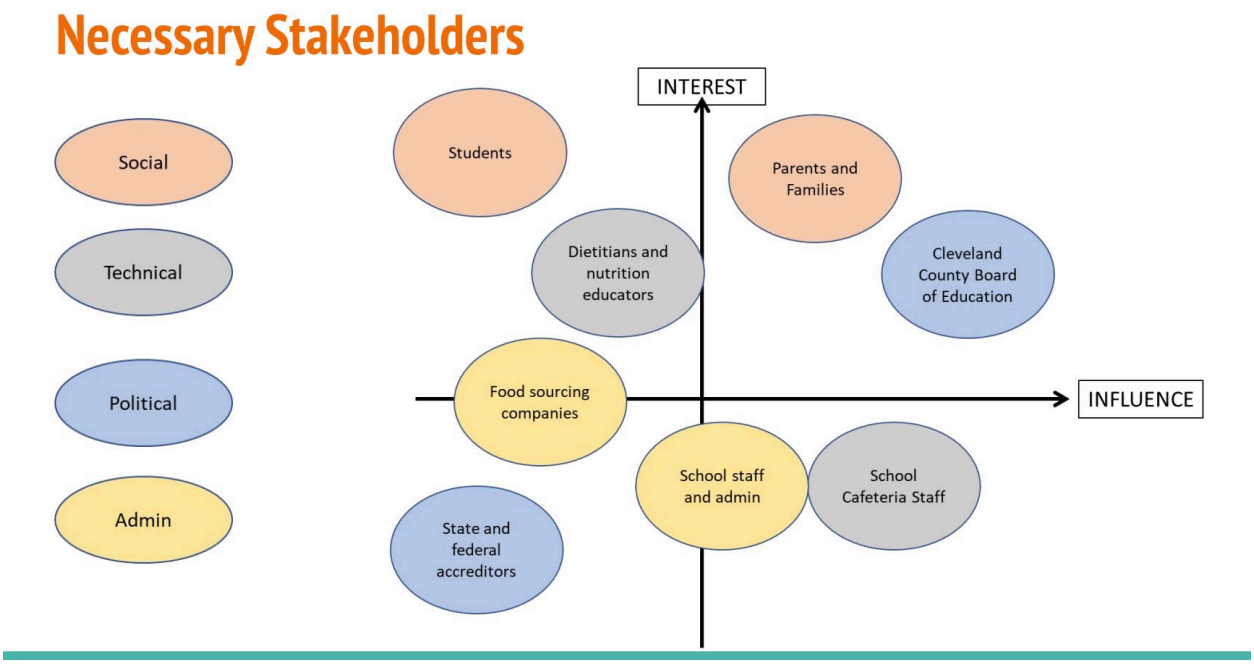
Process Measure: the number of students who show warning signs of life stressors and/or mental health issues as identified by teachers or health assessments and compare that with the number of students that utilize the mental health counselor.

Outcome Measure: the number of students using substances like tobacco, e-cigarettes, and vapes

Year 2: Evaluators will begin to collect data and analyze data

Year 3: Evaluators will summarize findings, produce reports and communicate insights with stakeholders

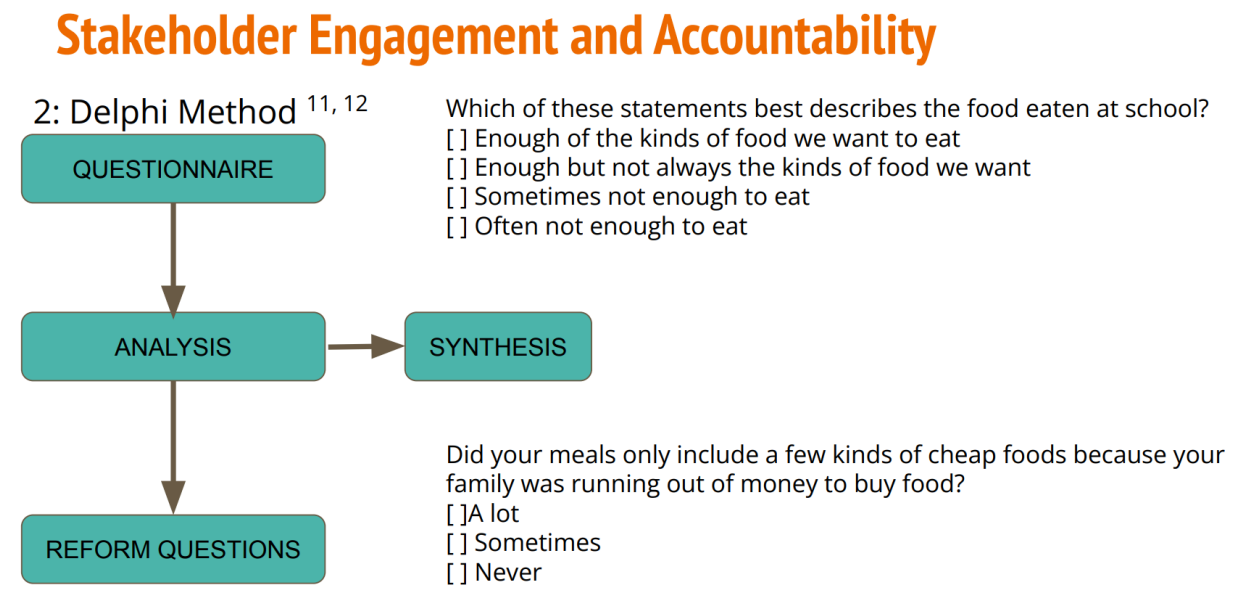
Slide 10: Necessary Stakeholders (W.H.D. Townley-Tilson)



We developed a stakeholder analysis matrix to determine the 8 key stakeholders, representing the 4 broad groups you see on the left, involved in CEP expansion. This matrix also ascertains stakeholder interest and influence in the project.

Families and the Board of education, with high influence and interest will need to be managed closely as they are tantamount to the success of the program; Those with less influence, but still highly affected in the top left quadrant will need to be informed regularly. School and cafeteria staff will need to be kept highly satisfied with the program to ensure their motivation and participation, while those with the least interest and influence will simply need brief monitoring updates.

Slide 11: Stakeholder Engagement and Accountability (W.H.D. Townley-Tilson)



Specific decision making within our CEP expansion program will utilize a mixed method evaluation known as the Delphi Model to both develop a consensus nutrition CEP expansion program, as well as define common areas of improvement w/ each stakeholder. Questions will be based on the USDA "Household Food Security Survey," and used to probe each key stakeholder to ensure validity and best practices of the program long term. Example "standard short form" questions, shown on the right, have a minimal respondent burden, while investigating systemic themes of school-age food security.

Slide 12: Stakeholder Engagement and Accountability (W.H.D. Townley-Tilson)

Stakeholder Engagement and Accountability

	Contributions	Benefits
Students	Active participation, qualitative and quantitative reports, adjustment to school-provided food	Greater access to nutritive food, less stigma due to economic status, improved health
CC Board of Edu	Funding and oversight of CEP expansion, political capital	Improved student satisfaction, better educational outcomes, positive press
Dietitians	Personnel time and educational review of menus	More nutritive food to students, greater dietary and health outcomes/impacts
Food sourcing companies	Food, administration, and logistics	Financial, positive press

Give-Get Grid[13]

To improve stakeholder participation and motivation w/in program, the give-get grid will be used to engage stakeholders during focus and discussion groups, as clearly defining the benefits and needs of each stakeholder will maximize stakeholder investment w.in the program.

For example, students in the program will be essential contributors of active, engaged participation, for their feedback and assessments, and ongoing consumption of school-prepared food. In return, they will ostensibly gain greater access to nutritional food, reduced food spending, have less stigma from the Free and Reduced Meal Program, and presumably improve their long-term health.

Slide 13: Conclusion (G. Statia)

Conclusion

Assess and address the **environmental barriers** that prevent achievement of optimal health

Without the **creation of health-promoting environments,** improving health outcomes will be inadequate and health disparities will persist

Image Source: https://www.impactrevolution.com/post/healthy-environment-healthy-people

To conclude, these policies acknowledge and are designed to address the impact of the surrounding environment on health outcomes. The practice of public health leaders has often focused on the individual's choices and behaviors in regard to their diet and health status, without regarding the impact of the surrounding environment on decision-making and subsequent health outcomes. Removing environmental barriers that prevent school-age children and adolescents from achieving optimal health will encourage healthy behaviors. Providing access to healthy meals and mental health resources are steps to promoting health and safety in Cleveland County schools, thus creating health-promoting environments, and we need your support to do so.

Slide 14: References (all group members)

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APPENDIX C: IDIA ENOGIERU'S INDIVIDUAL WORK

C1. Problem Statement

Social Determinant of Health

The Neighborhood and Built Environment is one of the five domains of the Social Determinants of Health (SDoH) and is defined as the conditions and physical place where people live, work and socialize (US Dept. of Health and Human Services, 2020a). These determinants have major effects on health behaviors, health outcomes, and the types of social and economic opportunities that exist in a given community. This is especially true for Cleveland County (CC), North Carolina as residents have indicated concerns with personal stress management and anger management (Cleveland County Health Department, 2019). Other parts of this determinant are less physical – the social practices and norms of the environment also impact health outcomes. In CC, Adverse Childhood Experiences (ACEs) was ranked as the #2 health indicator for county improvement in its community health assessment. These experiences range from physical violence and other forms of abuse to household dysfunction, and can lead to chronic disease, depression, and PTSD (Chang, 2019). Of the neighborhood and built environment determinants, the specific objective to address is increasing the proportion of schools with policies and practices that promote health and safety. Schools construct both the tangible and intangible parts of the environment. They provide the physical spaces for education, eating, and peer socialization, and subsequently the space to create and exchange norms and practices. Certain school practices and policies can have short-term impacts like decreased violence and substance use, and long-term impacts like increased prevalence of students pursuing higher education and decreases in substance-use related illness.

Geographic and Historical Context

Cleveland County provides a unique historical context to North Carolina. The area played a role in the Revolutionary War at the Battle of Kings Mountain. Today, CC is known as the home to the American Legion World Series, held annually. Cleveland County is considered a rural county, with Shelby (its largest city) having a population of 20,325. The area is now largely dominated by the industrial sector, with agriculture, manufacturing, and distribution serving as the major parts of the economy. However, the county is designated as a Tier 1 economically disadvantaged county, despite proximity to prosperous metro areas like Charlotte. There are 16 elementary schools, 2 intermediate schools, 4 middle schools, 4 high schools, with school-based health centers available at the middle and high schools. Many of the children are on free and reduced lunch. Various efforts have

been made to address neighborhood and built environment like, Medicaid-approved transportation and the Eat Smart Move More Coalition's website listing trails, parks, and playgrounds in the county with specific activities to promote physical activity.

Priority Population

The priority population to address this determinant in Cleveland County are high school aged children from low-income families. The #1 priority health indicator identified in CC was individuals living at or below 200% of the federal poverty level. When exploring how the neighborhood and built environment cause and reinforce poverty, it is important to highlight that the places and spaces that comprise the county are the tools that lead to intergenerational poverty. For example, the county's community health assessment reports the #3 health-issue priority is addressing limited access to healthy food. For those with economic constraints, fast food may be cheaper and more convenient for meals than fresh foods which take more time to prepare. This leads to families struggling to provide nutritious foods, leading to a variety of poor health and behavioral outcomes in children. Data also shows that people with low socioeconomic status (SES) smoke cigarettes more heavily and tobacco use is another concern in the county among school-aged children (Centers for Disease Control and Prevention, 2022). Data shows that substance use (tobacco, e-cigarettes, or vape products) is increasing among the student population (Cleveland County Health Department, 2019).

Measures of Problem Scope

According to the 2013-17 American Community Survey, approximately 46% of Cleveland County are at or below 200% of federal poverty level, which is above the NC state prevalence (36.8%) (Cleveland County Health Department, 2019). The intersection of poverty and other health factors also reveal that some youth experiencing poverty are struggling in the county. Of 12th grade students in the county, 17.4% use tobacco and 36.3% use e-cigarettes (Cleveland County Health Department, 2019). However, since 2015 the use of tobacco, alcohol, marijuana and prescription drugs, as reported by 12th grade students in Cleveland County, has decreased an average of 4.1% overall (Cleveland County Health Department, 2019). Furthermore, 57.57% of K-12 students participated in the [free and reduced lunch] program during the 2018-19 academic year, signifying possible struggles with food insecurity (Cleveland County Health Department, 2019).

Rationale

Based on the data reported in this statement, it is clear that the spaces and places that Cleveland County residents occupy, do not encourage healthy behaviors. The activities that residents and school-aged students practice, like substance use and the absence of physical activity, lead to poor health outcomes - demonstrating the need to invest in the neighborhood and built environment (Schulte & Hser, 2014). A focus on this determinant also allows for a scan of resources in the community for low-income students, individuals, and families. It gives an opportunity to focus in places where low-income students spend most of their time – schools. Improving resources in schools allows for impactful improvement in health outcomes, by encouraging practices and passing policies to improve student wellbeing. Schools also equitably target a greater number and diversity of students in CC.

Disciplinary Critique

Policy is a great tool to make impactful change on a large scale, such as on the county level. When policy addresses the built environment, improvements can be made in neighborhood safety, local zoning policies, and school systems. This can disrupt or create improved standards for the community, and subsequently impact many sectors of the community. However, it is crucial this is done in conjunction with community partners. Involving community leaders and service members in planning, implementation, and evaluation of policies allows representation in the process, a critical step in achieving equitable outcomes. Health policy practitioners should evaluate community health assessments, to ensure that policies are reflective of community desires for a sustainable change. They should also push for efforts in areas that have not had major support, such as policies addressing gentrification. Programs, funding, and regulations are all tools that can be optimized for better sustainability for communities.

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C2. Policy Analysis

Background

In Cleveland County (CC), two of the major issues identified in the 2019 Community Health Assessment as needing improvement are the percent of the population living at or below 200% of the federal poverty line, and the number of children with Adverse Childhood Experiences (ACEs), (#1 and #2 respectively). These health indicators are directly related to the neighborhood and built environment. On top of having ACEs, and living through the cycle of intergenerational poverty, just over one in three 12th grade students in CC are using e-cigarettes. Students are relying on suboptimal activities for coping mechanisms and are not receiving supporting services for life stressors. This policy analysis focuses on CC schools as an optimal place for interventions that will improve the physical and mental health of the county's students.

Description of Policy Options & Evaluation Criteria

The first policy option is to pass legislation requiring all schools in Cleveland County (CC) to staff a mental health counselor. This would be a follow-up to the initial results of Project ACTIVATE (Advancing Coordinated and Timely InterVentions, Awareness, Training, and Education), which is a project created by the North Carolina Department of Public Instruction and the North Carolina Department of Health and Human Services to reduce disciplinary events, dropout rates, suicide rates, and substance use. Project ACTIVATE provides a continuum of social, emotional, behavioral, and mental health services for students in each pilot site, one of which is CC. It builds on and improves existing services in schools through the Multi-Tiered Systems of Support framework. The aims of the policy are to solidify the changes made from the pilot by ensuring mental health counselors are part of the built environment for students.

The second policy option is the Safe and Supportive Schools Policy, adapted from a policy of the same name in San Francisco Unified School District. This policy implements Restorative Practices (RP) in all public schools and is tailored to meet more of CC student needs by tackling pressing issues like, declining mental health stemming from intergenerational poverty and ACEs, and substance use among high school students. In general, the policy will create a positive, relationship-based school community that equips teachers, staff, and students with the tools to address students' mental health needs. The policy aims to reshape how students deal with conflict and cope with hardships. The evaluation criteria used to analyze these policies and compare them are: costs to the county, impact on the overall problem, political feasibility, and equity.

Policy Analysis

Policy Option #1: Require All Schools to Staff Mental Health Counselors

Description and Impact:

Policy option 1 calls for the county commissioners to pass legislation requiring all schools in Cleveland County (CC) to staff a mental health counselor. This policy makes a move toward a sustainable mental health support system for students in CC, regardless of social and economic backgrounds. The policy ensures that all school-aged children have access to a mental health counselor, and that school instructors are working in conjunction with these counselors to coordinate counseling to students in need. CC served as a pilot site for the state-based Project ACTIVATE, an initiative to provide and improve existing mental health services in the school settings across NC. The initiative has three tiers of services ranging from mental health screening, to crisis counseling, and results of the 2018-2023 grant have led to mental health policies in areas such as crisis protocol and therapeutic support and intervention. However, proposed changes ought to include a sustainable molding of the landscape, which could be implemented with the staffing of mental health counselors.

Supporting Evidence:

According to the American School Counselor Association, counselors are in the best position to meet the developmental needs of all students (ASCA, 2020). They collaborate with other school instructors and community service providers to meet the needs of the whole child (*Impact of School Counseling - American School Counselor Association (ASCA)*, 2022). One study showed that of school-age children who receive any behavioral and/or mental health services, 70–80% receive them at school – another reason for improving the school landscape (Atkins et al., 2010).

The impact school counselors have on students are multi-faceted. A variety of study results illuminate that schools with fully implemented model guidance programs had students that earned higher grades, offered more career and college readiness information, and had a more positive climate – signifying improved student achievement (American Counseling Association, 2008). However, the impact on students' personal and social development are key for understanding the effectiveness of this policy in CC. The studied benefits of school counselors working with at-risk youth are numerous: children experiencing family problems report being helped by school counselors, counselors help integrate the students' family to the educational process, prevention of student suicide, and reducing student discipline problems (American Counseling Association, 2008). Furthermore, without

intentional, comprehensive intervention for students exhibiting early-warning signs, setbacks in academic, career and social/emotional development can result during later school years and adulthood (*Impact of School Counseling - American School Counselor Association (ASCA)*, 2022).

Evaluation:

Using the four evaluation criteria, policy option 1 will be assessed in Appendix C2.1. The left column indicates the evaluation criteria and the policy's score in each, on a scale from low to high or inconclusive.

Policy Option #2: Implement the Safe and Supportive Schools Program

Description and Impact:

Policy option 2, the Safe and Supportive Schools policy would implement Restorative Practices (RP), a philosophy and set of processes centered on building relationships to help prevent conflict and navigate conflict when it arises (Hulvershorn & Mulholland, 2018). This can look like teachers checking in with students in the morning on non-school related topics, or one-on-one talks when serious harm has occurred. RP has been implemented in schools in a variety of ways. Considering different schools will have different cultures, the construction of these practices will be made with the school board and instructors of each school. The effectiveness of RP approaches has been documented and is favored by the education and public health communities over traditional exclusionary school discipline (ESD) practices, like the zero-tolerance discipline.

Supporting Evidence:

The effectiveness of RP has been well-documented. A seven-year case study of whole school implementation of restorative practices, including curriculum and student-led practices in high school, produced these primary findings: improved school climate, increased school connectedness, and increased youth efficacy (González et al., 2019). However, less evidence about the costs of implementation is available. One study in Alameda County, CA highlighted that the costs per individual in a RP program was cheaper ($10,000) than the costs of probation/individual ($52,000) and yearly incarceration/individual ($430,000) (*Restorative Justice Diversion: A Model for the Future — Community Works,* 2020).

Evaluation:

Using the four evaluation criteria, policy option 2 will be assessed in Appendix C2.2. The left column indicates the evaluation criteria and the policy's score in each, on a scale from low to high or inconclusive.

Final Recommendation

Based on the evaluation criteria, the final recommendation is policy option 1. Both policies score well in the impact and equity criterion, but differently in political feasibility and affordability. Political feasibility is higher due to the COVID-19 pandemic. With increased mental health stressors due to shifting school protocols, and in-person and virtual environments, the public along with policymakers are receptive to change that improves student mental health. However, when considering the stakeholders in the issues these policies seek to address, policy option 1 better suits a range of teachers. Most teachers will likely support it because the responsibility for students is being shared with mental health counselors, whereas policy option 2 increases the burden of students' emotional well-being onto teachers. Additionally, despite a plethora of evidence showing the effectiveness of RP in schools, the evidence to produce an approximate cost to implement it was sparse. The policymaking stakeholders are likely more amenable to implementing a policy that has a tangible budget. The summary of this recommendation is highlighted in Appendix C2.3.

Finally, the policy's process evaluation will determine how well the program was implemented. Since the policy aims to reach students with ACEs and poor coping mechanisms, evaluation will determine how much of this population was served by the policy. This process measure will identify the number of students who show warning signs of life stressors and/or mental health issues as identified by teachers or health assessments and compare that with the number of students that utilize the mental health counselor. One outcome measure that will assess whether the policy addresses these intended issues is the number of students using substances like tobacco, e-cigarettes, and vapes. This will give an idea of the types of coping strategies students practice because of the policy.

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C2.1 Policy #1 Evaluation

Table 1. Policy #1 Evaluation

Affordability (medium)	Costs to the county would be approximately $45,000 per licensed school counselor, per year. With 30 schools in the CC district, and the state suggested mental health counselor-student ratio of 1:250, this suggests a range of $1.35-2.52 million dollars needed to fund the salaries of at least one mental health counselor in each school. Possible funding sources to implement the policy other than county funds are the 2021-2026 Project ACTIVATE grant that NC has already received, and additional grants earmarked to improve mental health services in rural areas.
Impact (high)	With just over 14,000 PK-12th grade students enrolled in the 2020-2021 school year, the potential impact is county-wide and far-reaching. The policy also impacts teachers since this will likely decrease the burden on teachers handling non-school related counseling and support. This will also increase job opportunities in the county.
Political Feasibility (medium)	Supporters: Teachers, Students, Parents/Family, Mental Health Association of Cleveland County, Project ACTIVATE Coordinators Opponents: Fiscally conservative County Commissioners, Project ACTIVATE Coordinators The general public, encompassing students and their families, would be the biggest stakeholders in the passing of policy #1. As a rural community, there may be more value placed on the needs and positions of residents than in an urban community, which gives their support more political weight. This is especially true since the policy is addressing two of the county's biggest health issues. Project ACTIVATE Coordinators could support the policy since it furthers their goals of improving mental health services in schools. However, due to the nature of the funding, some coordinators may want to appropriate funds for other communities since CC has already benefited from them. Even further, county commissioners who are averse to reorganizing budgets to create sizable funds may present a sizable pushback on such legislations.
Equity (high)	Counselors are used as resources in areas with diverse students undergoing a variety of life stressors. Counseling is often needed more for students who experience financial and familial hardships at home, which is a large portion of the residents of CC. Additionally, students of color benefit from having more access to school counselors. In one study, Black students were more likely than their White counterparts to identify their school counselor as the most influential person regarding their thoughts on a postsecondary education (The Education Trust et al., 2019).

C2.2 Policy #2 Evaluation

Table 2. Policy #2 Evaluation

Affordability (inconclusive)	The significant costs of this policy to the county lies in the training. CC has 30 PK-12, public schools serving approximately 14,000 students. Most evidence is based on costs for implementing restorative justice, which are RP programs tailored toward youth-at risk for incarceration. However, Peaceful Schools NC is a local organization that provides RP training to schools and parents, and charges $200-350 dollars/hour of training. This means there is a wide-range of potential costs, and this may impact the effectiveness of the policy.
Impact (high)	This policy would positively impact these students, along with the instructors from the high schools, and the families of these students as well.
Political Feasibility (low)	Supporters: Teachers, Students, Parents/Family, Mental Health Association of Cleveland County Opponents: Teachers, School Administrators, County Board of Education, Fiscally conservative County Commissioners Students and their families will likely support such a policy as it will lead to better emotional regulation, less ESD practices, and more opportunity for connection. There are teachers that will likely support the Safe and Supportive Schools policy, as it will improve the environment for students to feel connected to their teachers and peers, along with improved efficiency. However, other teachers may oppose due to the burden of more training and responsibility, on top of instruction duties. Administrators may oppose due to financials and difficulties finding funds in the county budget to implement.
Equity (high)	RP has been implemented in a variety of places to specifically target students experiencing disproportionate discipline at schools, largely minority youth. RP addresses the different needs of students and the complexities of familial and societal dynamics (Hulvershorn & Mulholland, 2018). Considering CC has a large population of people living at and below 200% of the federal poverty line, the implementation of this policy will be tailored to understand this hardship on students' development.

C2.3. Policy Analysis Summary

Table 3. Policy Analysis Summary

	Affordability	**Impact**	**Political Feasibility**	**Equity**
Policy Option #1	Medium	High	Medium	High
Policy Option #2	Inconclusive	High	Low	High
Comparison	Policy #1	Equal	Policy #1	Equal

C3. Policy Budget

Policy Summary

The Require All Schools to Staff Mental Health Counselors (MHCs) policy moves toward a sustainable mental health support system for students in Cleveland County (CC), regardless of social and economic backgrounds. Its aims are to solidify the results of Project ACTIVATE's pilot program in CC by improving the built environment for students. To address two of the major issues in CC, the percent of the population living at or below 200% of the federal poverty line, and the number of children with Adverse Childhood Experiences (ACEs), the policy comprises three main parts: 1) work plan that ensures MHCs are working in conjunction with instructors, parents, and administrators to coordinate counseling to students in need (showing signs of life stressors, problems with peers, academic setbacks, etc.), 2) funding for MHCs through county funds and grants, and 3) robust data analysis to assess the effects of school MHCs on students' physical and mental health. The policy's components also correlate with its goals. The goals are: 1) to improve and diversify coping mechanisms during adolescence, leading to a decrease in substance use among teenagers, 2) improved youth (and later on adult) mental and physical health outcomes, and 3) strengthen the school climate and built environment to establish enhanced student social skills and reduced burden on teachers.

Budget Narrative

Personnel: The year 1 personnel total comprises the salaries for 30 counselors, one each for the 30 schools in the district. The average salary for a mental health counselor in Cleveland County (CC) is $45,000 and fringe benefits account for 30% of their salary. Another salary is allocated for the mental health coordinator who will work in the county's district office to manage grants for the MHC program, coordinate MHC across all schools to ensure cohesion of implementation. Training and personal development costs are $60,000 and will be for initial onboarding and training, equaling $2,000 per counselor in the first year. The coordinator will coordinate training with school staff, and other outsourced trainers chosen by the coordinator to ensure the counselors can implement counseling programs and adapt to the school environment. Year 2 and 3 training costs decrease to $45,000 to account for the absence of onboarding and to support professional development education and networking.

Contracted Personnel: The mental health coordinator will hire evaluators to collect, process, analyze, and present data from the policy's implementation. Year 1 costs for evaluation include a limited role for evaluators to establish the process and outcome measures that counselors will collect. $1,000 is allocated each for two evaluators

to have one to three meetings with counselors. The allocation for year 2 and 3 increases for the evaluators, to account for an increase in data each year that needs to be analyzed. Furthermore, this accounts for any data collection, management, and analytic support like survey development costs and software. The last contract is communications support, where one person will share learnings and insights with county stakeholders. No funding is needed in the first year, and the support has a limited role in year 2. Year 3 sees an increase to account for the increase in the amount of data to report on.

Non-personnel: Supplies account for $15,000 in year 1 with an annual 5% increase, equaling $500 per counselor. This is for printing, desks, pens, paper, ink, candy and other supplies. Allocations for furniture account for $30,000 in year 1 and $6,000 in years 2 and 3, yielding a $1,000 and $200 stipend per counselor, respectively. This is to create an uplifting space, like comfortable seating and affirming artwork. $60,000 is allocated for technology per year – $2,000 per counselor. The allocation pays for new multi-user software across the county that has secure data management. New software handles appointment scheduling, data tracking for simpler evaluation, and security for confidential notes about students. $36,000 is assigned for computers – $1,200 per computer per counselor. Year 2 and 3 has $6,000 or $200 per counselor for any computer repairs. Lastly, administrative costs account for 5% of total programmatic costs, which is personnel, contracted personnel, and non-personnel. Funding covers human resources for hiring, the occupancy space at each school and the district office, and ensuring compliance among personnel. $101,150 accounts for administrative costs in year 1, $103,908 in year 2, and $111,053 in year 3 for the scope of the entire county.

Revenue: The revenue sources are county funds, Project ACTIVATE funds, and foundation grants. The county is likely to supply the lowest amount, starting at $150,000 in year 1, $200,000 in year 2, and $350,000 in year 3. The coordinator will apply for $500,000 from Project ACTIVATE, and $750,000 each from prominent foundations. These foundations, the Chan-Zuckerberg Foundation and the Gates Foundation, support mental health efforts in education.

Figure 2. Policy Budget

	Year One	Year Two	Year Three
Personnel			
Salaries (Mental Health Counselors)	$ 1,350,000	$ 1,377,000	$ 1,404,540
Salary (Mental Health Coordinator)	$ 50,000	$ 51,000	$ 52,020
Fringe Benefits	$ 420,000	$ 428,400	$ 436,968
Training & Professional Development	$ 60,000	$ 45,000	$ 45,000
Total Personnel	**$ 1,880,000**	**$ 1,901,400**	**$ 1,938,528**
Contracted Personnel			
Evaluation & Data Support	$ 2,000	$ 75,000	$ 150,000
Communications Support	$ -	$ 20,000	$ 50,000
Total Contracted Personnel	**$ 2,000**	**$ 95,000**	**$ 200,000**
Non-Personnel			
Office Furniture	$ 30,000	$ 6,000	$ 6,000
Office Supplies	$ 15,000	$ 15,750	$ 16,538
Technology/Software	$ 60,000	$ 60,000	$ 60,000
Computers	$ 36,000	$ 6,000	$ 6,000
Administrative Cost	$ 101,150	$ 103,908	$ 111,053
Total Non-Personnel	**$ 242,150**	**$ 191,658**	**$ 199,591**
Total Expenses (Annual)	**$ 2,124,150**	**$ 2,188,058**	**$ 2,338,119**
Total Expenses (3 Year)	**$ 6,650,326**		
Revenue			
Cleveland County Education Funds	$ 150,000	$ 200,000	$ 350,000
Project ACTIVATE Grant	$ 500,000	$ 500,000	$ 500,000
Chan-Zuckerberg Foundation Grant	$ 750,000	$ 750,000	$ 750,000
Gates Foundation Grant	$ 750,000	$ 750,000	$ 750,000
Total Revenue (Annual)	**$ 2,150,000**	**$ 2,200,000**	**$ 2,350,000**
Total Revenue (3 Year)	**$ 6,700,000**		

C4. Individual Slides and Script

Slide 7: Mental Health Policy: Require All Schools to Staff Mental Health Counselors (I. Enogieru)

Mental Health Policy: Require All Schools to Staff Mental Health Counselors

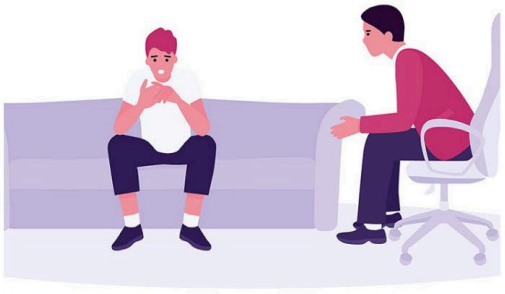


Image address: https://nami.org/Blogs/NAMI-Blog/July-2021/How-School-Based-Mental-Health-Providers-Can-Help-Hispanic-Latinx-Students

Policy components:

1) Plan that ensures MHCs are working in conjunction with instructors, parents, & administrators to coordinate counseling
2) Funding for MHCs through county funds & grants
3) Robust data analysis to assess the effects of school MHCs on students' physical & mental health

The proposed mental health policy is the "Require All Schools to Staff Mental Health Counselors" policy. The policy will ensure all public K-12 schools have a MHC, to enhance mental health services. There are 3 main components of this policy, which correlate with the policy's goals. The first and second will serve to meet the first goal of the policy, which is: Strengthen the school climate and built environment to establish enhanced student social skills and reduced burden on teachers. The third component will serve to meet the second and 3rd goals of the policy, which is: To improve and diversify coping mechanisms during adolescence, leading to a decrease in substance use among teenagers, and improved youth (and later on adult) mental and physical health outcomes.

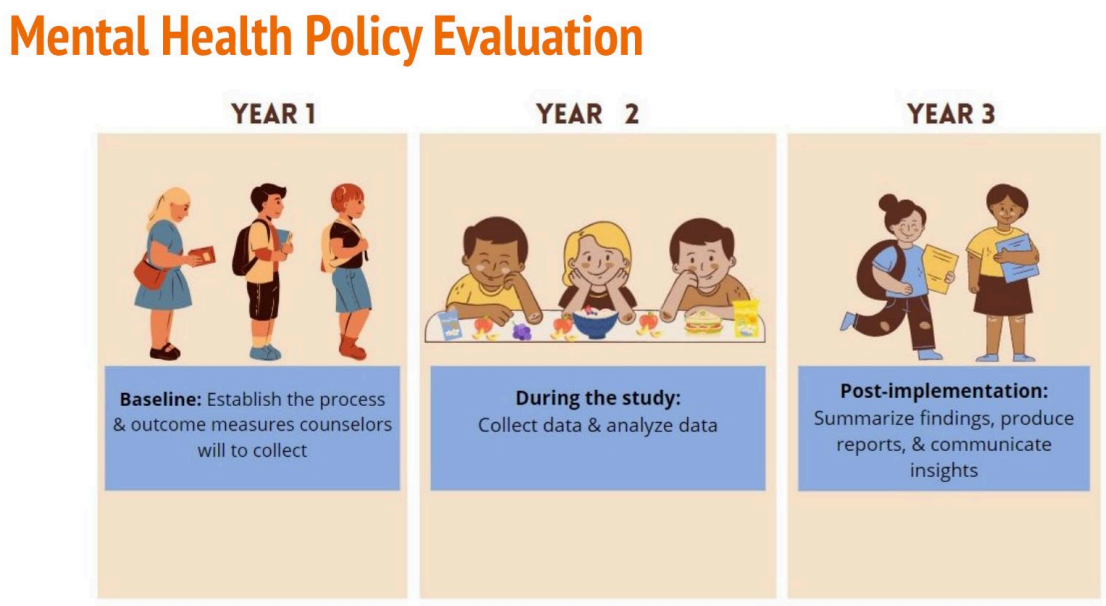
Slide 8: Budget for Mental Health Policy (I. Enogieru)

Budget for Mental Health Policy

	Year 1	Year 2	Year 3
Personnel	$1,880,000	$1,901,400	$1,938,528
Contracted Personnel	$2,000	$95,000	$200,000
Non-personnel	$242,150	$191,658	$199,591
Expected Revenue	$2,150,000	$2,200,000	$2,350,000

The total expenses for this policy yield a little over $2 million a year, with the expected revenue to match. Expenses comprise: personnel: which asks to support Salaries for 30 MHCs & mental health coordinator, benefits, training and professional development; Contracted Personnel: for the purpose Evaluation & Data support, and communications support; Non-personnel: Office supplies, Computers, Admin, etc.; and Total Expenses: A little over $2 million each year. Revenue sources: County education funds (provide the least funds), Project ACTIVATE Grants (state-based), Private Foundation Grants (providing the most funds). The county is likely to supply the lowest amount, starting at $150,000 in year 1, $200,000 in year 2, and $350,000 in year.

Slide 9: Mental Health Policy Evaluation (I. Enogieru)



As for the evaluation, Year 1: Contracted evaluators will establish the process and outcome measures counselors need to collect via their sessions. Process Measure: the number of students who show warning signs of life stressors and/or mental health issues as identified by teachers or health assessments, and compare that with the number of students that utilize the mental health counselor. Outcome Measure: the number of students using substances like tobacco, e-cigarettes, and vapes. Year 2: Evaluators will begin to collect data and analyze data. Year 3: Evaluators will summarize findings, produce reports and communicate insights with stakeholders.

APPENDIX D: HANNAH M MALIAN'S INDIVIDUAL WORK

D1. Problem Statement

Social Determinant of Health:

Social Determinants of Health (SDoH) are defined as the environmental factors in a person's daily life that influence their overall well-being (*Healthy People 2030,* 2020). Some examples of these factors include healthcare access, economic stability, social settings, neighborhood crime, and school access. In particular, *Healthy People 2030* defines a person's "neighborhood and built environment" as a domain that greatly impacts health. Many health-promoting habits like consistent access to fresh foods, regular exercise, and a safe place for kids to play rely on the built environment. Unfortunately, individuals living in high poverty areas are less likely to have a neighborhood and built environment that promotes health, and are more likely to suffer from inadequate nutrition, adverse childhood experiences (ACEs), high rates of crime, and lack of community resources (*Healthy People 2030*, 2020). Short-term impacts of these exposures include poor performance in school and inaccessibility to health-promoting foods. In the long term, this leads to increased risk for chronic disease, developmental delays and learning disabilities, and an overall poor quality of life (CDC, 2021; Jyoti et al., 2005). As such, to promote health in Cleveland County, increasing the proportion of schools with policies and practices that promote health and safety should be at the top of county commissioners' objectives (*Healthy People 2030,* 2020).

Geographic and Historical Context:

Cleveland County, formed in 1841, is in the Piedmont region and home to about 99,500 North Carolinians. Their economy was largely based on the agricultural industry until the 1960s, then in combination with the dairy industry until 1980s. Presently, their economy is mostly comprised of manufacturing and distribution jobs (Cleveland County Health Department, 2019). The median income in Cleveland County is $42,247 and the per capita income for the county is $22,589. To note, the median income for Cleveland County is lower than the North Carolina average of $54,602 (U.S. Census, 2020). Indeed, like many rural communities, the COVID-19 pandemic hit Cleveland County hard. Approximately 15% of the population is in poverty and 13.6% of the population lacks health insurance. The percent of the population impacted by unemployment as of May 2020 was 12.7% (U.S. Census, 2020). Demographically speaking, Cleveland County's population is 70% White, 20% Black/African American, 4% Latinx/ Hispanic, 1% Asian and 4% other (U.S. Census, 2020).

Priority Population:

In 2019, residents of Cleveland County participated in the Community Health Assessment (CHA). Key statistics indicated that children comprised 19.3% of the county's population (approximately 19,000 individuals), and among these children, 28% of them were in poverty (Cleveland County Health Department, 2019). Indeed, the CHA indicated that in the 2018-19 school year, approximately 58% of students participated in free and reduced lunch programs. Additionally, ACEs were identified by community members as a top priority among health issues relating to SDoH (Cleveland County Health Department, 2019). Children in poverty who are exposed to environmental stressors like food insecurity or are impacted by ACEs are at an increased risk of developing chronic diseases and having poor health outcomes (CDC, 2021; Jyoti et al., 2005). As such, within Cleveland County, school-aged children are greatly impacted by their neighborhood and built environment and should be considered a priority population while addressing this public health issue.

Measures of Problem Scope:

In 2019, CHA participants took part in ranking 2030 Health Indicators, which are prioritized issues addressed by the state to improve health of North Carolinians. Among Cleveland County, weighted rankings revealed their #1 indicator was individuals living at or below the 200% federal poverty level, their #2 indicator was adverse childhood experiences (ACEs), and #7 indicator was limited access to healthy foods (Cleveland County Health Department, 2019). Additionally, 20% of respondents indicated they received some form of "public help," which the report detailed as the receipt of: Medicaid or food stamps (Cleveland County Health Department, 2019). Indeed, the rate of food insecurity in Cleveland County is estimated to be 16.2% (approximately 15,270 people impacted by food insecurity), which is higher than the North Carolina state average of 13.5% (*Map the Meal Gap*, 2018). Even more so, NC Child estimates 22.8% of children in Cleveland County are impacted by food insecurity (*2021 County Data Cards*). Food insecurity refers to the interrupted or inconsistent access to food, ultimately resulting in disrupted eating patterns and low quality of life (*USDA ERS - Definitions of Food Security*). In adults, it is often linked to chronic diseases like diabetes, hypertension, and obesity (Seligman et al., 2010). Chronic food insecurity is also a risk factor for disordered eating patterns (Hazzard et al., 2020) and worsened mental health outcomes like anxiety and depression (Seligman et al., 2010). Indeed, chronic exposure to food insecurity may lead to negative health outcomes, and strong efforts should be made to improve food accessibility among children in Cleveland County to promote strong quality of life in their adult years.

Rationale:

Focusing on the neighborhood and built environment is essential to improve the overall health of Cleveland County for future generations. Rural populations are more likely to suffer from poverty and food insecurity, and statistics show residents of Cleveland County are on average more food-insecure than the rest of the state (*Map the Meal Gap*, 2018). The CHA asked participants how many days a week they ate the recommended five servings of fruits or vegetables and only 11.7% of respondents indicated that they were able to do so every day of the week (Cleveland County Health Department, 2019). Since children's eating habits often reflect those of their parents or guardians, it may be reasonable to assume that the children in the other ~89% may not be meeting their daily requirements. Focusing efforts on a vulnerable population like children is a key step to ensuring the next generation is better equipped to live a healthier lifestyle. Moreover, school nutrition interventions have shown to be rather successful (Perez-Rodrigo & Aranceta, 2001).

Disciplinary Critique:

Public health students, researchers and leaders should feel a call to action to address the neighborhood and built environment of children in Cleveland County. Public health professionals are equipped with the tools and research skills needed to address issues like this. Public health nutritionists/ dietitians should feel inclined to share resources like nutrition education (both adult and kid-friendly), motivational interview techniques, and recipe ideas. Indeed, where a person lives should not indicate if they are able to access fresh, healthy food items, and most importantly, people in poverty deserve access to the same foods as those not in poverty. With focused efforts, sufficient funding, and community based and led research, overall health in Cleveland County has the potential to be greatly improved.

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D2. Implementation Plan

Background Information:

Social Determinants of Health (SDoH) are environmental factors in a person's daily life that influence their overall well-being, such as healthcare access, neighborhood crime, and school access. In particular, *Healthy People 2030* defines a person's "neighborhood and built environment" as a domain that impacts health. Many health-promoting habits like consistent access to fresh foods, regular exercise, and a safe place for kids to play rely on the built environment (*Healthy People 2030,* 2020). Unfortunately, individuals living in high poverty areas are less likely to have a neighborhood and built environment that promotes health, and are more likely to suffer from inadequate nutrition, adverse childhood experiences (ACEs), and lack of community resources. Notably, 20% of Cleveland County Community Health Assessment 2019 respondents indicated they received some form of "public help," i.e. Medicaid or food stamps (Cleveland County Health Department, 2019). Moreover, the 2020 Census results indicated 55.3% of Cleveland County residents who were below the federal poverty level received governmental food assistance, and that 55% of households with children under 18 years old received food stamps or SNAP benefits (*U.S. Census Bureau QuickFacts*, 2020). The rate of food insecurity in Cleveland County is estimated to be 16.2% (*Map the Meal Gap*, 2018), and estimates indicate that 22.8% of children in Cleveland County are impacted by food insecurity (*2021 County Data Cards*). Children exposed to food insecurity are at an increased risk for learning disabilities, developmental delays, and chronic diseases later in life (CDC, 2021; Jyoti et al., 2005). To promote health in Cleveland County, increasing the proportion of schools with policies and practices that promote health and safety should be at the top of county commissioners' objectives (*Healthy People 2030, n.d.*). One intervention that would increase the amount of schools with policies that improve health is to expand the Community Eligibility Provision (CEP) of the National School Lunch Program (NSLP). This policy solution is aimed at decreasing food insecurity by providing free breakfast and lunch at no charge to students who attend high-poverty schools.

Purpose:

Food insecurity is defined by the interrupted or inconsistent access to food, ultimately resulting in disrupted eating patterns and low quality of life (*USDA ERS - Definitions of Food Security,* 2021). Being in a constant state of food insecurity increases risk for chronic diseases like diabetes, hypertension, and obesity (Seligman et al., 2010). Food insecurity has also been linked to an increased risk in disordered eating patterns (Hazzard et al., 2020) and

worsened mental health outcomes like anxiety and depression (Seligman et al., 2010). Research indicates hungry children do worse in school due to a lack of ability to concentrate and lack of preparation, and thus have lower academic achievement from kindergarten through the end of high school (Cook & Jeng, 2009). When children are consistently food insecure, their educational accomplishments and intellectual development are hindered and they are more likely to have a low income later in life, thus contributing to this never ending cycle of being in poverty and remaining in poverty (Siddiqui et al., 2020). Importantly, Rogus, Guthrie & Ralston indicated that out of all meals, skipping breakfast was significantly more common among food insecure and marginally food secure children (2018). Therefore, if more schools can participate in CEP, then accessibility to free breakfasts and lunches will increase, thus improving food security among school-age children.

Evidence Based Outcomes:

Short term impacts of this proposed intervention include: By March 1, 2023, the proportion of K-12 students in Cleveland County's school district enrolled in a school participating in CEP who are eligible to receive free school meals in NSLP, will increase from 67.0% to 100% (Cleveland County Health Department, 2019; Potamites & Gordon, 2010). Additionally, By March 1, 2023, the proportion of K-12 students in Cleveland County's school district that are able to participate in breakfast meal times at free or reduced price will increase from 57.57% to 100% (Cleveland County Health Department, 2019; Potamites & Gordon, 2010). Long term impacts include: Increased proportion of children who are food insecure and marginally food insecure who receive free school meals (Fuller, Rana, and Prothero, 2021; Potamites & Gordon, 2010). Additionally, Increased academic performance scores, increased proportion of students with expected academic growth and on-time grade promotion, and decreased number of disciplinary referrals (Fuller, Rana, and Prothero, 2021; Hecht, Pollack Porter & Turner, 2020).

Strategies and Activities:

Currently, 45% (15/29) schools in Cleveland County already participate in CEP (*NSLP and CEP Eligibility by NC School*, 2021); however, there are still many marginally food-secure and food-insecure children that are left out of the program (based on where they live) that may strongly benefit from participating. Thus, this intervention seeks to expand accessibility to CEP of the NSLP to more students in Cleveland County. If efforts are successful and all schools in the county participate in CEP, the expected reach of children able to receive free meals would

increase from 57.57% to 100% (Cleveland County Health Department, 2019). The levels of the socioecological model this policy may impact includes individual, community, and societal.

The CEP provides schools in high-poverty areas with free and reduced-price meals and allows all students enrolled in a participating school to receive free meals. CEP enrollment is dependent on the school having a 40% identified student percentage (ISP), which refers to the proportion of students who are certified to receive free meals due to either participation in governmental assistance programs, are enrolled in a federally-funded programs, is a foster child, migrant, or others. Meals provided to students at no-charge must first be paid for by schools and are then reimbursed by the government. Schools enrolled in CEP indicate good success, with fighting childhood hunger and eliminating stigma around free meals as some key positive changes (*Community Eligibility Provision: Planning and Implementation Guide*, 2016).

Previous research has shown that, among children experiencing food-insecurity who were eligible for the NSLP, those who participated had improved rates of food security versus those who did not participate. Importantly, participating students also experienced a protective effect in summer months – as their extent of food insufficiency remained constant throughout the summer, compared to nonparticipators who experienced a worsening of their food insufficiency (Huang et al., 2015). Therefore, if non-participating schools in Cleveland County can adopt CEP, food security among their students may be improved. Importantly, the quality of food that is provided to students and families highly influences if they consume it or not. Kinderknecht et al. evaluated how the Healthy, Hunger Free Kids Act of 2010 may have improved nutritional quality of meals served in the NSLP. Authors surveyed over 2,000 students participating in the NSLP, and found that among low, middle, and high-income students, all found the post-policy changes to have improved dietary quality (Kinderknecht et al., 2020). A systematic review assessed intervention, longitudinal, and observational studies that examined the impact of the Healthy, Hunger Free Kids Act of 2010 on the NSLP, and they too found improved dietary patterns. Most notably, the selection and intake of healthier food items by students increased (Mansfield, 2017).

Indeed, COVID-19 and the school closures were impactful due to schools having to create new solutions for their meal service provisions. Researchers have examined these nation-wide changes and highlighted the more impactful strategies, including where meals are offered, how they are offered, and to whom they are offered. Most notably were efforts made in Maryland, where the school system adopted more distribution sites and school bus delivery systems, meal preparation resources and recipes, and delivery to folks living in rural areas. This increased

accessibility allowed Maryland to expand the number of meals served from 313,224 to over 900,000 from March 16th to May 1, 2020 (Kinsey et al., 2020). These results support the need to improve food accessibility to positively benefit more individuals.

Stakeholders:

Stakeholders to be considered include students, due to their direct exposure and participation in the program, as well as, parents/ legal guardians/ family members, as these individuals will influence students to participate. Additionally, school cafeteria staff are key stakeholders as they assist with the preparation and distribution of food, as well as, food sourcing companies since they are responsible for providing food, and paper supplies companies for the packaging of food items. School staff and administrators will also assist with program implementation. Finally, county commissioners may be considered stakeholders as they will help improve awareness of CEP to non-participating schools.

Budget:

Among schools participating in CEP, most free meals provided to students will be reimbursed by the USDA. Meals provided to students at no-charge must first be paid for by schools and are then reimbursed by the government. The percent of meals reimbursed to schools is calculated by their ISP multiplied by 1.6. Funds not covered by the USDA may need to be covered via grant funding or funding from external sources.

Conclusion:

With the expansion or implementation of any policy, there are always trade-offs. One barrier to participating in CEP is that the school is responsible for paying the program upfront. Indeed, the school will be reimbursed by the government after free meal usage, but it is possible that some schools do not have funding for initial payment, and this may be why they are not participating. Even more so, some schools may simply be unaware they are eligible and thus it would be advantageous for county commissioners to improve awareness to the CEP to increase participation. Advantages to increasing participation in the CEP come down to the large benefit it has on the next generation of children in Cleveland County. Improving children's food accessibility will increase their mental health, physical health, and school performance, setting them up to have stable incomes and be positive community members. Overall, county commissioners should feel inclined to lean in to their focus areas and strategic goals for fiscal year 21/22, and improve community wellness by promoting healthy eating (*FY 21/22 Focus Areas and Strategic Goals*) through increased participation in CEP.

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D3. Evaluation Plan

Intervention Summary:

There is a strong need to address the health and well-being among school-aged children in Cleveland County. Indeed, within the social determinant of health (SDoH) realm of "Neighborhood and Built Environment," a key objective is to increase the number of schools with policies and practices that promote healthy habits (*Healthy People 2030*, 2020). The environmental stressor of lack of access to fresh foods may decrease children's performance in schools as previous research has shown that children who are food insecure have decreased academic performance (Jyoti et al., 2005). Therefore, increasing food accessibility at schools may not only improve health, but also could improve school performance (Cohen et al., 2021). The rate of food insecurity in Cleveland County is estimated to be 16.2% (~15,270 people impacted), which is higher than the North Carolina average of 13.5% (*Hunger & Poverty in the United States | Map the Meal Gap*, 2018). Given these data, this intervention seeks to improve food accessibility to students by expanding enrollment in the community eligibility provision (CEP) in the National School Lunch Program (NSLP) to all schools in Cleveland County. Indeed, while all schools in the county participate in NSLP, they are not all enrolled in CEP. The CEP provides schools in high-poverty areas with free and reduced-price meals and allows all students enrolled in a participating school to receive free meals. CEP enrollment is dependent on the school having a 40% identified student percentage (ISP), which refers to the proportion of students who are certified to receive free meals due to either participation in governmental assistance programs, are enrolled in a federally-funded programs, is a foster child, migrant, or others. Meals provided to students at no-charge must first be paid for by schools and are then reimbursed by the government. Schools enrolled in CEP indicate good success, with fighting childhood hunger and eliminating stigma around free meals as some key positive changes (*Community Eligibility Provision: Planning and Implementation Guide*, 2016). CEP enrollment occurs annually with school eligibility reassessed every four years. The evidence-based short-term outcomes to be measured include: By March 1, 2023, the proportion of K-12 students in Cleveland County's school district enrolled in a school participating in CEP who are eligible to receive free school meals in NSLP, will increase from 67.0% to 100% (Cleveland County Health Department, 2019; Potamites & Gordon, 2010). By March 1, 2023, the proportion of K-12 students in Cleveland County's school district that can participate in breakfast mealtimes at free or reduced-price will increase from 57.57% to 100% (Cleveland County Health Department, 2019; Potamites & Gordon, 2010).

Long term impacts to be measured after four years are: Increased proportion of children who are food insecure and marginally food insecure who receive free school meals (Fuller et al., 2021; Potamites & Gordon, 2010).

Increased academic performance scores, increased proportion of students with expected academic growth and on-time grade promotion, and decreased number of disciplinary referrals (Fuller et al., 2021). This evaluation plan will specifically focus on the short-term impact regarding an increased participation in breakfast mealtimes at free or reduced-price. Indeed, breakfast participation is important, as Rogus, Gurthrie and Ralston indicated that skipping breakfast is more common among food-insecure and marginally food secure children (2018).

Evaluation Plan:

Study design/data collection: The study design used will be a prospective observational cohort study design where subjects will serve as their own control (pre- and post- enrollment in CEP). Parents or guardians will be mailed and/or emailed a food security screen adapted from the USDA's U.S. Household Food Security Survey Module for adults (Appendix 1) prior to receiving an invitation for focus group participation. Focus groups will be implemented to parents or guardians who completed the food security screen. The purpose of focus groups is to obtain qualitative feedback regarding CEP; the focus groups will be adapted from the USDA Community Food Security Assessment Toolkit Focus Group Guides (Appendix 2) (Cohen et al., 2002). Guardians will be included in focus groups to observe potential benefits to children noticed at home, which may include positive changes in energy levels, improved interactions with family members, and changes in academic performance. Surveys will be administered to students to examine quantitative variables such as: purchase habits, stigma, well-being, and food insecurity. Surveys will be administered to students during the school day using a school-administered computer.

Sample and sampling strategy: All parents and guardians will be invited to participate in focus groups if they have a student enrolled in eligible schools. The sampling strategy to ensure accurate representation relies on the parent or guardian first completing the food security screen previously mentioned (Appendix 1), either in an in-person, mailed, or emailed format. Once completed, the percentages will be calculated of those who are food-secure, marginally-food secure, food-insecure, and very food-insecure. Focus group enrollment will be based on these percentages to ensure accurate representation. All students will be invited to participate in surveys from all eligible schools. The sampling strategy to ensure accurate representation among school-aged children will be based on socioeconomic status statistics within Cleveland County. Survey completion among students will aim to match the socioeconomic status of the county based on administrative data from schools.

Specific measures: Specific outputs to be measured include the number of new schools participating and the number of breakfast meals served due to CEP participation. A Likert scale will be used to measure desire/not wanting to eat breakfast at school and the enjoyment/unenjoyment of foods served. Disparities to be measured include socioeconomic status by student, zip code, and food insecurity measurement using the Validated Two Question Hunger Vital Signs Survey (Appendix 3) (Hager et al., 2010). Measurement of stigma of eating free breakfasts will be gathered using the Adapted NYC School Environment Survey (Appendix 4) (Gutierrez, 2021). Constructs measured include academic scores, discipline records, and an overall well-being questionnaire adapted from the Validated Children's Hope Scale (Appendix 5) (Snyder et al., 1997). All variables will be measured at baseline, during participation, and after participation.

Analysis plan: Means and standard deviations will be calculated for quantitative variables. Linear regressions will be used to analyze relationships between variables. For quantitative data like food insecurity, prevalence will be measured. Data will be stratified for time students have been participating in CEP to reduce participation bias. Qualitative data collected will be transcribed, coded, and thematically analyzed to compare participant responses.

Timing: CEP enrollment occurs annually from April 1- June 30, and thus the proposed research timeline was created with pre-participation in CEP measurements occurring both after enrollment and prior to participation. In line with assessing the long-term impacts, the proposed intervention will end after 4 years. The proposed timeline for focus groups is as follows: baseline focus groups will be implemented 8 weeks prior to participation in CEP to observe baseline habits of children, including observed energy levels, interactions with family members, and academic performance habits. Next, they will be administered in a biannual timeline (after fall and after spring semester) for the first year, then once a year for the remaining study period. The same variables will be assessed at all timepoints. Surveys will also be administered pre, during and post-intervention. Baseline surveys will be completed spring semester before enrollment. After enrolled, students will be surveyed bi-annually for the first year (fall and spring), then annually (each spring) for remaining years participating. To gather post-intervention surveys, graduated students/ students who left the school for other reasons will be invited to complete surveys in a remote format in the summer months following their departure. Progress is important for program success and will be defined by an increase in the percent of participating schools and an increase in the number of students consuming free breakfasts. If previously mentioned measurements of progress do not occur, then the appropriate follow-up

actions will be necessary. Other factors or potential barriers impeding students from consuming free breakfasts or schools from participating in CEP will be examined. Potential follow-up actions lie in the fact that CEP can facilitate the adoption of alternative breakfast models if program success does not occur, including serving breakfasts in classroom and serving breakfasts on the bus (*Community Eligibility Provision: Planning and Implementation Guide*, 2016).

Sources of funding: The funder for the CEP in NSLP is the USDA reimbursement program. Schools are required to count total meals served daily and submit claims of reimbursement based on their ISP and total meals served (*Community Eligibility Provision: Planning and Implementation Guide*, 2016). If needed, the program may be sustained if the portion not reimbursed finds a funding source (for example, budget allotment from county government/board of education, or grant funding).

Data use and dissemination: Data will be deidentified prior to being downloaded for analyses and only IRB personnel will have access to data. Additionally, data will be presented to public in a reader-friendly manner, like previously seen in the 2019 Cleveland County Community Health Assessment (Cleveland County Health Department, 2019), so the community is aware of potential benefits.

Strengths and challenges: Overall, this intervention seeks to increase the proportion of food-insecure and marginally food-secure children who receive free meals at school, and to observe improved academic scores and performance. Specifically, the desired impact is that improved participation in breakfast program will improve performance in school and overall well-being. This evaluation plan also identifies potential challenges in the intervention, including the fact schools may be unable to provide funding to cover meals prior to reimbursement, and that it may be difficult to reduce stigma and encourage participation by students. Moreover, there may be additional barriers preventing school breakfast meal participation among students that was not accounted for in program implementation, but may come to light during data collection.

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APPENDIX

APPENDIX 1: USDA'S U.S. HOUSEHOLD FOOD SECURITY SURVEY MODULE FOR ADULTS

U.S. ADULT FOOD SECURITY SURVEY MODULE:
THREE-STAGE DESIGN, WITH SCREENERS
Economic Research Service, USDA
September 2012

Revision Notes: The food security questions in the U.S. Adult Food Security Survey Module are essentially unchanged from those in the original module first implemented in 1995.
September 2012:

- Corrected skip specifications in AD5
- Added coding specifications for "How many days" for 30-day version of AD1a and AD5a.

July 2008:

· Wording of resource constraint in AD2 was corrected to, "…because there wasn't enough money for food" to be consistent with the intention of the September 2006 revision.

September 2006:

· Minor changes were introduced to standardize wording of the resource constraint in most questions to read, "…because there wasn't enough money for food."

· Question numbers were changed to be consistent with those in the revised Household Food Security Survey Module.

· User notes following the questionnaire were revised to be consistent with current practice and with new labels for ranges of food security and food insecurity introduced by USDA in 2006.

Overview: The U.S. Adult Food Security Survey Module is the same set of questions that is administered as the U.S. Household Food Security Survey Module to households with no child present. For many measurement purposes, the adult module can be used both for households with and without children present.

The U.S. Adult Food Security Survey Module is the same set of questions that is administered as the U.S. Household Food Security Survey Module to households with no child present. For many measurement purposes, the adult module can be used both for households with and without children present.

· Advantages (compared with the 18-item household module):

o Less respondent burden.

o Improves comparability of food security statistics between households with and without children and among households with children in different age ranges.

o Avoids asking questions about children's food security, which can be sensitive in some survey contexts.

· Limitations:

o Does not provide specific information on food security of children.

Transition Into Module (administered to all households):
These next questions are about the food eaten in your household in the last 12 months, since (current month) of last year and whether you were able to afford the food you need.

Optional USDA Food Sufficiency Question/Screener: Question HH1 (This question is optional. It is not used to calculate the Adult Food Security Scale. It may be used in conjunction with income as a preliminary screener to reduce respondent burden for high income households).

HH1. [IF ONE PERSON IN HOUSEHOLD, USE "I" IN PARENTHETICALS, OTHERWISE, USE "WE."]

Which of these statements best describes the food eaten in your household in the last 12 months: —enough of the kinds of food (I/we) want to eat; —enough, but not always the kinds of food (I/we) want; —sometimes not enough to eat; or, —often not enough to eat?

[1] Enough of the kinds of food we want to eat
[2] Enough but not always the kinds of food we want
[3] Sometimes not enough to eat
[4] Often not enough to eat
[ ] DK or Refused

Household Stage 1: Questions HH2-HH4 (asked of all households; begin scale items).

[IF SINGLE ADULT IN HOUSEHOLD, USE "I," "MY," AND "YOU" IN PARENTHETICALS; OTHERWISE, USE "WE," "OUR," AND "YOUR HOUSEHOLD."]

HH2. Now I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months—that is, since last (name of current month).

The first statement is "(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more." Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

HH3. "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

HH4. "(I/we) couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

Screener for Stage 2 Adult-Referenced Questions: If affirmative response (i.e., "often true" or "sometimes true") to one or more of Questions HH2-HH4, OR, response [3] or [4] to question HH1 (if administered), then continue to *Adult Stage 2;* otherwise skip to *End of Adult Food Security Module.*

NOTE: In a sample similar to that of the general U.S. population, about 20 percent of households (45 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 2.

Adult Stage 2: Questions AD1-AD4 (asked of households passing the screener for Stage 2 adult-referenced questions).

AD1. In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

[ ] Yes
[ ] No (Skip AD1a)
[ ] DK (Skip AD1a)

AD1a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] DK

AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

AD3. In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

AD4. In the last 12 months, did you lose weight because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

Screener for Stage 3 Adult-Referenced Questions: If affirmative response to one or more of questions AD1 through AD4, then continue to *Adult Stage 3;* otherwise, skip to *End of Adult Food Security Module.*

NOTE: In a sample similar to that of the general U.S. population, about 8 percent of households (20 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 3.

Adult Stage 3: Questions AD5-AD5a (asked of households passing screener for Stage 3 adult-referenced questions).

AD5. In the last 12 months, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?

[ ] Yes
[ ] No (Skip AD5a)
[ ] DK (Skip AD5a)

AD5a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] DK

END OF ADULT FOOD SECURITY MODULE
User Notes

(1) Coding Responses and Assessing Household Adult Food Security Status:
Following is a brief overview of how to code responses and assess household food security status based on the Adult Food Security Scale. For detailed information on these procedures, refer to the *Guide to Measuring Household Food Security, Revised 2000,* available through the ERS Food Security in the United States Briefing Room.

Responses of "yes," "often," "sometimes," "almost every month," and "some months but not every month" are coded as affirmative. The sum of affirmative responses to the 10 questions in the Adult Food Security Scale is the household's raw score on the scale.

Food security status is assigned as follows:

- Raw score zero—High food security among adults
- Raw score 1-2—Marginal food security among adults
- Raw score 3-5—Low food security among adults
- Raw score 6-10—Very low food security among adults

For some reporting purposes, the food security status of the first two categories in combination is described as food secure and the latter two as food insecure.

(2) Response Options: For interviewer-administered surveys, DK ("don't know") and "Refused" are blind responses—that is, they are not presented as response options but marked if volunteered. For self-administered surveys, "don't know" is presented as a response option.

(3) Screening: The two levels of screening for adult-referenced questions are provided for surveys in which it is considered important to reduce respondent burden. In pilot surveys intended to validate the module in a new cultural, linguistic, or survey context, screening should be avoided if possible and all questions should be administered to all respondents.

To further reduce burden for higher income respondents, a preliminary screener may be constructed using question HH1 along with a household income measure. Households with income above twice the poverty threshold AND who respond <1> to question HH1 may be skipped to the end of the module and classified as food secure. Using this preliminary screener reduces total burden in a survey with many higher income households, and the cost, in terms of accuracy in identifying food-insecure households, is not great. However, research has shown that a small proportion of the higher income households screened out by this procedure will register food insecurity if administered the full module. If question HH1 is not needed for research purposes, a preferred strategy is to omit HH1 and administer Adult Stage 1 of the module to all households.

4) 30-Day Reference Period: The questionnaire items may be modified to a 30-day reference period by changing the "last 12-month" references to "last 30 days." In this case, items AD1a and AD5a must be changed to read as follows:

AD1a/AD5a. [IF YES ABOVE, ASK] In the last 30 days, how many days did this happen?

_____ days

[ ] DK

Responses of 3 days or more are coded as "affirmative" responses.

APPENDIX 2: FOCUS GROUP GUIDE AND MATERIALS

B.2-1 Discussion Guide for a Key Informant Focus Group

Introduction

Thank you for your willingness to take part in this group discussion. The purpose of the discussion is to explore each of your perceptions regarding the presence of food security in this community.

I'd like to begin by defining food security. The handouts I've given you define both household food security and community food security. Although they are integrally connected, they are also quite separate situations. For example, a household may be food insecure—household members may not be able to afford to purchase food from normal retail food outlets and they may have had to take several different actions to stretch their food or may have gone without food on numerous occasions. However, in the community, food may be affordable, available, and accessible through normal markets. That is, community food security may not be a problem, but some households in the community may be food insecure.

Let's try to discuss these two issues separately. First, let's talk about household food security:

1. Do you think that many households in the community have a problem with food security? What is the extent of the problem?
2. Why do you think that household food security is a problem? (That is, how do you see the problem manifest itself?)
3. How do people cope with the problem of food insecurity?
4. What are the contributing factors?
5. Now, let's talk about the community:
6. Do you think that food is accessible, available, and affordable in the community? (Probe to explain how it is or is not.)
7. Are there differences in different parts of the community?
8. What do you think are the biggest problems related to food security at the community level? Why do you think these exist?
9. How does the community address food insecurity? What resources are in place to avoid the problem if it doesn't exist?
10. What else could be done to improve the community's problems with food insecurity?
11. Who are the key players?
12. Are alternative food sources easily accessible and used in the community? What are they? Who organizes them?
13. Finally, I would like to focus on local food-related policies:
14. Are there any local ordinances or other policies that affect food production, distribution, and consumption? (e.g., zoning rules that affect supermarket development, food purchasing regulations for local schools or institutions, policies on the use of city-owned land for community gardens)

15. Are there any transportation policies that affect food access?

16. Are there any farmland preservation efforts?

17. Are there local funding sources for community food security-related activities?

18. Is there an integration of food-related issues into the community planning process?

APPENDIX 3: VALIDATED TWO QUESTION HUNGER VITAL SIGNS SURVEY

The Hunger Vital Sign™ identifies households as being at risk for food insecurity if they answer that either or both of the following two statements is 'often true' or 'sometimes true' (vs. 'never true'):

" Within the past 12 months we worried whether our food would run out before we got money to buy more."

- o Often True
- o Sometimes True
- o Never True
- o DK/ Refused

" Within the past 12 months the food we bought just didn't last and we didn't have money to get more."

- o Often True
- o Sometimes True
- o Never True
- o DK/ Refused

APPENDIX 4: NYC SCHOOL ENVIRONMENT SURVEY

Table 1: Measures of Bullying, Fighting, Respect, and Safety

Category	New York City School Survey Question	Variable Name	=1 If Respond
Bullying	"At this school, students harass or bully other students."	Bullying	None or some of the time
Fighting	"At this school, students get into physical fights."	Fighting	
Respect	"Most students at this school treat each other with respect."	Respect	Agree or strongly agree
Safety	"I feel safe in my classes at this school."	Safe: Class	
	"I feel safe in the hallways, bathrooms, locker rooms, and cafeteria of this school."	Safe: Inside	
	"I feel safe outside around this school."	Safe: Outside	

APPENDIX 5: VALIDATED CHILDREN'S HOPE SCALE

The Children's Hope Scale

Directions: For each sentence, please think about how you are in most situations. Place a check inside the circle that describes *you* the best. For example, place a check (✓) in the circle (O) above the phrase that best describes you. There are no right or wrong answers.

1. I think I am doing pretty well.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

2. I can think of many ways to get the things in life that are most important to me.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

3. I am doing just as well as other kids my age.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

4. When I have a problem, I can come up with lots of ways to solve it.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

5. I think the things I have done in the past will help me in the future.

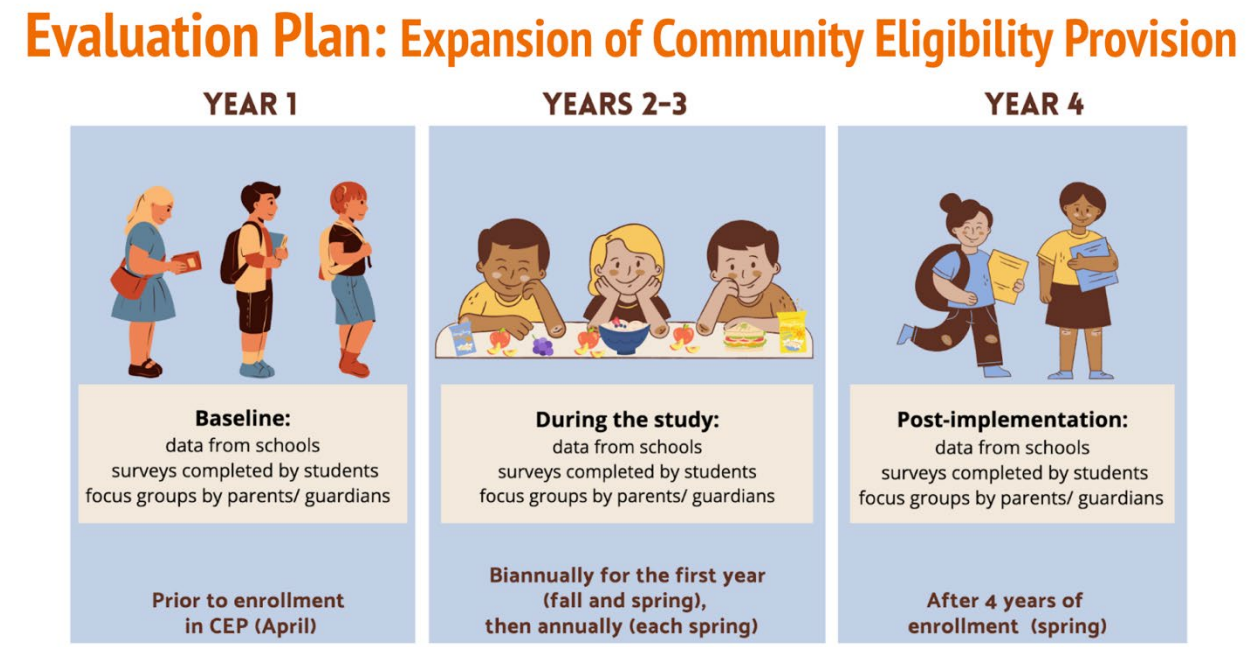
O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

6. Even when others want to quit, I know that I can find ways to solve the problem.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

D4. Individual Slides and Script

Slide 6: Evaluation Plan: Expansion of Community Eligibility Provision



The use an evaluation plan is needed to examine the impact of CEP and this slide serves as a visual representation of broadly what the evaluation of expanding CEP will look like. The evaluation of the program will be carried out in a prospective manner. This means that each student enrolled who participates will have their survey responses examined over time to see the effect of their school participating in CEP. The same measurements will be repeated over the four years to examine changes in variables, for example: school performance, food insecurity, feelings well-being, etc. Baseline measurements simply means that students and parents will participate in the surveys and focus groups respectively prior to the students schools' participating in CEP. Because these measurements will be obtained when the students have yet to receive benefits of CEP, we will then be able to use during-the-study and post-implementation measurements to examine changes as these two timepoints will be during and after students receive benefits. Overall, the way the study is set up is so we can examine what occurs before free and reduced price meals are available to every student and after that availability increases.

APPENDIX E: GABRIELLA STATIA'S INDIVIDUAL WORK

E1. Problem Statement

Social Determinant of Health

Social Determinants of Health (SDoH) are "the conditions in the environments where people are born, live, learn, work, play, worship, and age" that influence health risks and outcomes and quality of life (Healthy People 2030d). One of the five SDoH domains, Neighborhood and Built Environment, describes the aspects of a person's living and working environment that contribute to health. It is defined by infrastructure, such as homes, schools, sidewalks, and stores, as well as air, water, and food quality (CDC, 2021b). Key aspects include: Environmental Conditions, Housing and Infrastructure Quality, and Crime and Violence. Polluted air, contaminated water, extreme heat, limited access to quality food, and lack of safe, well-maintained physical infrastructure and transportation define environmental hazards (Healthy People 2030b). Housing and infrastructure quality is described by air quality, home and school safety, space per individual, and presence of harmful contaminants. These detrimental conditions can result in poisoning hazards, injury, chronic disease, cognitive and developmental issues in children and infants, and increased risk of food insecurity and infectious diseases (Healthy People 2030e; Healthy North Carolina 2030). Crime and violence can lead to premature death, physical pain and suffering, and mental distress (Healthy People 2030a).

The environmental stressors listed can result in Adverse Childhood Experiences (ACEs), which are traumatic or stressful life events experienced before age 18. These include sexual, physical and emotional abuse, and various forms of household dysfunction and increase the risk of injury, sexually transmitted infections, teen pregnancy and pregnancy complications, involvement in sex trafficking, and a wide range of chronic diseases and mental conditions (Austin & Herrick, 2014). Long term, ACEs can affect quality of life, educational and career prospects, and economic stability (CDC, 2021a). Many aspects and stressors in the county have contributed to ACEs being ranked 2nd as a priority health issue in the 2019 CC Community Health Assessment (CHA) (CCHD, 2019). CC is ranked among the least healthy counties in North Carolina and is ranked in the lowest quartile for health outcomes (County Health and Rankings and Roadmaps, 2021). Within this SDoH domain, to address ACEs, the objective is to increase the proportion of schools with policies and practices that promote health and safety, given that it is where school-age children and adolescents spend much of their time (Healthy People 2030c).

Geographic and Historical Context

Cleveland County (CC), NC is a rural county located in the Western region of North Carolina and is designated as a Tier 1 economically disadvantaged county. The population is about 98,000, with about 72% identifying as White/Caucasian and 21% identifying as Black/African American (County Health Rankings and Roadmaps, 2021). The median household income is $40,002, about $10,000 less than the state median. The poverty rate for CC is 19.9%, compared to 16.1% for the state (CCHD, 2019). Economically, higher paying jobs are concentrated in the more populous areas of Shelby and Kings Mountain. Many jobs in the county are offered at a minimum wage level, primarily in industries such as home health, child care and hospitality, and do not offer any health benefits or penalize workers who must leave work to address individual or familial needs (CCHD, 2019). The housing cost burden, defined as at least 30% of household income going towards housing costs, is experienced by 22.7% of households. The violent crime rate is 106.7 per 100,000 population, which is significant given the small population size (NCIOM, 2021). Lastly, despite efforts to improve CC's food environment, improved access to grocery stores has focused on populous areas, with rural parts often being served by corner and dollar stores. Although the Food Environment Index ranking improved slightly to 6.9 in 2019, 16.7% residents have low access to a grocery store and 16.2% are food insecure (CCHD, 2019; NCIOM, 2021).

Priority Population

In 2019, school-age children and adolescents (5-17 years) made up 19.3% of the county's population, amounting to about 18,700. Poverty affects minors disproportionately within CC, and the rate is even greater for families with single-female-headed households with children under age 18 (see Appendix 1). Additionally, there are a number of minors that experience housing instability, as the CC school system estimates that more than 1,200 homeless students each school year qualify for services under the McKinney Act. Most students enrolled in CC schools are eligible for free or reduced lunch, highlighting food instability and insecurity among the population (CCHD, 2019). It is reported that 29% residents are physically inactive, compared to 23% in the state, and only 55% have access to exercise opportunities, compared to 74% in the state (County Health Rankings and Roadmaps, 2021). These environmental aspects highlight their susceptibility to negative environmental stressors and the likelihood of experiencing ACEs (CDC, 2021a).

Measures of Problem Scope

In addition to recognizing ACEs as a problem among the priority population, high rates of teen pregnancies and substance use likely stem from negative environmental aspects (Austin & Herrick, 2014; CDC, 2021a). Teen pregnancies among females 15-19 years of age has been identified as a health issue since 2007 (CCHD, 2019). Despite the overall rate decreasing since its identification, the county rate remains higher than the state's. Disparities by race are steadily decreasing, but the rate among Black teens remains greater than that of the county and White teens, and has been steadily increasing since 2015 (see Appendix 1). Additionally, despite 30-day usage rates of various substances have steadily reduced among 12th graders since 2015, e-cigarette use has increased by almost three times within 2 years. The use of these substance also generally correlates with annual crime rates, especially property crimes (CCHD, 2019).

Rationale/Importance

Conditions such as poverty, housing instability, food insecurity, and crime and violence, increase the likelihood of experiencing ACEs and impact quality of life (Austin & Harrick, 2014; CDC, 2021a). High rates of teen births and substance use among teens reflect reactions to stress and instability. Additionally, limited access to healthy foods and opportunities for recreation indicate a lack of resources in their physical environment. Health problems associated with ACEs compound with age, so intervening while young can prevent the manifestations of chronic physical and mental health conditions in adulthood and premature death.

Disciplinary Critique

The practice of public health leaders, particularly dietitians and other nutritional professionals, has often focused on the individual's choices and behaviors in regard to their diet and health status, without regarding the impact of their surrounding environment on their decision-making and subsequent health outcomes. To blame an individual for their poor diet and health, rather than their resource-poor, unstable environment, disregards the influence that the surrounding environment has on one's health. In order to effectively address health disparities and provide culturally, context-specific services, it is important for dietitians, other nutritional professionals, and public health leaders to assess and address the environmental barriers that prevent populations from achieving optimal health and advocate for the creation of health-promoting environments to achieve health equity. Without these considerations, work to improve health outcomes will be inadequate and health disparities will persist and likely worsen.

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APPENDIX

APPENDIX 1: KEY STATISTICS OF CLEVELAND COUNTY, NC

Table 4: Key Statistics of Cleveland County, NC related to Neighborhood and Built Environment SDoH Domain

	Cleveland County	***North Carolina***
Statistics of Overall County		
Poverty rate (2017)	19.9%	16.1%
Children under 18	27.5%	22.9%
Children under 18 in single-female-headed households	45.9%	31.7%
Proportion of residents that are food insecure	16.2%	14.0%
Proportion of residents with low access to a grocery store	16.7%	-
Proportion of residents that have access to exercise opportunities	55%	74%
Proportion of residents that are physical inactive	29%	23%
Statistics of School-Age Children and Adolescents		
Proportion of K-12 students eligible for free or reduced price lunch	67.0%	56.0%
Proportion of K-12 students who participated in free and reduced school lunch program during 2018-19 academic year	57.57%	-
Teen birth rate, 15-19 years old (per 1000 female residents) (2018)	34.5	24.6
White/Caucasian	38.7	16.1
Black/African American	48.1	33.7
30-day substance use among 12th graders (2019)		-
Tobacco	17.4%	
Alcohol	23.0%	
Marijuana	18.9%	
Prescription drugs	4.0%	
E-cigarettes	35.3%	

Sources: Cleveland County Health Department, 2019; National Center for Education Statistics, 2020; County Health and Rankings and Roadmaps, 2021

E2. Implementation Plan

Background Information

Appropriately addressing the health of school-age children and adolescents within Cleveland County, NC requires promoting a healthy physical environment for children to learn, play, and grow. Within the social determinant of health (SDoH) domain, Neighborhood and Built Environment, the objective is to increase the proportion of schools with policies and practices that promote health and safety, given that it is where school-age children and adolescents spend much of their time (Healthy People 2030c).

Many aspects and stressors in the county's physical environment have contributed to adverse childhood experiences (ACEs) being ranked 2nd as a priority health issue in the most recent Community Health Assessment (CHA) (CCHD, 2019). Many environmental aspects highlight their susceptibility to negative environmental stressors and the likelihood of experiencing ACEs (CDC, 2021a). ACEs have long-term negative health impacts that can follow children into adulthood, but can also increase the risk of participating in risky behaviors, as shown by high teen pregnancy and substance use rates among adolescents in the county (Austin & Herrick, 2014; CDC, 2021a; CCHD, 2019).

Poverty increases the risk of experiencing adversities and increases the likelihood of unfavorable health outcomes in adulthood (Hughes & Tucker, 2018). Poverty affects minors disproportionately in Cleveland, and the poverty rate is even greater for families with single-female-headed households with children under age 18 (CCHD, 2019). There is a large proportion of county residents who experience financial instability, as shown by the county's high poverty rate, low median household income, and high percentage of residents who experience a housing cost burden (CCHD, 2019; County Health Rankings and Roadmaps, 2021).

Families with limited financial funds are likely to have limited access to food, which can be a source of instability and stress. These issues increase the likelihood of experiencing ACEs and compound any chronic physical or mental conditions that result due to ACEs (Austin & Harrick, 2014; CDC, 2021a). It is reported that 16.7% residents have low access to a grocery store, 16.2% are food insecure, and also, 67.0% Kindergarten to 12th grade (K-12) students enrolled in Cleveland County schools are eligible for free or reduced priced lunch, highlighting the level of food insecurity in the county (CCHD, 2019; NCIOM, 2021).

Purpose

Food insecurity is "a household-level economic and social condition of limited or uncertain access to adequate food" (USDA, 2021). Poverty is the major proximal cause of food insecurity, as having access to nutritious

food requires that it is physically present in the local environment and that households have sufficient financial resources to purchase it. The following negative nutritional and non-nutritional outcomes have been associated with food insecurity in adolescents and children: poor dietary intake, nutritional status, and health, increased risk for the development of chronic diseases, poor psychological and cognitive functioning, and substandard academic achievement (Holben & ADA, 2010). In the short term, hungry children have a greater odds of hospitalization, and the average pediatric hospitalization costs about $12,000. In the long term, while the total costs of medical care directly related to food insecurity are unknown, chronic undernutrition contributes to high healthcare costs (Cook, Jeng, & Feeding America, 2009). When food insecurity affects both parent and child, parental physical and mental health problems impair parent-child interaction, reduce quantity and quality of stimulation available in the home environment, and interfere with the child's potential capital. When these issues interfere with a child's cognitive development, learning, or academic achievement, they can impact educational attainment and earning capacity, which later reduces that person's lifetime earnings and economic contribution to social and economic systems (Cook, Jeng, & Feeding America, 2009).

Evidence-Based Outcomes

Short-term outcomes of this proposed program include: (1) By March 1, 2023, the proportion of Cleveland County K-12 students enrolled in schools that participate in NSLP who are eligible to receive free school meals will increase from 67.0% to 100% (Cleveland County Public Health Center, 2020; Potamites et al., 2010); and (2) By March 1, 2023, the proportion of Cleveland County K-12 students enrolled in schools that participate in NSLP that are able to participate in breakfast meal times at free (or reduced price) will increase from 57.57% to 100% (Cleveland County Public Health Center, 2020; Potamites et al., 2010). Longer term impacts include the following: (1) By March 1, 2027, increase the proportion of children who are food insecure and marginally food insecure who receive free school meals (Fuller et al., 2021; Potamites et al., 2010); and (2) By March, 1, 2027, increase in academic performance scores, increased proportion of students with expected academic growth and on-time grade promotion, and decreased number of disciplinary referrals (Fuller et al., 2021; Potamites et al., 2010).

Strategies and Activities

The proposed intervention is the expansion of enrollment in the Community Eligibility Provision (CEP) within the National School Lunch Program (NSLP) to all schools in Cleveland County who participate in NSLP.

This policy aims to reach all K-12 students enrolled in schools that participate in NSLP and addresses the following levels of the socio-ecological model, Public policy/Societal and Organizational/Community.

This provision under NSLP allows high-poverty schools to provide USDA school meals at no charge to all of their students. Individual schools, a group of schools, or an entire school district are considered "high poverty" if the Identified Student Percentage (ISP), which represents percent student household participation in the Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), or other approved means-tested programs, is at least 40%. In this program, USDA reimbursement for meals is simplified by multiplying the ISP by a factor of 1.6 to determine percent meal reimbursement (USDA, 2016). Currently, 13 of 29 Cleveland County schools enrolled in NSLP participate in CEP, but the proposed intervention plan is to be adopted by all 29 schools (NCHHS, 2021).

Given that most K-12 students enrolled in Cleveland County schools qualify for free and reduced-price lunch in the NSLP, yet many of them are not enrolled, this intervention would remove the barrier for enrollment for students' families, providing free school meals to all students, regardless of individual eligibility. The whole school district is considered eligible for the program, given that 55% of households with children under 18 years participate in SNAP, a percentage that is well above the ISP requirement (US Census Bureau, 2019; Rogus, Guthrie & Ralston, 2018). Previous estimates suggest that as many as 15% of marginally food-secure students and 10% of food-insecure students do not qualify for free or reduced-price meals in the NSLP on the basis of household income, and thereby, may rely on full-priced school meals for nutritious, low-cost meals (Potamites & Gordon, 2010). With widespread unemployment resulting from COVID-19, it is likely that many more children qualify for free and reduced-price school meals now than before the start of the pandemic (Kinsey et al., 2020). Children from food-insecure and marginally food secure households receive a larger proportion of their food and nutrient intakes at school than do children from highly secure households, which is partially explained by the higher participation rates in school meal programs (Rogus, Guthrie & Ralston, 2018). However, children from marginally food secure households consumed fewer calories, thus nutrients, overall than both food-insecure and food-secure children, highlighting a gap in need in those who marginally do not qualify for free and reduced-price meals. Additionally, skipping breakfast was significantly more common among the food-insecure and marginally secure children (Rogus, Guthrie & Ralston, 2018).

There is strong evidence that CEP and other universal free meal (UFM) programs improve meal participation rates and has promising evidence for positive weight outcomes, improved food security, reduced disciplinary referrals, and improved academic performance scores, expected academic growth and on-time grade promotion (Fuller, Rana, and Prothero, 2021; Hecht, Pollack Porter & Turner, 2020). This intervention contributes to making schools safe and inclusive spaces in the community for students, and has the potential to encourage them to participate in meal times and reduce the stigma often associated with receiving free or reduced-price meals (Fuller, Rana, and Prothero, 2021; Rogus, Guthrie & Ralston, 2018). Educational achievement through middle and high school depends on students mastering basic skills and building knowledge over time. Provided that hungry children have lower academic achievement because they are not well prepared for school and cannot concentrate, school is a critical point in the environment to provide meals to ensure success (Cook, Jeng, & Feeding America, 2009).

Stakeholders

Students are the beneficiary population of this policy, and their parents, guardians, and households will indirectly benefit from the reduced burden of providing meals for their children during the school day. School teachers and administrators will benefit from the potentially less hungry and more focused students, thereby increasing their academic achievement, test scores, and school rankings. School nurses and dietitians of the school district are concerned with the health and nutrition status of their students. School cafeteria staff will primarily be preparing and serving the meals. The Cleveland County School District will be reimbursed for participating in this program, but likely will need to increase the school meal budget in order to do so.

Budget

The majority of meals will be reimbursed by the USDA due to the school district's participation in CEP, but there may need to be an expansion of the budget or a grant dedicated to school meals and required labor and equipment by the district to meet the food volume needs of all students, and cover the costs of the small percentage of meals not reimbursed based on the USDA's formula (USDA, 2016). Additionally, given the larger scale adoption of this policy, salaries of newly-hired personnel to oversee the program will be needed.

Conclusion

All students are entitled to the nutrition required to have an equitable opportunity for success in school, their future careers, and prosperous health throughout life. Given that schools are where children are expected to

perform academically, there must be ample resources available in school environments to ensure that this is possible and is an environment where students feel safe and feel that their needs are recognized. Advantages of this intervention include that it builds off of and strengthens existing school infrastructure and school meal programs within the county, provides greater food access to children who would otherwise not qualify for free or reduced priced meals, and ensures that financial or logistical barriers do not prevent children who qualify for free or reduced-price meals from receiving benefits. Although the intervention does not remedy the financial instability of families and may not alleviate enough stress on the household or neighborhood to prevent ACEs, this intervention promotes health, and potentially safety, in a setting where school-age children spend much of their time.

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E3. Evaluation Plan

Summary of Intervention

Appropriately addressing the health of school-age children and adolescents within Cleveland County, NC requires promoting a healthy physical environment for children to learn, play, and grow. Within the social determinant of health (SDoH) domain, Neighborhood and Built Environment, the objective is to increase the proportion of schools with policies and practices that promote health and safety (Healthy People 2030c). Poverty affects minors disproportionately in Cleveland County, increasingly their likelihood of experiencing food insecurity. In Cleveland County schools, 67.0% students qualify, but only 57.57% of students participate in the free or reduced-price school meal program (CCHD, 2019). The proposed intervention is designed to increase the availability and access to free healthy school meals to all students, regardless of income level. In addition, this intervention aims to reduce financial barriers to breakfast consumption, as skipping breakfast is significantly more common among food-insecure children (Rogus, Guthrie & Ralston, 2018).

The proposed intervention is an enrollment expansion of the Community Eligibility Provision (CEP) to all National School Lunch Program (NSLP) participating Kindergarten to 12th grade (K-12) schools in Cleveland County. CEP allows identified high-poverty schools to provide school meals at no charge to all enrolled students if the school(s) have a collective Identified Student Percentage (ISP) of at least 40% (USDA, 2016). Cleveland County's school district is considered eligible, with an estimated ISP of 55% (US Census Bureau, 2019). In Cleveland County, 45% of participating schools are enrolled in CEP, but the proposed intervention plan is to be adopted by all 29 participating schools, thereby reaching 100% participation (NCHHS, 2021).

Evidence-Based Outcomes

Short-term outcomes of this proposed program include: (1) By March 1, 2023, the proportion of Cleveland County K-12 students enrolled in schools that participate in NSLP who are eligible to receive free school meals will increase from 67.0% to 100% (Cleveland County Public Health Center, 2020; Potamites et al., 2010); and (2) By March 1, 2023, the proportion of Cleveland County K-12 students enrolled in schools that participate in NSLP that are able to participate in breakfast meal times at free (or reduced price) will increase from 57.57% to 100% (Cleveland County Public Health Center, 2020; Potamites et al., 2010). Longer term impacts include the following: (1) By March 1, 2027, increase the proportion of children who are food insecure and marginally food insecure who receive free school meals (Fuller et al., 2021; Potamites et al., 2010); and (2) By March, 1, 2027,

increase in academic performance scores, increased proportion of students with expected academic growth and on-time grade promotion, and decreased number of disciplinary referrals (Fuller et al., 2021; Potamites et al., 2010).

Evaluation Plan

The following evaluation plan is designed to measure the following short-term outcome: By March 1, 2023, the proportion of K-12 students in Cleveland County's school district that are able to participate in breakfast meal times at free or reduced price will increase from 57.57% to 100% (CCHD, 2019; Potamites & Gordon, 2010).

Study design/data collection: The evaluation study design will be a prospective cohort study, where subjects will serve as their own control based on baseline and post-implementation data. Evaluation tools that will be utilized include: summative, quantitative data of interest of the schools, student and parent/guardian surveys, and parent/guardian focus groups. Summative data is regularly collected by the school administration to assess school performance and those of interest include: meal participation rates by total enrolled students, number of meals provided, academic scores, and disciplinary referrals. Students above the age of 12 will be administered adapted surveys online during school day to measure: food security status, school breakfast purchase frequency and habits, quantity and frequency of breakfast consumption and consumption at school, and perception of school meal environment (i.e. stressful/welcoming, desirability of food, barriers to participation) (Appendix 1; Appendix 2; Appendix 4). Surveys for parents will be sent via mail and email to determine food security status and household breakfast consumption (Appendix 3). Based on survey responses, parents will be sampled for focus groups to determine frequency of household breakfast consumption and barriers to consuming breakfast, frequency of student breakfast consumption at school, and insight to student's academic performance and behavior based on breakfast consumption (Appendix 5). All tools will be utilized in measuring both baseline and post-implementation periods to determine outcomes of interest due to CEP implementation.

Sample and sample strategy: The descriptive data will be obtained from school administration, with consent from students' parents. All students will be invited to participate in school surveys, and approval and consent from parents will be needed. For focus groups, parents will be invited to participate based on submitted survey responses that indicated food insecurity, ensuring that at least 50% of parents represented are considered food insecure. Invitations to participate, consent forms, and other communications will be sent by mail, email, and flyers sent home with students.

Specific measures: Specific measures obtained by the participating schools' descriptive data include: number of schools who participate and expand to the CEP option, number of breakfast meals served, and academic scores and discipline referrals by quarter, semester, and year. Focus groups and surveys aim to measure an overall sense of student well-being, household food security status, and level of stigma associated with eating free school breakfast meals. Specifically, questions from the Children's Hope Scale, NYC School Environment Survey, USDA's U.S. Household Food Security Survey Module for Adults, USDA's Self-Administered Food Security Survey Module for Children Ages 12 and Older, and USDA's Moderator's Guide for a Focus Group on Household Food Security will be utilized (Snyder et. al, 1997; Appendix 1; Gutierrez, 2021; Appendix 2; Connell et. al, 2004; USDA, 2021; Appendix 3; Appendix 4; USDA, 2002; Appendix 5). Potential disparities to assess are: participant SES, race, food security status, and ISP% at school student is enrolled.

Analysis plan: Data analysis will consist of both qualitative and quantitative methods. Qualitatively, transcripts from focus groups will be coded for thematic analyses of responses that pertain to identification of barriers to program utilization, community perception of effectiveness on children's breakfast consumption and performance in school. Summative school data identified above and student surveys will be analyzed quantitively to assess prevalence of food insecurity, prevalence of breakfasts consumed and consumption at school, student academic scores, and student discipline referrals. Additionally, the Likert scale scores used in student surveys to measure desire to eat breakfast at school, likeness of foods served, and perceived judgment by students in consuming school meals will be quantitively analyzed. All data will be stratified by the potential disparities listed above, as well as the amount of time each school has been participating in CEP, SES, race, food security status, and school ISP%.

Timing: Evaluation timing is designed around the CEP enrollment period (USDA, 2016: Appendix 6). Prior to the beginning of the enrollment period in April, baseline descriptive data will be collected and all surveys and focus groups will be conducted for schools newly enrolling. Post-implementation descriptive data, focus groups, and surveys will be collected biannually after fall and spring semesters for the first year, then annually each spring. CEP eligibility lasts 4 years, and long-term impacts will be measured after 4 years of enrollment. To gather post-implementation surveys, students who have graduated or otherwise left the county school district will be invited to complete surveys in a remote format in the summer months following their departure to assess long-term impacts. Progress is defined by: an increase in the percent of participating schools, an increase in the number of students

consuming free breakfasts, and a positive change in the perception of school meal environment (i.e. welcoming, greater desirability of food, reduced barriers to school meal participation). If progress does not occur, factors and barriers preventing students from consuming breakfast and preventing schools participating in CEP will be examined. Follow-up actions include facilitating the adoption of alternative breakfast models available under CEP, such as breakfast in classroom, breakfast on bus, and grab-and-go (USDA, 2016).

Sources of funding: The primary funder for CEP is the USDA through its school meal reimbursement formula. Under CEP, the USDA reimburses for school meals using the ISP% multiplied by a factor of 1.6, which would allow for 88% meal reimbursement for the whole county. As a participant in NSLP, the school district is already collecting the information necessary to claim reimbursement, such as count of total meals served. The program will be sustained if the portion non-reimbursed meal finds a funding source, such as greater budget allotment from county government/board of education or through grants, or if the school district's ISP increases to allow for a greater percent reimbursement. A timeline for CEP enrollment is adapted from the program's deadlines, with the enrollment process between April 1 to June 30 annually (USDA, 2016; Appendix 5).

Data use and dissemination: Data will be deidentified prior to analyses, and only IRB personnel will have access to data. Data will be presented to the school administrators, student households, and the public in a reader-friendly manner, similarly to Cleveland County's Community Health Assessment.

Strengths and challenges: Strengths of this program include: improved food security measures among students and a decrease in the number of students impacted by food insecurity, improved participation in breakfast program, increased likelihood of positive school performance and overall well-being, and lastly, school being seen as a safe and inclusive space. A potential challenge is that parents may not want their children or themselves to participate in evaluation process. Additionally, there may be barriers beyond financial, such as lack of knowledge or cultural norms surrounding breakfast, preventing school breakfast meal participation among students that have not been accounted for in program design and implementation.

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APPENDIX

APPENDIX 1: CHILDREN'S HOPE SCALE

The Children's Hope Scale

Directions: For each sentence, please think about how you are in most situations. Place a check inside the circle that describes *you* the best. For example, place a check (✓) in the circle (O) above the phrase that best describes you. There are no right or wrong answers.

1. I think I am doing pretty well.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

2. I can think of many ways to get the things in life that are most important to me.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

3. I am doing just as well as other kids my age.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

4. When I have a problem, I can come up with lots of ways to solve it.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

5. I think the things I have done in the past will help me in the future.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

6. Even when others want to quit, I know that I can find ways to solve the problem.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

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APPENDIX 2: NYC SCHOOL ENVIRONMENT SURVEY

Table 1: Measures of Bullying, Fighting, Respect, and Safety

Category	New York City School Survey Question	Variable Name	=1 If Respond
Bullying	"At this school, students harass or bully other students."	Bullying	None or some of the time
Fighting	"At this school, students get into physical fights."	Fighting	
Respect	"Most students at this school treat each other with respect."	Respect	Agree or strongly agree
Safety	"I feel safe in my classes at this school."	Safe: Class	
	"I feel safe in the hallways, bathrooms, locker rooms, and cafeteria of this school."	Safe: Inside	
	"I feel safe outside around this school."	Safe: Outside	

Retrieved from: Gutierrez, E. (2021). The Effect of Universal Free Meals on Student Perceptions of School Climate: Evidence from New York City. Annenberg Institute at Brown University, EdWorkingPaper, 21-430. https://doi.org/10.26300/mcqq-sd26. Accessed 11 March, 2022.

APPENDIX 3: U.S. HOUSEHOLD FOOD SECURITY SURVEY MODULE FOR ADULTS

Household Stage 1: Questions HH2-HH4 (asked of all households; begin scale items).

[IF SINGLE ADULT IN HOUSEHOLD, USE "I," "MY," AND "YOU" IN PARENTHETICALS; OTHERWISE, USE "WE," "OUR," AND "YOUR HOUSEHOLD."]

HH2. Now I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months—that is, since last (name of current month).

The first statement is "(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more." Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

HH3. "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

Screener for Stage 2 Adult-Referenced Questions: If affirmative response (i.e., "often true" or "sometimes true") to one or more of Questions HH2-HH4, OR, response [3] or [4] to question HH1 (if administered), then continue to ***Adult Stage 2;*** otherwise skip to ***End of Adult Food Security Module.***

NOTE: In a sample similar to that of the general U.S. population, about 20 percent of households (45 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 2.

Adult Stage 2: Questions AD1-AD4 (asked of households passing the screener for Stage 2 adult-referenced questions).

AD1. In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

[ ] Yes
[ ] No (Skip AD1a)
[ ] DK (Skip AD1a)

AD1a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] DK

AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

AD3. In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

AD4. In the last 12 months, did you lose weight because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

Screener for Stage 3 Adult-Referenced Questions: If affirmative response to one or more of questions AD1 through AD4, then continue to ***Adult Stage 3;*** otherwise, skip to ***End of Adult Food Security Module.***

NOTE: In a sample similar to that of the general U.S. population, about 8 percent of households (20 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 3.

Adult Stage 3: Questions AD5-AD5a (asked of households passing screener for Stage 3 adult-referenced questions).

AD5. In the last 12 months, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?

[ ] Yes
[ ] No (Skip AD5a)
[ ] DK (Skip AD5a)

AD5a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] DK

Retrieved from: U.S. Department of Agriculture (USDA), Economic Research Service. (2021, September). U.S. HOUSEHOLD FOOD SECURITY SURVEY MODULE: THREE-STAGE DESIGN, WITH SCREENERS. https://www.ers.usda.gov/media/8271/hh2012.pdf. Accessed 11 March, 2022.

APPENDIX 4: SELF-ADMINISTERED FOOD SECURITY SURVEY MODULE FOR CHILDREN AGES 12 AND OLDER

[Begin Child Food Security Survey Module]

The following questions are about the food situation in your home **during the last month**. Please circle the answer that best describes you. Do not put your name on the paper. Your answers will remain a secret.

1. Did you **worry** that food at home would run out before your family got money to buy more?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

2. Did the food that your family bought **run out**, and you didn't have money to get more?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

3. Did your meals only include a few kinds of **cheap foods** because your family was running out of money to buy food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

4. How often were you not able to eat a **balanced meal** because your family didn't have enough money?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

5. Did you have to **eat less** because your family didn't have enough money to buy food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

6. Has the size of your meals **been cut** because your family didn't have enough money for food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

7. Did you have to **skip a meal** because your family didn't have enough money for food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

8. Were you **hungry** but didn't eat because your family didn't have enough food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

9. Did you not eat for a **whole day** because your family didn't have enough money for food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

[End of Child Food Security Survey Module]

Retrieved from: Connell, C., Nord, M., Lofton K.L., & Yadrick, K. (2004). Food Security of Older Children Can Be Assessed Using a Standardized Survey Instrument. Journal of Nutrition, 134(10), 2566-72. https://www.ers.usda.gov/media/8283/youth2006.pdf. Accessed 11 March, 2022.

APPENDIX 5: USDA COMMUNITY FOOD SECURITY ASSESSMENT TOOLKIT - MODERATOR'S GUIDE FOR A FOCUS GROUP ON HOUSEHOLD FOOD SECURITY

B.3-5 Moderator's Guide for a Focus Group on Household Food Security

Thank you for agreeing to be part of a focus group on household food security. For those of you who have never participated in a focus group, I just want to tell you that it is a research technique commonly used in social science research to gather data from informed sources. Your answers to our questions should not be considered "right" or "wrong." Rather, they are information that you can supply based on your experiences, observations, or feelings.

We are collecting information about households and their food usage—whether people have enough, why they may or may not, and what they do about it. We are working with a community group that wants to understand if our community needs to improve the food resources available for all people.

Please be assured that all your responses are confidential and will be used for statistical purposes only. Our summary report will make no references to names.

The purpose of this discussion is to help us understand how serious food insecurity and hunger may be in our community. Food insecurity refers to not having access to adequate amounts of affordable foods through normal means, such as buying food at supermarkets or farmers' markets or even gardening. Hunger is often the result when there is not enough food in a house for all the household members. We are conducting this group discussion as part of a larger effort to understand how much of a food insecurity problem there may be in our community and what we can do about it.

I want to start by saying how difficult it can be to discuss these issues publicly. But almost everyone, if not everyone, in this group is familiar with these problems. They are nothing to be embarrassed about. Your candid responses and discussion will be most helpful to us as we try to develop a community-based action plan.

Before we begin, let's go around the room and introduce ourselves. But instead of telling us just your name, why not tell everyone your name, how long you have lived in this area, and what your three most favorite foods are?

Household Food Security

Let's start by thinking back to this past year. Give some thought to the times when you either didn't have enough food for everyone in your home or worried about whether you would have enough food.

1. How many people would say that they either ran out or worried about running out of food during the past year?
2. I'm wondering about the frequency of these things happening. How many people would say that they either ran out or worried about running out of food every month? Did these things happen at specific times of the month? Or at certain times of the year?
3. How many people would say that they either ran out or worried about running out of food every month? Do these things happen at specific times of the month? Or at certain times of the year?
4. Do these events (running out of food or worrying about it) follow any pattern? That is, does something else happen regularly that causes you to run out of food or to worry about it? (*Probe for: medical emergencies, large bills, helping family members with their needs, changes in job status)*

5. I'm wondering about what you do if there isn't enough food. Let's start by discussing the things you might do to make the food you have last longer. What are some of these things? *(Probe for: cut amounts of food, cut size of meals, skip meals, water down ingredients, eat cheaper foods like potatoes or pasta, serve less expensive foods, serve less nutritious foods because they are cheaper, serve children nutritious foods but eat less or less nutritious foods yourself)*
6. People sometimes go to different places to get enough food to go around when they are running short of money. What types of places have you gone to for food and how often? *(Probe for: food assistance programs, food pantry, soup kitchen, other "free" food resources).* Which of these places works the best for you? Why? Do they each have a different role—do you go to them at different times or use them differently?
7. You also may have a less formal "help" network, that is, people you know who will lend you money, give you food, feed you, or let you buy on credit. Can you describe some of these networks? Do you ever provide this type of support for family members or friends?
8. What would you say is most important in helping you cope with times when food or food concerns are a major problem?
9. We've focused up to this point on household issues and strategies. Switch your thinking a bit to the community. What do you think the community (government, businesses, people) could do to make it easier for people to get enough food? Think about how they could work to make food accessible, available, and affordable.

Thank you!

Retrieved from: U.S. Department of Agriculture (USDA). (2002, July) Appendix B: Focus Group Guides and Materials – B.5 USDACommunity Food Security Assessment Toolkit. https://www.ers.usda.gov/webdocs/publications/43164/15822_efan02013appb_1_.pdf?v=0. Accessed 3 April, 2022.

APPENDIX 6: COMMUNITY ELIGIBILITY PROVISION (CEP) ENROLLMENT DEADLINE

Date	Activities
April 1	• LEAs review ISP data reflective of April 1 to determine eligibility to elect CEP for next school year.
April 15	• State agencies notify LEAs of district-wide eligibility status and provide guidance and information. • LEAs submit school-level eligibility information to the State agency. ○ State agencies may exempt LEAs from this requirement if school-level data is already available to the State.
May 1	• State agencies post the LEA district-wide and school-level lists on website and send the link to FNS.

June 30
(August 31 for SY 2016-17)
	• Interested and eligible LEAs must notify their State agency of their intent to participate under CEP.
	• Interested and eligible LEAs must submit identified student and total enrollment data that reflects enrollment on April 1 to the State agency to participate in CEP in the new school year (if such data is not already part of the notification and publication process).
	• LEAs participating in CEP must notify their State agency if they intend to drop their participation for the following school year and either:
	  1) Enroll in another Provision; or
	  2) Return to normal counting and claiming.

Retrieved from: U.S. Department of Agriculture, USDA. (2016, September). Community Eligibility Provision (CEP) Planning & Implementation Guidance. https://www.azed.gov/sites/default/files/2017/03/sp61-2016-cep_guidance.pdf?id=58d9531c1130c012245c2555. Accessed 11 March, 2022

E4. Individual Slides and Script

Slide 4: Nutrition Policy: Expansion of Community Eligibility Provision (G. Statia)

Nutrition Policy: Expansion of Community Eligibility Provision

CEP Enrollment in all National School Lunch Program participating K-12 schools

Identified high-poverty schools to provide school meals at no charge to all enrolled students if collective Identified Student Percentage (ISP) is at least 40%[6]

➢ County school district estimated ISP is 55%[7]

Meal reimbursement rate of ISP% x factor of 1.6 - 88% reimbursement of meals using Cleveland's estimated ISP (~$796,620 annually)[6]

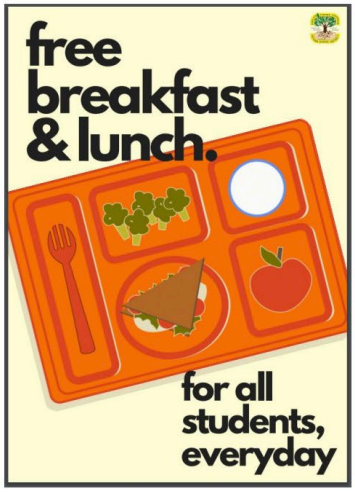

Image Address: https://www.blufordschools.org/o/bluford-unit-school-district-318/article/118768

To address the social determinant of health identified, the proposed nutrition-focused program is an enrollment expansion of the Community Eligibility Provision (CEP) to all National School Lunch Program (NSLP) participating schools in Cleveland. This provision allows high-poverty schools to provide school meals at no charge to all of their students based on the percent of student household participation in SNAP, TANF, or Medicaid, which represents their Identified Student Percentage (ISP). With an ISP of 55%, the whole school district is eligible to participate in the expansion. Under CEP, the USDA will reimburse the school district based on their ISP%, but this current ISP does not entirely cover meal costs. Currently, 13 of 29 of eligible Cleveland County schools participate in CEP, but the proposed intervention plan is to be adopted by all 29 schools, thereby reaching 100% participation.

In the Cleveland County school district, 2-3rds of students qualify for the free or reduced-price school meal program, but only 58% participate. Given poverty's link to food insecurity, and that households with children disproportionately live in poverty in Cleveland, the policy is designed to increase the availability and access to free healthy school meals to all, regardless of income eligibility.

Slide 5: Community Eligibility Provision: Objectives & Impacts (G. Statia)

Community Eligibility Provision: Objectives & Impacts

Objective: Increase proportion of students that are eligible and receive free breakfast and lunch at school meals[3,8,9]

Impacts include:

- Increased academic performance scores
- Increased proportion of students with expected academic growth and on-time grade promotion
- Decreased disciplinary referrals[9,10]

Image Address: https://theconversation.com/should-schools-provide-free-breakfast-in-classrooms-57468; https://sometimesdaily.com/tips-to-ensure-your-child-has-a-great-school-year/

Based on the policy's design, the short-term outcome is to increase the proportion of students that are eligible and then able to receive free breakfast and lunch at school meals. Longer term, CEP enrollment has seen impacts in the following: an increase in academic performance scores, increased proportion of students with expected academic growth and on-time grade promotion, and a decreased number of disciplinary referrals.

Slide 13: Conclusion (G. Statia)

Conclusion

Assess and address the **environmental barriers** that prevent achievement of optimal health

Without the **creation of health-promoting environments,** improving health outcomes will be inadequate and health disparities will persist

Image Source: https://www.impactrevolution.com/post/healthy-environment-healthy-people

To conclude, these policies acknowledge and are designed to address the impact of the surrounding environment on health outcomes. The practice of public health leaders has often focused on the individual's choices and behaviors in regard to their diet and health status, without regarding the impact of the surrounding environment on decision-making and subsequent health outcomes. Removing environmental barriers that prevent school-age children and adolescents from achieving optimal health will encourage healthy behaviors. Providing access to healthy meals and mental health resources are steps to promoting health and safety in Cleveland County schools, thus creating health-promoting environments, and we need your support to do so.

APPENDIX F: W.H. DAVIN TOWNLEY-TILSON'S INDIVIDUAL WORK

F1. Problem Statement

Social Determinant of Health

As one of five Social Determinants of Health (SDoH), Neighborhood and Built Environments are defined as the space where people live, work, learn, travel, eat, play, recreate and socialize (US Dept. of Health and Human Services). They are the restaurants, houses, sidewalks, parks, churches, clinics, roads, air, water, and green spaces. These spaces have enormous impacts on health and longevity (Marks, 2011). As Dr. David Erickson said (ERICKSON, 2018) "Health happens in neighborhoods." Many people are exposed to myriad health and safety risks within their neighborhoods; clean water (Denchak, 2018), the racial and income inequities of landfill and sewer issues (eg. Rogers-Eubank neighborhood in Chapel Hill (Inge, 2019)), lead poisoning, allostatic load, food deserts and food swamps (High, 2017), all of which are significant contributors to public health.

Within the Neighborhood and Built Environment SDoH, our specific objective is to increase the proportion of schools with policies and practices that promote health and safety (US Dept. of Health and Human Services). The impact that schools have include life expectancy, quality of life, morbidities, risky behaviors (smoking, substance use, etc.), future income, exposure to nutritional meals, health literacy, and access to health care (Cleveland County Health Department & Alliance for Health in Cleveland County, Inc. a, 2020). As with almost all health care, early intervention is essential and provides exponentially greater outputs, impacts and outcomes than reactive efforts, and schools provide the optimal built environment to achieve this.

Geographical and Historical Context

Cleveland County is located approximately 50 miles west of Charlotte, NC with a population of approximately 100,000 as of 2020. As of 2020, Cleveland County is approximately 76% white, 21% black, and 4% Hispanic or Latino (US Census Bureau, 2020). Cleveland County is a rural, Tier 1-designated economically disadvantaged county despite its proximity to more prosperous metropolitan areas (Cleveland County Health Department & Alliance for Health in Cleveland County, Inc. a, 2020). At $42,257, the annual median income of the county is almost 23% lower than North Carolina as a whole, with 15% of the county population living below the poverty line (US Census Bureau, 2020).

The Cleveland County Schools (CCS) system is the 23rd largest school system in the state with more than 14,000 students in the 2018-2019 school year. CCS is comprised of 16 elementary schools, two intermediate

schools, four middle schools, four high schools, and one charter school. 57.5% of CCS students, or approximately 8,400 children, participate in the free and reduced lunch program. School-based health centers are available at the four middle and four high schools and are funded collaboratively by the Cleveland County Public Health Center (CCPHC), Cleveland County Schools and Atrium Health-Cleveland. Certified school nurses are provided by CCPHC at the elementary, specialty and alternative school sites (Cleveland County Health Department & Alliance for Health in Cleveland County, Inc. a, 2020). College-level educational attainment is almost half of that of North Carolina, with only 17.6% of people over 25 years old having a Bachelor's degree or higher in Cleveland County, compared to 31.3% in the state (US Census Bureau, 2020).

Priority Population

Our priority population for this project will comprise of Cleveland County children who qualify for free and reduced lunch. To qualify for this federal program, a family of four must earn less than $47,638 as of 2019 (USDA-Food and Nutrition Service, 2019). Due to the expansion of free lunch programs during the COVID-19 pandemic, we would use state tax return information to determine eligibility.

Within our priority population, special focus will be given to children living in and around both Shelby and Kings Mountain. This population of roughly 5500 students in mostly Title I schools is comprised of many 'high-risk' low-income children, where the median income and poverty rates are substantially worse compared to both Cleveland County and the state of North Carolina (Cleveland County Health Department & Alliance for Health in Cleveland County, Inc. a, 2020; US Census Bureau, 2020).

Measures of Problem Scope

To assess the programmatic impact and success, we will measure several indices of school-age children's' health. These indices are as described in Healthy People 2030 (US Dept. of Health and Human Services, n.d.) , Healthy North Carolina 2030 (NC Institute of Medicine, 2020), and the Cleveland County CHA (Cleveland County Health Department & Alliance for Health in Cleveland County, Inc. a, 2020). Currently, the percent of school nurse visits resulting in early school dismissal from 15% in the county, and the percentage of students with a medical "home" is only 81% (4% have no insurance at all). The number of students with food insecurity and limited access nutritional food is 15% and 7%, respectively, in Cleveland County.

The number two priority health indicator for Cleveland County was Adverse Childhood Experiences; 23.6% of children in the county are exposed to violence, domestic issues, mental illness, or substance abuse (Cleveland

County Health Department & Alliance for Health in Cleveland County, Inc. a, 2020; NC Institute of Medicine, 2020). This is more specifically defined as children who have experienced two or more of the following: hard to get by on money; parent/guardian divorced or separated; parent/guardian died/ parent/guardian served time in jail; saw or heard violence in the home; victim/witness of neighborhood violence; lived with anyone mentally ill, suicidal, or depressed;; lived with anyone with alcohol or drug problem; often treated unfairly due to race/ethnicity (National Center for Injury Prevention and Control, Division of Violence Prevention, 2021).

The number three priority health indicator identified was tobacco use (Cleveland County Health Department & Alliance for Health in Cleveland County, Inc. a, 2020). Germane to school-age children, 11.6% of 9th grade students and 17.4% of 12th grade students used tobacco products in the 30 days prior to survey completion. 5% of 6th grade students, 30.3% of 9th grade 11 students and 35.3% of 12 grade students indicated using e-cigarettes or vape products in that 30-day period.

Rationale/Importance

It is well known that low educational achievement creates barriers to access to care. Low educational achievement often leads to low health literacy defined as the 'degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate decisions about one's health' (Cleveland County Health Department & Alliance for Health in Cleveland County, Inc. a, 2020; U.S. Health Resources & Services Administration, 2019).

Further, childhood trauma and adverse experiences are linked to chronic health problems, mental illness, and substance use problems in adulthood, also negatively impacting education, job opportunities, and earning potential. They can increase the risk of injury, sexually transmitted infections, teen pregnancy, cancer, diabetes, suicide, toxic stress and allostatic burden, cognitive development, relationship and social impedance, and poverty (Cleveland County Health Department & Alliance for Health in Cleveland County, Inc. a, 2020; National Center for Injury Prevention and Control, Division of Violence Prevention, 2021).

The role of Leadership to address Equity

A primary leadership component that has been lacking in Cleveland County has been collecting, communicating, and addressing SDoH and health issues with an equity lens. Specifically, concepts of stakeholder engagement, such as who is at the table, where is the table**,** and how is the table set, have been ignored. Health Equity Collectives and community forums in specific underserved neighborhoods have specifically been overseen

by leaders, and the plethora of Title I schools in the area are attestations that despite federal involvement, health outcomes are still quite poor as compared to neighboring counties ("CCS Title I - Title I Schools," n.d.).

Lastly, equity as it pertains to "access" to care in school settings has not been adequately addressed. Access is not simply spatiotemporal location; it involves Approachability, Availability, Affordability**,** and Acceptability of care in Cleveland County Schools. Especially as it relates to children, access is paramount in ensuring positive outcomes and impacts. Equitable involvement from technical, political, and economic partners can ameliorate, in part, many of these community-based partnership issues.

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F2. Stakeholder Analysis

As one of five Social Determinants of Health (SDoH), Neighborhood and Built Environments are defined as the space where people live, work, learn, travel, eat, play, recreate and socialize (US Dept. of Health and Human Services, 2020a). They are the restaurants, houses, sidewalks, parks, churches, clinics, roads, air, water, and green spaces. These spaces have enormous impacts on health and longevity (Marks, 2011). As Dr. David Erickson said (Erickson, 2018) "Health happens in neighborhoods." Within the Neighborhood and Build Environment SDoH, our specific objective is to increase the proportion of schools with policies and practices that promote health and safety (US Dept. of Health and Human Services, 2020b). The impact that schools have include life expectancy, quality of life, morbidities, risky behaviors (smoking, substance use, etc.), future income, exposure to nutritional meals, health literacy, and access to health care (Cleveland County Health Department & Alliance for Health in Cleveland County, Inc. a, 2020). Establishing healthy behaviors is easier and more effective during childhood and adolescence than trying to change unhealthy behaviors during adulthood (National Center for Chronic Disease Prevention and Health Promotion, 2022), and schools provide an optimal built environment to promote these behaviors.

To achieve this objective, we have identified an expansion of the Community Eligibility Provision (CEP) (Rogus, Guthrie, & Ralsto, 2018) in Cleveland County as the program with the most promising and efficacious evidence to improve the health of K-12 aged children. The CEP is part of the National School Lunch Program, which allows high-poverty schools to provide USDA-sponsored school meals at no charge to all students within the school. The USDA reimbursement for meals is simplified by making use of routinely collected administrative data, such as participation in the Supplemental Nutrition Assistance Program (SNAP, formerly food stamps) or Temporary Assistance for Needy Families (TANF), rather than collecting school meal applications. Further, this program ameliorates cultural and stigmatic avoidance of free and reduced school lunch programs by giving blanket allowance to all students and all schools within Cleveland County. Lastly, because 15 of the 29 public schools that participate in the NSLP in Cleveland County are CEP schools (NC Dept. of Health and Human Services & Public Schools of North Carolina, 2021), the expansion and support of this program across the remaining 14 schools would not present any novel infrastructure or policy barriers.

To identify key stakeholders, and how that will participate in the CEP program, a tripartite framework was utilized. By incorporating a rich picture of the system (Figure 1), an interest and influence map (Figure 2) of the technical, social, political, and economic asset classes, and a CATWOE analysis (Table 5), the major stakeholders

were analysis by their ability not only in participating in the school meal program system, but also by their ability to mediate transformative change incorporating the CEP expansion in Cleveland County.

Utilizing a multi-user storyboard to design a rich picture (Figure 1) of the school system in Cleveland County, we were to identify eight stakeholder personas (underlined for clarity) that were actors in the school meal environment. At the heart of the system, students were identified as the users that had the most outcome-dependent impacts of the CEP program. That is, they are the priority population, the ones most affected by change in our system. Relatedly, the parents and families of the children are also important participants, in that they are the ones that are driving the change, and voices of the students in the community.

The technical or "talent" silo of this system includes the school cafeteria staff. Not only are these the people that are physically necessary to implement change, but they are the "boots on the ground" knowledge that can be gleaned into what is working and what needs to change within the program. Quite bluntly, the CEP program cannot be implemented if there is no one to implement it. Also part of the technical group are dieticians and nutrition educators. They will be the ones working alongside the cafeteria staff, the food sourcing companies (discussed below) and other state- and federal- level stakeholders in implementing CEP in Cleveland County. Economically, the expansion of the program will require a linear expansion of food supplies from food management companies. While the CEP expansion builds off existent infrastructure, we hypothesize that an additional 25% increase in school meals will be required in implementing CEP. This expansion will also necessitate the expansion of school administration that is monitoring and facilitating food supplies. By roughly doubling the number of schools in the County participating in CEP, more technical staff will be needed for oversight and maintenance.

Lastly, the need for political and governmental support cannot be overstated. This transformative expansion of CEP transcends local, state, and federal policies, requiring the shared vision and cohesion of bureaucrats at every level of policy. Ultimately it is the Cleveland County Board of Education and that is responsible for the ownership of this project. Specifically, we will need the Board to be a leader of this change, spearheading any policy or programmatic change at the County level to align and agree with existing policies to ensure adherence. Similarly, because the National School Lunch Program is managed and monitored by the USDA, we will need federal executive departments for their funding paradigms, nutritive guidance, policy measures, and reimbursement schedules to operate.

In figure 2, the eight stakeholders identified above were plotted in an influence and interest matrix to analyze each stakeholder's specific likely levels of concern about the CEP change (interest axis), plotted against the same stakeholder's ability to affect that change in the system. In the top left quadrant (low influence, high interest) are the students themselves, partially along with their families and the school cafeteria staff. These stakeholders are the ones we need to keep informed, resisting the tendency to ignore them as they hold little ability to influence change. If alienated, these stakeholders can quickly derail the system, or worse, become disenfranchised and negatively impacted by the outcomes. In the top right corner (high influence, high interest) are the dietitians and nutrition educators, along with families and the County Board of Education. These are the stakeholders that require constant, active engagement. Their "buy-in" and support is tantamount for the success of the CEP expansion. In the bottom right quadrant (high influence, low interest) are food management and sourcing companies, along with the County board of education and school administrators. Keeping these stakeholders satisfied without placating them and keeping them abreast of the program is necessary, though they are relatively low in adding any barriers to the CEP change process. Lastly, in the low influence and low interest corner (bottom left) are the state and federal accreditors and policy, partially alongside cafeteria staff and school administrators. Though not as significant as other stakeholders, their participation is required for the change, though the level needed to engage them is minor.

Lastly, the CATWOE (Customer, Actor, Transformation, Worldview, Owner, and Environment) analysis in Table 1 further defines and describes four of the major stakeholders' perspectives. Four viewpoints representing each of the major categories (political, social, technical, and administration) of stakeholders were taken from the eight stakeholders listed above to define and analyze individual perspectives of the school meal program system. By examining individual perceptions, we can identify empathetic engagement strategies, better managing each user in the system to optimize the program interventions. Briefly, the CATWOE analysis identifies each participant's transformative view as one that increases the access of health foods for school children in Cleveland County. Similarly, the 'owners' of the system appear largely relegated to policy makers rather than those with more relevant knowledge or experience. We also see that the actors and customers of the system are almost completely devoid of the people most affected by school meals; the students themselves. This analysis demonstrates that while CEP expansion is designed to target and benefit school children, they are often left out of the change initiatives and policy determinations. Subsequent engagement of these stakeholders, particularly for the children of Cleveland County, will lead to more effective, empathetic program implementation with a focus on equity and inclusion.

Figure 1: Rich Picture of schools, meals, and children's health in Cleveland County

Figure 3: Interest and influence map of key stakeholders in Community Eligibility Program expansion in Cleveland County

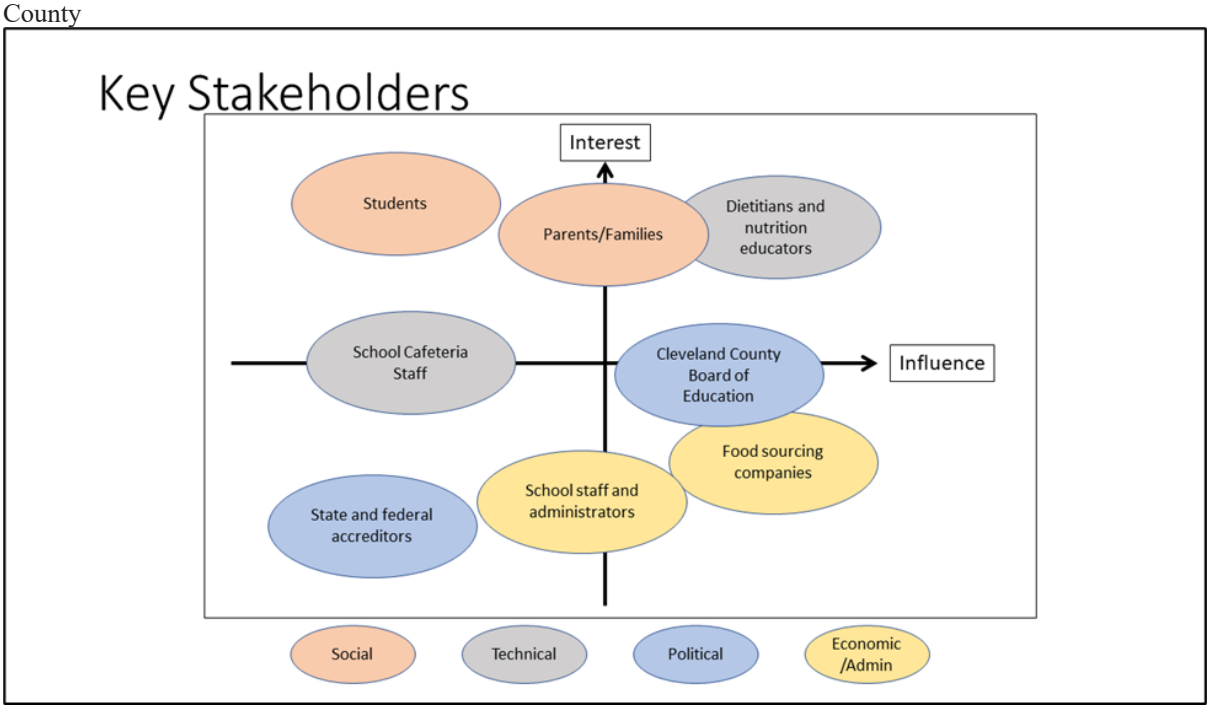

Table 5: CATWOE analysis of major stakeholders in CEP program expansion in Cleveland County.

CATWOE step	**Student View**	**Dietitians and nutrition educators View**
Transformation:	**To not worry about access to healthy, tasty meals**	**To provide nutritive food to all children**
Worldview:	**School lunches are gross, bland, greasy messes**	**Access to healthy food is a right for children**
Customers:	**Me, my friends**	**Students in Cleveland County**
Actors:	**Cafeteria staff, adults**	**RDs, educators, school nurses**
Owners:	**The school district**	**Policy makers**
Environment:	**Food security, scarce nutritive options**	**Funding and policy constraints** **Food security, nutrition prioritization**
CATWOE step	**Cleveland County Board of Education View**	**Food sourcing companies View**
Transformation:	**To promote learning through school meal programs**	**To supply schools with products they demand**
Worldview:	**Food as part of the school "system"**	**Supply and demand**
Customers:	**National School Lunch Program participants** **(Students and families)**	**School districts, company owners**
Actors:	**county commissioners, parents**	**School boards, parents**
Owners:	**State and federal funding policies**	**School districts, county commissioners**
Environment:	**Parent polling, taxpaying voters**	**Funding and revenue**

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Table 6. Five key criteria used: Responsible, Accountable, Supporting, Consulted and Informed **(**RASCI)

	Stakeholder/Group	**Rationale For Participation**
Responsible	Cleveland County Board of Education, Cleveland County Commissioners	Appropriates money; approves food service contracts; responsible for school facilities
Accountable	NC Dept. of Education, USDA	Sets policies, rules, and standards; sets school lunch program policies
Supportive	School administrators, school staff, cafeterial staff, food companies, Food and Nutrition Services sector of USDA	Impliement program expansion; required personnel for technical assistance and support
Consulted	Students, families, cafeteria staff, dietitians and nutrition educators	Guide nutritive and nutritional aspects; required for continuous quality improvement
Informed	Families and parents, general public (non-student families)	Tax payers; community benefit recipients

F3. Engagement and Accountability Plan

Part 1: Engagement Plan

The purpose of expanding the Community Eligibility Provision (CEP) in the National School Lunch Program to all school children in Cleveland County is to provide all children with nutritionally appropriate meals at no cost (NC Dept. of Health and Human Services & Public Schools of North Carolina, 2021), further increases policies and practices that promote health and safety of school-aged children in Cleveland County. Establishing healthy behaviors is easier and more effective during childhood and adolescence than trying to change unhealthy behaviors during adulthood (National Center for Chronic Disease Prevention and Health Promotion, 2022). Negative nutritional and non-nutritional outcomes have been associated with food insecurity in adolescents and children including poor dietary intake, nutritional status, and health, an increased risk for the development of chronic diseases, poor psychological and cognitive functioning, and substandard academic achievement (Holben & American Dietetic Association (ADA), 2006). Nutritive school meals have impacts on positive weight outcomes and improved food security (Fuller, Rana, & Prothero, 2021). This in turn leads to reduced disciplinary referrals, and improved academic performance scores, expected academic growth and on-time grade promotion (Hecht, Pollack Porter, & Turner, 2020). This program ameliorates any cultural stigma that can be associated with free and reduced school lunch programs by giving blanket allowance to all students and all schools (Fuller et al., 2021; Rogus, Guthrie, & Ralston, 2018).

As shown in Table 1, this program will require engagement from four key stakeholders involved in CEP expansion. Effectively engaging these stakeholders will ensure adherence to state and federal policy guidelines, appropriate funding, adequate staffing and technical support, and most importantly, active participation in the program from school-age children.

The first aspect of the stakeholder engagement plan will include a "give-get" method to engage groups of stakeholders during focus and discussion groups, as well any policy briefings, presentations, and periodic updating. Clearly defining the benefits and involvement of each stakeholder will maximize stakeholder investment, participation, and motivation within the program, and will serve to motivate stakeholders by expounding the virtues and specific benefits to the community of the CEP program (i.e., what they will get) while putatively increasing participation and 'ownership' (i.e., what they will give) (Southerland, Behringer, & Slawson, 2013).

Using a Delphi framework will increase both continuous quality improvement while also allowing for meaningful involvement in the qualitative processes implementation of CEP (McMillan, King, & Tully, 2016). Specific decision making within our CEP expansion program will utilize a mixed method evaluation known as the Delphi Model (Black et al., 1999; McMillan et al., 2016) to both develop a consensus nutrition CEP expansion program, as well as define common areas of improvement with each stakeholder. By implementing the normative group technique, a tool associated with the Delphi model, with our student and family stakeholders during focus group and survey facilitation, we can identify and discuss any potential roadblocks to CEP success including what and how many meals are available, using the Likert scale responses in monthly questionnaires into student satisfaction, and ultimately gaining consensus for food-appropriateness in school (Black et al., 1999). Example standard short form questions adopted from the USDA "Household Food Security Survey," show in Appendix A, Table 3, have a minimal respondent burden, while investigating systemic themes of school-age food security (Economic Research Service, USDA, 2012)

Lastly, our power analysis and mapping from the stakeholder analysis framework will identify and inform our engagement process, as well as determine how and how often to include our particular stakeholders (Alexander, 2006). It is obvious that both the Cleveland County Board of Education and students are integral to our project, and without either CEP expansion would fail, and both groups of stakeholders will need to be constantly informed and assessed throughout the project. However, as seen in Figure 1, the Board of Education, while having the most influence over the program, has much more tempered interest, as it is one of dozens and dozens of issues on their docket, and will only need updates that are germane to policy or funding issues. Conversely, students, as the most impacted group, clearly have a vested interest in the expansion. However, and not without irony, they have some of the least influence over the program, short of collective bargaining or boycotting.

Part 2: Accountability Plan

As the backbone agency, the Cleveland County Board of Education will be tasked to assess milestones and maintain policy adherence in our program accountability through their implementation of the CEP expantion. Further, they will be responsible for disbursement of funding provided by federal USDA grants appropriately to each of the schools in Cleveland County. They will also provide any gap funding and maintain policy oversight and accreditation at a state-level. They will also develop and implement the program expansion while providing the

assets and personnel. Lastly, the Board of Education will ultimately be responsible for measuring outputs and impacts of the program via community health assessments and health-data monitoring.

Part 2A: Memorandum of Understanding (MOU)to Cleveland County Board of Education

1. Specific Aims, Metrics and Milestones: The overarching aim of the project is to provide free, nutritional meals to all school children in Cleveland County to promote food security, nutritional education, and healthy living. It is our goal to making all children of Cleveland County food secure by 2030. To do so, we will survey all 18,000 students in Cleveland County biennially at the completion of the school year on themes and values identified in the Delphi framework. Priority will be giving to childhood food security and CEP program intervention in both the 2025 and 2030 Cleveland County Community Health Assessment. We will track through our food service providers, cafeteria staff, and school administrators, the number of meals served to correlate with the number of student meals required. Lastly, we will use state and health department data to analyze peripheral service reliance (e.g., families on WIC, SNAP, or TANF) to assess food security, as well as monitor county-wide body-mass indices through school physical education to assess nutritional metrics.
2. Backbone Agency: Cleveland County Board of Education. The Board of Education will appropriate money, approve food service contracts, oversee school facilities, and report to stakeholders, and County Commissioners.
3. Accountable Agencies: NC Department of Health and Human Services, USDA. These agencies are tasked with setting and adhering to state and federal school lunch policies, rules, and standards, as well as administrative and financial backing for the program.
4. Expectations, vision, and values for the Cleveland County Board of Education: As the stakeholder responsible for CEP expansion in Cleveland County, they will ultimately “own” the project, ensuring programmatic options and consequences are investigated and thoroughly researched, as well as making best practice recommendations to the County Commissioners.

Appendix A:

Table 7. Give-get grid of the four major stakeholders in CEP expansion.

	Contributions	**Benefits**	**Engagement**
Students	Active participation, qualitative and quantitative reports, adjustment to school-provided food	Greater access to nutritive food, less stigma due to economic status, improved health	Focus groups, normative group discussions, Likert scale survey
Cleveland Board of Education	Funding and oversight of CEP expansion, political capital	Improved student satisfaction, better educational outcomes, positive press	Town-hall meetings, policy briefs, community advocacy
Dietitians	Personnel time and educational review of menus	More nutritive food to students, greater dietary and health outcomes/impacts	One-on-one policy meetings, paid recruitment
Food sourcing companies	Food, administration, and logistics	Financial, positive press	Contracts, company meetings

Figure 3 (repeated). Interest and influence map of key stakeholders in CEP program expansion in Cleveland County

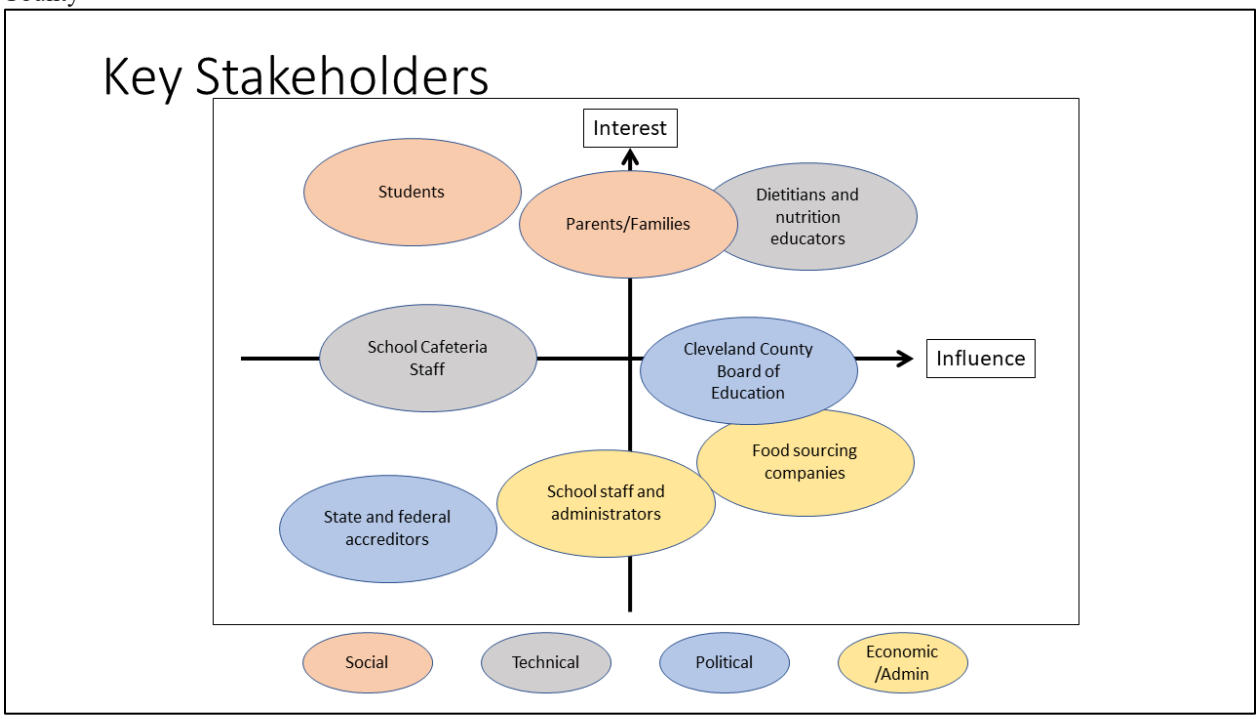

Table 6 (repeated). Five key criteria used: Responsible, Accountable, Supporting, Consulted and Informed (RASCI)

RASCI	Policy/Program Transformation		
Who is…	Stakeholder/Group	Rationale For Partner Participation	Citation
Responsible	Cleveland County Board of Education, Cleveland County Commissioners	Appropriates money; approves food service contracts; responsible for school facilities	https://www.sog.unc.edu/sites/www.sog.unc.edu/files/course_materials/2017_Millonzi_Essentials_Public%20School_0.pdf
Accountable	NC Dept. of Education, USDA	Sets policies, rules, and standards; sets school lunch program policies	https://fns-prod.azureedge.net/sites/default/files/resource-files/NSLPFactSheet.pdf; https://www.fns.usda.gov/cn/applying-free-and-reduced-price-school-meals
Supportive	School administrators, school staff, cafeteria staff, food companies, Food and Nutrition Services sector of USDA	Implement program expansion; required personnel for technical assistance and support	https://www.azed.gov/sites/default/files/2017/03/sp61-2016-cep_guidance.pdf?id=58d9531c1130c012245c2555
Consulted	Students, families, cafeteria staff, dietitians and nutrition educators	Guide nutritive and nutritional aspects; required for continuous quality improvement	
Informed	Families and parents, general public (non-student families)	Tax payers; community benefit recipients	

Table 8. Example Delphi Model Questions for Student Stakeholders

Sample Questions

Which of these statements best describes the food eaten at school?

[ ] Enough of the kinds of food we want to eat

[ ] Enough but not always the kinds of food we want

[ ] Sometimes not enough to eat

[ ] Often not enough to eat

Did your meals only include a few kinds of cheap foods because your family was running out of money to buy food?

[ ]A lot

[ ] Sometimes

[ ] Never

In the last 12 months, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?

[ ] Yes

[ ] No

[ ] Don't know

In the last 12 months, since (current month) of last year, did you ever cut the size of (your child's/any of the children's) meals because there wasn't enough money for food?

[ ] Yes

[ ] No

[ ] Don't know

Do you eat most of your meals at school?

[ ] Yes

[ ] No

[ ] Don't know

Is the food you eat as school healthier than what you eat at home?

[ ] Yes

[ ] No

[ ] Don't know

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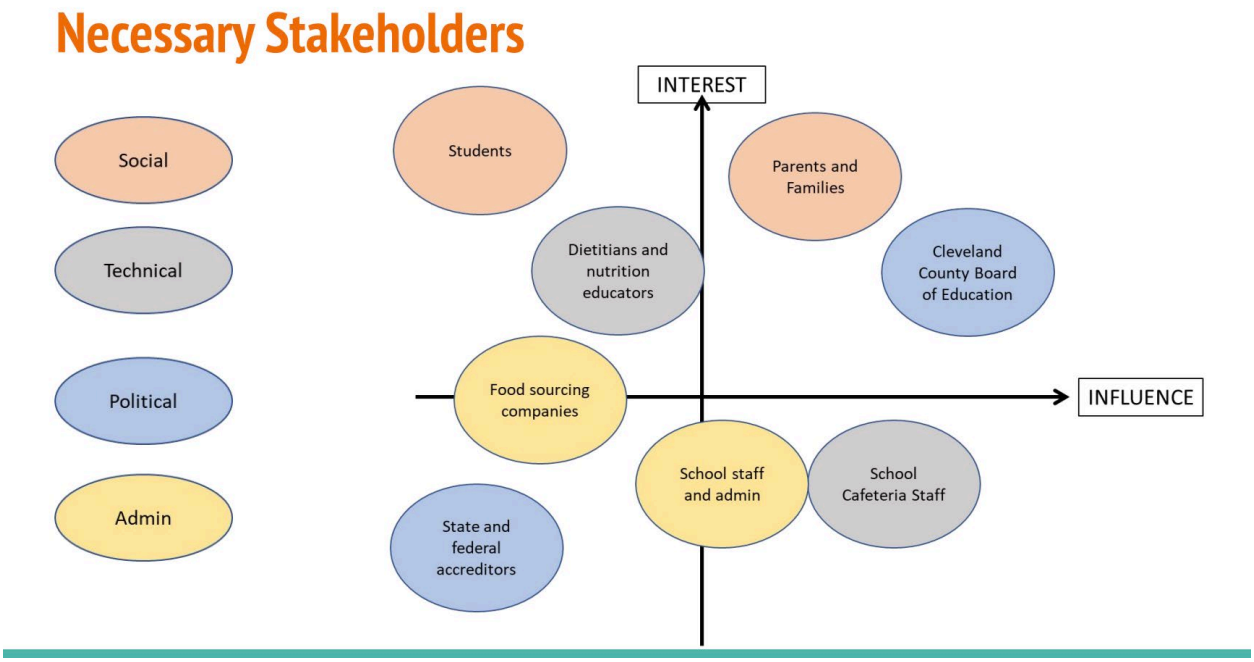
F4. Individual Slides and Script

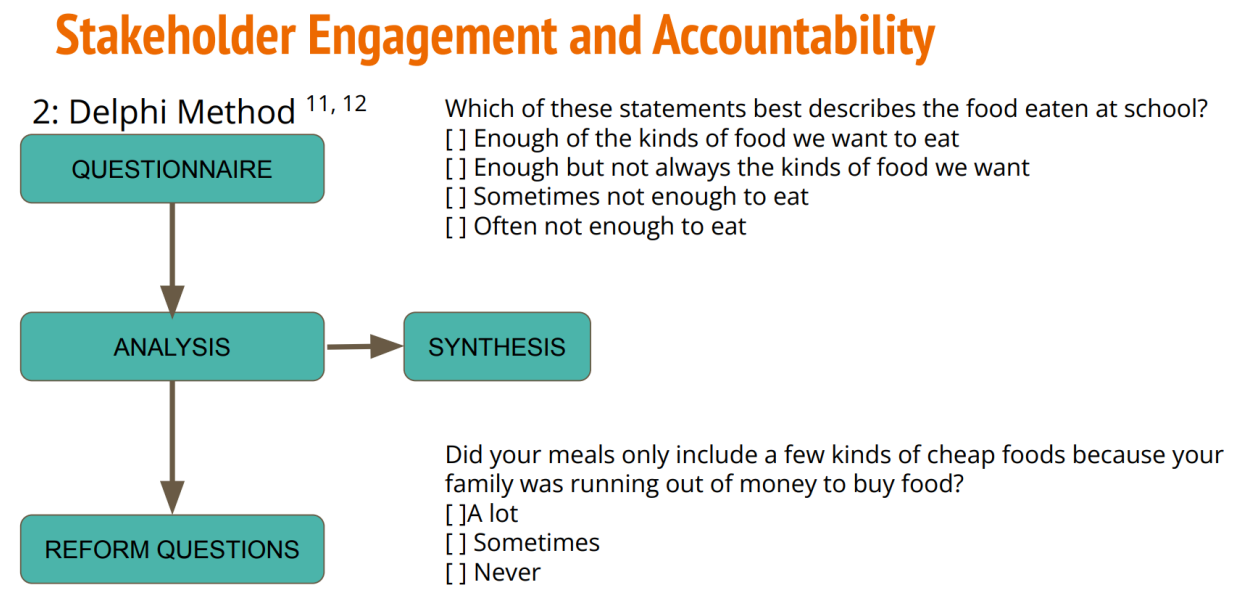
Slide 10: Necessary Stakeholders (W.H.D. Townley-Tilson)



We developed a stakeholder analysis matrix to determine the 8 key stakeholders, representing the 4 broad groups you see on the left, involved in CEP expansion. This matrix also ascertains stakeholder interest and influence in the project.

Families and the Board of education, with high influence and interest will need to be managed closely as they are tantamount to the success of the program; Those with less influence, but still highly affected in the top left quadrant will need to be informed regularly. School and cafeteria staff will need to be kept highly satisfied with the program to ensure their motivation and participation, while those with the least interest and influence will simply need brief monitoring updates.

Slide 11: Stakeholder Engagement and Accountability (W.H.D. Townley-Tilson)



Specific decision making within our CEP expansion program will utilize a mixed method evaluation known as the Delphi Model to both develop a consensus nutrition CEP expansion program, as well as define common areas of improvement w/ each stakeholder. Questions will be based on the USDA "Household Food Security Survey," and used to probe each key stakeholder to ensure validity and best practices of the program long term. Example "standard short form" questions, shown on the right, have a minimal respondent burden, while investigating systemic themes of school-age food security.

Slide 12: Stakeholder Engagement and Accountability (W.H.D. Townley-Tilson)

Stakeholder Engagement and Accountability

	Contributions	Benefits
Students	Active participation, qualitative and quantitative reports, adjustment to school-provided food	Greater access to nutritive food, less stigma due to economic status, improved health
CC Board of Edu	Funding and oversight of CEP expansion, political capital	Improved student satisfaction, better educational outcomes, positive press
Dietitians	Personnel time and educational review of menus	More nutritive food to students, greater dietary and health outcomes/impacts
Food sourcing companies	Food, administration, and logistics	Financial, positive press

Give-Get Grid[13]

To improve stakeholder participation and motivation w/in program, the give-get grid will be used to engage stakeholders during focus and discussion groups, as clearly defining the benefits and needs of each stakeholder will maximize stakeholder investment w.in the program.

For example, students in the program will be essential contributors of active, engaged participation, for their feedback and assessments, and ongoing consumption of school-prepared food. In return, they will ostensibly gain greater access to nutritional food, reduced food spending, have less stigma from the Free and Reduced Meal Program, and presumably improve their long-term health.

APPENDIX G: LAURIN WATTS' INDIVIDUAL WORK

G1. Problem Statement

Social Determinants of Health

The social determinants of health (SDoH) are components of a person's environment that influence their health, well-being, and quality of life. These factors range from individual characteristics to social norms to federal policies. The neighborhood and physical built environment, where one lives, works, plays, and learns, play a drastic role in one's health (U.S. Department of Health and Human Services, 2020). People living in low-income neighborhoods are more likely to have less resources to promote a healthy life and more likely to be exposed to other risk factors, resulting in inadequate nutrition, substandard housing, racial and socioeconomic segregation, unsafe neighborhoods, inaccessible health care, and lack of community support (U.S. Department of Health and Human Services, 2020 & Public Schools First NC, 2020). Many communities rely on schools to educate and support the youth of the community, but if there are inadequate resources in and for schools, negative consequences can arise. In the short term, this results in schools not being able to provide students with the necessary means to support sufficient growth and development. Longer term health consequences include increases in spending on health care and the judicial system, contributing to existing inequities in the community, and perpetuating poverty and crime rates. Healthy People 2030 developed a key objective that aims at "increasing the proportion of schools with policies and practices that promote a safe and healthy physical school environment" (U.S. Department of Health and Human Services, 2020).

Graphic and Historical Context

Cleveland County is a rural county located in the southwestern, Piedmont region of North Carolina. This 465 square mile county is home to 97,038 residents, two state parks, and several historical landmarks from the notable Revolutionary War that took place where the current county resides. The city of Shelby is the main hub, where the county seat and most of the county's main services are located (CCHD, 2019). Population demographics of county residents compared to North Carolina in 2019 are listed in Table 1, Appendix A. Over 40% of the county's workforce is involved in manufacturing and the median household income is $40,002, compared to $50,320 for the state, designating the county tier 1 economically disadvantaged, making it among the 40 most distressed counties in NC (CCHD, 2019; North Carolina Department of Commerce, 2022). Additionally, county data reveal there is low educational attainment which results in low health literacy, creating more barriers for

obtaining health care (CCHD, 2019). Families in Cleveland County who experience poverty are forced to choose where they spend their money and given that Cleveland County is ranked among the least healthy counties in the state, it's clear the health of the community is suffering (County Health Rankings & Roadmaps, 2021).

The 2018-19 Community Health Assessment (CHA) identified children to be disproportionately impacted by poverty in Cleveland County, so there has been previous attempts to improve health among this high-risk population. The Community Health Improvement Plans state the intention to strongly support the paramount work by the Healthy Educational Unit at the Cleveland County Public Health Center and at the Eat Smart Move More Coalition of Cleveland County. The Partnering for Community Prosperity Project brought virtual health appointments to an elementary school in the county, providing year-round services to low-income, high-risk students. Two county elementary schools have food pantries and the Satellite Foothills Farmers' Market is available during the summer months to offer local foods when school is not in session (CCHD, 2019).

Priority Population

The population of focus is students in Kindergarten through 12th grade enrolled in Cleveland County, North Carolina Public schools. As the 23rd largest district in the state, Cleveland County had over 14,139 children enrolled in the 2018-19 school year. This includes students from the county's 16 elementary schools, two intermediate schools, four middle schools, and four high schools. As mentioned previously, the CHA discovered that children are drastically impacted by poverty in the county, which is reflected in the couty's overall health outcomes (CCHD, 2019).

Measures of Problem Scope

The overall poverty rate in Cleveland County is 19.9%, but this increases to 27.5% for children under the age of 18, demonstrating a disproportionate impact on children (Cleveland County Health Department, 2019). North Carolina was determined to be one of the states in the US where children had the lowest likelihood to emerge from poverty, likely attributable to the lack of resources available to a vulnerable population (Public Schools First NC, 2020). Those who live in poverty are more likely to experience food insecurity, or the inability of households to obtain food due to lack of money or access to food (USDA-ERS, n.d.). Food insecurity is associated with the development of cardiovascular risk factors, increasing the likelihood of chronic disease (Seligman, Laraia, & Kushel, 2010). Of the Kindergarten through 12th grade students enrolled in the 2018-2019 school year,

approximately 57.57% participated in the free or reduced school lunch program, which is higher than the state average of 56% for the same year (CCHD, 2019; National Center for Education Statistics, n.d).

Rationale/ Importance

Poverty and lack of resources in the community contributes to health disparities among children and teens, placing them under significant amounts of stress. Nutrition plays a vital role in this stage of life, and eating patterns learned during adolescence are predictive to health outcomes later in life. Schools are a primary place for students to rely on for structure, education, and safety, so it is imperative that schools have the capability to create an environment in which students can thrive. Given the high proportion of students who are food insecure and utilize school meals, it is apparent that students in Cleveland County are in need of more support. Schools without the appropriate policies and programs to promote health and safety inhibits children's' ability to grow and develop at a very important time in their lives (CCHD, 2019). Since this issue is affecting a vulnerable population in the county, in addition to the county's low health scores, notable racial and ethnic disparities, and low-income status, something needs to be done. Children who grow up in poverty will likely stay in poverty, so intervening now would enhance health outcomes in the future (CCHD, 2019).

Disciplinary Critique

With the objective of increasing the proportion of schools with policies and programs to promote health and safety, the county needs to prioritize the nutrition in schools to enhance students' chances of growing and developing at a very important time in their lives. In the past, dietitians and other public health professionals have primarily focused on educating individuals on nutrients, often disregarding the concept that people don't eat nutrients, people eat food. Considering the overall diet is an important perspective to ensure individuals are receiving adequate nutrition to support a healthy, good-quality life. Additionally, there is little to no attention given to the fact that there are a multitude of factors that influence a person's food choice. Accessibility, quality, taste, culture, appearance, and price are just a few other aspects that determine what someone consumes. In order to successfully address equity concerns in food insecurity and nutrition related health outcomes, it is essential for dietitians and public health professionals to assess the population's overall diet and environmental factors contributing to their food intake and health.

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APPENDIX

APPENDIX A. Cleveland County Demographics

Table 9. Cleveland County Demographics (Cleveland County Health Department, 2019)

Measure	2019 Cleveland County Census	2019 North Carolina Census
Population	97,038	10,052,564
Age:		
Under 5 years	5.5%	6.0%
5-17 years	19.3%	19.5%
18-24 years	6.7%	7.0%
25-54 years	37.1%	39.8%
55+ years	31.3%	27.8%
Gender:		
Male	48.2%	48.7%
Female	51.8%	51.3%
Other	0	0
Race/ Ethnicity:		
White	75.2%	69.0%
African American/ Black	20.8%	21.5%
Asian	2.2%	5.4%
Multi-racial	4.1%	7.6%
Hispanic/ Latino	3.3%	9.1%
Other	0.3%	1.5%

G2. Implementation Plan

Background Information

The Social Determinants of Health are factors that influence an individual's ability to make health promoting choices and overall quality of life. The Neighborhood and Built Environment describes the area where people live, work, learn, play, and age. The objective of focus is to increase the proportion of schools with policies and practices that promote health and safety (U.S Department of Health and Human Services, 2020). Cleveland County (CC) is a rural region in North Carolina that is ranked among the least healthy counties in NC and labeled tier 1 economically disadvantaged, making it among the top 40 NC counties in high financial distress (CCHD, 2019). Poverty drastically limits the resources to promote healthy living and perpetuates inequities that exist within society, such as segregation and inadequate access to healthy foods or health care (Public Schools First NC, 2020). School-age children in CC are disproportionately impacted by the high rates of poverty and limited resources within the community, resulting in inadequate nutrition and adverse health outcomes . During the 2018-19 academic year, 57.57% of K-12 students participated in free and reduced school lunch (CCHD, 2019). Hungry students perform more poorly in school because they are not well prepared and are unable to concentrate (Cook, Jeng, & Feeding America, 2009). In 2019, CC had lower educational attainment compared to the state, 84% versus 86.9% obtaining a high school degree or higher and 16% versus 29.9% holding a bachelor's degree or higher (CCHD, 2019). Low educational attainment is associated with difficulty in obtaining health care and managing conditions and disease, as well as a decrease in human capital in the workforce (CCHD, 2019 & Cook, Jeng, & Feeding America, 2009). Additionally, the most recent Community Health Assessment revealed 7% of residents have limited access to healthy foods and 15% suffer from food insecurity, which can explain why only 11.73% participants reported eating the recommended servings for fruits and vegetables in a day. Heart disease is the number one cause of mortality in this county, which can be prevented with proper nutrition rather than treated by spending large amounts on health care, like the county is currently doing (CCHD, 2019). One study found that health care related spending in CC in 2016-17 was an average of $8,732 per-person (Health Care Cost Institute, 2020). The county is also contributing a significant amount of funds to food assistance programs, providing roughly $27,000,000 of food to residents during the 2018-19 fiscal year (CCHD, 2019).

Purpose

To address food insecurity, it is important to understand the levels of severity an individual or household may be experiencing. Food insecurity is defined by the United States Department of Agriculture (USDA) as,

> "households were, at times, unable to acquire adequate food for one or more household members because they had insufficient money and other resources for food."

The USDA defines very low food insecurity as,

> "households were food insecure to the extent that eating patterns of one or more household members were disrupted and their food intake reduced, at least some time during the year, because they could not afford enough food."

Marginally food insecure describes those who fall between these two categories (Potamines & Gordan, 2010). Children who live in food insecure households not only experience a lack of food, but also have poorer nutrition from the financial restraints that contribute to families purchasing less expensive, high-energy foods (Hecht et al. 2020). Research has consistently revealed food insecurity negatively impacts children and teens' nutrition status, health outcomes, and overall quality of life (Hecht et al. 2020).

Food insecurity leads to inadequate nutrition and in children and teens, results in impaired cognitive and physical development, increased stress, poorer health outcomes, and lower educational attainment (Cook, Jeng, & Feeding America, 2009). Physical and cognitive development and stress cause students to have suppressed immune systems and are 2 to 3 times more likely to forego health care, leading to transmission of more communicable diseases and a 25.9% increase in hospitalization (Hecht et al. 2020; Thomas, Miller, & Morrissey, 2019). Low educational attainment is associated with low health literacy, impacting an individual's ability to perceive and manage his/ her health (CCHD, 2019). These factors drive up health care spending for both the individuals and the county on federal programs, such as Medicaid. Families with young children spend approximately $1.2 billion annually on healthcare and education systems relating to food insecurity (Hecht et al. 2020). Not only are health care costs impacted, there are also economic consequences. People in the workforce who suffered from food insecurity as a child are not as well prepared physically, mentally, emotionally, and socially to be productive in their jobs (Cook, Jeng, & Feeding America, 2009). Additionally, the workforce is also affected because children who are food insecure are more likely to become ill, forcing parents to stay home from work or leave their jobs (Cook, Jeng, & Feeding America, 2009; Hecht et al. 2020). An insufficient workforce leads to loss in productivity, decreases in human capital, and reduces the likelihood for businesses to succeed. Food insecurity in children is associated with

more behavioral and social problems from internalizing problems and stress, causing an increase in spending on the judicial system (Cook, Jeng, & Feeding America, 2009; Hecht et al.).

Evidence Based Outcomes

Short term outcomes:

By March 1, 2023, the proportion of Kindergarten through 12th grade students in Cleveland County's school district enrolled in a school participating in CEP who are eligible to receive free school meals in NSLP, will increase from 67.0% to 100% (Cleveland County Public Health Center, 2020; Potamites et al., 2010).

By March 1, 2023, the proportion of Kindergarten through 12th grade students in Cleveland County's school district that are able to participate in breakfast meal times at free or reduced price will increase from 57.57% to 100% (Cleveland County Public Health Center, 2020; Potamites et al., 2010).

Long term impacts:

By March 1, 2027, increase the proportion of children who are food insecure and marginally food insecure who receive free school meals (Fuller et al., 2021; Potamites et al., 2010).

By March, 1, 2027, increase in academic performance scores, increased proportion of students with expected academic growth and on-time grade promotion, and decreased number of disciplinary referrals (Fuller et al., 2021; Potamites et al., 2010).

Strategies and Activities

Expanding the Community Eligibility Provision (CEP) of the National School Lunch Program (NSLP) to all schools in CC would relieve food insecurity by providing for all students. The CEP Expansion would reimburse schools for meals served based on existing administrative data collected by other programs, such as the USDA's Supplemental Nutrition Assistance Program (SNAP). This data will be used in place of meal applications currently required by individual households for free and reduced meals. Schools who choose to participate in the CEP must participate in the NSLP and the School Breakfast Program (SBP), have an individual student percentage (ISP) over 40%, keep track of the number of breakfasts and lunches served daily, and use non-federal funds to cover meals that exceed the federal reimbursements. A USDA calculated multiplier, of 1.6, is used to determine the number of meals that are reimbursable at the free rate. For the 2019–2020 school year the average amount was $3.41 for lunch and $1.84 for breakfast (California Department of Education, 2019; NCDPI & CNS, n.d.; Hecht et al. 2020). The remaining meals are reimbursed at the paid rate; for the 2019-2021 school year the average was $0.32 for lunch and

$0.31 for breakfast (California Department of Education, 2019; Hecht et al. 2020). If a school's ISP is greater than 62.5%, reimbursement at the free rate is capped (California Department of Education, 2019).

Public schools in CC who utilize the National School Lunch Program will implement this provision and grouped together to determine eligibility. Each school will identify their ISP, or the percentage of students who qualify for a free meal, as of April 1, 2022, for implementation of the 2022-2023 school year (California Department of Education, 2019). For the CEP application, school administrators will record relevant student data to prove eligibility and provide documentation of identified students. Once the application is approved, schools will refrain from gathering household free and reduced lunch/meal applications (NCDPI & CNS, n.d). School cafeterias will prepare by ordering 25% more food to account for additional students consuming food at school (Potamines & Gordon, 2010). Menus will be developed by a Dietitian/ Nutritionist and Food Service/ Production Manager to ensure meals meet USDA guidelines. Each day, a designated school staff member will record the number of breakfasts and lunches served daily on a comprehensive form to ensure accurate meal reimbursement from the program. This staff member may be someone who was previously tasked with accounting for other meal program documentation since that will no longer be needed while participating in CEP. Schools will narrow down the data to monthly totals by site per meal but should keep documentation for daily meals served for breakfast and lunch for future validation if needed (NCDPI & CNS, n.d). Based on the ISP and multiplier factor, schools will be reimbursed for the qualifying number of meals served. All other school meal program records, such as HACCP plans and production methods, are still required and maintain documentation of purchase orders and invoices to provide support for the number of meals served (NCDPI & CNS, n.d).

According to the most recent census, over half of households with children in CC are on the food assistance program known as SNAP (United States Census Bureau, 2019). SNAP provides food for households whose income falls below 200% below the poverty line, indicating these families are suffering from food insecurity to some degree. Children who are food insecure receive more of their daily nutrition intake from school meals than children who are not food insecure, making schools the ideal target for addressing childhood and teen undernutrition (Potamines & Gordon, 2010). CEP, a universal meal program, increases students' participation in existing school meal programs, NSLP and SBP. Research has consistently demonstrated the benefits of the NSLP and SBP on reducing food insecurity, increasing access to nutritious foods for low-income children, decreasing stigma associated with participating in school meals, reducing administrative burden, and positively impacting nutrition, academia,

and behavior outcomes. A study in Maryland revealed that students in nonparticipating, but eligible CEP schools, were at twice the odds of living in a food insecure household than students attending schools participating in CEP. This suggests CEP helps improve families' purchasing power for food, moving them to food security. Additionally, evidence suggests that because more students are consuming school meals that meet USDA nutrition requirements instead of meals brought from home, students are consuming more adequate nutrition. Two studies have shown small, but significant increases in test scores for some subjects of students attending CEP schools. Lastly, disciplinary referrals showed a decrease of 2.3 percentage points across grade levels at a CEP school in Tennessee (Hecht et al. 2020).

Every school in CC meets the requirement of greater than 40% ISP, so CEP is expected to reach all Kindergarten through 12th grade students attending public school in the county. CEP is a universal meal program, so all students will qualify to participate regardless of their economic status or previous program eligibility. This expands the reach to households who were deemed ineligible for the NSLP or SBP, where eligibility is based on income. Households may not meet the criteria based on income level but can still be food insecure, and CEP ensures that these students are helped (Hecht et al. 2020). Approximately 15% of marginally food insecure and 10% of food insecure students don't qualify for free and reduced priced lunches, so it is expected that about 25% more students will participate in school meals (Potamines & Gordon, 2010).

Stakeholders

Involving stakeholders is an essential part of the implementation process for several different reasons, as each group has a unique perspective on the issue and brings different aspects to the table. Students are an important stakeholder because they can give the research team direct insight to what they are experiencing from their point of view and thoughts on the proposed change. Parents and caretakers can provide information regarding current eligibility for NSLP or SLP and enrollment barriers, and discuss concerns they may have about their children and their participation in the program. Teachers and administrative staff at the schools can ensure it is feasible to effectively carry out the program during a school day, propose potential barriers and possible solutions, and ensure the appropriate staff can be assigned to the new program tasks. The school nurse will advocate for any students who have dietary restrictions or allergies who need modified meals. School cafeteria staff will be included to establish sufficient staffing and equipment to support the increase in production, go over food safety, and discuss potential barriers or concerns. Dietitians can ensure all school meals comply with the USDA guidelines and provide education

to staff and students about the importance of nutrition for children. Food sourcing companies can contribute to discussions regarding good and safe manufacturing practices, making sure there is enough supply to meet demand, and consider local food and supply sources. Lastly, the CC School District will be involved to assist in county level decision making and oversee program implementation

Budget

Funding will be allocated to provide the estimated 25% increase in students who will consume food at school (Potamines & Gordon, 2010). There will be an initial up-front cost for more food and cooking supplies, but this will be appropriately reimbursed later by the CEP program. Depending on the current production capacity of the school's cafeteria, staff and equipment may be purchased to uphold the additional prepared and served meals. Equipment includes latex gloves, plates, serving and eating utensils, sanitation products, food preparation items, etc. The local board of education will bring in 1 to 2 more cafeteria staff to serve and prep meals, at approximately $2,000/ month (NCDPI & Financial & Business Services, 2020). A new refrigerator at $6,950.00 (Global Industrial, 2022) and a freezer at $3,695.00 are needed for storage (ACityDiscount Restaurant Equipment & Supply (2022).

Conclusion

Children and teens who live in poverty are in desperate need of additional support to rectify the resources and opportunities that cannot be afforded, but this is often not the case. Children and teens rely on their elders and adults to give them the opportunities to grow and learn. It's imperative to provide additional support for this vulnerable population to enhance their chances of living good quality lives and give them the best chance at being successful (Potamines & Gordon, 2010).

There are several advantages to the CEP. Despite the high number of students who qualify for NSLP and SBP, not all students are utilizing free meals at school. The CEP has been created to reduce the stigma associated with receiving free and reduced-priced meals at schools by providing universal meals to all students (Hecht et al. 2020). This simultaneously assists students who were previously ineligible for food assistance programs but still experiencing food insecurity. All students will have access to free breakfasts and lunches that comply with USDA nutritional guidelines, meaning improved nutrition for students. CEP reduces paperwork for the school district and for households (NCDPI & CNS, n.d.). Individual households and caretakers will not be required to complete tedious paperwork for their children and teens to receive free meals and snacks, which also eliminates confusion among parents and caretakers about eligibility.

Disadvantages of CEP include the stigma associated with the entire county or more schools adapting the provision, an increase in up-front costs, potential for more food waste, and not collecting individual household data. The county may experience stigma related to low-income populations upon adopting the CEP, which can be unsettling for state and county officials and community members. Since CEP is a reimbursement program, schools are required to front the money for the additional food, and some may not have the ability to do so. An outside grant may be applied for to address this barrier. Lastly, households are no longer required to submit documentation to prove income eligibility for free and reduced meals, so there will be a gap in data collection to determine students' economic status. Other methods may be developed to gather this data if necessary.

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G3. Evaluation Plan

Summary of Intervention

Within the Social Determinant of Health, the Neighborhood and Built Environment, the objective of primary interest is to increase the proportion of schools with policies and practices to promote health and safety (US Department of Human Services, 2020). Cleveland County is home to a high percentage of students that experience food insecurity, which negatively impacts their health outcomes and quality of life (CCHD, 2019). Food insecurity refers to households or persons who are unable to afford or access foods (Cook, Jeng, & Feeding America, 2009). For example, students who are food insecure are less likely to consume breakfast, resulting in inadequate nutrition intake and decreased concentration, in turn influencing their overall behaviors and performance in school (Rogus, Guthrie & Ralston, 2018). Programs in schools are an efficient way to reach all students in the county, regardless of their home situation (Potamines & Gordon, 2010). Currently, schools are utilizing the National School Lunch Program (NSLP) and the School Breakfast Program (SBP) to provide free and reduced priced meals for students who meet specific eligibility criteria, but participation in these programs is lacking and households often do not qualify based on income, but still need the service (Cook, Jeng, & Feeding America, 2009). The Community Eligibility Provision (CEP) is an expansion of the NSLP to offer free meals to all students, regardless of their eligibility. In other communities around the nation, this universal meal program has previously shown increases in students' participation in meals at school, furthermore, resulting in improvements in behavior, cognitive and physical development, academic scores, nutrition status, burden on school administration, and stigma associated with participating in school meals (Hecht et al. 2020).

Evaluation Plan

The evidence-based short term impacts that will be measured are: By March 1, 2023, the proportion of Cleveland County Kindergarten through 12th grade students enrolled in schools that participate in NSLP who are eligible to receive free school meals will increase from 67.0% to 100% (Cleveland County Public Health Center, 2020; Potamites et al., 2010). By March 1, 2023, the proportion of Cleveland County Kindergarten through 12th grade students enrolled in schools that participate in NSLP that are able to participate in breakfast meal times at free (or reduced price) will increase from 57.57% to 100% (Cleveland County Public Health Center, 2020; Potamites et

al., 2010). The focus on breakfast meals is due to the discovery that food insecure and marginally food insecure students are more likely to skip breakfast (Rogus, Guthrie, & Ralston, 2018).

The long-term impacts that will be measured are: By March 1, 2027, there will be an increased proportion of children who are food insecure and marginally food insecure who receive free school meals (Fuller, Rana, and Prothero, 2021; Potamites & Gordon, 2010). By March 1, 2027, there will be increased academic performance scores, increased proportion of students with expected academic growth and on-time grade promotion, and decreased number of disciplinary referrals (Fuller, Rana, and Prothero, 2021; Hecht, Pollack Porter & Turner, 2020).

Study design/ data collection: By utilizing a prospective observational cohort study design, the same group of students will be followed before an increase in participation in CEP, throughout the duration of the program, and after a 4-year cycle of participating in CEP. Details regarding these specific data collection time points are explained in more detail when discussing the evaluation timeline. Students who choose to participate in the evaluation will be given an online survey (Appendices 1, 2, & 3) to complete on school computers during an allotted time predetermined by school administrators. To ensure a representative sample, students will be matched for socioeconomic status (SES) of students in schools in the county already participating in CEP. Parents/ guardians of students enrolled in eligible schools will receive a survey (Appendix 4) via mail, email, or in-person to complete. Upon completion of the survey, researchers will analyze the distribution of food secure and food insecure households to determine participation in a subsequent focus group to ensure a representative sample (Appendix 5). Open-ended questions during focus groups will allow for parents to promote discussion and contribute more information for analysis (Nagle & Williams, n.d.). To account for students who graduated and/ or left the school, these students will have the opportunity to complete the surveys during the summer months.

Sample and sampling strategy: All students in the county at participating schools will be invited to take part in the evaluation but will be stratified based on how many years each school has been participating in the program. All parents/ guardians of students enrolled in a participating CEP school will have the opportunity to be involved in the evaluation process. Requests for completing the evaluations will be sent via mail and email, and participation is voluntary.

Specific measures: Specific measures include the number of schools who choose to participate, the number of breakfast meals served, socioeconomic status, food insecurity (Food Security Survey, Appendix 1),

students' academic scores and discipline records, overall well-being (Children's Hope Scale, Appendix 2), and the stigma students experience associated with eating free breakfasts (NYC School Environment Survey, Appendix 3).

Analysis plan: Data analysis will include quantitative and qualitative data. Qualitative data, such as open-ended survey questions and conversation during focus groups, will be examined for common themes and coded to make conclusions. For quantitative data, the mean, standard deviation, and a regression analysis will be used. The mean will show the average for variables such as, number of breakfasts consumed, and the standard deviation can help gauge how other data points are spread around the mean to determine generalizability. Regression will work out the relationship between certain variables, such as participation in the program and food insecurity level. Furthermore, a Likert scale will be utilized to measure the students' perceived judgements, cooperation in breakfast at school, and food enjoyment.

Timing: Due to the timeline of CEP set in place by the United States Department of Agriculture (USDA), implementation of the program must begin during the fall semester after applying in the spring. Focus groups and surveys will be conducted the spring semester prior to implementation to assess needs and areas to concentrate improvement efforts. After the program begins, biannual focus groups for parents and guardians after the fall and spring semesters for the first year will occur and then once a year the following 3 years. During the study, all surveys will be completed by students biannually the first year and annually the following 3 years. The same surveys will be administered each time to allow for accurate measurement and analysis of progress for each variable.

Progress is defined by the increase in percent of schools in Cleveland County that participate in the program, an increase in the number of students consuming breakfast at school, and a safe and welcoming perception of school meal environment among students. An improvement in any of these areas indicates progress. If progress does not occur, other factors and barriers influencing students' participation in breakfast at school or schools' participation in CEP, will be investigated. Follow-up actions include alternative breakfast models, such as breakfast in the classroom or breakfast on the bus, will be considered (Rogus, Guthrie, & Ralston, 2018). If there is no progress in the percentage of schools participating in CEP, school administrators will be invited to an educational session to learn more about the program and how to mitigate barriers to participation. For example, if a school does not have the capability of fronting the money for the increase in meals for students, they can be informed of grants to cover these costs.

Sources of funding: The primary funding source is reimbursement from the USDA. The amount of reimbursement per meal is calculated using the school's identified student percentage (ISP). The ISP is the percent of students who qualify for a free meal (California Department of Education, 2019). Reimbursement is claimed once for each student served, which will be counted daily. Sustainability of the program will rely on reimbursement and other sources of funding if needed. Alternative funding sources include fundraising, grants, and an increase in budget allotment for school nutrition.

Data use and dissemination: All data will be anonymous so students cannot be individually identified, and all data will be secure and only accessible by approved persons. Once data is analyzed, it will be presented in a reader-friendly manner, similarly to the data displayed in the Cleveland County Community Health Assessment, to the community to inform residents of the program's potential benefits (CCHD, 2019).

Strengths and challenges: The CEP has the potential to increase students' involvement in school meals, which has shown to enhance nutrient intake, improve health outcomes, cultivate better behaviors, and improve academic performance among students, and give households the opportunity to move out of food insecurity by increasing their purchasing power of food. The environment in schools and experiences during childhood and teen years can be predictive of health and productivity as an adult, so it's essential to ensure this population in Cleveland County is equipped with the necessities to live a quality, successful life. Additionally, CEP can reduce the administrative burden on schools and alleviate the stigma among students associated with participating in school meals, which has been intensifying over the past few years (Hetch et al. 2020).

Limitations include parents'/ guardians' hesitation with themselves or their children in participating in the evaluation process. Without ample and representative evaluation data, the effectiveness of the program will be unknown and program continuation will be hindered, resulting in many hungry students once again. Additionally, there may be other barriers not identified or addressed that are impeding schools' participation in CEP or students' participation in breakfast at school.

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APPENDIX

APPENDIX 1: FOOD SECURITY SURVEY

[Begin Food Security Survey Module]

The following questions are about the food situation in your home **during the last month**. Please circle the answer that best describes you. Do not put your name on the paper. Your answers will remain a secret.

1. Did you **worry** that food at home would run out before your family got money to buy more?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

2. Did the food that your family bought **run out**, and you didn't have money to get more?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

3. Did your meals only include a few kinds of **cheap foods** because your family was running out of money to buy food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

4. How often were you not able to eat a **balanced meal** because your family didn't have enough money?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

5. Did you have to **eat less** because your family didn't have enough money to buy food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

6. Has the size of your meals **been cut** because your family didn't have enough money for food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

7. Did you have to **skip a meal** because your family didn't have enough money for food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

8. Were you **hungry** but didn't eat because your family didn't have enough food?
   _____ A LOT
   _____ SOMETIMES
   _____ NEVER

9. Did you not eat for a **whole day** because your family didn't have enough money for food?

_____ A LOT
_____ SOMETIMES
_____ NEVER

[End of Child Food Security Survey Module]

User Notes

(1) <u>Coding Responses and Assessing Children's Food Security Status:</u>

Responses of "a lot" or "sometimes" are coded as affirmative. The sum of affirmative responses to the nine questions in the Child Food Security Module is the respondent's raw score on the scale.

Provisional classification guidance (updated to be consistent with USDA's 2006 labels for other scales) is as follows:

- Raw score 0—High food security
- Raw score 1—Marginal food security
- Raw score 2-5—Low food security
- Raw score 6-9—Very low food security

For some reporting purposes, the food security status of youth with raw score 0-1 is described as food secure and the two categories "low food security" and "very low food security" in combination are referred to as food insecure.

For statistical procedures that require an interval-level measure, the following scale scores, based on the Rasch measurement model may be used:

Number of affirmatives	Scale Score
0	NA
1	-0.1
2	1.9
3	3.4
4	4.7
5	5.9
6	7.2
7	8.7
8	10.8
9 (evaluated at 8.5)	12.5

However, no interval-level score is defined for youth who affirm no items. (They are food secure, but the extent to which their food security differs from those who affirm one item is not known.)

Retrieved from: Connell, C., Nord, M., Lofton K.L., & Yadrick, K. (2004). Food Security of Older Children Can Be Assessed Using a Standardized Survey Instrument. Journal of Nutrition, 134(10), 2566-72. https://www.ers.usda.gov/media/8283/youth2006.pdf. Accessed March, 2022.

APPENDIX 2: THE CHILDREN'S HOPE SCALE

The Children's Hope Scale

Directions: For each sentence, please think about how you are in most situations. Place a check inside the circle that describes *you* the best. For example, place a check (✓) in the circle (O) above the phrase that best describes you. There are no right or wrong answers.

1. I think I am doing pretty well.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

2. I can think of many ways to get the things in life that are most important to me.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

3. I am doing just as well as other kids my age.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

4. When I have a problem, I can come up with lots of ways to solve it.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

5. I think the things I have done in the past will help me in the future.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

6. Even when others want to quit, I know that I can find ways to solve the problem.

O	O	O	O	O	O
None of the time	A little of the time	Some of the time	A lot of the time	Most of the time	All of the time

Retrieved from: Snyder, C. R., Hoza, B., Pelham, W. E., Rapoff, M., Ware, L., Danovsky, M., Highberger, L., Rubinstein, H., & Stahl, K. J. (1997). The development and validation of the Children's Hope Scale. Journal of pediatric psychology, 22(3), 399–421. https://doi.org/10.1093/jpepsy/22.3.399. Accessed March, 2022.

APPENDIX 3: NEW YORK CITY SCHOOL ENVIRONMENT SURVEY

Table 1: Measures of Bullying, Fighting, Respect, and Safety

Category	New York City School Survey Question	Variable Name	=1 If Respond
Bullying	"At this school, students harass or bully other students."	Bullying	None or some of the time
Fighting	"At this school, students get into physical fights."	Fighting	
Respect	"Most students at this school treat each other with respect."	Respect	Agree or strongly agree
Safety	"I feel safe in my classes at this school."	Safe: Class	
	"I feel safe in the hallways, bathrooms, locker rooms, and cafeteria of this school."	Safe: Inside	
	"I feel safe outside around this school."	Safe: Outside	

Retrieved from: Gutierrez, E. (2021). The Effect of Universal Free Meals on Student Perceptions of School Climate: Evidence from New York City. Annenberg Institute at Brown University, EdWorkingPaper, 21-430. https://doi.org/10.26300/mcqq-sd26. Accessed March, 2022.

APPENDIX 4: U.S. HOUSEHOLD FOOD SECURITY SURVEY MODULE

Economic Research Service, USDA

September 2012

Transition into Module (administered to all households):
These next questions are about the food eaten in your household in the last 12 months, since (current month) of last year and whether you were able to afford the food you need.

Household Stage 1: Questions HH2-HH4 (asked of all households; begin scale items).

[IF SINGLE ADULT IN HOUSEHOLD, USE "I," "MY," AND "YOU" IN PARENTHETICALS; OTHERWISE, USE "WE," "OUR," AND "YOUR HOUSEHOLD."]

HH2. Now I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months—that is, since last (name of current month).

The first statement is "(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more." Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

HH3. "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

HH4. "(I/we) couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

[ ] Often true
[ ] Sometimes true
[ ] Never true
[ ] DK or Refused

Screener for Stage 2 Adult-Referenced Questions: If affirmative response (i.e., "often true" or "sometimes true") to one or more of Questions HH2-HH4, OR, response [3] or [4] to question HH1 (if administered), then continue to *Adult Stage 2;* otherwise, if children under age 18 are present in the household, skip to *Child Stage 1,* otherwise skip to *End of Food Security Module.*

NOTE: In a sample similar to that of the general U.S. population, about 20 percent of households (45 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 2.

Adult Stage 2: Questions AD1-AD4 (asked of households passing the screener for Stage 2 adult-referenced questions).

AD1. In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

[ ] Yes
[ ] No (Skip AD1a)
[ ] DK (SkipAD1a)

AD1a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] DK

AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

AD3. In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

AD4. In the last 12 months, did you lose weight because there wasn't enough money for food?

[ ] Yes
[ ] No
[ ] DK

Screener for Stage 3 Adult-Referenced Questions: If affirmative response to one or more of questions AD1 through AD4, then continue to ***Adult Stage 3;*** otherwise, if children under age 18 are present in the household, skip to ***Child Stage 1,*** otherwise skip to ***End of Food Security Module.***

NOTE: In a sample similar to that of the general U.S. population, about 8 percent of households (20 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 3.

Adult Stage 3: Questions AD5-AD5a (asked of households passing screener for Stage 3 adult-referenced questions).

AD5. In the last 12 months, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?

[ ] Yes
[ ] No (Skip AD5a)
[ ] DK (Skip AD5a)

AD5a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

[ ] Almost every month
[ ] Some months but not every month
[ ] Only 1 or 2 months
[ ] DK

[**End Of Food Security Module]**

User Notes

(1) <u>Coding Responses and Assessing Household Food Security Status:</u>
Following is a brief overview of how to code responses and assess household food security status based on various standard scales. For detailed information on these procedures, refer to the *Guide to Measuring Household Food Security, Revised 2000,* and *Measuring Children's Food Security in U.S. Households, 1995-1999.* Both publications are available through the ERS Food Security in the United States Briefing Room.

Responses of "yes," "often," "sometimes," "almost every month," and "some months but not every month" are coded as affirmative. The sum of affirmative responses to a specified set of items is referred to as the household's raw score on the scale comprising those items.

· Questions HH2 through CH7 comprise the U.S. Household Food Security Scale (questions HH2 through AD5a for households with no child present). Specification of food security status depends on raw score and whether there are children in the household (i.e., whether responses to child-referenced questions are included in the raw score).
  - o For households with one or more children:
    - Raw score zero—High food security
    - Raw score 1-2—Marginal food security
    - Raw score 3-7—Low food security
    - Raw score 8-18—Very low food security
  - o For households with no child present:
    - Raw score zero—High food security
    - Raw score 1-2—Marginal food security
    - Raw score 3-5—Low food security
    - Raw score 6-10—Very low food security

Households with high or marginal food security are classified as food secure. Those with low or very low food security are classified as food insecure.

· Questions HH2 through AD5a comprise the U.S. Adult Food Security Scale.
- Raw score zero—High food security among adults
- Raw score 1-2—Marginal food security among adults
- Raw score 3-5—Low food security among adults
- Raw score 6-10—Very low food security among adults

· Questions HH3 through AD3 comprise the six-item Short Module from which the Six-Item Food Security Scale can be calculated.
- Raw score 0-1—High or marginal food security (raw score 1 may be considered marginal food security, but a large proportion of households that would be measured as having marginal food security using the household or adult scale will have raw score zero on the six-item scale)

- Raw score 2-4—Low food security
- Raw score 5-6—Very low food security

- Questions CH1 through CH7 comprise the U.S. Children's Food Security Scale.
    - Raw score 0-1—High or marginal food security among children (raw score 1 may be considered marginal food security, but it is not certain that all households with raw score zero have high food security among children because the scale does not include an assessment of the anxiety component of food insecurity)
    - Raw score 2-4—Low food security among children
    - Raw score 5-8—Very low food security among children

(2) <u>Response Options:</u> For interviewer-administered surveys, DK ("don't know") and "Refused" are blind responses—that is, they are not presented as response options, but marked if volunteered. For self-administered surveys, "don't know" is presented as a response option.

Retrieved from: U.S. Department of Agriculture (USDA), Economic Research Service. (2021, September). U.S. HOUSEHOLD FOOD SECURITY SURVEY MODULE: THREE-STAGE DESIGN, WITH SCREENERS. https://www.ers.usda.gov/media/8271/hh2012.pdf. Accessed March, 2022.

APPENDIX 5: FOCUS GROUP GUIDE AND MATERIALS

B.2-1 Discussion Guide for a Key Informant Focus Group

Introduction

Thank you for your willingness to take part in this group discussion. The purpose of the discussion is to explore each of your perceptions regarding the presence of food security in this community.

I'd like to begin by defining food security. The handouts I've given you define both household food security and community food security. Although they are integrally connected, they are also quite separate situations. For example, a household may be food insecure—household members may not be able to afford to purchase food from normal retail food outlets and they may have had to take several different actions to stretch their food or may have gone without food on numerous occasions. However, in the community, food may be affordable, available, and accessible through normal markets. That is, community food security may not be a problem, but some households in the community may be food insecure.

Let's try to discuss these two issues separately. First, let's talk about household food security:

1. Do you think that many households in the community have a problem with food security? What is the extent of the problem?
2. Why do you think that household food security is a problem? (That is, how do you see the problem manifest itself?)
3. How do people cope with the problem of food insecurity?
4. What are the contributing factors?
5. Now, let's talk about the community:
6. Do you think that food is accessible, available, and affordable in the community? (Probe to explain how it is or is not.)
7. Are there differences in different parts of the community?
8. What do you think are the biggest problems related to food security at the community level? Why do you think these exist?
9. How does the community address food insecurity? What resources are in place to avoid the problem if it doesn't exist?
10. What else could be done to improve the community's problems with food insecurity?
11. Who are the key players?
12. Are alternative food sources easily accessible and used in the community? What are they? Who organizes them?
13. Finally, I would like to focus on local food-related policies:
14. Are there any local ordinances or other policies that affect food production, distribution, and consumption? (e.g., zoning rules that affect supermarket development, food purchasing regulations for local schools or institutions, policies on the use of city-owned land for community gardens)

15. Are there any transportation policies that affect food access?

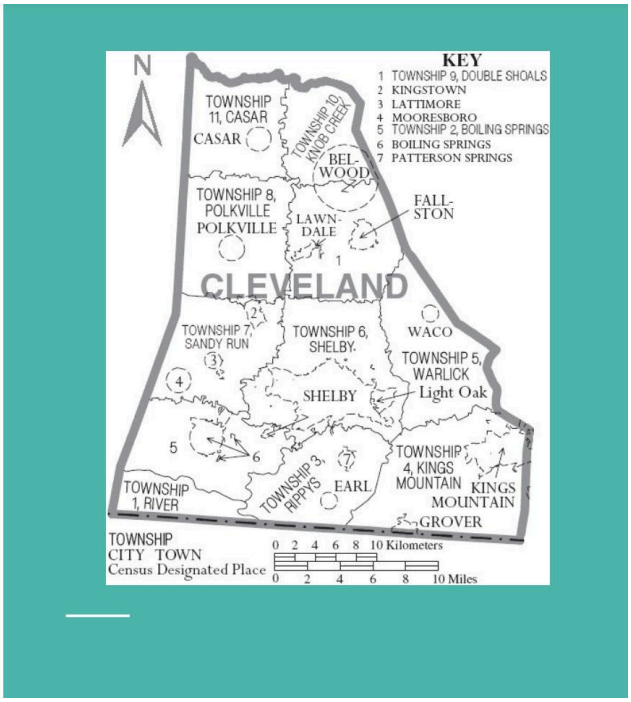
16. Are there any farmland preservation efforts?

17. Are there local funding sources for community food security-related activities?

18. Is there an integration of food-related issues into the community planning process?

G4. Individual Slides and Script

Slide 1: Title Slide (L. Watts)



Hi everyone, my name is Laurin from Nutrition, and I am joined by Idia in Health Policy, Hannah and Gaby in Nutrition, and Davin in leadership. Today we will be talking about increasing food accessibility and mental health resources to promote adolescent well-being in a rural community, specifically Cleveland County. Furthermore, this presentation will cover a nutrition-based intervention and mental health policy to achieve these goals.

Slide 2: Social Determinants of Health in Cleveland County (L. Watts)

The Social Determinants of Health are factors in a person's environment that influence their health and well-being. The Neighborhood and Built Environment is a domain within the social determinants that encompasses the place where one lives, works, plays, and learns. The overall objective of focus for this presentation is to increase the proportion of schools with policies and practices that promote health and safety. So, what does the neighborhood currently look like in Cleveland County? The 2019 Community Health Assessment revealed 3 high priority areas for improvement as the percentage of residents living below the federal poverty line, children who have adverse childhood experiences, and limited access to healthy foods. All of which relate to the neighborhood and built environment, and in Cleveland County, disproportionately affect children's mental and physical health. The three statistics on the right highlight key health disparities, noting how a third of children under the age of 18 are in in poverty, over a third use e-cigarettes, and over half participate in free or reduced lunch programs.

Slide 3: Impacts (L. Watts)

Poverty, food insecurity, and substance use negatively influence a child's growth and development, increases violence and risky behaviors, and have long term impacts, such as the choice to pursue higher education, risk for developing health conditions, increases in spending on healthcare and judicial system, and further perpetuating existing inequities in the community. Given the high proportion of students who are living in poverty, are food insecure, and are utilizing school meals, it is apparent that students in Cleveland County need more support.