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Dana Guglielmo Date

An Examination of Nutrition Policies, Practices, and Environments in Georgia SNAP-Ed Elementary Schools Using a Socio-Ecological Framework

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Abstract

An Examination of Nutrition Policies, Practices, and Environments in Georgia SNAP-Ed Elementary Schools Using a Socio-Ecological Framework

By Dana Guglielmo

Background: Despite the importance of a nutritious diet for children to be healthy, perform better in school, and prevent obesity and chronic disease, children nationwide have energy-dense, nutrient-poor diets and childhood obesity rates have increased significantly over the past few decades. Evidence documents that elementary schools play a salient role in shaping childhood nutrition habits.
Methods: The *HealthMPowers School Setting Nutrition Survey* assessed current nutrition policies, practices, and environments in 85 Georgia elementary schools that were funded by the US Department of Agriculture's Supplementary Nutrition Assistance Program Education (SNAP-Ed) grant during the 2015-2016 school year. Differences in survey responses were assessed across school-level variables of the socio-ecological model. Fisher's exact and Rao-Scott chi-square tests were performed to assess differences by geography and "cohort year" (number of years working with HealthMPowers); logistic regression tests were performed to assess differences by free and reduced-price lunch eligibility (FRL) and race/ethnicity.
Results: During the past school year, all schools offered fresh fruits and vegetables daily, and the majority followed their district's wellness policy or their own, offered students nutrition education, participated in farm-to-school programs, and used Georgia-grown products daily in school lunch programs. Fewer schools provided non-food celebration and fundraising ideas and limited sugar-sweetened items in the classroom. Schools classified as "rural/town" were the least likely to use food in their classrooms (i.e., as a reward or incentive or in classroom lessons) ($p<0.05$) and schools in cohort years 3-5 reported having the fewest competitive venues (i.e., a la carte, school stores, or snack carts) ($p<0.05$). The odds of purchasing fruits and vegetables from Georgia growers increased with higher FRL (OR: 1.15; 95% CI: 1.06, 1.25).
Conclusions: Although Georgia schools are excelling in the areas of wellness policies and student nutrition education, there is room for improvement in classroom policies/practices and parental involvement. There is a need for evidence-based interventions including increased nutrition education and greater access to resources including training and nutrition programs.
Key words: nutrition, obesity, elementary, school, policy, wellness, SNAP-Ed

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Chapter I. Introduction

A. Problem Overview

Inadequate nutrition in US children has established itself in recent times as a pressing public health concern. Since 1980, obesity rates have doubled in children ages 6-11 and quadrupled in children ages 12-19.[1] Though trends from recent years indicate that these rates may be plateauing, the prevalence of childhood overweight and obesity is at a record high with approximately one third of US children being overweight or obese as of 2015.[2] The economic costs associated with childhood obesity are staggering; according to a 2013 Robert Wood Johnson Foundation (RWJF) report, approximately $274 billion dollars are spent each year on inpatient and $14 billion dollars on outpatient medical costs directly related to overweight and obesity in US children.[3]

In general, American children do not have optimal diets[4] which, according to the US Department of Health and Human Services (HHS) and United States Department of Agriculture (USDA), ideally should consist of a variety of fruits, vegetables, protein-rich foods, whole grains, low-fat or fat-free dairy products, and oils, while also limiting saturated and trans-fatty acids, added sugars, and sodium.[5] Poor nutrition can lead to overweight and obesity, which in turn can result in a number of weight-related issues including chronic diseases (e.g., heart disease, stroke, type II diabetes, hypertension, and certain cancers), osteoarthritis, asthma, sleep apnea, and countless others.[4,6,7] It can also adversely affect academic performance as students with healthy nutrition and physical activity habits tend to outperform their less-healthy peers in academics, classroom behavior, and attendance.[3] Obese children are at an elevated risk for adult obesity as well.[3] Thus, it is evident that a nutritious diet is critically important for children in

reducing the numerous health, social, and economic costs resulting from children having poor nutritional habits or from being overweight or obese.

Although inadequate childhood nutrition is already a glaring issue among US children, evidence suggests that ethnic minorities and low-socioeconomic status (SES) children are disproportionately affected by poor nutrition and obesity rates[3,8,9] and that these disparities have only worsened over time.[8] Racial/ethnic differences in nutritional intake may be attributed to systemic cultural differences in dietary and physical activity behaviors or other community-level differences.[9] Evidence also indicates that schools in low-income communities may not have the resources to provide their students with adequate nutrition environments.[10] Moreover, poor nutrition and obesity rates are often not the most pressing concerns in disadvantaged areas in comparison to others such as drug abuse or violence.[10]

B. Role of Schools in Childhood Nutrition and Obesity

Students spend many of their waking hours in school, and evidence indicates that schools can play a salient role in shaping students' eating behaviors, general health, and wellbeing.[4,6,9,11] The substantial power that schools have to help their students adopt healthy habits has been supported by a number of studies that have shown that school nutrition environments are directly associated with their students' food choices and body weight.[12-16] Childhood and adolescence are critical time periods in which individuals develop eating habits that generally will stay with them for life.[9] Promoting healthy eating in schools is considered an effective and financially efficient way to gradually alter students' eating habits toward healthier selections and encourage lifelong healthy habits.[17] Furthermore, participation in school meal programs is vast; in 2015, the National

School Lunch Program (NSLP) was comprised of 30.5 million students with over 5 billion total meals served,[18] and the National School Breakfast Program (SBP) consisted of 14.09 million students with over 2 billion total meals served.[19] For reference, the total number of students enrolled in public elementary and secondary schools during the 2013-2014 school year (2015-2016 data not available) was roughly 50 million.[20] Schools' efforts to provide their students with nutritious foods can have far-reaching positive health implications such as preventing overweight, obesity, chronic disease, and improving general health. Thus, it is critical for schools to promote healthy, nutritious eating.

Despite the opportunity schools possess to help their students establish lifelong healthy eating habits, many schools offer more unhealthy than healthy food and beverage items.[21,22] Many schools sell competitive items (i.e., those sold outside of meal programs) that are usually high-fat, -sugar, and -sodium.[22] In school cafeterias nationwide, breakfast and lunch are often served at unrealistic times – either very early or very late[6,23] – when students are not hungry and therefore will not eat or will go too many hours without eating. Compounding the issue is that there are no national regulations in place regarding the length of lunch periods. As a result, many students only have a maximum of twenty minutes to sit down and eat their meals.[24] There is a complex relationship between shortage of time and nutrition choices, and this has not been investigated thoroughly. However, emerging evidence has documented that many American adults do not feel they have time to prepare healthy meals for themselves and/or their families, and instead increasingly rely on fast food and takeout meals that tend to be higher in fat, sodium, and calories, while containing little to no fruits and vegetables and essential nutrients.[25] In the

context of school nutrition, a recent study involving children in grades 3-8 found that insufficient time (defined as less than 20 minutes) to eat lunch was associated with consuming foods of poorer nutritional quality and lower consumption of fruits and vegetables.[24]

Lastly, students are being exposed to disproportionately more unhealthier than healthy foods. Many students nationwide have regular access to a variety of unhealthy foods and beverages but often do not have the same access to a variety of fruits and vegetables.[26] Foods and beverages sold outside of the cafeteria, such as in fundraisers, classroom parties, and vending machines tend to be energy-dense and nutrient-poor.[12,26] Classroom nutrition environments may also contribute to unhealthy eating since many teachers use food as a reward despite the Centers for Disease Control and Prevention (CDC) and other prominent health organizations recommending against the practice.[27,28]

C. Federal Legislation

In 2004, the Child Nutrition and WIC Reauthorization Act (CNR) was created in response to growing concerns about school nutrition policies, practices, and environments, and ultimately to combat the nation's growing childhood nutrition and obesity crises.[12] Though the USDA's Food and Nutrition Service was created to ensure that items sold through the NSLP and the SBP were nutritious and of high-quality, a critical issue was the lack of regulation of non-reimbursable competitive foods sold outside of federal school meal programs (i.e., a la carte, in fundraisers, snack bars, vending machines, etc.), which were not regulated by federal laws.[12] In order to provide regulations to competitive foods, the CNR was created, and beginning on the first day of school in 2006, Section 204: Local School Wellness Policy of the CNR required that any

school receiving federal funding for school meal programs such as the NSLP or SBP was obligated to formulate a wellness policy regarding the sale of these foods.[22] The CNR sought to improve nutritional standards in schools by promoting nutrition education, imposing strict regulations on every food or beverage sold at school, and requiring a wellness committee to be formed to develop and implement school wellness policies.[12] This past year (2016), new rules were imposed by the USDA that required schools participating in school meal programs such as the NSLP or SBP to create minimum requirements for the content of wellness policies, to include key stakeholders in the wellness policy development process, and to regularly evaluate compliance with school wellness policies.[29] The goal of these rules was to improve school nutrition environments and increase accountability for schools to develop and implement their wellness policies.[29]

i. Impact of Legislation on School Nutrition Environments

One of the overarching goals of the CNR was to create accountability and transparency in schools, as well as to support and encourage them to make positive changes in their school food policies and environments.[30] Since the inception of the CNR, schools have made some progress in developing healthier nutrition environments, although it generally has been slow.[26] However, a 2009 RWJF report noted that in the two years after the implementation of the new guidelines, the majority of schools nationwide had developed wellness policies, but many were ineffective, vague, or hard to enforce.[31] These findings were corroborated by a nationally representative study that found that even though schools were making positive changes in developing school gardens, participating in farm-to-school

programs, and improving the nutritional quality of items offered, the impact of these changes was negligible and there remained a large margin for improvement.[26] Similarly, a 2013 RWJF report assessed the impact and implications of the 2004 mandate five years following the required start date in 2006 and the findings revealed that compliance with developing required comprehensive wellness policies was low.[3]

One of the main reasons that schools have struggled to develop strong wellness policies was that the CNR contains critical issues that contribute to its ineffectiveness.[32] First and foremost, financial assistance is not offered to schools to help them implement their policies, and this strongly dissuades them from doing so.[32] Next, the law requires schools to create minimal standards for nutrition guidelines instead of necessitating that schools set more ambitious guidelines.[32] The wording of the mandate is also ambiguous and does not give schools ample guidance in setting clear and concrete goals for nutrition guidelines.[32] Another notable issue is that up until this past year, evaluations of school wellness policy implementation was not mandated, which made it difficult to determine their effectiveness.[29,33]

Although many schools nationwide have developed a required wellness policy, many have missing sections and/or are poorly-written as a result of the vague guidelines of the CNR.[3] The regulation of competitive foods is another area of inadequacy. United States elementary schools tend to have significantly stronger regulation of competitive foods than middle or high schools, but in general, the competitive foods section of wellness policies in schools nationwide is usually the weakest and least comprehensive.[3] Though these issues illuminate the mandate's failure to reach one of one of its principal goals of ensuring that all foods sold at

school are of sound nutritional quality, the legislation has still seen some success. The establishment of a school wellness policy was found to be associated with lower rates of adolescent overweight and obesity.[34] Thus, it is essential to assist schools in strengthening their wellness policies and eliminate barriers to implementation.

i. Barriers to School Wellness Policy Implementation

Along with the aforementioned critical issues of the CNR, many elementary schools have experienced other noteworthy barriers that have prevented them from fully and effectively implementing school wellness policies. Due to financial pressures, the most common roadblock to wellness policy implementation for schools is the concern that, by selling primarily healthy foods, the schools will lose substantial profits on a la carte items because students pay full price for these items.[22] It is important to note that federal legislation also does not stipulate that schools will receive incentives for implementing policies.[32] One study claimed that financial concerns may be unfounded since it has been shown that overall school revenue (profits made minus expenses incurred) remained unaffected after healthier food choices were swapped in for unhealthy options.[22] However, a USDA Food and Nutrition Service cost analysis of federal school meal programs revealed that federal reimbursements do not cover the total cost of meal production in many cases.[35] This leads some schools to attempt to generate additional revenue by selling more expensive a la carte items that are appealing to students, yet usually energy-dense and nutrient-deficient.[4] Whether financial concerns are valid has not been agreed upon in current literature. Other significant barriers to enacting successful school wellness

policies include lack of time, training, and technical assistance, and not prioritizing the implementation of school wellness policies.[32,36,37]

ii. Healthy, Hunger-Free Kids Act and SNAP-Ed

The Healthy, Hunger-Free Kids Act of 2010 (HHFK) emerged as a reauthorization of the CNR.[37] In a period of ten years, it sought to provide funding to schools, strengthen nutrition standards, create clearer guidelines for wellness policy development, increase low-income elementary school students' access to nutritious foods, and create numerous other positive changes in school food environments nationwide.[38] The HHFK also established the Supplemental Nutrition Assistance Program Education (SNAP-Ed) in an effort to enable low-income families receiving food stamps (SNAP) to make healthy choices and reduce overweight and obesity rates.[39,40] Effective April of 2013, SNAP-Ed was created as an initiative that relies on evidence-based strategies to educate SNAP recipients on how to improve their diet, how to eat healthy on a budget, and the importance of physical activity.[39-41]

To be eligible for SNAP, a family or individual must be below an established federal poverty level.[42] Eligibility requirements for SNAP-Ed include being a SNAP enrollee, being a recipient of FRL in federal school meal programs, or meeting specific criteria for poverty.[41] Schools are designated as SNAP-Ed if 50% of higher of its students are eligible for FRL. Thus, SNAP and SNAP-Ed participants both are representative of low-SES populations.

Children in the US are already struggling to maintain healthy weights, but evidence suggests that children from low-SES families may struggle even more. It has been documented that there exists a significant association between SNAP

participation and obesity in adults, and there is emerging evidence to believe that this association is true in children as well.[42] One study revealed an association between food insecurity and obesity in adults,[42] but far less research has been conducted in children, making students in SNAP-Ed elementary schools a critical population to investigate in this study.

D. HealthMPowers

HealthMPowers is a 501(c)(3) nonprofit organization based in Norcross, Georgia, whose mission is to "promote healthy eating and physical activity in schools using the evidence-based guidelines established by the CDC."[43] Since 1999, the organization has administered numerous surveys to better understand school nutrition and physical activity policies, practices, and environments in schools across Georgia. HealthMPowers also conducts periodic trainings with school administration and staff to provide them with recommendations for improving the health and wellbeing of their students.

i. Resources Provided to Schools

Since its creation in 1999, HealthMPowers has provided 2,762 hours of direct nutrition and physical activity education, along with an additional 45,753 hours by school staff that have used the educational materials, lessons, and training provided by HealthMPowers.[44] Specifically in the area of nutrition, HealthMPowers provides different types of resources to schools based on their "cohort year" (i.e., number of years working with HealthMPowers as of the 2015-2016 school year). Historically, HealthMPowers has found that schools have the most success in implementing new educational materials and programs when HealthMPowers introduces them to schools incrementally, with each cohort year receiving more than the previous. Some schools

are considered “virtual schools,” which means that they receive materials electronically (i.e., via email) instead of in-person. Though the types of resources remain the same from year to year, the quantity increases over time. After year 3 of working with HealthMPowers, schools do not receive an increase in quantity of resources but instead received updated materials each year. Thus, during the 2015-2016 school year, schools in cohort year 1 received the fewest resources and cohort year 3-5 received the most, with virtual schools receiving only electronic materials (Table 1).

Table 1. List of resources provided to schools by HealthMPowers during the 2015-2016 school year

Resource	School Cohort Year			
	1	**2**	**3-5**	**Virtual**
Posters	X	X	X	X
Activity booklets	X	X	X	X
Nutrition tips	X	X	X	X
Instructional CDs	X	X	X	X
DVDs	X	X	X	X
Student incentives	X	X	X	
Student planners	X	X	X	
Packets		X	X	X
Newsletters		X	X	X
Student health advocates		X	X	

ii. HealthMPowers School Setting Nutrition Survey

From 2015 to 2016, HealthMPowers led the development and implementation of the *HealthMPowers School Setting Nutrition Survey* (Appendix A), an instrument designed to collect information about elementary school nutrition policies, practices, and environments. The intent of the survey was to gain a deeper understanding of these aspects of Georgia SNAP-Ed elementary schools and to use this information to inform resources and recommendations provided to schools in their periodic trainings, while not comparing individual schools to each another.

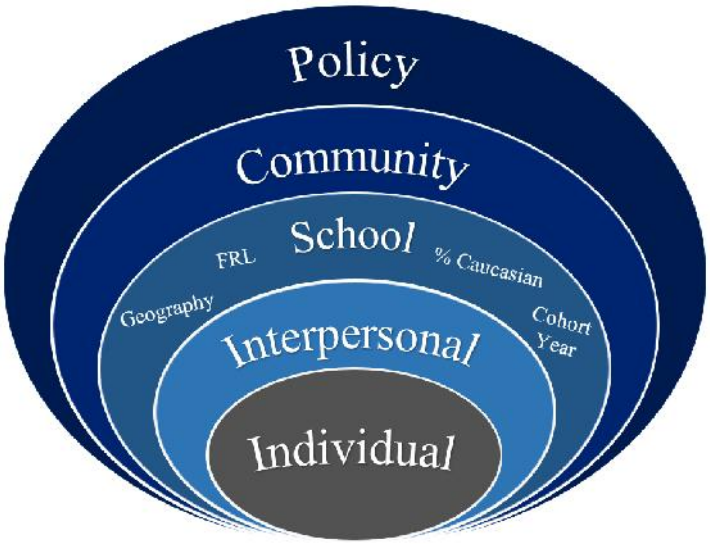
E. Theoretical Framework

The socio-ecological model (SEM) is a framework that can help explain the interaction of people with their environments as compared among various multilevel factors (Figure 1).[45] In the context of this study, there is evidence indicating that the SEM is appropriate for investigating eating behaviors and physical acitivity,[17,45-47] as the framework has been used to explain how multilevel factors influence eating and physical activity behaviors and resulting health outcomes.[5] Previous research has employed the SEM or similar ecological models to investigate related topics such as food environments and eating behaviors,[45,47] nutrition education and social marketing in low-income populations,[46] and promoting healthy eating in schools.[17] Additionally, some studies have explored the connection between school food environments and policies and various geographical, socioeconomic, and cultural factors while not explicitly employing the SEM or similar model.[12,48,49]

However, current literature is lacking specifically in the area of examining food environments in general from an ecological perspective,[45] and no studies to date have utilized the SEM to investigate school-level factors influencing school nutrition policies, practices, and environments with a specific emphasis on low-income Georgia elementary schools. The current study aims to fill in this gap by examining school nutrition policies, practices, and environments in this understudied population from a socio-ecological perspective. Of particular interest in this study are school-level factors, which include geography, FRL, race/ethnicity (measured by percent Caucasian), and cohort year. The study is based on the SEM while acknowledging that there are numerous other factors

that may influence nutrition policies, practices, and environments that are not explicitly examined in this study.

Figure 1. *Theoretical Model.* School-level factors of the SEM analyzed in this study: geography, FRL, percent Caucasian, and cohort year



F. Study Objectives

The objectives of this study were to: 1) Understand current nutrition policies, practices, and environments in Georgia SNAP-Ed elementary schools; 2) Compare school nutrition policies, practices, and environments in relation to the theoretical constructs of the SEM; specifically, school-level factors (geography, FRL, percent Caucasian, and cohort year); and 3) Provide schools with recommendations and personalized results to help improve the health and wellbeing of their students and families.

Chapter II. Literature Review

A. Introduction

Prior to developing the *HealthMPowers School Setting Nutrition Survey*, an extensive literature review was conducted in order to assess the quality, content, strengths and limitations of previously administered survey instruments in the area of nutrition policies, practices, and environments in schools. Thirteen sources were identified to potentially adapt the *HealthMPowers School Setting Nutrition Survey* from, and among these sources were eight chosen (Appendix B).[50-57]

B. Basis for Survey Instrument

Childhood nutrition is such a pressing public health concern that there have already been a number of survey instruments disseminated to schools nationwide to evaluate their current nutrition policies, practices, and environments. These surveys were administered by both governmental and non-governmental institutions and distributed in specific regions and nationally, and have assessed schools in the area of both nutrition and physical activity. One notable example of these survey instruments is the CDC's School Health Index (SHI): Self-Assessment and Planning Guide, which is an annual self-assessment tool administered to elementary, middle, and high schools for a confidential self-assessment process to gauge the progress their schools have made in the areas of nutrition and physical activity.[58] The *HealthMPowers School Setting Nutrition Survey* was designed with the intent of collecting information beyond the scope of the thorough information already available from the SHI.

i. Bridging the Gap: Food and Fitness Surveys

In 1997, the Robert Wood Johnson Foundation founded *Bridging the Gap: Research Informing Policies and Practices for Healthy Youth*, a nationally known research program whose mission is to learn the connection between wellness policies and diet, physical activity, obesity, and tobacco use among youth.[59] In recent years, specifically from 2006-2014, Turner and Chaloupka created *Bridging the Gap*: *Food and Fitness* surveys, which were administered annually to a national sample of elementary schools and were designed to obtain information about nutrition policies and practices in this population.[60] These surveys had slight modifications from year to year and significant modifications in 2014. Approximately half of the *HealthMPowers School Setting Nutrition Survey* was informed by *Bridging the Gap*'s *Food and Fitness* surveys, and in particular, 2013-2014[50] and 2007-2008.[51]

ii. Other Sources Reviewed

Beyond *Bridging the Gap's Food and Fitness Surveys*, there were also six other sources from which content of the *HealthMPowers School Setting Nutrition Survey* was directly adapted from or modeled after. These sources included Alliance for a Healthier Generation's Model Wellness Policy,[52] USDA's Farm to School Census (2015),[54] Cornell Smarter Lunchrooms Self-Assessment (2014),[53] The School Health Policies and Practices Study (SHPPS) (2014): Nutrition Services School Questionnaire,[56] A Guide to Centralized Foodservice Systems (2002),[55] and RWJF's Serving Healthy School Meals Report (2015).[57] These sources encompassed questionnaires, self-assessments, reports, and guides.

Other sources that assisted in the formation of the *HealthMPowers School Setting Nutrition Survey* but whose questions were not explicitly featured in it included the CDC School Health Index (2014),[58] School Nutrition Dietary Assessment – IV (2012),[61] Nutrition Learning Environments, Actions and Policies (LEAP) Questionnaire (2010),[62] and USDA's Smart Snacks in School Standards.[63]

C. Related Studies

A number of studies have been conducted that are related to the current study. One research group evaluated the strength of wellness policies of Georgia public schools but employed a different methodology than that of the current study.[48] Instead of administering a survey, the authors assessed the strength of school wellness policies in relation to school demographics by reviewing actual copies of the schools' wellness policies.[48] It was found that having well-defined goals for the wellness policies as well as nutrition education was positively associated with student academic performance.[48] It was also found that only 51% of school districts' policies complied with all required components of the CNR, which may indicate that it would be beneficial to provide financial and/or technical assistance to schools.[48] This study is particularly relevant to the current study because the population includes Georgia public schools and one exposure variable assessed was percentage of economically disadvantaged students.[48]

One author also studied the association of school nutrition wellness policies and environments in relation to certain school demographic characteristics in a national sample of public elementary, middle, and high schools.[48] Similarly to the current study, food environments were compared to a number of similar school demographic characteristics.[12,26] The authors assigned each school a composite score of its school food

environment and policies (SFEP) based on an analysis of data from the 2005 School Nutrition and Dietary Assessment – III survey.[12] There was no significant correlation between FRL rate and SFEPs or between percentage of students that were racial/ethnic minorities and SFEPs.[48] This study measured many of the same demographic and school characteristics as the current study, but did not explicitly employ the SEM as a framework.[12]

On the other hand, one research team investigated school food environments in relation to school demographics in Pennsylvania high schools through administering a survey to foodservice directors and found that FRL rate was a significant predictor of a la carte sales.[49] Finally, another research team examined school wellness policies and their barriers to implementation by surveying and conducting focus groups with a nationally representative sample of schools, but did not compare disparities in policy implementation across school demographics.[36] The authors found that school board members had the highest confidence levels regarding their schools' ability to develop, implement, and monitor their required wellness policies.[36]

D. Rationale for Study

A number of studies have been conducted examining school nutrition policies, practices, and environments, but none have specifically examined low-income schools in Georgia or explicitly employed the SEM as a framework for comparing these aspects among school-level demographic characteristics. Additionally, a number of researchers have conducted related studies (i.e., with different age groups, in different locations, etc.) which provided evidence for each of the chosen SEM constructs of interest. The current study investigates Georgia SNAP-Ed school nutrition policies, practices, and

environments in relation to the school-level construct of the SEM, including geography, FRL, percent Caucasian, and cohort year.

i. School Wellness Policies and Committees

Schools nationwide are required by law to formulate both a wellness policy and wellness committee. Despite the importance of each, a 2008 national study of public elementary, middle, and high schools found that less than half of the schools had formed a wellness policy and less than a quarter formed a wellness committee.[12] However, there is reason to believe that schools are making progress in the area of wellness policy development as a 2012 study of Georgia schools found compliance with the CNR to be very high.[48] Cross-sectional surveys of elementary school cafeteria environments revealed that compared to the time that CNR went into effect, elementary schools serve significantly healthier lunches today.[64]

However, certain classroom practices such as using food as a reward are still widely used, which is cause for concern.[28] Thus, it is still important to examine classroom-level policies, practices, and environments to gauge whether the wellness policies are being enforced. Implementing strong policies at multiple levels is a critical component in creating healthy school nutrition environments,[64] improving student nutrition, and preventing overweight and obesity.[65] Though it has been verified that strong, thorough wellness policies are critical in creating healthy school eating environments, more research is needed to solidify the relationship between wellness committees and policy implementation.

ii. Geography

Certain studies have shown that the geography, including location and size, of the city in which a particular school is located is correlated with both the health of its nutrition environment as well as the body compositions of its students. Urban schools tend to score the highest in the quality of their nutrition policies and environments, while rural schools score the lowest, and suburban schools fall somewhere in the middle of this spectrum.[12,26] Although the challenges unique to rural schools is not an area of research that has been closely examined, these findings may be attributed to lack of adequate funding and well-trained staff, differing cultural priorities, and poor leadership in communities.[66] Beyond school nutrition policies and environments, students attending school in rural areas tend to have a greater tendency to be obese.[66] Although one study found no significant association between geographic region and wellness policy development and implementation,[67] these findings provide a strong rationale to compare nutrition policies and environments across geography.

iii. FRL

In this study, FRL is used as a proxy for student SES. As mentioned previously, rates of childhood obesity tend to disproportionately affect low-income communities.[9,65,68] However, similar to findings regarding geography, there have been contradictory findings surrounding the association of US school food nutrition policies and environments with student income. In 2006 one author stated, "Research on whether schools in low-income areas are less able to provide students with healthful foods . . . is inconclusive."[10] For instance, SES (measured in this study by parental education levels) was found to be positively associated with greater student

access to healthy foods in vending machines, school stores, snack bars/carts, and a la carte.[21] These findings were supported by evidence that schools of higher SES tend to offer healthier competitive food items than lower SES schools,[65] and that the ratio of unhealthy to healthy options offered is greater in lower-SES schools than in higher-SES.[59]

On the other hand, some authors found no association with student income and school food environment,[12,26] and no association with student income and wellness policy development and implementation.[67] With such discrepancies in findings, it is important to consider SES as a variable of interest in the current study's analysis. Because of the largely conflicting evidence currently available, there is an opportunity to advance existing literature by examining this association in an understudied population. Although by definition SNAP-Ed schools are comprised of primarily lower-income students, there may still be enough variation in SES to be considered an applicable variable for closer examination in this study.

iv. Race/Ethnicity

Although there is a documented association between childhood obesity and minority status,[10] the association between school nutrition policies and environments and race/ethnicity is less clear. Several studies have observed disparities in access to high-quality food in schools based on race and ethnicity, with Hispanics having disproportionately greater access to soft drinks, fast foods, and ice cream, and African Americans having disproportionately limited access to healthy snacks including fresh fruits and vegetables.[21,59] Some studies have found there to be no significant correlation between school food environment and ethnic minority composition.[12,26]

Further research is necessary to understand the relationship between a school's nutrition policies, practices, and environments and its racial/ethnic demographics.

v. Cohort Year

It is imperative for researchers to gain a deeper understanding of current nutrition settings in schools so interventions can be developed and implemented to improve the general health and wellbeing of their students and reduce their risk of becoming overweight or obese. The current literature indicates that school-based programs are effective but that the effects are not long lasting due to their brevity of implementation. Thus, cohort year was a variable of interest in the current study to explore this relationship further. The CDC and the Institute of Medicine both cite school-based interventions as a valuable way to lower childhood and adolescent obesity rates.[34]

Even though evidence documents that current school nutrition environments are generally poor, a number of structured school-based interventions have demonstrated that effectively improving these environments can have a favorable impact on both student dietary habits as well as body mass index (BMI). One study that employed a school-based intervention involving a health and wellness program and workshops found that the intervention group significantly increased their fruit and vegetable intake and had lower BMIs than the control group post-intervention.[69] Other interventions have been successful in increasing the amount of fruits and vegetables sold through strategic pricing or increasing the availability of each.[70] As a whole, however, the positive implications of most school-based interventions have not been effective long-term since these interventions are relatively short in duration. In

summary, policy changes and long-term targeted school interventions are the keys to creating long-term changes in school nutrition environments.

E. Summary

Overall, a number of studies have examined the correlation between school nutrition policies, practices, and environments and certain school demographics, yielding largely conflicting results. Additionally, based on current literature, studies focusing on Georgia schools are limited. It is evident that there is ample room for growth and elucidation in this area of research, as one researcher noted, "Although many methods of measuring the food environment exist, this area of research is still relatively new and there has been no systematic attempt to gather these measures [or] to compare and contrast them…"[71] The current study aims to fill in gaps in knowledge acquisition from previous school nutrition surveys and discrepancies in current literature by investigating elementary school nutrition policies, practices, and environments in low-income Georgia elementary schools.

Chapter III. Methods

A. Instrument Design

The *HealthMPowers School Setting Nutrition Survey* was designed by a multi-sector advisory team of 15 nutrition, school, public health, and education experts including representatives from HealthMPowers, Rollins School of Public Health at Emory University, Georgia Department of Education (DOE), Georgia Department of Public Health (DPH), Georgia State University, CDC, Children's Healthcare of Atlanta and Georgia Shape. This team employed a methodical process to create the survey instrument from June 2015 to April 2016. The content of the *HealthMPowers School Setting Nutrition Survey* was based primarily on the 2007-2008 and 2013-2014 *Bridging the Gap*: *Food and Fitness* surveys, with 18 of the final 37 questions adapted from these surveys. The advisory committee met in person to discuss the survey content and modifications were made following the meeting. The Georgia Shape Nutrition Council also reviewed the survey and provided input. The survey was developed using SurveyMonkey and then was piloted at a local elementary school by a HealthMPowers staff member to assess content and functionality. Modifications to the survey instrument were made based on several school staff members' feedback. HealthMPowers staff then tested the functionality of the revised survey and final modifications were made before launching the survey.

The survey was designed to use language that would be understood by those of all educational backgrounds and reading levels. To increase the response rates, the survey was intended to be brief, ideally taking no more than ten to fifteen minutes to complete.

The survey was comprised predominantly of multiple choice and check all that apply questions, along with one open-ended question.

Respondents were surveyed to assess the current state of their school nutrition policies, practices, and environments. Administrators were surveyed on wellness policies, wellness committees, school gardens, access to water, parental nutrition education and information, and fundraisers. Grade level chairs reported on student nutrition education, non-food celebration and fundraising ideas, classroom policies, and the use of food as a reward and within classroom lessons. Nutrition managers provided information on the purchasing and use of Georgia-grown products and produce, kitchen facilities, strategic pricing of items to encourage healthy eating, farm-to-school programs, daily options offered, lunch period length, posters used, USDA-sponsored Team Nutrition resources used, training desired, and promotional strategies used. All respondents had the opportunity to provide an open-ended response about what they wish their school would do to improve the consumption of healthy foods and beverages by their students.

B. Participants

The schools involved in the study were selected based on the following inclusion criteria: 1) Georgia elementary school; 2) eligible for SNAP-Ed (i.e., the school must have 50% or more of its students eligible for their FRL program); and 3) school administration must be familiar with HealthMPowers and supportive of their initiatives. Each of the schools in the study signed a multi-year memorandum of understanding (MOU) agreement with HealthMPowers delineating the responsibilities of HealthMPowers (e.g., provide programming, resources, and training to schools, conduct evaluations of programs, etc.) and the schools (e.g., utilize HealthMPowers' resources,

form a “School Health Team,” etc.). Targeted respondents in each school were administrators, grade level chairs, and nutrition managers. Each school could have up to eight respondents complete the survey (i.e., one administrator, six grade level chairs (K-5), and one nutrition manager); however, some schools had fewer than six grade levels.

C. Data Collection

In April 2016, HealthMPowers staff emailed links to the survey to administrators at 86 Georgia SNAP-Ed elementary schools in 19 school districts. The administrators were requested to complete the survey and to share the survey link with their schools’ grade level chairs (K-5) and nutrition managers. An established protocol emphasizing personalized and repeated contact was utilized to increase response rates, with some modifications to accommodate end-of-year testing schedules at schools.[72] Follow-up emails containing the survey link were sent out after two, four and five weeks. Phone calls were made to school administrators in addition to emails at four and five weeks. This research study was reviewed by Emory University’s Institutional Review Board and determined to be exempt. There was no formal informed consent required and though all questions required an answer, participants were able to stop taking the survey at any time. The survey participants were not compensated for their time.

D. Data Measures

i. Demographic Data

Aggregate data for FRL and percent Caucasian were obtained from publically available DOE data from October 7, 2014.[73,74] The rationale for using 2014 data instead of 2015 was that schools are designated as “SNAP-Ed” for the 2015-2016 school year based on FRL data from 2014. Free and reduced-price lunch eligibility

was reported as a continuous variable and encompassed the percentage of students eligible for FRL out of total student enrollment for each school. Race/ethnicity was self-reported by students and categorized by DOE into seven groups including Hispanic, American Indian, Asian, Black, Pacific Islander, White, and two or more races. In the current study, race/ethnicity was measured by percent Caucasian and treated as a continuous variable. Aggregate data for geography were obtained from the National Center for Educational Statistics (NCES) public school database from the 2013-2014 school year since more recent data was not available.[20] Thus, schools that were created 2014 or later did not have geography data available (n=5). School geography was grouped by NCES into four categories using the following definitions: city (area in an urbanized area), suburb (area outside a major city but in an urbanized area), town (area in an urban cluster), and rural (Census-defined rural territory).[20] Cohort year data was provided by HealthMPowers and was classified into four categories based on the amount of resources received from HealthMPowers: 1, 2, 3-5, and virtual. Cohort years 3-5 received similar resources and were grouped into one category, and since virtual schools were excluded from receiving any materials that are by nature designed to be in-person, these schools were classified as a unique entity in this study.

ii. Nutrition Policies, Practices, and Environments Data

Four questions were analyzed to assess school nutrition policies, nine questions to assess nutrition practices, and three to assess nutrition environments (Table 2). To assess policies, participants were surveyed on the presence of wellness policies (and if applicable, titles of designated enforcers) and the presence of classroom policies

limiting sugar-sweetened items from being brought in at snack time, birthday parties, and/or holiday parties. To assess nutrition practices, participants were surveyed on the availability of nutrition education for students, farm-to-school programs, purchasing and using locally sourced produce in school meals, use of USDA-sponsored Team Nutrition resources, whether non-food celebration or fundraising ideas are provided to parents or teachers, and whether food is used as a reward or in classroom lessons. To assess nutrition environments, participants were surveyed on the availability of a school garden, participation in fundraising activities, and lunch period length. Additionally, all participants were asked an open-ended question that assessed what they would recommend for their school to change in order to encourage healthier eating among their students.

Table 2. Survey questions analyzed to assess school nutrition policies, practices, and environments

Survey Question
Nutrition policies
Does your school have a wellness policy?
What is the title of the designated person(s) responsible for ensuring that the school's wellness policy is enforced?
Does your classroom have a policy/practice that limits sugar-sweetened foods (e.g., candy, cupcakes, cookies) from being served or brought in either at snack time or for parties during the school day?
Nutrition practices
Is nutrition education offered to students?
Which of the following nutrition education classes does your school provide for parents/caregivers?
Does your school participate in a farm-to-school program?
Please indicate if your school purchased any of the following foods (in any form) from Georgia growers/producers/processors/manufacturers during the 2015-2016 school year:
Please indicate how often your school uses Georgia-grown products or produce for any of the following nutrition programs during the current school year:
Does your school use any of the following USDA-sponsored Team Nutrition resources?
Does your school provide a list of non-food celebration ideas to the PTA/PTO and/or teachers?
Does your school provide a list of non-food fundraising ideas to the PTA/PTO and/or teachers?
Please indicate whether any of the following practices occur within your classroom:
Nutrition environments
Does your school currently have a garden (fruit and/or vegetable) in which students work, plant, or harvest either before, during, or after school?
Please indicate how often your school participates in or operates any of the following fundraising activities before, during, or after school?
How long is the lunch period for students in each grade?

E. Data Analysis

Data were downloaded from SurveyMonkey into Microsoft Excel files and then imported into SAS version 9.4. Results from a maximum of one administrator, one grade level chair for each grade from K-5, and one nutrition manager per school were included in the dataset. In cases of multiple complete surveys per role at the same school, the first survey submitted was analyzed. Results from incomplete surveys were analyzed only in instances where there was no complete survey available for a particular respondent at a school (n=5). In several instances, surveys were excluded: duplicate responses per role at the same school or duplicate responses for a particular individual (n=108), surveys with implausible responses (n=5), and surveys completed by pre-kindergarten teachers (n=4).

A descriptive analysis was performed, and frequencies for aggregate school-level demographic information and survey responses for all questions were calculated. Prior to analyzing differences in responses by school-level demographic variables, a "best respondent" was chosen by members of the advisory committee for each question based on who would be best equipped to answer the question based on their position, and only the answers provided by the "best respondents" were included in the analysis. To determine which variables to limit the analysis to, correlation matrices were constructed to assess relationships between variables; for relationships with a high correlation, only one variable was chosen to examine. These questions were chosen based on what would make the greatest contribution to current literature (i.e., which survey questions could lead to the most feasible and impactful changes in schools). Responses to survey questions were dichotomized (i.e., yes/no or split at the median), and were examined across aggregate school-level demographic data. Rao-Scott chi-square (grade level

chairs' responses) and Fisher's exact tests (administrators and nutrition managers' responses) were performed to assess differences in policies, practices, and environments by geography and cohort year, and logistic regression tests were performed to assess differences across FRL and race/ethnicity.

Chapter IV. Results

Completed surveys were returned by at least one respondent from 85 of the 86 target schools (99%) and exactly half of the schools completed surveys for all eight targeted respondents. The overall completion rate was 82% (539 out of 658 potential respondents), exceeding the minimum goal of 70%. Surveys were completed by 70 out of 86 administrators (81%), 400 out of 486 grade level chairs (66 kindergarten, 66 1st grade, 68 2nd grade, 68 3rd grade, 67 4th grade, and 65 5th grade) (82%) and 69 out of 86 nutrition managers (80%) (Appendix C). The majority of responding elementary schools were located in a city (41%) or suburb (29%), had an FRL above 75% (93%), and were comprised of a quarter or less of Caucasian students (69%) (Table 3).

Table 3. Aggregate demographic data for 85 responding schools

Characteristic	n	%
Geography		
City	35	41
Suburb	25	29
Town	5	6
Rural	15	17
Not Available[a]	5	6
FRL[b,c]		
50 to 74.99%	6	7
≥ 75%	78	93
Percent Caucasian[b,c,d,e]		
0 to 24.99%	58	69
25 to 49.99%	19	23
50 to 74.99%	6	7
≥ 75%	1	1
Cohort Year[f]		
1	23	27
2	37	44
3	1	1
4	4	5
5	13	15
Virtual	7	8

[a]Data not provided by NCES for these schools
[b]Used 2015-2016 data for one school
[c]Data missing for one school
[d]School-level data
[e]One school includes pre-K data
[f]Years working with HealthMPowers as of 2015-2016 school year

A. Overall Results

Respondents from the schools reported on key areas regarding school nutrition policies, practices, and environments (Table 4; complete results in Appendix D). The majority of school administrators reported that during the past school year, their school followed their district's wellness policy or established their own wellness policy, that there were at least two individuals responsible for enforcing the wellness policy, and that competitive venues existed at their school. The majority of grade level chairs indicated

that their school offered nutrition education to students and that food was used in the classroom as a reward, incentive, or as part of classroom lessons. The majority of nutrition managers reported that their school participated in a farm-to-school program, purchased both fruits and vegetables from Georgia growers, used Georgia-grown products in their lunch programs daily, used at least one USDA-sponsored Team Nutrition resource, and that the lunch period for all grades was greater than 20 minutes.

Table 4. Overall Results for School Nutrition Policies, Practices, and Environments

Nutrition Policy, Practice and/or Environment	n	%
Administrator, n=70		
Wellness policy established	59	91
Two or more designated enforcers of wellness policy	47	67
School garden in place currently or plans to build	30	43
Nutrition education offered to parents	35	53
At least one competitive venue available	49	72
Grade Level Chair, n=400		
Nutrition education offered to students	322	88
Non-food celebration ideas provided to either PTA/PTO or teachers	95	40
Non-food fundraising ideas provided to either PTA/PTO or teachers	104	46
Classroom policy limiting sugar-sweetened foods in classroom	156	39
Food is used in the classroom in at least one way	356	89
Nutrition Manager, n=69		
Participation in farm to school program	34	57
Both fruits and vegetables were purchased from Georgia growers	57	82
School uses Georgia-grown products in lunch program daily	35	56
At least 1 USDA Team Nutrition resource used	41	64
Lunch period greater than 20 minutes for all grades	55	83

Additionally, Table 5 displays the top responses from all respondents to the question: "If your school could make one change to improve the consumption of healthier foods and beverages by students, what would it be?"

Table 5. Recommendations for Change by Respondents

Limit unhealthy choices such as soda, ice cream, and sweets
Improve variety and taste of healthy lunch meals to make them more appealing
Provide healthier snack alternatives for students, including monitoring vending machine options
Improve student nutrition education, instruction, and demonstrations
Increase parent involvement and provide directed nutrition education for them
Have a standard policy on what students can bring to class and what can be provided for parties/events
Encourage drinking plenty of water and allowing students easy access to it (water bottles)
Provide a school garden to facilitate nutrition education for students
Increase promotional signage directed towards students about making healthy choices
Provide a salad bar and promote its use

B. Differences in Responses Across School-Level Factors

Schools classified as "town/rural" were the least likely to use food in their classrooms (i.e., using food as a reward for good academic performance, using food as a reward for good behavior, using food coupons as an incentive, or using food in classroom lessons) ($p<0.05$) (Table 6). Schools in suburbs were more likely to use food in their classrooms, and schools in cities were slightly more likely than those in suburbs. There were no other significant relationships between survey responses and geography.

Table 6. Nutrition Policies, Practices, and Environments by Geography

Nutrition Policy, Practice and/or Environment	Geography *n* (%) City	Suburb	Town/ Rural	***p* value**
Administrator, n=70				
Wellness policy established	26 (87)	17 (100)	13 (87)	0.35
Two or more designated enforcers of wellness policy	25 (81)	9 (47)	10 (63)	0.05
School garden in place currently or plans to build	13 (42)	10 (53)	6 (38)	0.66
Nutrition education offered to parents	15 (50)	9 (47)	8 (57)	0.90
At least one competitive venue available	22 (71)	13 (68)	12 (80)	0.82
Grade Level Chair, n=400				
Nutrition education offered to students	151 (90)	81 (84)	73 (89)	0.33
Non-food celebration ideas provided to either PTA/PTO or teachers	51 (43)	15 (29)	26 (44)	0.20
Non-food fundraising ideas provided to either PTA/PTO or teachers	49 (45)	20 (43)	29 (49)	0.77
Classroom policy limiting sugar-sweetened foods in classroom	76 (42)	40 (39)	33 (37)	0.85
Food is used in the classroom in at least one way	171 (93)	92 (90)	72 (80)	**<0.05***
Nutrition Manager, n=69				
Participation in farm to school program	14 (56)	11 (69)	7 (44)	0.36
Both fruits and vegetables were purchased from Georgia growers	25 (83)	16 (89)	13 (72)	0.43
School uses Georgia-grown products in lunch program daily	13 (46)	10 (59)	9 (60)	0.67
At least 1 USDA Team Nutrition resource used	15 (54)	14 (88)	10 (56)	0.06
Lunch period greater than 20 minutes for all grades	22 (81)	14 (78)	16 (89)	0.77

*$p<0.05$

Geography data missing for 5 schools from NCES database

Each percentage increase in FRL was associated with a 15% increase in odds of purchasing fruits and vegetables from Georgia growers (OR: 1.15; 95% CI: 1.06, 1.25) (Table 7). There were no other significant relationships between survey responses and FRL.

Table 7. Nutrition Policies, Practices, and Environments by FRL

		95% CI		
Nutrition Policy, Practice and/or Environment	OR	Lower	Upper	***p* value**
Administrator, n=70				
Wellness policy established	0.85	0.62	1.16	0.30
Two or more designated enforcers of wellness policy	1.03	0.97	1.09	0.34
School garden in place currently or plans to build	1.00	0.94	1.05	0.85
Nutrition education offered to parents	0.95	0.89	1.02	0.14
At least one competitive venue available	1.05	0.99	1.11	0.11
Grade Level Chair, n=400				
Nutrition education offered to students	1.01	0.98	1.03	0.53
Non-food celebration ideas provided to either PTA/PTO or teachers	1.00	0.97	1.03	0.86
Non-food fundraising ideas provided to either PTA/PTO or teachers	0.98	0.95	1.00	0.06
Classroom policy limiting sugar-sweetened foods in classroom	0.99	0.95	1.02	0.45
Food is used in the classroom in at least one way	1.02	0.99	1.06	0.17
Nutrition Manager, n=69				
Participation in farm to school program	1.06	1.00	1.12	0.07
Both fruits and vegetables were purchased from Georgia growers	1.15	1.06	1.25	**<0.05***
School uses Georgia-grown products in lunch program daily	0.96	0.90	1.03	0.22
At least 1 USDA Team Nutrition resource used	0.99	0.93	1.04	0.64
Lunch period greater than 20 minutes for all grades	0.96	0.86	1.06	0.40

*$p<0.05$

Each percentage increase in Caucasian students was associated with a 2% decrease in odds of using food within the classrooms (OR: 0.98; 95% CI: 0.97, 0.99) (Table 8). There were no other significant relationships between survey responses and percent Caucasian.

Table 8. Nutrition Policies, Practices, and Environments by Percent Caucasian

		95% CI		
Nutrition Policy, Practice and/or Environment	OR	Lower	Upper	***p* value**
Administrator, n=70				
Wellness policy established	1.03	0.96	1.10	0.40
Two or more designated enforcers of wellness policy	1.02	0.99	1.06	0.18
School garden in place currently or plans to build	0.99	0.97	1.02	0.54
Nutrition education offered to parents	1.00	0.97	1.03	0.96
At least one competitive venue available	0.99	0.97	1.02	0.66
Grade Level Chair, n=400				
Nutrition education offered to students	1.00	0.99	1.02	0.71
Non-food celebration ideas provided to either PTA/PTO or teachers	1.00	0.99	1.01	0.85
Non-food fundraising ideas provided to either PTA/PTO or teachers	1.01	1.00	1.02	0.14
Classroom policy limiting sugar-sweetened foods in classroom	1.00	0.98	1.02	0.83
Food is used in the classroom in at least one way	0.98	0.97	0.99	**<0.05***
Nutrition Manager, n=69				
Participation in farm to school program	0.99	0.97	1.02	0.66
Both fruits and vegetables were purchased from Georgia growers	0.97	0.94	1.00	0.06
School uses Georgia-grown products in lunch program daily	1.00	0.97	1.03	0.90
At least 1 USDA Team Nutrition resource used	1.00	0.97	1.03	0.84
Lunch period greater than 20 minutes for all grades	1.03	0.98	1.09	0.24

*$p<0.05$

Schools in cohort years 3-5 reported the fewest competitive venues available (i.e., a la carte, school stores and snack carts) ($p<0.05$) (Table 9). Schools in cohort year 1 had a significantly higher prevalence of competitive venues (76%), schools in cohort year 2 had even higher (84%), and virtual schools had the highest (n=5; 100%) ($p<0.05$). There were no other significant relationships between survey responses and cohort year.

Table 9. Nutrition Policies, Practices, and Environments by Cohort Year

Nutrition Policy, Practice and/or Environment	Cohort Year *n* (%) Year 1	Year 2	Years 3-5	Virtual	***p* value**
Administrator, n=70					
Wellness policy established	16 (89)	26 (93)	12 (92)	5 (83)	0.75
Two or more designated enforcers of wellness policy	8 (44)	24 (77)	10 (67)	5 (83)	0.10
School garden in place currently or plans to build	7 (39)	14 (45)	7 (47)	2 (33)	0.92
Nutrition education offered to parents	8 (44)	16 (53)	10 (71)	1 (25)	0.33
At least one competitive venue available	13 (76)	26 (84)	5 (33)	5 (100)	**<0.05***
Grade Level Chair, n=400					
Nutrition education offered to students	62 (81)	159 (92)	76 (88)	25 (89)	0.07
Non-food celebration ideas provided to either PTA/PTO or teachers	15 (35)	45 (38)	25 (43)	10 (50)	0.71
Non-food fundraising ideas provided to either PTA/PTO or teachers	21 (50)	49 (43)	30 (55)	4 (22)	0.15
Classroom policy limiting sugar-sweetened foods in classroom	27 (32)	74 (40)	47 (48)	8 (26)	0.15
Food is used in the classroom in at least one way	76 (90)	163 (88)	87 (90)	30 (97)	0.52
Nutrition Manager, n=69					
Participation in farm to school program	8 (47)	19 (73)	5 (42)	2 (40)	0.15
Both fruits and vegetables were purchased from Georgia growers	16 (89)	27 (84)	9 (64)	5 (100)	0.27
School uses Georgia-grown products in lunch program daily	9 (60)	17 (55)	8 (67)	1 (20)	0.39
At least 1 USDA Team Nutrition resource used	11 (73)	15 (50)	10 (71)	5 (100)	0.11
Lunch period greater than 20 minutes for all grades	14 (78)	25 (83)	11 (84)	5 (100)	0.89

*$p<0.05$

Chapter V. Discussion

A. Key Findings

The first objective of this study was to understand current nutrition policies, practices, and environments in Georgia SNAP-Ed elementary schools. This investigation revealed that schools are meeting recommended and federally mandated nutrition guidelines but falling short in others. Specifically, schools are excelling in wellness policy and wellness committee development, student and parental nutrition education, participation in farm-to-school programs, availability of fresh fruits and vegetables daily for lunch, purchasing Georgia-grown products and using them daily in lunch programs, using USDA-sponsored Team Nutrition resources, and allowing students greater than 20 minutes to eat lunch. Areas for opportunity for school include building school gardens, posting nutrition information on school websites, limiting competitive venues, providing non-food celebration and fundraising ideas to teachers and parents, limiting sugar-sweetened foods in the classroom, and limiting the practice of using food as a reward.

The next objective was to assess how nutrition policies, practices, and environments differed in relation to school-level factors of the SEM including geography, FRL, percent Caucasian, and cohort year. With four exceptions, there were no significant relationships found between survey responses and any of the school-level factors studied. The final and most important objective of this study was to provide schools with recommendations and personalized results to help improve the health and wellbeing of their students. This objective is expected to be completed in early 2017 when HealthMPowers staff conducts its annual winter trainings with the schools.

It was challenging to compare the findings of this study to those of other relevant literature for two key reasons. First, there is no clear consensus on the relationship between nutrition policies, practices, and environments and school-level demographic variables (i.e., geography, race/ethnicity, and FRL). Findings have been convoluted and often do not involve the same demographic variables between studies. Second, certain studies created a composite score as a measure of school nutrition policies, practices, and environments[12,26] instead of analyzing each survey question individually across school-level variables

In current literature, studies have largely been conducted within roughly the past decade, have studied both national and regional populations, and have mostly surveyed principals and/or food service managers. Although there are many similarities between existing related studies, the school levels studied have varied, including elementary, middle and high schools. This variety of grade levels may contribute to inconsistent findings because it has been documented that lower grade levels (i.e., elementary schools) have comparatively healthier school nutrition environments than higher grade levels (i.e., high schools). Other factors could be the respondents surveyed within schools, school demographic characteristics, sample sizes, and others.

In light of the conflicting findings available in current literature, this study makes an important contribution by assessing nutrition policies, practices, and environments as separate entities instead of creating a composite score as other studies have done.[12,26] This allowed for an in-depth examination of how each individual school's nutrition policies, practices, or environments differed among school demographics. By examining

relationships among individual variables, findings of this study can lead to more focused and targeted recommendations, programs, and interventions for schools.

B. Recommendations for Schools

The overall findings and also respondents' own suggestions for change informed the development of recommendations for schools. There are at least six areas in which surveyed elementary schools can improve their nutrition policies, practices, and environments. First, schools should incorporate skill-building activities to support nutrition education (e.g., school gardens and taste-testings). Second, classroom policies should aim to keep sugar-sweetened foods and beverages out of the classroom at snack time, holiday and birthday parties. Third, schools should provide non-food celebration and fundraising ideas to teachers and the PTA/PTO. Fourth, schools should make an effort to involve parents to a greater degree by offering them a variety of nutrition education classes. Fifth, schools should provide teachers with ideas for alternative rewards to food for good behavior and academic performance and avoid using food as part of classroom lessons. Finally, schools should offer a variety of fruits and vegetables and encourage children to eat them by consistently emphasizing the benefits of a healthy diet.

C. Strengths and Limitations of Study

There are at least six strengths of this study. First, this study makes an important contribution to scientific literature since to our knowledge this is the first study to examine nutrition policies, practices, and environments in Georgia SNAP-Ed elementary schools using a socio-ecological framework. Second, there was a high response rate (82% individual respondents; 99% schools). Third, the instrument design was also a significant

strength, demonstrated by the breadth of knowledge and expertise of the advisory committee in the areas of nutrition and education, and the rigorous, methodical literature review of relevant survey tools. Fourth, while certain previous studies have created a composite score for school nutrition policies, practices, and/or environments,[12,26] the current study analyzed each area separately, allowing for a deeper investigation of each individual school nutrition area studied. Fifth, the school-level variables of geography, FRL, race/ethnicity, and cohort year had high validity and reliability because they were obtained from governmental databases and HealthMPowers' records. Lastly, many studies have surveyed school administration and/or school food service managers;[12,26,49] by surveying teachers as well, the current study allowed for the possibility to gain an accurate depiction of classroom-specific nutrition policies, practices, and environments.

Despite the strengths of this study, there are at least six limitations that should be noted. First, the sample of schools was modest in size and relatively homogenous. For example, schools had similar demographic characteristics for FRL and racial/ethnic makeup, and may not have varied enough to be able to fully explore the true nature of the relationship between responses to questions across the school-level variables of the SEM. Second, in-person observation of schools was not part of this study and thus, survey responses were not verified for accuracy. This issue was minimized by adapting questions from previously administered surveys and selecting a "best respondent" before analyzing the results based on who was judged to be most equipped to answer the question were answered. Moreover, the results of this survey should have high accuracy as prior literature has established the accuracy of self-reported surveys in school settings

by administering a survey, conducting a parallel observational study, and triangulating results.[12]

Third, since this study only involved Georgia SNAP-Ed elementary schools, the findings of the study are limited to this population only. Fourth, the fact that HealthMPowers provides resources to these schools means that the findings may be skewed in a positive manner. However, when survey responses were assessed across cohort year, few differences were found, thus potentially negating this limitation. Fifth, there may have been bias present in the recruitment of schools. Schools were notified of HealthMPowers' programs through their district leaders and individual schools reached out if they were interested in working with HealthMPowers. Due to the internal motivation inherently required for schools to take initiative to reach out to HealthMPowers, this population may have higher motivation than other Georgia SNAP-Ed elementary schools to keep their students healthy. Thus, this study may yield disproportionately more positive findings than what would normally be expected. Finally, there is the potential for social desirability bias to be present, as participants may have felt pressure to respond in a manner that indicates their school is complying with federal regulations, or experienced other social pressures.

D. Future Directions

The most important component of this study was the opportunity to help a wide range of SNAP-Ed schools across Georgia to improve the health and wellbeing of their students and families in the area of nutrition. Recommendations and individual school reports with detailed survey results will be provided to each school at HealthMPowers' annual SNAP-Ed winter trainings. At these trainings, HealthMPowers will provide school

administrators and staff with individual school reports to encourage constructive discussion between staff. School staff will learn the specific areas that their schools are excelling in and areas of opportunity, and can use the data to inform future school nutrition policies, practices, and environmental goals. Respondents will also learn if there were any discrepancies in survey responses between administrators, grade level chairs, and nutrition managers and work toward resolving them.

HealthMPowers will share the survey and its results with key stakeholders and explore ways to use the survey for measuring additional successes with policy, systems, and environmental changes in Georgia elementary schools. Currently there are at least three opportunities for further analysis using this dataset. First, a longitudinal analysis of schools led by HealthMPowers would be ideal, since a study of this nature could provide an assessment of long-term trends of school nutrition policies practices, and environments, as well as a deeper understanding of the impact and influence that HealthMPowers is having on schools. This longitudinal analysis could also involve surveying non-SNAP-Ed schools in Georgia. Second, there is potential to compare the results of this survey to national data from *Bridging the Gap: Food and Fitness* surveys, which the *HealthMPowers School Setting Nutrition Survey* was adapted from. Finally, HealthMPowers has a rich database of data in the areas of Georgia elementary school nutrition and physical activity, and there is an opportunity to link data from the *HealthMPowers School Setting Nutrition Survey* to other relevant datasets in the future. For example, it is possible to explore the relationship between nutrition and physical activity environments in Georgia SNAP-Ed elementary schools.

Finally, future studies should involve large, nationally-representative samples and explicitly distinguish between policies, practices, and environments, since this can inform focused and targeted school-based interventions and programs. Additionally, further evaluation is necessary to assess differences in nutrition policies, practices, and environments across cohort year in order to better understand the impact HealthMPowers has had on schools. This will allow HealthMPowers to determine the efficacy of their programs, resources, and trainings, while also determining if findings in this population are generalizable to other Georgia SNAP-Ed elementary schools (i.e., those schools that HealthMPowers does not work with).

E. Conclusion

In summary, this study makes an important contribution to existing literature by assessing differences in nutrition policies, practices, and environments in an understudied population, Georgia SNAP-Ed elementary schools, across four school-level variables of the SEM. Overall, there were only a handful of differences in survey responses found across school-level SEM variables including geography, FRL, race/ethnicity, and cohort year. Findings of this study indicate that these schools are excelling in certain areas including wellness policy and committee development, offering fresh fruits and vegetables daily, and participation in farm-to-school programs. Findings also revealed areas of opportunity for schools, including limiting sugar-sweetened items in the classroom, providing non-food celebration and fundraising ideas to teachers and parents, and avoiding using food as a reward or incentive. These findings point to a need for evidence-based interventions in schools, including increased nutrition education for parents, students, and school staff, and the implementation of more school-based nutrition

programs. Finally, results from this study suggest that there is a great opportunity for HealthMPowers to make a positive impact in shaping these schools' nutrition policies, practices, and environments and ultimately helping their students establish lifelong healthy habits.

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Appendix A. HealthMPowers School Setting Nutrition Survey

Administrator

Q1 In an effort to link today's responses with future responses for tracking school improvements in healthy eating and nutrition practices, please provide the following code: Initials of first and last name, followed by birth month (mm) and day (dd). (Example: If your name is Tom Smith and your birthday is February 4 your code will be ts0204).

_____

Q2 Which school district is your school located in?

_____

Q3 What is the name of your school?

_____

Q4 What is your primary position?

- O Administrator
- O Classroom teacher
- O Lunchroom/cafeteria/nutrition manager or assistant

Q5 Does your school have a wellness policy?

- O Yes, our school follow's the district's wellness policy
- O Yes, our school has its own wellness policy based on the district's policy
- O Yes, our school has its own wellness policy
- O No, we do not have a school wellness policy
- O Don't know

Q6 What is the title of the designated person(s) responsible for ensuring that the school's wellness policy is enforced (check all that apply)?

- ☐ School nutrition personnel (e.g., cafeteria/lunchroom/nutrition manager or other)
- ☐ Physical education/health education teacher
- ☐ School nurse
- ☐ School counselor
- ☐ School administrator
- ☐ Classroom teacher
- ☐ Our school does not have a designated person
- ☐ Don't know
- ☐ Other (please specify): _____

Q7 Does your school have a wellness committee?

- O Yes
- O No
- O Don't know

Q8 Please indicate the individuals included on your school's wellness committee (check all that apply):

- ☐ School nutrition personnel (e.g., cafeteria/lunchroom/nutrition manager or other)
- ☐ Physical education/health education teachers
- ☐ School nurses
- ☐ School counselors
- ☐ School administrators
- ☐ Classroom teachers
- ☐ Parents and caregivers
- ☐ Students
- ☐ Don't know
- ☐ Other (please specify): _____

Q9 How many times does your school's wellness committee meet annually?

- ○ Once
- ○ Twice
- ○ Three times
- ○ Four time or more
- ○ Never
- ○ Don't know

Q10 Is nutrition education offered to students?

- ○ Yes
- ○ No
- ○ Don’t know

Q11 How is nutrition education delivered to students (check all that apply)?

- ☐ Classroom-based lessons
- ☐ PE lessons
- ☐ Cafeteria lessons
- ☐ Taste-testings
- ☐ School garden(s)
- ☐ Special assemblies/events
- ☐ Don't know
- ☐ Other (please specify): _____

Q12 Does your school set prices for some healthier foods or beverages lower than less healthy options to encourage their consumption?

- ○ Yes
- ○ No
- ○ Don’t know

Q13 Which of the following foods or beverages does your school set lower prices for to encourage their consumption (check all that apply)?

- ☐ Fruits
- ☐ Vegetables
- ☐ Plain, low-fat milk
- ☐ Meat/poultry
- ☐ Whole grain products
- ☐ None of the above
- ☐ Other (please specify): _____

Q14 Does your school participate in a farm-to-school program?

- O Yes
- O No
- O Don't know

Q15 Does your school provide a list of non-food celebration ideas to the PTA/PTO and/or teachers?

- O Yes, provided to both PTA/PTO and teachers
- O Yes, provided to PTA/PTO only
- O Yes, provided to teachers only
- O No
- O Don't know

Q16 Does your school provide a list of non-food fundraising ideas to the PTA/PTO and/or teachers?

- O Yes, provided to both PTA/PTO and teachers
- O Yes, provided to PTA/PTO only
- O Yes, provided to teachers only
- O No
- O Don't know

Q17 Does your school currently have a garden (fruit and/or vegetable) in which students work, plant, or harvest either before, during, or after school?

- O Yes, as part of classroom instruction
- O Yes, but not as part of classroom instruction
- O No
- O Other (please specify): _____

Q18 Please indicate which of the following locations students have access to drinking water during the school day (check all that apply):

- ☐ Classroom water bottles
- ☐ School clinic
- ☐ In or near cafeteria
- ☐ In hallways near classrooms
- ☐ Gymnasium/locker rooms
- ☐ Outdoor physical activity spaces
- ☐ Hydration stations (water fountain with attachment to fill up bottle)
- ☐ Other (please specify): _____

Q19 Are parents/caregivers provided nutrition information through any of the following (check all that apply)?

- ☐ Take-home flyers
- ☐ Nutrition information from cafeteria staff for weekly meal menus
- ☐ Nutrition information posted on school website
- ☐ PTO/PTA meetings
- ☐ Family/community events at school
- ☐ None of the above
- ☐ Don't know
- ☐ Other (please specify): _____

Q20 Which of the following nutrition education classes does your school provide for parents/caregivers (check all that apply)?

- ☐ Healthy eating classes (e.g., preparing healthy meals/snacks/lunches)
- ☐ General nutrition classes (e.g., MyPlate, reading food labels)
- ☐ Eating on a budget classes
- ☐ Cooking classes
- ☐ Gardening classes
- ☐ None of the above
- ☐ Don't know
- ☐ Other (please specify): _____

Q21 Does your school have a policy/practice that limits sugar-sweetened <u>foods</u> (e.g., candy, cupcakes, cookies) from being served or brought in either at snack time or for parties during the school day?

	Yes	No	No formal policy/practice, teacher's discretion
Snack time	O	O	O
Birthday parties	O	O	O
Holiday parties	O	O	O

Other (please specify): _____

Q22 Does your school have a policy/practice that limits sugar-sweetened drinks (e.g., juice, soda, sports drinks) from being served or brought in either at snack time or for parties during the school day?

	Yes	No	No formal policy/practice, teacher's discretion
Snack time	O	O	O
Birthday parties	O	O	O
Holiday parties	O	O	O

Other (please specify)

_____

Q23 How long is the lunch period for students in each grade?

	Not applicable	Less than 10 minutes	10-15 minutes	16-20 minutes	21-25 minutes	26-30 minutes
Pre-K	O	O	O	O	O	O
Kindergarten	O	O	O	O	O	O
First Grade	O	O	O	O	O	O
Second Grade	O	O	O	O	O	O
Third Grade	O	O	O	O	O	O
Fourth Grade	O	O	O	O	O	O
Fifth Grade	O	O	O	O	O	O

Q24 Approximately how many minutes do students in each grade have to eat their lunch after they receive their meals?

	Not applicable	Less than 10 minutes	10-15 minutes	16-20 minutes	21-25 minutes	26-30 minutes
Pre-K	O	O	O	O	O	O
Kindergarten	O	O	O	O	O	O
First Grade	O	O	O	O	O	O
Second Grade	O	O	O	O	O	O
Third Grade	O	O	O	O	O	O
Fourth Grade	O	O	O	O	O	O
Fifth Grade	O	O	O	O	O	O

Q25 Please indicate where posters, contests or other promotions are used to encourage consumption of the following (check all that apply):

	Cafeteria	Classroom	Hallways	Gym	Other, specify below	Not used	Don't know
Fruits	☐	☐	☐	☐	☐	☐	☐
Vegetables	☐	☐	☐	☐	☐	☐	☐
Water	☐	☐	☐	☐	☐	☐	☐
Plain milk	☐	☐	☐	☐	☐	☐	☐
Whole grains	☐	☐	☐	☐	☐	☐	☐
Lean protein	☐	☐	☐	☐	☐	☐	☐

Other (please specify)

_____

Q26 Please indicate how often your school participates in or operates any of the following fundraising activities before, during, or after school?

	Daily	Weekly	Monthly	Yearly	Never	Don't know
Bake sale where students/parents/caregivers can purchase items	O	O	O	O	O	O
Ice cream social/pizza night at school	O	O	O	O	O	O
Sponsored fundraiser at local restaurant	O	O	O	O	O	O
Club or sports team fundraiser at school	O	O	O	O	O	O
School stores where food is sold	O	O	O	O	O	O
Snack carts	O	O	O	O	O	O
Donut sales	O	O	O	O	O	O
Chicken biscuit sales	O	O	O	O	O	O
A la carte items at lunch (foods sold after a child finishes school lunch – e.g., ice cream, fruit bars, chips, etc.)	O	O	O	O	O	O

Other (please specify)

_____

Q27 Please indicate whether any of the following practices occur at your school:

	Yes	No	Don't know
Food is used as a reward for good academic performance	O	O	O
Food is used as a reward for good behavior	O	O	O
Food coupons are used as an incentive for students (e.g., "Book-It" pizza party for reading)	O	O	O
Classroom lessons involve food (e.g., using candy or cereal for math lessons)	O	O	O

Other (please specify)
_____

Q28 If your school could make one change to improve the consumption of healthier foods and beverages by students, what would it be?
_____

Classroom Teacher

Q1 In an effort to link today's responses with future responses for tracking school improvements in healthy eating and nutrition practices, please provide the following code: Initials of first and last name, followed by birth month (mm) and day (dd). (Example: If your name is Tom Smith and your birthday is February 4 your code will be ts0204).

_____

Q2 Which school district is your school located in?

_____

Q3 What is the name of your school?

_____

Q4 What is your primary position?

- O Administrator
- O Classroom teacher
- O Lunchroom/cafeteria/nutrition manager or assistant

Q5 What grade level do you teach?

- O Pre-K
- O Kindergarten
- O 1st grade
- O 2nd grade
- O 3rd grade
- O 4th grade
- O 5th grade

Q6 Does your school have a wellness policy?

- O Yes, our school follow's the district's wellness policy
- O Yes, our school has its own wellness policy based on the district's policy
- O Yes, our school has its own wellness policy
- O No, we do not have a school wellness policy
- O Don't know

Q7 What is the title of the designated person(s) responsible for ensuring that the school's wellness policy is enforced (check all that apply)?

- ☐ School nutrition personnel (e.g., cafeteria/lunchroom/nutrition manager or other)
- ☐ Physical education/health education teacher
- ☐ School nurse
- ☐ School counselor
- ☐ School administrator
- ☐ Classroom teacher
- ☐ Our school does not have a designated person
- ☐ Don't know
- ☐ Other (please specify): _____

Q8 Does your school have a wellness committee?

- ○ Yes
- ○ No
- ○ Don’t know

Q9 Please indicate the individuals included on your school's wellness committee (check all that apply):

- ☐ School nutrition personnel (e.g., cafeteria/lunchroom/nutrition manager or other)
- ☐ Physical education/health education teachers
- ☐ School nurses
- ☐ School counselors
- ☐ School administrators
- ☐ Classroom teachers
- ☐ Parents and caregivers
- ☐ Students
- ☐ Don't know
- ☐ Other (please specify): _____

Q10 How many times does your school's wellness committee meet annually?

- ○ Once
- ○ Twice
- ○ Three times
- ○ Four time or more
- ○ Never
- ○ Don't know
- ○ Other (please specify): _____

Q11 Is nutrition education offered to students?

- ○ Yes
- ○ No
- ○ Don’t know

Q12 How is nutrition education delivered to students (check all that apply)?

- ☐ Classroom-based lessons
- ☐ PE lessons
- ☐ Cafeteria lessons
- ☐ Taste-testings
- ☐ School garden(s)
- ☐ Special assemblies/events
- ☐ Don't know
- ☐ Other (please specify): _____

Q13 Does your school participate in a farm-to-school program?

- ○ Yes
- ○ No
- ○ Don’t know

Q14 Does your school provide a list of non-food celebration ideas to the PTA/PTO and/or teachers?

- ○ Yes, provided to both PTA/PTO and teachers
- ○ Yes, provided to PTA/PTO only
- ○ Yes, provided to teachers only
- ○ No
- ○ Don't know

Q15 Does your school provide a list of non-food fundraising ideas to the PTA/PTO and/or teachers?

- ○ Yes, provided to both PTA/PTO and teachers
- ○ Yes, provided to PTA/PTO only
- ○ Yes, provided to teachers only
- ○ No
- ○ Don't know

Q16 Does your school currently have a garden (fruit and/or vegetable) in which students work, plant, or harvest either before, during, or after school?

- ○ Yes, as part of classroom instruction
- ○ Yes, but not as part of classroom instruction
- ○ No
- ○ Other (please specify): _____

Q17 Are parents/caregivers provided nutrition information through any of the following (check all that apply)?

- ☐ Take-home flyers
- ☐ Nutrition information from cafeteria staff for weekly meal menus
- ☐ Nutrition information posted on school website
- ☐ PTO/PTA meetings
- ☐ Family/community events at school
- ☐ None of the above
- ☐ Don't know
- ☐ Other (please specify): _____

Q18 Which of the following nutrition education classes does your school provide for parents/caregivers (check all that apply)?

- ☐ Healthy eating classes (e.g., preparing healthy meals/snacks/lunches)
- ☐ General nutrition classes (e.g., MyPlate, reading food labels)
- ☐ Eating on a budget classes
- ☐ Cooking classes
- ☐ Gardening classes
- ☐ None of the above
- ☐ Don't know
- ☐ Other (please specify): _____

Q19 Does your school have a policy/practice that limits sugar-sweetened foods (e.g., candy, cupcakes, cookies) from being served or brought in either at snack time or for parties during the school day?

	Yes	No	No formal policy/practice, teacher's discretion
Snack time	○	○	○
Birthday parties	○	○	○
Holiday parties	○	○	○

Other (please specify)

_____

Q20 Does your school have a policy/practice that limits sugar-sweetened drinks (e.g., juice, soda, sports drinks) from being served or brought in either at snack time or for parties during the school day?

	Yes	No	No formal policy/practice, teacher's discretion
Snack time	○	○	○
Birthday parties	○	○	○
Holiday parties	○	○	○

Other (please specify)
_____

Q21 Does your school use any of the following USDA-sponsored Team Nutrition resources (check all that apply)?

- ☐ Nutrition education materials (e.g., posters, activities, games, lesson plans)
- ☐ Food buying guide and menu planning assistance
- ☐ Training grants to support staff training/continuing education
- ☐ Other Team Nutrition grants
- ☐ None of the above
- ☐ Don't know
- ☐ Other (please specify): _____

Q22 How long is the lunch period for students in the grade you teach?

- ○ Less than 10 minutes
- ○ 10-15 minutes
- ○ 16-20 minutes
- ○ 21-25 minutes
- ○ 26-30 minutes
- ○ More than 30 minutes

Q23 Approximately how many minutes do students in the grade you teach have to eat lunch after they receive their meals?

- ○ Less than 10 minutes
- ○ 10-15 minutes
- ○ 16-20 minutes
- ○ 21-25 minutes
- ○ 26-30 minutes
- ○ More than 30 minutes

Q24 Please indicate where posters, contests or other promotions are used to encourage consumption of the following (check all that apply):

	Cafeteria	Classroom	Hallways	Gym	Other, specify below	Not used	Don't know
Fruits	☐	☐	☐	☐	☐	☐	☐
Vegetables	☐	☐	☐	☐	☐	☐	☐
Water	☐	☐	☐	☐	☐	☐	☐
Plain milk	☐	☐	☐	☐	☐	☐	☐
Whole grains	☐	☐	☐	☐	☐	☐	☐
Lean protein	☐	☐	☐	☐	☐	☐	☐

Other (please specify)

_____

Q25 Please indicate how often your school participates in or operates any of the following fundraising activities before, during, or after school?

	Daily	Weekly	Monthly	Yearly	Never	Don't know
Bake sale where students/parents/caregivers can purchase items	O	O	O	O	O	O
Ice cream social/pizza night at school	O	O	O	O	O	O
Sponsored fundraiser at local restaurant	O	O	O	O	O	O
Club or sports team fundraiser at school	O	O	O	O	O	O
School stores where food is sold	O	O	O	O	O	O
Snack carts	O	O	O	O	O	O
Donut sales	O	O	O	O	O	O
Chicken biscuit sales	O	O	O	O	O	O
A la carte items at lunch (foods sold after a child finishes school lunch – e.g., ice cream, fruit bars, chips, etc.)	O	O	O	O	O	O

Other (please specify)

_____

Q26 Please indicate whether any of the following practices occur within your classroom:

	Yes	No	Don't know
Food is used as a reward for good academic performance	○	○	○
Food is used as a reward for good behavior	○	○	○
Food coupons are used as an incentive for students (e.g., "Book-It" pizza party for reading)	○	○	○
Classroom lessons involve food (e.g., using candy or cereal for math lessons)	○	○	○

Other (please specify)
_____

Q27 If your school could make one change to improve the consumption of healthier foods and beverages by students, what would it be?
_____

Lunchroom/Cafeteria/Nutrition Manager or Assistant

Q1 In an effort to link today's responses with future responses for tracking school improvements in healthy eating and nutrition practices, please provide the following code: Initials of first and last name, followed by birth month (mm) and day (dd). (Example: If your name is Tom Smith and your birthday is February 4 your code will be ts0204).

_____

Q2 Which school district is your school located in?

_____

Q3 What is the name of your school?

_____

Q4 What is your primary position?

- O Administrator
- O Classroom teacher
- O Lunchroom/cafeteria/nutrition manager or assistant

Q5 Does your school have a wellness policy?

- O Yes, our school follow's the district's wellness policy
- O Yes, our school has its own wellness policy based on the district's policy
- O Yes, our school has its own wellness policy
- O No, we do not have a school wellness policy
- O Don't know

Q6 What is the title of the designated person(s) responsible for ensuring that the school's wellness policy is enforced (check all that apply)?

- ☐ School nutrition personnel (e.g., cafeteria/lunchroom/nutrition manager or other)
- ☐ Physical education/health education teacher
- ☐ School nurse
- ☐ School counselor
- ☐ School administrator
- ☐ Classroom teacher
- ☐ Our school does not have a designated person
- ☐ Don't know
- ☐ Other (please specify): _____

Q7 Does your school have a wellness committee?

- O Yes
- O No
- O Don't know

Q8 Please indicate the individuals included on your school's wellness committee (check all that apply):

- ☐ School nutrition personnel (e.g., cafeteria/lunchroom/nutrition manager or other)
- ☐ Physical education/health education teachers
- ☐ School nurses
- ☐ School counselors
- ☐ School administrators
- ☐ Classroom teachers
- ☐ Parents and caregivers
- ☐ Students
- ☐ Don't know
- ☐ Other (please specify): _____

Q9 How many times does your school's wellness committee meet annually?

- ○ Once
- ○ Twice
- ○ Three times
- ○ Four time or more
- ○ Never
- ○ Don't know
- ○ Other (please specify): _____

Q10 Is nutrition education offered to students?

- ○ Yes
- ○ No
- ○ Don’t know

Q11 How is nutrition education delivered to students (check all that apply)?

- ☐ Classroom-based lessons
- ☐ PE lessons
- ☐ Cafeteria lessons
- ☐ Taste-testings
- ☐ School garden(s)
- ☐ Special assemblies/events
- ☐ Don't know
- ☐ Other (please specify): _____

Q12 Does your school set prices for some healthier foods or beverages lower than less healthy options to encourage their consumption?

- ○ Yes
- ○ No
- ○ Don’t know

Q13 Which of the following foods or beverages does your school set lower prices for to encourage their consumption (check all that apply)?

- ☐ Fruits
- ☐ Vegetables
- ☐ Plain, low-fat milk
- ☐ Meat/poultry
- ☐ Whole grain products
- ☐ None of the above
- ☐ Other (please specify): _____

Q14 Does your school participate in a farm-to-school program?

- ○ Yes
- ○ No
- ○ Don't know

Q15 Which of the following does your school offer daily (check all that apply)?

- ☐ Salad bar
- ☐ Grab and Go meals
- ☐ Fresh fruits and/or vegetables
- ☐ None of the above
- ☐ Don't know

Q16 Please indicate if your school purchased any of the following foods (in any form) from Georgia growers/producers/processors/manufacturers during the 2015-2016 school year (check all that apply):

- ☐ Fruits
- ☐ Vegetables
- ☐ Milk
- ☐ Meat/poultry
- ☐ Herbs
- ☐ None of the above
- ☐ Don't know
- ☐ Other (please specify): _____

Q17 Are parents/caregivers provided nutrition information through any of the following (check all that apply)?

- ☐ Take-home flyers
- ☐ Nutrition information from cafeteria staff for weekly meal menus
- ☐ Nutrition information posted on school website
- ☐ PTO/PTA meetings
- ☐ Family/community events at school
- ☐ None of the above
- ☐ Don't know
- ☐ Other (please specify): _____

Q18 Which of the following nutrition education classes does your school provide for parents/caregivers (check all that apply)?

- ☐ Healthy eating classes (e.g., preparing healthy meals/snacks/lunches)
- ☐ General nutrition classes (e.g., MyPlate, reading food labels)
- ☐ Eating on a budget classes
- ☐ Cooking classes
- ☐ Gardening classes
- ☐ None of the above
- ☐ Don't know
- ☐ Other (please specify): _____

Q19 Which of the following kitchen facilities are available at your school (check all that apply)?

- ☐ Conventional food service system (food produced on-site and held heated or chilled)
- ☐ Commissary food service system (food produced at a central location and sent to satellite kitchen where it is served)
- ☐ Ready-prepared food service system (food produced on-site, held frozen and then reheated at time of serving)
- ☐ Assembly-serve food service system (food is purchased already made, held frozen and then reheated at time of serving)
- ☐ None of the above
- ☐ Other (please specify): _____

Q20 Does your school use any of the following USDA-sponsored Team Nutrition resources (check all that apply)?

- ☐ Nutrition education materials (e.g., posters, activities, games, lesson plans)
- ☐ Food buying guide and menu planning assistance
- ☐ Training grants to support staff training/continuing education
- ☐ Other Team Nutrition grants
- ☐ None of the above
- ☐ Don't know
- ☐ Other (please specify): _____

Q21 Please indicate which types of training your school's nutrition staff would like more of (check all that apply):

☐ Equipment (assessing equipment needs, purchasing new equipment, and/or using new equipment)
☐ Menu planning (developing and modifying menus, modifying and/or standardizing recipes, understanding compliance with meal pattern and nutrient requirements, revising food purchasing specifications, and/or marketing and promoting the new meal requirements)
☐ Culinary training (basic food safety/ServSafe training, basic cooking skills, basic nutrition training, and/or culinary skills to prepare and serve fruits and vegetables)
☐ Paperwork (completing applications/paperwork for additional reimbursement and Coordinated Review Effort (CRE) reviews, and/or completing production records)
☐ None of the above
☐ Other (please specify): _____

Q22 Which of the following strategies has your school used during the current 2015-2016 school year to promote school meals (check all that apply)?

☐ Student taste-testings
☐ Student advisory groups
☐ Student cooking demonstrations or classes
☐ Parent/caregiver cooking demonstrations or classes
☐ Promotional signage or events in the cafeteria
☐ Social media (e.g., Facebook, Twitter, Instagram, or other
☐ Promotion through PTA/PTO or parent/caregiver groups
☐ Promotion through an outside organization (e.g., HealthMPowers, Alliance for a Healthier Generation, Strong4Life, Organwise Guys, Georgia Organics, GA Department of Agriculture, Fuel Up to Play 60, 4-H, or other)
☐ Newsletters
☐ None of the above
☐ Don't know
☐ Other (please specify): _____

Q23 Which of the following techniques does your school use to promote healthier food choices among students (check all that apply)?

☐ Whole fruit options are displayed in attractive bowls or baskets (instead of chaffing dishes or hotel pans)
☐ Sliced or cut fruit is available daily
☐ Daily fruit options are displayed in a location in the line of sight and reach of students
☐ All available vegetable options have been given creative or descriptive names
☐ Daily vegetable options are bundled into all Grab and Go meals available to students
☐ Cafeteria serving staff politely prompt students to select and consume the daily fruit and vegetable options with their meal
☐ Plain, low-fat milk is placed in front of other beverages in all coolers
☐ Attractive entrée options (e.g., salad, yogurt parfaits) are highlighted on posters or signs in the cafeteria or school
☐ Student surveys and taste-testing opportunities are used to inform menu development, dining space décor, and promotional ideas
☐ Daily announcements are used to promote and market menu options
☐ None of the above
☐ Other (please specify): _____

Q24 How long is the lunch period for students in each grade?

	Not applicable	Less than 10 minutes	10-15 minutes	16-20 minutes	21-25 minutes	26-30 minutes	26-30 minutes
Pre-K	○	○	○	○	○	○	○
Kindergarten	○	○	○	○	○	○	○
First Grade	○	○	○	○	○	○	○
Second Grade	○	○	○	○	○	○	○
Third Grade	○	○	○	○	○	○	○
Fourth Grade	○	○	○	○	○	○	○
Fifth Grade	○	○	○	○	○	○	○

Q25 Approximately how many minutes do students in each grade have to eat their lunch after they receive their meals?

	Not applicable	Less than 10 minutes	10-15 minutes	16-20 minutes	21-25 minutes	26-30 minutes	26-30 minutes
Pre-K	○	○	○	○	○	○	○
Kindergarten	○	○	○	○	○	○	○
First Grade	○	○	○	○	○	○	○
Second Grade	○	○	○	○	○	○	○
Third Grade	○	○	○	○	○	○	○
Fourth Grade	○	○	○	○	○	○	○
Fifth Grade	○	○	○	○	○	○	○

Q26 Please indicate where posters, contests or other promotions are used to encourage consumption of the following (check all that apply):

	Cafeteria	Classroom	Hallways	Gym	Other, specify below	Not used	Don't know
Fruits	☐	☐	☐	☐	☐	☐	☐
Vegetables	☐	☐	☐	☐	☐	☐	☐
Water	☐	☐	☐	☐	☐	☐	☐
Plain milk	☐	☐	☐	☐	☐	☐	☐
Whole grains	☐	☐	☐	☐	☐	☐	☐
Lean protein	☐	☐	☐	☐	☐	☐	☐

Other (please specify)

_____

Q27 Please indicate how often your school participates in or operates any of the following fundraising activities before, during, or after school?

	Daily	Weekly	Monthly	Yearly	Never	Don't know
Bake sale where students/parents/caregivers can purchase items	O	O	O	O	O	O
Ice cream social/pizza night at school	O	O	O	O	O	O
Sponsored fundraiser at local restaurant	O	O	O	O	O	O
Club or sports team fundraiser at school	O	O	O	O	O	O
School stores where food is sold	O	O	O	O	O	O
Snack carts	O	O	O	O	O	O
Donut sales	O	O	O	O	O	O
Chicken biscuit sales	O	O	O	O	O	O
A la carte items at lunch (foods sold after a child finishes school lunch – e.g., ice cream, fruit bars, chips, etc.)	O	O	O	O	O	O

Other (please specify)

_____

Q28 Please indicate how often your school uses Georgia-grown products or produce for any of the following nutrition programs during the current school year:

	Daily	Weekly	Monthly	Yearly	Never	Don't know
Breakfast program	O	O	O	O	O	O
Lunch program	O	O	O	O	O	O
Dinner program	O	O	O	O	O	O
Snack program	O	O	O	O	O	O
Fresh fruit and vegetable taste-testing program	O	O	O	O	O	O
After-school program	O	O	O	O	O	O
Summer meals program (e.g., meals in the Summer Food Service Program, in Seamless Summer, or in the National School Lunch Program under accredited summer school programs)	O	O	O	O	O	O

Other (please specify)

_____

Q29 If your school could make one change to improve the consumption of healthier foods and beverages by students, what would it be?

_____

Appendix B. Survey Questions and Sources

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
In an effort to link today's responses with future responses for tracking school improvements in healthy eating and nutrition practices, please provide the following code: Initials of first and last name, followed by birth month (mm) and day (dd). (Example: If your name is Tom Smith and your birthday is February 4 your code will be ts0204).	[Open-ended]	Not applicable	In an effort to link today's responses with future responses for tracking school improvements in healthy eating and nutrition practices, please provide the following code: Initials of first and last name, followed by birth month (mm) and day (dd). (Example: If your name is Tom Smith and your birthday is February 4 your code will be ts0204).	[Open-ended]	Not applicable
Which school district is your school located in?	[Drop-down list]	Not applicable	Which school district is your school located in?	[Drop-down list]	Not applicable
What is the name of your school?	[Drop-down list]	Not applicable	What is the name of your school?	[Drop-down list]	Not applicable
What is your primary position?	[Multiple choice] Administrator Classroom teacher Lunchroom/cafeteria/nutrition manager or assistant	Not applicable	What is your primary position?	[Multiple choice] Physical education teacher Pre-K teacher Kindergarten teacher 1st grade teacher 2nd grade teacher 3rd grade teacher 4th grade teacher 5th grade teacher Administrator	Modified answer choices

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
What grade level do you teach?	[Multiple choice] Pre-K Kindergarten 1st grade 2nd grade 3rd grade 4th grade 5th grade	Not applicable	Not applicable	Not applicable	Not applicable
Does your school have a wellness policy?	[Multiple choice] Yes, our school follows the district's wellness policy Yes, our school has its own wellness policy based on the district's policy Yes, our school has its own policy No, we do not have a school wellness policy Don't know	*Bridging the Gap* Food and Fitness Survey 2014	Are you familiar with the wellness policy developed by your school district?	[Multiple choice] Yes No	Modified question and answer choices
What is the title of the designated person(s) responsible for ensuring that the school's wellness policy is enforced (check all that apply)?	[Check all that apply] School nutrition personnel (e.g., cafeteria/lunchroom/nutrition manager or other) Physical education/health education teacher School nurse School counselor School administrator Classroom teacher Our school does not have a designated person Don't know Other (please specify)	*Bridging the Gap* Food and Fitness Survey 2014	Has your district or school designated one or more persons to have operational responsibility for ensuring that the wellness policy is implemented?	[Check all that apply] Yes, the school district has designated a person Yes, the school has designated a person No Don't know	Modified question and answer choices

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
Does your school have a wellness committee?	[Multiple choice] Yes No Don't know	*Bridging the Gap* Food and Fitness Survey 2014	Does your school district or school have an ongoing health advisory council, wellness council, or an advisory group that makes recommendations regarding nutrition and/or exercise for students?	[Multiple choice] Yes, at the school level only Yes, at the district level only Yes, at both the school and district levels No Don't know	Modified question and answer choices
Please indicate the individuals included on your school's wellness committee (check all that apply):	[Check all that apply] School nutrition personnel (e.g., cafeteria/lunchroom/nutrition manager or other) Physical education/health education teachers School nurses School counselors School administrators Classroom teachers Parents and caregivers Students Don't know Other (please specify)	Alliance for a Healthier Generation's Model Wellness Policy	Not applicable - Report School Wellness Committee	The District Wellness Committee (DWC) membership will represent all school levels (elementary and secondary schools) and include (to the extent possible), but not be limited to: parents and caregivers; students; representatives of the school nutrition program (ex., school nutrition director); physical education teachers; health education teachers; school health professionals (ex., health education teachers, school health services staff [i.e., nurses, physicians, dentists, health educators, and other allied health personnel who provide school health services], and mental health and social services staff [i.e., school counselors, psychologists, social	Modified question and answer choices

HealthMPowers School Setting Nutrition Survey		Primary Source			Changes
Question	**Answers**	**Source**	**Question**	**Answers**	
				workers, or psychiatrists]; school administrators (ex., superintendent, principal, vice principal), school board members; health professionals (ex., dietitians, doctors, nurses, dentists); and the general public. To the extent possible, the DWC will include representatives from each school building and reflect the diversity of the community.	
How many times does your school's wellness committee meet annually?	[Multiple choice] Once Twice Three times Four time or more Never Don't know Other (please specify)	Alliance for a Healthier Generation's Model Wellness Policy	Not applicable - Report School Wellness Committee	The District will convene a representative district wellness committee (hereto referred to as the DWC or work within an existing school health committee) that meets at least four times per year [or specify frequency of meetings, with a minimum of four meetings per year] to establish goals for and oversee school health and safety policies and programs, including development, implementation, and periodic review and update of this district-level wellness policy	Converted paragraph to question form

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
				(heretofore referred as "wellness policy").	
Is nutrition education offered to students?	[Multiple choice] Yes No Don't know	Bridging the Gap Food and Fitness Survey 2014	At present, is formal classroom instruction offered to elementary students in your school on nutrition education?	[Multiple choice] Yes No Don't know	Modified question only
How is nutrition education delivered to students (check all that apply)?	[Check all that apply] Classroom-based lessons PE lessons Cafeteria lessons Taste-testings School garden(s) Special assemblies/events Don't know Other (please specify)	Not applicable	Not applicable	Not applicable	Not applicable
Does your school set prices for some healthier foods or beverages lower than less healthy options to encourage their consumption?	[Multiple choice] Yes No Don't know	*Bridging the Gap* Food and Fitness Survey 2014	To what extent has your school or school district set *food or beverage prices* (in vending machines, stores, a la carte) with the intent of encouraging students to eat healthier foods (e.g., fruits, vegetables, low-fat foods) and/or beverages (e.g., bottled water, low-fat milk) instead of less-healthy foods and beverages?	[Multiple choice] Not at all A little Some A lot Don't know N/A - school or district don't set the prices	Modified question and answer choices
Which of the following foods or beverages does your school set lower prices for to encourage their consumption (check all that apply)?	[Check all that apply] Fruits Vegetables Plain, low-fat milk Meat/poultry Whole grain products None of the above Other (please specify)	Not applicable for question; answer choices from 2015 USDA Farm to School Census	Not applicable	Not applicable	Not applicable

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
Does your school participate in a farm-to-school program?	[Multiple choice] Yes No Don't know	*Bridging the Gap* Food and Fitness Survey 2014	Does your school currently incorporate any locally-produced food (e.g., fruits, vegetables, meat, dairy) into the meals offered at school (through, for example, a "farm-to-cafeteria," "farm-to-school," or other program)?	[Multiple choice] Yes No	Modified question and answer choices
Which of the following does your school offer daily (check all that apply)?	[Check all that apply] Salad bar Grab and Go meals Fresh fruits and/or vegetables None of the above Don't know	CHOA Smarter Lunchrooms	There is no question -- we created this question pulling answer choices from Smarter Lunchrooms	Not applicable	Not applicable
Does your school provide a list of non-food celebration ideas to PTA/PTO and/or teachers?	[Multiple choice] Yes, provided to both PTA/PTO and teachers Yes, provided to PTA/PTO only Yes, provided to teachers only No Don't know	Alliance for a Healthier Generation's Model Wellness Policy	Not applicable - Report Celebration and Rewards	Celebrations and parties. The district will provide a list of healthy party ideas to parents and teachers, including non-food celebration ideas. Healthy party ideas from the Alliance for a Healthier Generation and from the USDA.	Converted paragraph to question form

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
Does your school provide a list of non-food fundraising ideas to PTA/PTO and/or teachers?	[Multiple choice] Yes, provided to both PTA/PTO and teachers Yes, provided to PTA/PTO only Yes, provided to teachers only No Don't know	Alliance for a Healthier Generation's Model Wellness Policy	Not applicable - Report Fundraising	Schools will use only non-food fundraisers, and encourage those promoting physical activity (such as walk-a-thons, jump rope for heart, fun runs, etc.). Fundraising during and outside school hours will sell only non-food items or foods and beverages that meet or exceed the Smart Snacks nutrition standards. This may include but is not limited to, donation nights at restaurants, cookie dough, candy and pizza sales, market days, etc. (Meets HSP Gold)]	Converted paragraph to question form
Does your school currently have a garden (fruit and/or vegetable) in which students work, plant, or harvest either before, during, or after school?	[Multiple choice] Yes, as part of classroom instruction Yes, but not as part of classroom instruction No Other (please specify)	*Bridging the Gap* Food and Fitness Survey 2014	Does your school currently have a garden (fruit and/or vegetable) that students participate in?	[Multiple choice] Yes No	Modified question and answer choices

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
Please indicate if your school purchased any of the following foods (in any form) from Georgia growers/producers/processors/manufacturers during the 2015-2016 school year (check all that apply):	[Check all that apply] Fruits Vegetables Milk Meat/poultry Herbs None of the above Don't know Other (please specify)	2015 USDA Farm to School Census	Please indicate if your district or any schools in your district purchased any of the following foods – IN ANY FORM -- from local growers/producers/processers/manufacturers during the 2013-2014 school year or would like to in the future.	[Matrix/Multiple choice] Answer choices for each [Yes; No; Not now, but would like to in the future; I don't know] Fruit Vegetables Fluid Milk Other Dairy Meat/poultry Eggs Seafood Plant-based protein items such as beans, seeds, nuts Grains and flour Bakery products Herbs Other product type: (please specify)	Modified question and answer choices
Please indicate which of the following locations students have access to drinking water during the school day (check all that apply):	[Check all that apply] Classroom water bottles School clinic In or near cafeteria In hallways near classrooms Gymnasium/locker rooms Outdoor physical activity spaces Hydration stations (water fountain with attachment to fill up bottle) Other (please specify)	*Bridging the Gap* Food and Fitness Survey 2014	The Healthy, Hunger-Free Kids Act of 2010 required schools to provide free, potable drinking water for students during lunchtime, starting in the 2011-12 school year. Please indicate which (if any) of the following strategies your school has used to meet this requirement.	[Check all that apply] Existing drinking fountains in cafeteria Installed new drinking fountains in cafeteria Water dispenser/pitcher and cups (in the food line) Water dispenser/pitcher and cups (elsewhere in the cafeteria) Water dispenser/pitcher but no cups (students bring water bottles) Other -- please describe: _____ Free, potable drinking water is not available	Modified question and answer choices

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
Are parents/caregivers provided nutrition information through any of the following (check all that apply)?	[Check all that apply] Take-home flyers Nutrition information from cafeteria staff for weekly meal menus Nutrition information posted on school website PTO/PTA meetings Family/community events at school None of the above Don't know Other (please specify)	*Bridging the Gap* Food and Fitness Survey 2007-2008	School provided nutritional information to parents and/or students:	Report: Answer choices not given	Modified question and answer choices
Which of the following nutrition education classes does your school provide for parents/caregivers (check all that apply)?	[Check all that apply] Healthy eating classes (e.g., preparing healthy meals/snacks/lunches) General nutrition classes (e.g., MyPlate, reading food labels) Eating on a budget classes Cooking classes Gardening classes None of the above Don't know Other (please specify)	Not applicable	Not applicable	Not applicable	Not applicable
Which of the following kitchen facilities are available at your school (check all that apply)?	[Check all that apply] Conventional food service system (food produced on-site and held heated or chilled) Commissary food service system (food produced at a central location and sent to satellite kitchen where it is served) Ready-prepared food service system (food produced on-site, held frozen and then reheated at time of serving) Assembly-serve food service	*Bridging the Gap* Food and Fitness Survey 2014 A Guide to Centralized Foodservice Systems	Which of the following kitchen facilities are available at your school?	[Multiple choice] Full-service kitchen (i.e., ovens, refrigerators, stove) Partial kitchen (i.e., warming oven or microwave only) No kitchen	Modified answer choices only

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
	system (food is purchased already made, held frozen and then reheated at time of serving) None of the above Other (please specify)				
Does your school [administrator] or classroom [teacher] have a policy/practice that limits sugar-sweetened foods (e.g., candy, cupcakes, cookies) from being served or brought in either at snack time or for parties during the school day?	[Matrix/Multiple choice] For each answer choice [Yes; No; No formal policy/practice, teacher's discretion] Snack time Birthday parties Holiday parties Other (please specify	*Bridging the Gap* Food and Fitness Survey 2014	Are there any policies limiting sugar-sweetened items (e.g., candy, cupcakes, cookies) from being served or brought in either at snack time or for parties during the school day? If no snack time or parties, please check N/A.	[Matrix/Multiple choice] For each answer choice [No policy; Decision is up to each teacher; Sweetened items *discouraged* school-wide]; Sweetened items *prohibited* school-wide; N/A, no parties or snack time]	Modified question and answer choices, split into two questions
Does your school [administrator]/classroom [teacher] have a policy/practice that limits sugar-sweetened drinks (e.g., juice, soda, sports drinks) from being served or brought in either at snack time or for parties during the school day?	[Matrix/Multiple choice] For each answer choice [Yes; No; No formal policy/practice, teacher's discretion] Snack time Birthday parties Holiday parties Other (please specify)				
How long is the lunch period for students in each grade [administrator, manager]/the grade you teach [teacher]?	[Matrix/Multiple choice (Admin. manager/teacher)] For each answer choice [N/A, Less than 10 min, 10-15 min, 16-20 min, 21-25 min, 26-30 min, more than 30 min] Pre-K Kindergarten First Grade Second Grade Third Grade Fourth Grade Fifth Grade	*Bridging the Gap* Food and Fitness Survey 2014	How long does each student have to each lunch, not including recess? If lunch is combined with recess, please estimate how many minutes are generally set aside for lunch for <u>3rd grade</u> students:	[Fill in blank] Numerical	Modified question and answer choices

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
Approximately how many minutes do students in each grade [administrator, manager]/the grade you teach [teacher] have to eat their lunch after they receive their meals?	[Matrix/Multiple choice (Admin, manager/teacher)] For each answer choice [N/A, Less than 10 min, 10-15 min, 16-20 min, 21-25 min, 26-30 min, more than 30 min] Pre-K Kindergarten First Grade Second Grade Third Grade Fourth Grade Fifth Grade	SHPPS	How long do students usually have to eat breakfast once they are seated?	[Fill in blank] Numerical	Modified question and answer choices
Please indicate where posters, contests or other promotions are used to encourage consumption of the following (check all that apply):	[Check all that apply] For each answer choice [Cafeteria, Classroom, Hallways, Gymnasium, Other (specify below), Not used, Don't know] Fruits Vegetables Water Plain milk Whole grains Lean protein	*Bridging the Gap* Food and Fitness Survey 2014	Please indicate whether any posters or other advertisements for the following products are currently posted in the cafeteria or in other locations at your school: Please check all that apply	[Matrix/Check all that apply] For each answer choice [In the cafeteria (or where students eat); Anywhere else] Milk Fruit and/or vegetables	Modified question and answer choices

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
Please indicate how often your school participates in or operates any of the following fundraising activities before, during, or after school?	[Matrix/Multiple choice] For each answer choice [Daily; Weekly; Monthly; Yearly; Never; Don't Know] Bake sale where students/parents/caregivers can purchase items Ice cream social/pizza night at school Sponsored fundraiser at local restaurant Club or sports team fundraiser at school School stores where food is sold Snack carts Donut sales Chicken biscuit sales A la carte items at lunch (foods sold after a child finishes school lunch -- e.g., ice cream fruit bars, chips, etc.) Other (please specify)	*Bridging the Gap* Food and Fitness Survey 2014	Please indicate how frequently your school participates in the following types of fundraising activities at which students are able to consume foods and beverages:	[Fill in blank/1 per line] For each answer choice [# of times per school year: _____] Bake sale where students/parents can purchase items Ice cream social/dinner/pizza night at school Sponsored fundraiser at local restaurant (e.g., pizza night)	Modified question and answer choices
Please indicate whether any of the following practices occur at your school [administrator]/within your classroom [teacher]:	[Matrix/Multiple choice] For each answer choice [Yes; Yes, but it is discouraged; No] Food is used as a reward for good academic performance Food is used as a reward for good behavior Food coupons are used as an incentive for students (e.g., "Book-It" pizza party for reading) Classroom lessons involve food (e.g., using candy or cereal for math lessons) Other (please specify)	*Bridging the Gap* Food and Fitness Survey 2014	Please indicate whether any of the following practices occur at your school.	[Matrix/Multiple choice] For each answer choice [No; Yes, it is up to each teacher; Yes, but it is discouraged] Food (e.g., candy) is used as a reward for good academic performance Food (e.g., candy) is used as a reward for good behavior Food coupons are used as an incentive for students (e.g., "Book-It"	Slight modifications to answer choices only

HealthMPowers School Setting Nutrition Survey		Primary Source			Changes
Question	**Answers**	**Source**	**Question**	**Answers**	
				pizza party for reading) Classroom lessons involve candy (i.e., mathematics using M&M candies)	
Does your school use any of the following USDA-sponsored Team Nutrition resources (check all that apply)?	[Check all that apply] Nutrition education materials (e.g., posters, activities, games, lesson plans) Food buying guide and menu planning assistance Training grants to support staff training/continuing education Other Team Nutrition grants None of the above Don't know Other (please specify)	*Bridging the Gap* Food and Fitness Survey 2014	Does your school participate in the USDA-sponsored Team Nutrition program? If yes, which Team Nutrition resources are used?	[Multiple choice] Yes, No, Don't know [Check all that apply] Nutrition education materials (posters, activities, games) Lesson plans Food buying guide and menu planning assistance Training grants to support staff training/continuing education Other Team Nutrition mini-grants Other (please specify): _____	Slight modifications to answer choices only
Please indicate which types of training your school's nutrition staff would like more of (check all that apply):	[Check all that apply] Equipment (assessing equipment needs, purchasing new equipment, and/or using new equipment) Menu planning (developing and modifying menus, modifying and/or standardizing recipes, understanding compliance with meal pattern and nutrient requirements, revising food purchasing specifications, and/or marketing and promoting the new meal	Serving Healthy School Meals Report	Not applicable -- Report Training Needs of SFA Directors and Food Service Management Teams	Completing applications/paperwork for additional reimbursement and Coordinated Review Effort (CRE) reviews Developing or modifying menus Understanding compliance with meal pattern and nutrient requirements Marketing and promoting the new meal requirements	Converted list to question form

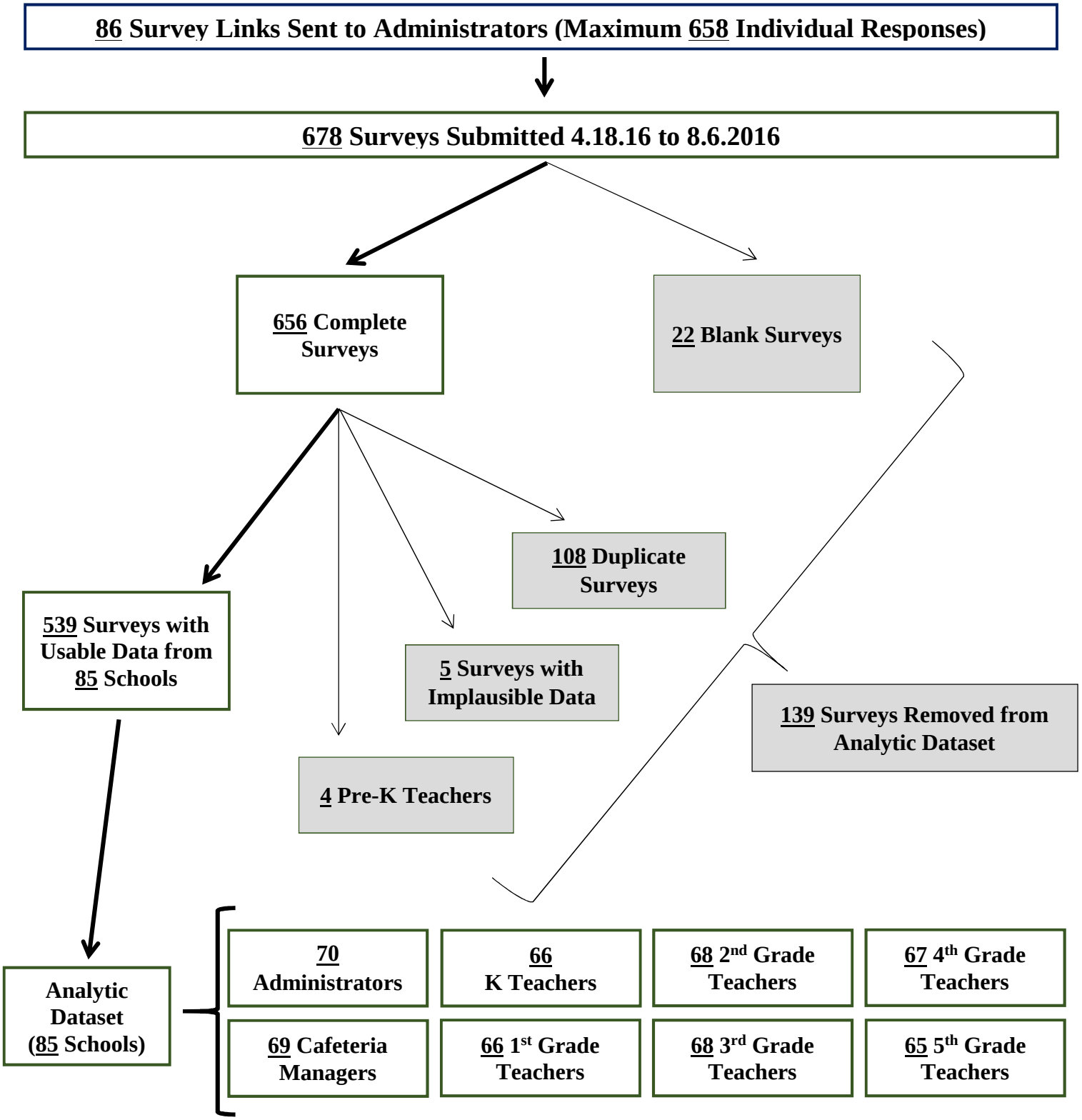
HealthMPowers School Setting Nutrition Survey		Primary Source			Changes
Question	**Answers**	**Source**	**Question**	**Answers**	
	requirements) Culinary training (basic food safety/ServSafe training, basic cooking skills, basic nutrition training, and/or culinary skills to prepare and serve fruits and vegetables) Paperwork (completing applications/paperwork for additional reimbursement and Coordinated Review Effort (CRE) reviews, and/or completing production records) None of the above Other (please specify)			Revising food purchasing specifications Modifying and/or standardizing recipes Assessing equipment and infrastructure needs Purchasing new equipment Completing production records Basic nutrition training Basic food safety/ServSafe training Using/operating new equipment Basic cooking skills	

HealthMPowers School Setting Nutrition Survey		**Primary Source**			**Changes**
Question	**Answers**	**Source**	**Question**	**Answers**	
Which of the following strategies has your school used during the current 2015-2016 school year to promote school meals (check all that apply)?	[Check all that apply] Student taste-testings Student advisory groups Student cooking demonstrations or classes Parent/caregiver cooking demonstrations or classes Promotional signage or events in the cafeteria Social media (e.g., Facebook, Twitter, Instagram, or other Promotion through PTA/PTO or parent/caregiver groups Promotion through an outside organization (e.g., HealthMPowers, Alliance for a Healthier Generation, Strong4Life, Organwise Guys, Georgia Organics, GA Department of Agriculture, Fuel Up to Play 60, 4-H, or other) Newsletters None of the above Don't know Other (please specify)	*Bridging the Gap* Food and Fitness Survey 2014	Has your school used any of the following strategies to promote healthier lunches during the past year?	[Matrix/Multiple choice] For each answer choice [Never; Once or twice; Often] Student taste tests Student advisory groups Cooking club/demonstrations/classes Promotional signage or events in cafeteria Social media (Facebook, Twitter, etc.) Engagement with PTA or parent groups Newsletters	Modified question and answer choices
Which of the following techniques does your school use to promote healthier food choices among students (check all that apply)?	[Check all that apply] Whole fruit options are displayed in attractive bowls or baskets (instead of chaffing dishes or hotel pans) Sliced or cut fruit is available daily Daily fruit options are displayed in a location in the line of sight and reach of students All available vegetable options have been given creative or	Alliance for a Healthier Generation's Model Wellness Policy CHOA Smarter Lunchrooms	Not applicable -- Report Promote healthy food and beverage choices using at least ten of the following Smarter Lunchroom techniques:	Whole fruit options are displayed in attractive bowls or baskets (instead of chaffing dishes or hotel pans) Sliced or cut fruit is available daily Daily fruit options are displayed in a location in the line of sight and reach of students All available vegetable options have been given	Converted list to question form

HealthMPowers School Setting Nutrition Survey		Primary Source			Changes
Question	**Answers**	**Source**	**Question**	**Answers**	
	descriptive names Daily vegetable options are bundled into all Grab and Go meals available to students Cafeteria serving staff politely prompt students to select and consume the daily fruit and vegetable options with their meal Plain, low-fat milk is placed in front of other beverages in all coolers Attractive entrée options (e.g., salad, yogurt parfaits) are highlighted on posters or signs in the cafeteria or school Student surveys and taste-testing opportunities are used to inform menu development, dining space décor, and promotional ideas Daily announcements are used to promote and market menu options None of the above Other (please specify)			creative or descriptive names Daily vegetable options are bundled into all grab and go meals available to students All staff members, especially those serving, have been trained to politely prompt students to select and consume the daily vegetable options with their meal White milk is placed in front of other beverages in all coolers Alternative entrée options (e.g., salad bar, yogurt parfaits, etc.) are highlighted on posters or signs within all service and dining areas A reimbursable meal can be created in any service area available to students (e.g., salad bars, snack rooms, etc.) Student surveys and taste testing opportunities are used to inform menu development, dining space decor, and promotional ideas Student artwork is displayed in the service and/or dining areas Daily announcements	

HealthMPowers School Setting Nutrition Survey		Primary Source			Changes
Question	**Answers**	**Source**	**Question**	**Answers**	
				are used to promote and market menu options	
Please indicate how often your school uses Georgia-grown products or produce for any of the following nutrition programs during the current school year:	[Matrix/Multiple choice] For each answer choice [Daily; Weekly; Monthly; Yearly; Never; Don't Know] Breakfast program Lunch program Dinner program Snack program Fresh fruit and vegetable taste-testing program After-school program Summer meals program (e.g., meals in the Summer Food Service Program, in Seamless Summer, or in the National School Lunch Program under accredited summer school programs) Other (please specify)	2015 USDA Farm to School Census	Please indicate whether your district or any schools in your district used local products IN ANY FORM (fresh, minimally processed, or processed) for any of the following federal nutrition programs during the 2013-2014 school year. (Please check all that apply).	[Check all that apply] Breakfast Lunch Supper Snacks Fresh Fruit and Vegetable Program CACFP (i.e., in a pre-K setting such as Head Start, etc.) CACFP At-risk Afterschool Summer meals (i.e., meals in the Summer Food Service Program, in Seamless Summer, or in the NSLP under accredited summer school programs)	Modified question and answer choices
If your school could make one change to improve the consumption of healthier foods and beverages by students, what would it be?	[Open-ended]	Not applicable	Not applicable	Not applicable	Not applicable

Appendix C. Response Rate Flowchart



Appendix D. Complete Survey Results

Nutrition Policy, Practice, and/or Environment	n	%
Administrator, n=70		
Wellness policy		
Yes, our school follows the district's wellness policy	43	61
Yes, our school has its own wellness policy based on the district's policy	10	14
Yes, our school has its own wellness policy	6	9
No, we do not have a school wellness policy	6	9
Don't know	5	7
Enforcers of wellness policy (Check all that apply)		
School nutrition personnel	33	47
Physical education/health education teacher	41	59
School nurse	13	19
School counselor	8	11
School administrator	29	41
Classroom teacher	25	36
Our school does not have a designated person	2	3
Don't know	0	0
Other	12	17
School garden		
Yes, as part of classroom instruction	14	20
Yes, but not part of classroom instruction	10	14
No	40	57
Plans to start or expand in future	6	9
Parents provided nutrition information (Check all that apply)		
Take-home flyers	41	59
Nutrition information from cafeteria staff for weekly meal menus	21	30
Nutrition information posted on school website	24	34
PTO/PTA meetings	18	26
Family/community events at school	33	47
None of the above	8	11
Don't know	5	7
Other	1	1
Nutrition education classes for parents (check all that apply)		
Healthy eating classes	19	27
General nutrition classes	26	37
Eating on a budget classes	1	1
Cooking classes	2	3
Gardening classes	3	4
None of the above	31	44
Don't know	4	6
Other	2	3
Fundraisers		
Bake sale		
Daily	0	0
Weekly	0	0
Monthly	1	1
Yearly	16	23
Never	49	70
Don't know	3	4
Other	1	1

Ice cream social/pizza night		
Daily	2	3
Weekly	1	1
Monthly	10	14
Yearly	25	36
Never	29	41
Don’t know	2	3
Other	1	1
Sponsored fundraiser at local restaurant		
Daily	0	0
Weekly	0	0
Monthly	18	26
Yearly	21	30
Never	28	40
Don’t know	2	3
Other	1	1
Club or sports team fundraiser at school		
Daily	0	0
Weekly	0	0
Monthly	2	3
Yearly	19	27
Never	47	67
Don’t know	1	1
Other	1	1
School stores where food is sold		
Daily	4	6
Weekly	5	7
Monthly	3	4
Yearly	4	6
Never	52	74
Don’t know	1	1
Other	1	1
Snack carts		
Daily	2	3
Weekly	3	4
Monthly	3	4
Yearly	4	6
Never	56	80
Don’t know	1	1
Other	1	1
Donut sales		
Daily	0	0
Weekly	0	0
Monthly	1	1
Yearly	24	34
Never	42	60
Don’t know	2	3
Other	1	1
Chicken biscuit sales		
Daily	0	0
Weekly	0	0
Monthly	1	1
Yearly	1	1
Never	64	91
Don’t know	3	4

Other	1	1
A la carte items		
Daily	32	46
Weekly	9	13
Monthly	1	1
Yearly	1	1
Never	24	34
Don't know	2	3
Other	1	1
Grade Level Chair, n=400		
Nutrition education offered to students (Yes)	322	81
Non-food celebration ideas		
Yes, provided to both PTA/PTO and teachers	68	17
Yes, provided to PTA/PTO only	2	1
Yes, provided to teachers only	25	6
No	143	36
Don't know	162	41
Non-food fundraising ideas		
Yes, provided to both PTA/PTO and teachers	76	19
Yes, provided to PTA/PTO only	18	5
Yes, provided to teachers only	10	3
No	124	31
Don't know	172	43
Classroom policy limiting sugar-sweetened foods at snack time		
Yes	131	33
No	65	16
No formal policy, teacher's discretion	202	51
Other	2	1
Classroom policy limiting sugar-sweetened foods for birthday parties		
Yes	77	19
No	106	27
No formal policy, teacher's discretion	215	54
Other	2	1
Classroom policy limiting sugar-sweetened foods for holiday parties		
Yes	75	19
No	99	25
No formal policy, teacher's discretion	224	56
Other	2	1
Classroom policy limiting sugar-sweetened beverages at snack time		
Yes	140	35
No	68	17
No formal policy, teacher's discretion	190	48
Other	2	1
Classroom policy limiting sugar-sweetened beverages for birthday parties		
Yes	84	21
No	100	25
No formal policy, teacher's discretion	214	54
Other	2	1

Classroom policy limiting sugar-sweetened beverages for holiday parties		
Yes	78	20
No	100	25
No formal policy, teacher's discretion	220	55
Other	2	1
Food used as a reward for academic performance		
Yes	147	37
No	216	54
Don't know	35	9
Other	2	1
Food used as a reward for good behavior		
Yes	193	48
No	161	40
Don't know	44	11
Other	2	1
Food coupons used as incentives for students		
Yes	230	58
No	160	40
Don't know	8	2
Other	2	1
Classroom lessons involve food		
Yes	271	68
No	106	27
Don't know	21	5
Other	2	1
Nutrition Manager, n=69		
Price healthier items lower to encourage their consumption (Yes)	7	10
Which items priced lower (Check all that apply)		
Fruits	7	10
Vegetables	6	9
Plain, low-fat milk	5	7
Meat/poultry	3	4
Whole grain products	6	9
None of the above	2	3
Other	0	0
Participates in farm-to-school program (Yes)	34	49
Daily options offered (Check all that apply)		
Salad bar	13	19
Grab and Go meals	35	51
Fresh fruits and/or vegetables	69	100
None of the above	0	0
Purchased foods from Georgia producers/manufacturers (Check all that apply)		
Fruits	59	86
Vegetables	60	87
Milk	22	32
Meat/poultry	11	16
Herbs	7	10
None of the above	1	1
Don't know	6	9
Other	0	0

USDA Team Nutrition resources used (Check all that apply)		
Nutrition education materials	54	78
Food buying guide and menu planning assistance	48	70
Training grants to support staff training/continuing education	24	35
Other Team Nutrition grants	17	25
None of the above	1	1
Don't know	5	7
Other	1	1
Lunch period length for students (3rd grade)		
Not applicable	3	4
<10 minutes	1	1
10-15 minutes	0	0
16-20 minutes	7	10
21-25 minutes	6	9
26-30 minutes	40	58
>30 minutes	10	14
Missing	2	3
Georgia-grown products used in nutrition programs		
Breakfast program		
Daily	29	42
Weekly	17	25
Monthly	5	7
Yearly	2	3
Never	6	9
Don’t know	8	12
Other	2	3
Lunch program		
Daily	35	51
Weekly	13	19
Monthly	13	19
Yearly	1	1
Never	1	1
Don’t know	4	6
Other	2	3
Dinner program		
Daily	3	4
Weekly	3	4
Monthly	1	1
Yearly	0	0
Never	40	58
Don’t know	20	29
Other	2	3
Snack program		
Daily	17	25
Weekly	8	12
Monthly	8	12
Yearly	2	3
Never	19	28
Don’t know	13	19
Other	2	3

Fresh fruit and vegetable taste-testing program		
Daily	16	23
Weekly	13	19
Monthly	15	22
Yearly	3	4
Never	11	16
Don’t know	9	13
Other	2	3
After-school program		
Daily	18	26
Weekly	6	9
Monthly	6	9
Yearly	3	4
Never	22	32
Don’t know	12	17
Other	2	3
Summer meals program		
Daily	20	29
Weekly	8	12
Monthly	1	1
Yearly	8	12
Never	6	9
Don’t know	24	35
Other	2	3

Due to rounding, some columns do not sum to 100%