BEVERAGE POLICY COMPLIANCE AMONG EARLY CARE AND EDUCATION PROVIDERS IN GEORGIA AND DETERMINING THE BEST eLEARNING FORMAT FOR A BEVERAGE POLICY TRAINING

by

HALEY BRADLEY

(Under the Direction of Caree Cotwright)

ABSTRACT

As a large majority of young children spend a significant time in the Early Care and Education (ECE) setting, ECE is recognized as an important environment for childhood obesity prevention efforts. Beverages impact children's health by containing added calories. This mixed method study used quantitative and qualitative approaches to determine 1) the quality of beverages served by ECE providers in GA; and 2) the eLearning format preferred by ECE providers for an effective beverage policy training. Statewide survey results indicated a majority of ECE providers in GA have never had a beverage policy training. Thematic analysis of focus groups and interviews conducted with ECE program directors and teachers determined an interactive video is the preferred eLearning format for eLearning training. Findings from this study can be used to develop an effective training for ECE providers to improve the beverages served to young children.

INDEX WORDS: Child care, eLearning, beverage policy, beverage policy compliance, early care and education, nutrition, child care providers, early care and education providers, Georgia

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CHAPTER 1

INTRODUCTION

It is important to reduce the prevalence of overweight and obesity among young children because children who are overweight or obese have a higher risk of being overweight or obese later on in life.[1,2] Targeting beverages served to children can help address the problem of childhood overweight and obesity.[3] Because of this, there are established national and state beverage policies to regulate what beverages are served to children 2-5 years of age. Early Care and Education (ECE) providers are key to promoting these beverage policies as they play a role in establishing healthy habits among young children.[4] Therefore, it is important that ECE providers are knowledgeable about these beverage polices. As a majority of Americans have Internet access, eLearning would be an appropriate format for a beverage policy training platform for ECE providers[1,5] because in-person trainings can only reach a few people.[6] eLearning involves using a form of electronic technology to increase knowledge outside of the classroom setting.[7]

This study determined the current beverage policy compliance among ECE providers in Georgia (GA) and the most acceptable eLearning beverage policy training format. Chapter 2 of this study will describe the background for determining current beverage policy compliance in GA. This will include an overview of childhood obesity, the importance of the ECE setting and beverage policies for obesity prevention, and national and state beverage policies. This will be followed by beverage policy compliance from other states, and then GA beverage policies and

compliance will be discussed in detail. Chapter 2 will also describe the background for an eLearning beverage policy training format for ECE providers.

Chapter 3 will describe the methods on determining current beverage policy compliance among ECE providers in GA and the preferred format for a beverage policy eLearning training. The specific aims of this study are: 1) to assess the implementation of water and other healthy beverage policies on ECE programs in GA; and 2) use survey findings and in-depth interviews to determine the type of eLearning preferred by ECE providers for an eLearning training to improve beverage policy implementation. We hypothesize there will be low compliance with beverage policies among ECE providers in GA overall and higher compliance with Child and Adult Care Food Program (CACFP) participating ECE programs compared to programs that do not. We further hypothesize ECE providers will prefer an interactive video for an eLearning beverage policy training.

To determine current beverage policy compliance in GA a statewide survey was distributed to a randomized, stratified sample of ECE providers throughout the state of GA via email. The email included a link to the survey on the Qualtrics platform. After completion of the statewide survey, participants were prompted to then complete an attached supplementary eLearning survey determining Internet use, eLearning format preferences, and prior beverage policy training of ECE providers was also distributed with the statewide survey. A prototype for each eLearning formats was developed. The top three preferred formats were used in interviews and focus groups with ECE providers in GA. Two focus groups were conducted with ECE teachers, two semi-structured interviews with two ECE center directors, and one ECE teacher interview was conducted to gain qualitative feedback on eLearning preferences and the three prototypes. Chapter 4 will describe current beverage policy compliance in GA and the most

accepted beverage policy eLearning training format. Chapter 5 will discuss key findings of this study and future research needs in this area.

CHAPTER 2

LITERATURE REVIEW

Childhood Obesity Trends in the United States (US)

Overweight and obesity are a result of positive energy balance where energy intake is greater than energy expenditure.[8] Childhood obesity among American 2-19 year-olds has increased since 1988.[9] Approximately 10% of children were obese between 1988 and 1994.[9] Obesity rates have increased every year since then with the exception of 2005 and 2006.[9] In 2003-2004 the rate of childhood obesity was 17.1%, but it decreased to 15.4% in 2005-2006.[9] Obesity increased again in 2007-2008 to 16.8%.[9] It has plateaued since then. The most recent NHANES data on childhood obesity results in a rate of 17.2% (approximately 13 million children), which occurred in 2013-2014.[9,10] Extreme obesity has more than doubled since 1988 as 2.6% of children were extremely obese, and in 2013-2014, 6% of children were extremely obese.[9] Overall, obesity rates have gradually increased over the last several decades. Furthermore, data indicates that overweight and obesity rates increase as children get older.[9] Therefore, it is important to engage in obesity prevention efforts in early childhood.

Overweight and Obesity Trends in Infancy in the US

Overweight and obesity is a problem for children.[8,10,11] Although limited data exist for infants (birth to 1 year) and weight status, the Robert Wood Johnson Foundation and the Centers for Diseases Control and Prevention (CDC) have aided efforts in data collection for this young population. An infant's normal, overweight, or obese status can be measured with the weight-for-length measure.[10] An infant with a high weight-for-length (at or above the 97.7th percentile) or

who experiences rapid growth have an increased risk of being overweight or obese later in childhood and adulthood.[10] The CDC found that in the US, 8.1% of infants from birth to under 24 months have a high weight-for-length from 2013-2014.[12] For the same time period in GA, about 10% of infants had a high weight-for-length, and this is a 1.7% improvement from 2010.[13] A little over 12% of US children aged 3 months to 24 months that participated in the Supplemental Nutrition Program for Women, Infants, and Children (WIC) had a high weight-for-length ratio in 2014.[10] This rate was higher in 2010 where 14.5% of infants had a high weight-to height ratio.[10] More research is needed to determine contributing factors to overweight and obesity in infancy.

Overweight and Obesity Trends in 2-5 Year-Old Children in the US

More overweight and obesity data exists for 2-5 year-old children. Almost 30% of 2-5 year-olds are either overweight or obese.[1,14] About 9% of preschool children are obese, and 2% are extremely obese.[15] Children 2-5 years old who are overweight or obese are more likely to be so as adolescents [1,16] and as adults.[2,15,16] If a child is overweight by kindergarten, they are four times more likely to become obese when compared to normal weight children later in life.[15] Obese children in early childhood have a greater risk for future obesity-related health complications.[15,17,18] Overweight and obesity prevalence among 2-5 year-old children decreased from 12.1% in 2009-2010 to 8.4% in 2011-2012.[9] However, rates increased to 9.4% in 2013-2014.[9] Approximately, 15% of children aged 2-5 in GA were obese in 2008, which was the highest rate of obesity among 2-5 year-old children in state history.[19] Since 2008, GA has experienced a significant decline from 15% to 13.0% in 2014, but this is still higher than the national average.[19] Obesity still remains a problem in the US and in GA. However, obesity rates are disproportionately higher among various populations in the US.[10]

Racial and Economic Disparities of Childhood Obesity Among Young Children

Racial disparities exist among young children in the US in terms of obesity.[10] The highest rate of childhood obesity is among the Native American/Native Alaskan population in which a quarter of 2-5 year-old Native American children are obese.[15] Obesity rates for Hispanic children (16%) aged 2-5 are three times higher than Whites (5%) and Asians/Pacific Islanders (5%). While rates for African American (10%) children are twice as high.[15] Additionally, Hispanic (8%) and African American (9%) children are twice as likely to be extremely obese as compared to White children (4%).[15] Other obesity disparities exist among low-income children.[10]

Low-income children are more likely to be obese and have a higher chance of obtaining obesity-related health issues.[10,15,20] One reason for this may be because low-income children have more limited access to healthy food and purchase more inexpensive, calorie-dense foods.[21] Further, low-income children are more likely to live in "food deserts" resulting in limited access to fruit and vegetables but an abundance of fast food restaurants.[21] This can cause low-income children to consume less fruits and vegetables compared to higher income-level populations.[20,22] Fruits and vegetables are important in weight management and reducing the risk of cardiovascular disease and certain cancers.[20] Excessive high calorie snacks and beverages and too little produce and whole grains are being consumed by children, particularly those from low socioeconomic and minority families.[23] For example, grain desserts, soda, pizza, and yeast breads are some of the main sources of energy for low-income children.[24] Soda, fruit drinks, grain and dairy desserts are some of the main sources of added sugars for African American, Hispanic, and low-income children.[24] Further, low-income children are more likely to be obese because poverty is associated with living in more un-safe areas, so they are less likely to play outdoors.[22] Nearly 35% of White children under 3 years old live in low-income homes.[15]

Comparatively, about 70% of African American and 65% Native American and Hispanic children under 3 years old live in low-income homes.[15] Overall, data indicates racial minorities and low-income children have a greater likelihood of becoming overweight or obese.[24,25]

Consequences of Overweight and Obesity

The overweight and obesity problem among children can lead to many health implications. Children have psychological consequences as related to being overweight, which can have a lasting impact on their mental health.[8] Children can suffer depression, anxiety, low self-esteem, body dissatisfaction, and eating disorders.[8] Comorbidities associated with obese adults are finding their way into children's health, and these include Type 2 Diabetes, fatty liver disease, cardiovascular disease, sleep apnea, and asthma among other conditions.[8] Research shows that obese children may have lower academic performance and increased school absences.[8] The totality of these consequences indicates a critical need to reduce the prevalence of overweight and obesity among young children. Children engaging in healthy dietary behaviors and nutrition learning experiences during early childhood can have reduced risk of obesity[6] and improved weight-related behaviors through adolescence and adulthood.[17] A large majority of children in the US are enrolled in ECE programs.[16] ECE settings, therefore, can serve as an appropriate environment for obesity prevention in children under the age of 5.[16]

Why ECE Programs are an Important Setting for Obesity Prevention

ECE is provided to children from birth to kindergarten through early learning and development programs.[26] These programs can consist of, but are not limited to, child care centers, family child care homes, Early Head Start programs, Head Start programs, state or local educational organizations, federally funded preschools, or non-regulated ECE operated by a non-relative.[26] According to the Institute of Medicine (IOM), obesity prevention initiatives should

start before children turn 5 years-old.[23] Additionally, it is more cost-effective to prevent obesity in early childhood than to treat it later in life.[15] Investing in the young children's lives influences the health, success, and growth of our future generation and community.[27] Young children need a healthy diet and adequate exercise because both brain and body development occurs quickly during this early life stage.[15] Further, the early years of life are critical because dietary habits are easily formed, and these habits can be carried throughout their lives.[15,25,28] ECE programs are important target areas to influence young children because it is estimated that more than 60% of children under the age of 6 are enrolled in ECE every week.[17,29,30] Over 11 million young children spend 30 hours on average in ECE care each week.[11,29] An estimate of 80% of children under the age of 5 years with working parents are enrolled in ECE programs for approximately 40 hours a week.[2] Due to the large amount of children that are involved in ECE programs and the length of time they spend in the ECE environment, the ECE setting is a critical location for building healthy habits among young children.[11,23,31,32]

Young children are not receiving the recommended dietary intake needed for obesity prevention.[23] For example, many US children are not consuming enough fruits and vegetables to meet dietary recommendations.[20] Because children may receive two-thirds of their daily nutrition while at ECE programs, serving nutritious meals with a variety of foods is important.[33] Modeling consumption of healthy foods is equally vital for obesity prevention as healthy eating behaviors among young children are greatly influenced by the adults surrounding them and the adult behaviors they observe.[2,28]

ECE Providers' Role in Obesity Prevention for Young Children

Adults act as role models that shape children's behaviors.[2,28] Therefore, ECE providers play a critical role in shaping the health of young children [11,28] and may have greater influence in

establishing children's healthy behaviors compared to parents.[25] ECE providers have been able to improve the diets and physical activity of children 2-5 years-old [25] and to establish healthy habits among young children.[4,17] ECE providers can aid childhood obesity prevention by establishing an ECE environment that supports healthy behaviors.[25,34] ECE providers can also impact children's eating habits by modeling healthy food and beverage behaviors.[35] Children's dietary intake is related to ECE teacher's feeding behavior.[17] Further, nutrition learning experiences can be implemented while ECE providers serve meals to children daily.[6]

The extent to which ECE providers' impact children's risk for overweight and obesity depends on their nutrition and exercise knowledge, healthy modeling behaviors, food and beverage selections.[16,25] ECE providers' nutrition knowledge and practices can be improved by nutrition training focused on childhood obesity prevention.[1] Healthy habits established by young children may show improvement if the ECE provider models healthy habits and has a similar background and ethnicity as the children they serve.[25] Nutrition for young children is inclusive of meals, snacks, and beverages served to young children. The influence of beverages on daily caloric intake is often overlooked, however, beverages have increasingly become a contributor to childhood overweight and obesity.

Impact of Beverages on Health

Beverages contribute to daily caloric intake, so it is important to regulate and limit the intake of certain beverages, such as sugar-sweetened beverages (SSBS), 100% juice, whole milk, and 2% milk.[3] A SSB is a drink that contains either sucrose, fruit concentrate, high fructose corn syrup, or other caloric sweeteners.[36] Examples of SSBs include soda, fruit drinks, juice drinks, sports drinks, flavored milk, or sweet tea.[3] These drinks are a common source of excess sugar containing 22-39g of sugar per serving.[37] This surplus of sugar leads to excessive energy intake

resulting in unnecessary weight gain.[36,37] Consumption of calorically sweetened beverages and large quantities of fruit juice is associated with increased risk for childhood obeisty.[38] Over time, the consumption of SSBs can increase BMI and has continuously been found to be a risk factor for being overweight.[8] Additionally, SSB consumption leads to less satiety, which may lead to increased calorie consumption.[8,39]

Almost 50% of children aged 2-5 consume SSBs every day.[1] This can be contributed to parent modeling, parent support, eating at fast food restaurants,[40] and marketing.[41] SSBs can contribute to about 7% of child's daily calories.[11,15] The Dietary Guidelines for Americans 2015 suggests children 3 years and older should consume no more than 50 grams of or 200 calories from added-sugars daily.[42] American children receive most of their recommended daily added-sugar intake from SSBs.[42] In fact, SSBs contribute to 4.5% of the daily calories of 2-5 year-old children, which consists of an average intake of about 70 kcal/day from SSBs.[36,43] The CDC reported a higher estimate that SSB intake among 2-5 year-old children contributes to 124 kcal/day.[11] One SSB per day is related to an increased risk of overweight and obesity.[42] Additionally, young children who consume one SSB per day are more likely to dislike healthy foods, such as fruits and vegetables, and choose more calorie dense foods, which also contribute to overweight and obesity and associated chronic diseases.[42] An obese child may experience weight reduction, and lower risk of heart disease and diabetes after reducing SSB consumption.[42] Because SSBs increase the risk for overweight and obesity, obesity prevention efforts set a target on decreasing SSBs and increasing water consumption.[36]

One longitudinal study done by Shefferly et al. found regular consumption of 100% fruit juice is associated with a higher BMI among 2-5 year-old children.[44] Accordingly, weight gain may occur because 100% fruit juice can contain almost twice as many calories as eating the same

amount from whole fruit.[3] A greater number of consistent fruit juice consumption was found in African American and Hispanic children across all studied age groups and among children with a low socioeconomic status.[44] Shefferly et al. also found that regular juice intake was associated with lower milk consumption among two year old children, which can compromise bone development.[44]

Along with the rise in obesity prevalence over the last forty years, children's consumption of 100% fruit juice and SSBs has increased, while milk intake has decreased.[45] Furthermore, 25% to 33% of 2-5 year-old children drink whole milk rather than low-fat or fat-free milk.[11] Increased intake of milk fat contributes to a higher intake of calories, which increases the risk for weight accumulation.[32]

Water consumption has remained below recommended amounts among young children.[45] Excess weight gain among young children may be avoided if more water is consumed.[46] Between 4oz and 8oz of water should be served to children who are starting on solid food, which can occur around 4-6 months of age.[47] One year-olds need about two cups per day of water.[47] Children ages 4-8 need 5 cups of water daily.[48] Children are not consuming adequate water and instead choosing beverages with added calories.[46] Increasing water intake instead of choosing SSBs or other caloric beverages is one method to reduce the amount energy intake per day and help reach or maintain a normal weight.[39] Water is also beneficial because it contributes to overall hydration, and proper hydration leads to optimal brain functioning, physical performance, metabolism, and weight management.[39] Water also helps to maintain the dental health of children by preventing dental caries.[46] Because beverages can impact children's health and weight, there are national and state policies that help to regulate the beverages served to children in ECE centers.

National Beverage Policies

There are national policies and recommendations from the CDC, Caring for Our Children (CFOC), U.S. Department of Agriculture (USDA), and IOM that promote healthy beverages in ECE settings. Table 1 summarizes the national beverage policies from these promoted by each of the aforementioned entities. In 2011, CFOC produced a set of national obesity prevention standards for all ECE settings based on the best evidence, experience, and expertise in the US on health and safety practices and policies for ECE settings.[49] These standards were developed from the collaboration of the American Academy of Pediatrics, the

Table 1. National Beverage Policies and Best Practices

	CACFP[1]	IOM[2]	CFOC[3]	CDC[4]
No SSB's[5]	✓ (best practice)		✓	✓
No juice before 12 months	✓	✓	✓	✓
≤ 4-6oz 100% juice for 12 months-5 year-olds	✓		✓	✓
Whole milk for 12-23 month-olds	✓		✓	✓
Low-fat and fat-free milk for 2-5 year-olds	✓	✓	✓	✓
All day water availability	✓	✓	✓	✓

[1] Child and Adult Care Food Program (CACFP) is a meal reimbursement program for meals and snacks served in child care and adult care settings and sets nutrition requirements and sets best practice recommendations. Eliminating SSB's is a recommended best practice.
[2] Institute of Medicine (IOM), formerly the Institute of Medicine encouraged ECE programs to follow CACFP guidelines and to have stricter water standards compared to CACFP meal pattern guidelines.
[3] Caring for Our Children (CFOC) produced a set of national obesity prevention standards for all ECE settings based on the best evidence, experience, and expertise in the US on health and safety practices and policies for ECE settings.
[4] The Centers for Disease Control and Prevention (CDC) provides obesity prevention recommendations for ECE programs.
[5] Sugar-sweetened drinks are sweetened with sugar, high fructose corn syrup, or other caloric sweeteners

American Public Health Association, and the National Resource Center for Health and Safety in Child Care and Early Education (NRC).[49] The USDA Food and Nutrition Service also promotes beverage standards in ECE through the Child and Adult Care Food Program (CACFP). CACFP is a meal reimbursement program for meals and snacks served in ECE and adult care settings and

sets nutrition requirements and recommendations.[11] Beverage standards for serving 1-5 year-olds include: 1) eliminating SSBs; 2) serving only 4-6oz of 100% juice per day; 3) serving whole milk to 12-23 month old-children and low-fat and fat-free milk for children 2-5 years; and 4) making water available for self-service throughout the day.

CDC and CFOC recommend that ECE providers eliminate all SSBs served to children.[3,49] Only full-strength (100%) pasteurized fruit juice or 100% fruit juice diluted with water should be served in amounts no greater than 4 to 6oz per day (including in the home) for 1-6 year-olds.[3,49] Juice of any kind should not be served to a child younger than one year.[3,49] CDC and CFOC prefer only low-fat (1%), fat-free (skim) milk, or non-dairy equivalent to children 2 years-old or older.[3,49] Whole milk or 2% milk is only recommended for 1 year-olds unless the children have a prescription for human milk or formula.[49] CDC and CFOC recommend all day availability of safe drinking water both inside and outside the ECE building.[3,49] Plain water should not be served to children 6 months old or younger and cannot replace milk at meals or snack times.[3,49]

The IOM created policy recommendations in 2011 for infancy and early childhood obesity prevention.[50] The IOM encouraged ECE programs to follow CACFP guidelines and to have stricter water standards compared to CACFP guidelines at that time (CACFP guidelines were recently updated in 2016).[50] Specifically, IOM suggested that access to safe water be made available all day for children.[50] CACFP sets nutrition standards for ECE programs that participate in the program.[51] Over 4 million children and 130,000 ECE and adult care programs benefit from CACFP every day.[52] CACFP participation is associated with higher compliance to serving healthier beverages, which is why IOM recommended that ECE programs follow CACFP guidelines.[45,53,54]

Prior to the 2016 CACFP revisions, the meal pattern guidelines had not been changed in two decades. CACFP guidance is now consistent with the Dietary Guidelines for Americans.[51,55] New CACFP guidelines were released on April 25, 2016 after a lengthy revision process that started in 2010.[55] This was after the passage of the Healthy Hunger Free Kids Act in 2010.[55] Since the passage Healthy Hunger Free Kids Act, CACFP has required that only low-fat and fat-free milk should be served to children who are 2 years old or older.[51] Prior to the new CACFP updates, CACFP had no restrictions on juice and flavored milk.[51,56] Updated CACFP guidelines include restricting flavored milk being served to 1-5 year-old children as part of a reimbursable meal.[51] Milk must be served at every meal and is an option for a snack under CACFP regulations.[57] The final rule of the new CACFP recommends 100% juice only be served once per day that adhere to the WIC amounts (4-6oz).[51] The current CACFP meal pattern recommends ECE providers distribute water throughout the day and upon child's request.[51]

In addition to updating CACFP, USDA has also created optional best practices to assist states implement higher nutrition standards regarding foods and beverages served.[55] These best practices are optional and provided for ECE programs looking to enhance the quality of nutrition and meals served to young children.[55] In terms of beverages, one best practice is to not serve flavored milk to all participants, and if it is served, the flavored milk should have 22g or less of added sugar for 8 fluid ounces.[55] Another best beverage practice is to avoid providing SSBs to children.[55] Each state and municipality has the opportunity to ensure implementation of these best beverage practices in the ECE setting.

State Beverage Policies

CDC has developed an ECE Obesity Prevention "Spectrum of Opportunities," which includes 11 options that states can use to develop policies and practices in ECE settings that

increase breastfeeding, improve nutrition, increase physical activity, and decrease screen time.[11] Figure 1 depicts the "CDC ECE Obesity Prevention Spectrum of Opportunities" which identifies the 11 options. States can require or recommend healthy beverage best practices in the avenues of Licensing and Administrative Regulations, CACFP, or Quality Rating and Improvement System (QRIS) among the other opportunities.[11] The opportunities are placed in the order of the amount of reach or influence they can achieve.[11] In other words, healthy beverage practices required through Licensing and Administration Regulations has a higher potential of impacting children compared to Emerging Opportunities. Many states have taken strides to improve beverage quality and obesity prevention efforts in their ECE programs. Table 2 summarizes a sample of state's beverage policies and obesity prevention methods. The content in this table is based on Achieving a State of Healthy Weight (ASHW) 2015 Reports,[58,59] Public Health Law Center,[60] Early Care and Education State Indicator Report,[31] state licensure regulations, and state QRIS resources.[61]

Figure 1. CDC ECE Obesity Prevention Spectrum of Opportunities

Table 2. State Policies Required for Improved Nutrition through Licensure, QRIS, CACFP, and Facility Level Interventions

	CFOC and CDC Best Practices			
State	**Licensure**[1]	**QRIS**[2]	**CACFP**[3]	**Facility Level Interventions**[4]
AZ	All except Juice*	✓	✓	Empower Program
CA	Milk and Water* Only	✓	NR	Healthy Beverages in Child Care Act, SHINE
CO	Milk** Water** Juice** SSBs	✓	✓	Healthier Meals Initiative, NAP SACC
CT	Milk and Water Only	Not Indicated	✓	NAP SACC
DE	All Except SSBs	✓	✓	Go NAP SACC
GA	Milk and Water Only	✓	✓	Growing Fit
IL	Milk* Water* SSBs* Juice	✓	✓	NAP SACC
MS	✓	✓	NR	Color Me Healthy
NJ	Milk and SSBs Only	✓	✓	Early Care and Education Learning Collaboratives
NY	Water and SSBs Only	✓	NR	Amendment to New York City Health Code in 2006, Eat Well Play Hard in Child Care & Day Care Homes
NC	✓	Not Indicated	NR	NAP SACC, Color Me Healthy
ND	Milk and Water Only	✓	NR	Healthy Eating Active Play
RI	✓	Not Indicated	NR	I am Moving, I am Learning
SC	Milk and Water Only	✓	✓	Eat Smart, Move More, Grow Healthy
TX	All Except Milk	✓	✓	Not Indicated
WV	Milk* and Water Only	Not Indicated	✓	NAP SACC
WI	Milk and Water Only	✓	NR	Active Early, Healthy Bites

[1] Results in this category were determined from beverage policies on making water available all day, eliminating SSBs, serving only 4-6oz of 100% juice, and serving low-fat or fat-free milk within state licensing requirements. Variations occurred as indicated. Data was gleaned from the ASWH 2015 Supplement State Reports for Centers and Large Family Care Homes, the Public Health Law Center, state licensure and QRIS documents, and individual publications. Only fully met rates (4/4) were counted for the ASWH report. ✓ indicates all beverages policies for water, milk, SSBs and juice are in state licensure

[2] The ✓ indicates QRIS has obesity prevention standards as indicated by the Early Care and Education State Indicator Report[29] NR = Not Required

[3] ✓ refers to if the state encourages higher nutrition standards in CACFP based on the Early Care and Education State Indicator Report[29]

[4] Programs that provide a specified set of activities to promote obesity prevention directly in the ECE setting

* Not fully met in ECE family child care homes

** Not met in ECE centers

The NRC released its fifth edition of *ASWH: A National Assessment of Obesity Prevention Terminology in Child Care Regulations 2010 (ASHW 2010*) in April 2016 which rated state's licensure requirements for ECE centers and family child care homes.[58] The licensing requirements were rated based on 47 high impact on childhood obesity prevention indicators.[58] The high impact indicators were based on CFOC standards for healthy weight practices

identified by a 21 experts.[58] The state licensure requirements were rated on a four point scale from 1 to 4 where 1) contradict, 2) do not address, 3) partially, or 4) fully support the high impact indicator.[58] According to the 2015 study, the states that met the most of the 47 high impact indicators include Delaware, Mississippi, North Carolina, and Rhode Island.[58] There were several indicators related to serving water and other healthy beverages in the *ASWH: 2015 Supplement: State Profiles* report. The indicators include: 1) serve non-fat or low-fat pasteurized milk to children 2 years and older; 2) serve no more than 4 to 6oz of 100% juice per day for children aged 1-6; and 3) make water available at all times inside and outside.[58] Serving low-fat milk or fat-free milk to children 2 years and older and all-day water availability were the indicators that improved the most among all states since 2010.[58]

A similar study was conducted at the Public Health Law Center by Frost et al. reviewed ECE licensing laws for nutrition, active play, and screen time.[60] This Robert Wood Johnson Foundation funded study compared state licensure requirements to evidence-based best practices.[60] The results were displayed in an interactive map on the Public Health Law Center's webiste.[60] The evidence-based best practices related to beverages that were examined in the study included: 1) serving no more than 4-6 ounces of 100% juice served per day for 1-6 year-olds; 2) providing all-day or frequent water availability to children; and 3) limiting SSBs served.[60] This study did not include best practices related to milk in the state reports.[60]

CDC's ECE State Indicator Report presents a summary on how states are incorporating obesity prevention efforts through the "Spectrum of Opportunities".[31] This report indicates the number of high impact on childhood obesity prevention indicators (there are 47) a state has included in their licensure requirements.[31] This report also includes whether or not each state: 1) encourages enhanced nutrition standards within CACFP; 2) promotes or provides specific

obesity prevention interventions within the CACFP program, and 3) obesity prevention is incorporated into CACFP trainings.[31] Whether or not a state has a QRIS and if it includes obesity prevention standards are also provided within this report.[31] Information regarding Facility-level Interventions Opportunities, Access to Healthy Environments Opportunities, and Emerging Opportunities are listed for each state within this report.[31] From the Achieving a State of Healthy Weight (ASHW) 2015 Reports,[58,59] Public Health Law Center,[60] and Early Care and Education State Indicator Report,[31] there are efforts at the federal level that evaluate how states are implementing obesity prevention measures.

As a result of national and states efforts, there are states that are successful in promoting beverage best practices related to water, milk, juice, and SSBs in ECE, such as Mississippi and North Carolina. However, many states have room to improve. For example, other states could include juice limitations and eliminate SSBs in their ECE licensing regulations or QRIS. Further, existence of these polices in licensure does not mean ECE providers are in compliance. There is a need, therefore, to examine the compliance with recommended federal and state beverage standards in ECE.[16] Beverage policy compliance within states outside of GA will first be presented. GA's beverage policies and compliance will be discussed in further detail afterwards.

Beverage Policy Compliance

There is growing research evaluating beverage policy compliance in ECE settings because policy is pertinent in regulating ECE environments.[62] It is important, therefore, to understand if ECE programs are complying with the policies.[62] Several states have examined beverage policy compliance after enforcement of policies and/or after training. Examples of these state efforts can be described through the lens of the "CDC's ECE Obesity Prevention Spectrum of Opportunities" (see Figure 1).

An example of state efforts to improve beverage policy compliance through the *Licensing Administrative Regulation Opportunity* is the California Healthy Beverages in Childcare Act passed in January 2012.[45] The act mandated: 1) drinking water should be available at all times throughout the day including meals and snacks; 2) prohibition of all SSBs sweetened with artificial or natural sugars; 3) limiting serving 100% juice to no more than 4-6oz for the whole day; and 4) only unsweetened 1% or skim milk be served to children 2 years and older.[45] Ritchie et al. distributed a statewide survey to a sample of licensed ECE providers serving 2-5 year-old children in California in 2008 and 2012, which was before and after the implementation of the Healthy Beverages in Childcare Act.[45] In 2008, a majority (72%) of ECE sites served 2% or 1% milk, 22% served whole milk, and 2% served skim milk.[63] Approximately 30% of ECE sites served water during meals and snacks, but 8% reported serving SSBs.[63]

In 2012, there was a significant improvement in milk served because whole milk was served in significantly fewer ECE programs of children 2 years and older and significantly more low-fat and fat-free milk was served.[45] There was also a significant improvement in water availability and a decrease in 100% fruit juice served.[45] There was no significant difference in SSBs provided in 2012, but SSBs were rarely served in the ECE sites before the beverage policies were enforced.[45] About 60% of the survey participants had knowledge of the beverage policies included in the Healthy Beverages in Childcare Act.[45] Significantly more CACFP participating programs were aware of the policies compared to non-CACFP programs.[45] Only 23% of the ECE facilities fully complied with the policies in 2012.[45] CACFP participating sites were significantly more compliant compared to non-CACFP participating sites.[45] Based on these results, beverage policies can increase water and other healthy beverages in ECE environments. However, because less than 25% of the sites were fully compliant, more efforts are needed to

increase beverage policy compliance. Facilitators to beverage policy compliance found in California included having beverage policies in place at the ECE site and information for families, ECE provider training, lessons for children, and parent/family support.[45] In California, a majority of ECE sites had no barriers to implementing beverage policies, but the barriers that were reported include lack of knowledge, cost, resources, resistance from parents, and children's taste preferences.[45]

Another example of examining beverage policy compliance via the *Licensing Administrative Regulation Opportunity* was a study on water served in ECE settings in Connecticut. The Connecticut licensure regulations require all day water availability, however, one study by Middleton et al. showed many ECE programs were not compliant with the water policies.[33] Out of the 38 ECE centers that were evaluated, 16% had no water available in the classroom or during physical activity, 84% had water in the classroom and 32% had water during both physical activity and in the classroom.[33] There was also low drinking water encouragement from ECE providers to the children, and half of the centers consumed water in front of the children.[33] Due to CACFP guidelines that milk should be served at lunch, no water was available during lunch unless children had dietary restrictions.[33]

One study conducted by the New York City Department of Health and Mental Hygiene utilized the *Training and Technical Assistance Opportunity* to improve obesity prevention policy efforts in the ECE setting. Consultants provided training and technical assistance to ECE sites on new beverage, physical activity, and screen time standards.[53] The nutrition and beverage training included the Eat Well Play Hard (EWPH) program, which consisted of eight classroom lessons.[53] The results found no association between the training and beverage policy compliance.[53] Participation in CACFP, however, was associated with higher compliance.[53] In another study

conducted in New York City, one ECE center was evaluated after beverage policies were implemented.[62] There was higher compliance with SSBs and milk recommendations, but there was less compliance with juice and water recommendations.[62] Typically, the correct type of milk and juice was served, but the portion of juice was larger than 6oz.[62]

A strong example of the implementation of the *Facility Level Interventions Opportunity* is in North Carolina where researchers have developed interventions that target obesity prevention through improved policies and practices in ECE settings. One intervention includes the Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC).[16] This intervention focuses on eight nutrition domains, one of which is beverages.[64] The beverage domain follows the CDC and CFOC beverage recommendations. Neelon et al. assessed how well 96 ECE centers were meeting the beverage and other nutrition policies in 2012 over a one-day observation.[64] Of the 96 centers, 75% participated in CACFP.[64] Neelon et al. found that 75% of the centers had water visible indoors and outdoors.[64] 36% of centers had self-service of water available indoors, and 27% had self-service of water outdoors.[64] However, 50% of centers had water available by request indoors.[64] 49% of centers served 100% juice once during the day; 23% served it twice, and 28% did not serve it at all.[64] A majority of centers did not serve SSBs, but 36% served 2% milk, and 53% served whole milk to children.[64] Neelon et al. concluded that the quality of beverages served to children in the ECE centers observed could be improved.[64]

The use of the *QRIS Opportunity* is demonstrated by the ABC Child Care Program in South Carolina, which was adopted in April 2012.[65] ABC provides subsidized care for young children in low-income families and has set improved nutritional standards.[65] The beverage requirements of the program include only serving non-fat or low-fat milk to children 2 years and older, avoid serving SSBs, and serving 4oz juice or less per day to children in the ECE setting.[65]

One study compared policy compliance before and nine months after the ABC Child Care Program adoption in South Carolina and North Carolina.[65] North Carolina was the comparison state because it was not changing their nutrition policies in ECE settings at that time.[65] The study found that most ECE centers did not serve SSBs in both South and North Carolina before and after the ABC Child Care Program adoption.[65] In terms of the low-fat and fat-free milk, 60% of centers in North Carolina and 68% of centers in South Carolina met the standards before the program adoption, and 73% in North Carolina and 79% in South Carolina met the standard after program adoption.[65] 58% of centers in North Carolina met the juice standards after the program adoption compared to the 50% before.[65] The adherence to the juice recommendation decreased in South Carolina because 76% of the centers in South Carolina met the juice standard after the program implementation compared to the 80% before.[65] Overall, this study concluded that more support is needed to bring all ECE programs to full compliance.[65]

Some states have begun to gain baseline data on the implementation of nutrition and physical activity best practices in the ECE setting. Such studies can assist states by informing what is needed for the *Pre-service and Professional Development Opportunity*. Minnesota and Wisconsin were a part of a study conducted by Nanney et al. Best practice implementation was compared between ECE centers and family home-based care.[66] Specifically for beverage best practices, researchers found that 49% of ECE providers in the study provided unflavored low-fat or non-fat milk, and 60% of the ECE providers never served SSBs to children.[66] 68% of the ECE providers served 4-6oz or less of 100% juice per day to children.[66] The only significant difference found between center-based and family home-based care in terms of beverage policy compliance was for all-day water accessibility.[66] ECE providers in centers are more likely to have all-day water accessibility for children compared to family home-based care.[66] Most ECE

providers reported the price of healthy food as the biggest barrier to implementing overall nutrition best practices.[66]

A similar study conducted by Lutzkanin et al. recently examined out a survey to study the SSB offerings in Pennsylvania (PA) ECE settings.[36] They received a response rate of 12% (518 surveys), but had the survey open for two weeks.[36] SSBs were served with meals or snacks in 54% of ECE settings, and 50% of these settings started serving SSBs to children between 12-23 months.[36] However, most of the centers served 4oz of SSBs and did not allow another serving.[36] Almost 40% of the ECE settings who served SSBs did not report to parents their child's SSB consumption.[36] Lutzkanin et al. concluded the cooperation of ECE providers and parents will be key to changing the beverage quality offered in PA ECE settings.[36]

Examining state beverage policy compliance using the "CDC's ECE Spectrum of Opportunities" displays varying levels of beverage policy compliance is evident across different states. Beverage policies have improved what is served to children, however, there is room for more improvement. While studies have been conducted in numerous states, there is a dearth of research on beverage policy compliance in states located in the South. It is important to understand the beverage policies and current research in beverage policy compliance in the south because of high childhood obesity and poverty rates. One southern state, GA, has begun to explore how to address obesity prevention through policy in the ECE setting using several opportunities from the "CDC ECE Spectrum of Opportunities".

GA Beverage Policy in ECE Programs and Beverage Policy Compliance

There are several different types of ECE programs in GA. These include Child Care Learning Centers, Pre-K, Family Child Care Home, and License Exempt Child Care. Child Care Learning Centers (including Head Start and Early Head Start) can be operated by an individual,

institution, agency, society, or a group and gets paid for providing group care, which involves seven or more children under 18 for less than 24 hours.[67] Head Start is a federally funded program that serves 3-5 year-old low-income home children and their families.[68] Early Head Start offers services to infants, toddlers up to age 3, and pregnant women who are in low-income homes.[68] Family Child Care Homes enroll between 3 and 6 children in a residential home for less than 24 hours for a price.[69] The Department of Defense offers ECE services to military preschool children.[70] GA Pre-K is a voluntary program that is funded through a lottery system and serves only 4 year old children.[71] The GA Pre-K program aims to prepare 4 year-olds for Kindergarten.[71] If an early care and learning service cannot meet licensure requirements but want to provide care for children, they can apply to be exempt.[72]

Table 3. Rules That May Affect Beverage Policy Implementation in the ECE Setting in Georgia

Policy/Regulation/Standard	ECE Facility Type		
	Child Care Learning Center	Family Child Care Home	License Exempt Child Care[1]
Eligible for participation in CACFP[2]	✓	✓	✓
State licensure requires adherence to CACFP standards regardless of participation in program	✓		
Eligible for voluntary participation in Quality Rated[3]	✓	✓	

[1] License Exempt child care programs meet a specific set of requirement to legally operate with exemption from state licensure

[2] The Child and Adult Care Food Program (CACFP) is a federal program that reimburses ~~child care~~ programs serving low-income children for healthy meals and snacks served. CACFP requires participants to make water available to children throughout the day, serve milk that is unflavored and low-fat (1%) or fat-free for children 2-5 years old*, serve whole milk for children 1-2 years old*, and limit serving 100% fruit juice to once per day. However, CACFP regulations do not have specific limits on SSBs served.

* ~~unless~~ otherwise directed by the child's health provider

[3] The Georgia Child Care Quality Rated Improvement System, Quality Rated, assigns a quality star rating to ECE program that meet a set of defined program standards. Quality Rated requires stringent beverage standards including: 1) Drinking water is available inside and during outdoor play for self-service; 2) Caregivers encourage children 1 year and older to drink water many times throughout the day; 3) Sugar-sweetened beverages are never served; 4) 100% fruit juice is served twice or less per week; 5) Children two years and older are served only 1% or skim milk.

Table 3 summarizes how the rules for different types of ECE programs may affect beverage policy implementation in ECE settings in GA. In relation to the *Licensing and Regulations Opportunity* and the *CACFP Opportunity,* in 2014 GA added the current Healthy Hunger-Free Kids Act (HHFKA) beverage provisions to licensing regulations by requiring ECE

centers to follow CACFP food and beverage guidelines regardless of participation in the program.[73] No specific beverage policies are noted in licensing requirements for family child care learning homes and exempt programs in GA. However, ECE centers, family child care learning homes, and exempt programs are eligible to participate in CACFP in GA.

GA has also used the *QRIS Opportunity* to promote nutrition and physical activity through the GA Child Care Quality Rated Program. Quality Rated uses a star rating system, and the maximum number of stars is three. GA Child Care Quality Rated Program contains five domains, one of which is nutrition and physical activity.[74] A focus on nutrition and physical activity domains is to improve the beverages served in the ECE setting. GA Quality Rated Program recommends that ECE providers follow national beverage polices from CFOC and CDC.[74] GA Quality Rated Program complies with the following CFOC and CDC recommendations: eliminating SSBs, less than 4-6oz of 100% juice per day for 1-5 year-olds, and provide all day water availability.[74] ECE centers and family child care homes are eligible to participate in Quality Rated. While GA has successfully used several options from the CDC Spectrum of Opportunities to address obesity prevention in ECE, a gap may exist in regulating the quality of beverages served because license exempt programs are not eligible to participate in Quality Rated, and they, along with family child care homes are not required to follow CACFP meal pattern guidelines.

Research on obesity prevention policies in the ECE setting is limited in GA. One pilot project, however, focused on 24 ECE settings in rural southwest GA and found low compliance with milk and water policies and only half of the centers had a nutrition curriculum.[75] The project included a pre- and post- in-person nutrition training and education called Caregivers Promoting Healthy Habits.[75] There was a significant improvement of overall nutrition at

mealtimes after the nutrition training, but there was no significant difference in beverage scores.[76] There are no known studies that have examined beverage policy compliance in GA. In an effort to increase beverage policy compliance, previous examples have demonstrated a need for teacher training. As in-person training may not cost effective and has limited reach, one novel way to improving beverage policy compliance is via online learning or eLearning.

eLearning as a Potential Training Format for ECE Providers

As of 2015, 92% of Americans own a cellphone, 68% own a smartphone, and 73% own a computer.[77] Currently, 67% of Americans have high speed Internet in their home, and this is excluding Internet use on smartphones.[78] Therefore, access to the Internet is readily available for most Americans. eLearning involves using a form of electronic technology to increase knowledge outside of the classroom setting.[7] The popularity and utilization of eLearning over the last few years has increased.[79] This is because it is just as effective as in-person education and provides more benefits over in-person training.[27,79] Some research suggests complementing the eLearning with in-person technical support can maximize success.[27] In-person trainings can only reach a few number of ECE providers while eLearning trainings can be accessed at any point by individuals with Internet access.[6] eLearning provides a more efficient method of education and training[79] because eLearning offers convenient learning experiences while saving time, gas, and expenses.[80] It also allows individuals to go at their own pace on their own time in the place that they want.[79,80] ECE providers can desire educational programs that are easily accessible; therefore, eLearning may serve as an appropriate platform for a beverage policy training.[27]

Providing an eLearning program can help increase ECE provider's self-efficacy to use technology and integrate technology into their teaching.[80] An eLearning format can be an appropriate training program for ECE providers because ECE providers are willing to participate

in interventions that impact the ECE environment[66] and are willing to learn through online training.[6] In fact, an increasing number of ECE providers are utilizing online professional development programs.[27,80] Continuous professional development can improve the care provided to children by helping providers use best practices for building an environment that promotes healthy habits.[27] Many ECE providers are required to engage in professional development and training as part of changes to Head Start and pre-K programs, but ECE providers find it difficult to attend in-person lessons, such as lectures in college.[79] Furthermore, the CDC ECE State Indicator Report 2016 found 42 states have eLearning trainings for ECE providers that include obesity prevention information.[31] More teachers and ECE providers are accessing these online educational resources.[79,81] Online modules covering topics on nutrition and obesity prevention are popular with ECE providers.[27] Therefore, eLearning programs are a feasible method for providing more education and training to ECE providers.[79]

One study on eLearning in ECE by LoCasale-Crouch et al. examined the following: a) participation of ECE providers in eLearning courses; b) their satisfaction with the eLearning program, and c) their individual characteristics.[79] Most of the ECE providers, regardless of how comfortable they are with technology, found eLearning satisfying, and greater participation from ECE providers occurred if the eLearning course was for credit.[79] This is important because active participation in discussion and activities and sharing ideas, information, and resources from both the online learners and teacher make the eLearning experience engaging and impactful.[81] The study found the ECE providers utilizing eLearning modules were more likely to access them after preschool hours and over the weekend even though they could access the modules during preschool hours.[79] An interesting finding from this study was that the more comfortable an ECE provider is with technology, the less likely they will complete and participate in the online course

or homework, but the more likely they will be satisfied with the online experience.[79] Overall, the ECE participants found the online courses useful to their work and were satisfying.[79] Currently, there is no online professional development training incorporating obesity prevention information for ECE providers in GA.[31] This study aims to examine beverage policy compliance in the ECE setting in GA and determine the preferred eLearning format for ECE providers in GA.

Rationale

Overweight and obesity is prevalent in early childhood, which is often carried into adulthood a long with adverse health consequences. A majority of young children in America spend a significant amount of time in the ECE setting where they may receive up to two-thirds of their daily nutrition intake. ECE providers act as role models that guide the eating behaviors of young children. Beverages add to daily caloric intake, and the intake of high calorie and sugary beverages is associated with overweight and obesity. Because of the impact of beverages on children's health, there are national and state policies in place to regulate the beverages served to young children. Beverage policies have improved the beverages served to children in ECE settings, but there are some instances where beverage policy compliance needs improvement. Currently, no study has been done to assess beverage policy compliance on a statewide level in GA. Determining the quality of beverages served to children in the ECE setting can evaluate the need for beverage policy training.

eLearning is a growing platform to host trainings, professional development, educational curriculums, and more. Forty two states have used an eLearning format for professional development training targeted at ECE providers, including training on obesity prevention topics. Therefore, an eLearning format may be appropriate for a beverage policy training program for

ECE providers. Georgia does not currently have an eLearning training program. By determining the most preferred eLearning format for ECE providers in Georgia, an effective training program can be produced to educate ECE providers on serving healthy beverages to young children.

Specific Aims and Hypotheses

The specific aims and hypotheses of this study are:

1) To assess the implementation of water and other healthy beverage policies on ECE programs in GA. We hypothesize there will be low compliance with beverage policies among ECE providers and higher compliance with CACFP participating ECE settings compared to programs that do not.

2) To use survey findings and in-depth interviews to determine the type of eLearning preferred by ECE providers for an online training to improve beverage policy implementation. We hypothesize ECE providers will prefer an interactive video for a beverage policy online training.

CHAPTER 3

METHODOLOGY

Research Design

The research design for this study was a mixed method approach including 1) analysis of a large beverage policy compliance statewide survey, 2) a brief supplementary eLearning survey, and 3) semi-structured interviews and focus groups for the development of a beverage policy training. The larger statewide survey analyzed healthy beverage policy compliance among ECE providers in GA and the barriers and facilitators to beverage policy compliance. Preferred eLearning formats were determined by a brief eLearning survey distributed with the larger statewide survey. Prototypes of eLearning formats, such as social media, video-based, interactive video, text message, and podcast were developed. Based on the results from the eLearning survey, prototypes of the three most popular eLearning formats were presented to ECE providers in semi-structured interviews and focus groups to determine the most preferred eLearning format for a beverage policy training. Figure 2 presents an overview of the methodology for this study.

The Beverage Policy Statewide Survey (Overall State Study)

The beverage policy statewide survey study was a cross-sectional, mixed methods study that used quantitative (statewide survey) and qualitative (focus groups and semi-structured interviews) methods. The statewide survey was used to assess 1) assess the implementation of water and other healthy beverage policies on ECE programs in GA; and 2) if disparities exist in the quality of beverages served by the geographic region of the ECE program and participation in CACFP. As the statewide survey study is currently in progress, qualitative

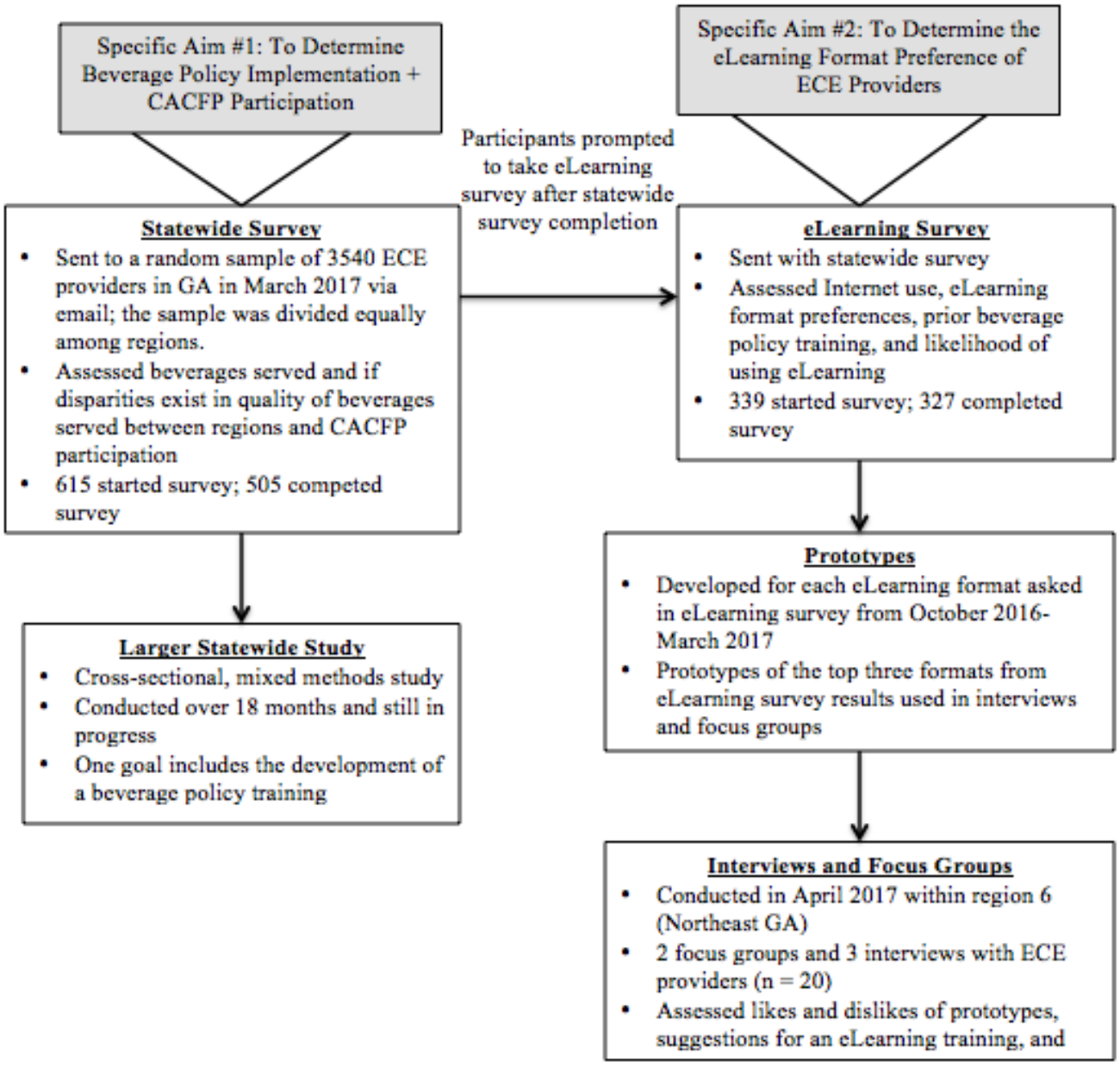


Figure 2. Consort Diagram

methods will be used to determine how ECE provider beliefs and attitudes affect compliance with beverage policies. The statewide survey study will be conducted over 18 months. The preliminary data from the statewide from online respondents has been collected and analyzed. Based on the results from the statewide survey and eLearning survey, a training will be developed to support increased promotion of water and other healthy beverages for ECE providers. Effective training may lead to decreased consumption of high caloric beverages among preschool children, and ultimately decrease the risk of childhood obesity. The statewide survey study is based on the Socioecological Model, which describes how multiple levels of societal influence affect health behavior and outcomes.[82]

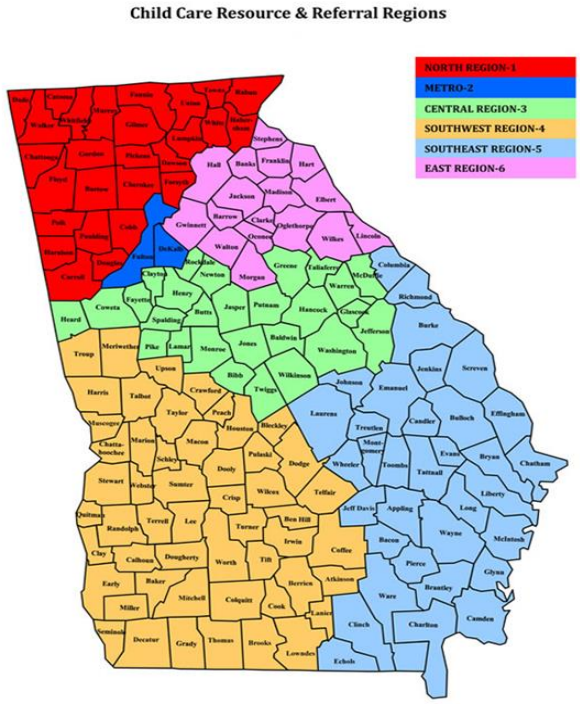


Figure 3. Child Care Programs by Region in Georgia

The target population for the statewide survey study is licensed and license exempt ECE providers in GA serving children ages 0-5. In collaboration with the Department of Early Care and Learning (DECAL), a randomized, stratified sample of facilities was selected from over 10,000 ECE programs in GA. There are 3,112 ECE learning centers and 1869 family child care homes in GA. In addition, the state has a database of 5,239 license exempt ECE programs. All of these programs were eligible to be a part of the study. A sample size analysis completed in G*Power 3.1 revealed that if there is a difference of 10% between centers and homes in terms of a yes/no question (e.g., “does the

program, serve 100% juice"), 80% power can be achieved with a sample of size 404 each from center and home-based facilities. A sample of 68 of each type of facility is needed from each of the 6 state Child Care Resource and Referral Agency (CCR&R) regions (North, Metro, Central, Southwest, Southeast, and East; see Figure 3) in GA. Because response rates for similar studies have been around 30%, the sample size of 68 was multiplied by 1/3 for an initial random sample of 227 of each type of three types of facilities from. A comparable sample was drawn from the exempt facilities in each region, resulting in an initial sample of size (227*3) * 6 = 4086, divided evenly across regions and types of facilities. The final study sample included 3540 ECE programs. An equal number of ECE programs were randomly selected from each region to obtain a representative sample of programs across the state.

The statewide survey (*Georgia Child Care Wellness Survey)* (see Appendix A), was based on a modified version of the *CA Survey of Child Care Providers of 0-5 Year Old Children* which was first developed in 2008 and revised in 2012 to focus on beverages by Ritchie et al.[45,63] for a statewide assessment of foods and beverages served in licensed ECE programs in California. Modifications made for the statewide survey include: 1) adding questions on the race/ethnicity of children served, 2) the income level of majority families served, 3) the provider's knowledge on the updated CACFP meal patterns, 4) if the program is following the new CACFP meal patterns, and 5) extending the food and beverage questions to 0-23 months-olds. Tables 4 and 5 provide examples of questions examining beverages served to 1-5 year-old children. The survey contained a frequency checklist of 21 foods and beverages served in ECE programs as well as questions about barriers to serving water and other healthy beverages.[41] Barriers and facilitators to implementing healthy beverage practices among ECE providers will be explored through a series of semi-structured interviews and focus groups in each region. Four

interviews (two with ECE center directors, one with a family child care home director, and one with an exempt ECE director) and one focus group (6-8 ECE teachers) will be conducted.

Table 4. Example of Questions on Beverages Served Yesterday

*Which were provided **YESTERDAY** to 1-5 year olds?*	Not Provided	Provided at Breakfast	Provided at Lunch	Provided at Dinner	Provided at Snack-time
1. **Sugar-sweetened* drinks** like soda, sports drinks, Kool-Aid, Sunny Delight, Capri Sun, Hawaiian Punch, lemonade, fruit drinks, aguas frescas, sweet tea (do **not** include diet drinks)*	☐1	☐2	☐3	☐4	☐5
2. **100% fruit or vegetable juice** (do **not** include fruit-flavored drinks like Kool-Aid, Sunny Delight, Capri Sun, Hawaiian Punch, lemonade, aguas frescas)	☐1	☐2	☐3	☐4	☐5
3. **Milk** (all types, including whole, low fat, nonfat, skim, flavored, rice or soy milk)	☐1	☐2	☐3	☐4	☐5
4. **Bottled water**	☐1	☐2	☐3	☐4	☐5
5. **Water from the tap or faucet**	☐1	☐2	☐3	☐4	☐5
*Sugar-sweetened drinks are sweetened with sugar, high fructose corn syrup, or other caloric sweeteners					

Table 5. Example of Questions on Beverages Served to Children 1-5 Years of Age

1. What **type of milk is MOST OFTEN** provided to **1 up to 2 year olds** at your child care site? ***(choose only one)***	☐1 Whole or regular	☐2 2% fat	☐3 1% fat	☐4 Non-fat or skim	☐5 Rice or soy milk	☐6 Flavored or sweetened (like chocolate, vanilla, horchata)
2. What are **ALL of the types of milk** provided to **1 up to 2 year olds** at your child care site? ***(choose all that apply)***	☐1 Whole or regular	☐2 2% fat	☐3 1% fat	☐4 Non-fat or skim	☐5 Rice or soy milk	☐6 Flavored or sweetened (like chocolate, vanilla, horchata)
3. What **type of milk is MOST OFTEN** provided to **2 up to 5 year olds** at your child care site? ***(choose only one)***	☐1 Whole or regular	☐2 2% fat	☐3 1% fat	☐4 Non-fat or skim	☐5 Rice or soy milk	☐6 Flavored or sweetened (like chocolate, vanilla, horchata)
4. What are **ALL of the types of milk** provided to **2 up to 5 year olds** at your child care site? ***(choose all that apply)***	☐1 Whole or regular	☐2 2% fat	☐3 1% fat	☐4 Non-fat or skim	☐5 Rice or soy milk	☐6 Flavored or sweetened (like chocolate, vanilla, horchata)
5. Is drinking **water** available **outside** for children? ***(choose only one)***	☐1 Not easily available	☐2 Available **only** during planned water breaks	☐3 Given to children on request	☐4 Easily and visibly available for self-serve		
6. Is drinking **water** available **inside** for children? ***(choose only one)***	☐1 Not easily available	☐2 Available **only** during planned water breaks	☐3 Given to children on request	☐4 Easily and visibly available for self-serve		

To promote the statewide survey and request online participation, a letter of support from the State Commissioner and GA DECAL was emailed to the study sample in March 2017 describing the study and encouraging participation (see Appendix B). The following day, the participants received an email that included a link to the online version of the *Georgia Child Care Wellness Survey* using the Qualtrics survey platform (www.Qualtrics.com). The participants received a reminder email to fill out the survey two weeks after the first email. The online survey was available for a total of four weeks. Non-respondents (2500) were mailed a survey with a stamped and addressed envelope, a paper explaining the survey, a thank you card, and a pencil included in the mailer in May 2017. ECE program directors or a designated appointee were asked to complete the survey to evaluate the current implementation of beverage policies.

The first 102 respondents using the online survey and the first 102 respondents using the paper survey will be mailed a *Healthy Beverage Resource Kit*. This was also to encourage survey participation. The kit includes resources to implement beverage policies (i.e. child sized pitcher to provide water for self-service throughout the day). Other materials in the kit include child sized cups, healthy beverage poster, MyPlate poster, Potter the Otter Drinks Water book, CDC Water and Other Healthy Beverages Toolkit for Early Care and Education, and beverage resource/policy handouts. Further, all participants were eligible to enter a drawing to win a $250 local grocery store gift card.

Analysis of the Beverage Policy Statewide Survey

Descriptive statistics were reported for 1) sample characteristics; 2) type and frequency of beverages served; and 3) implementation of beverage practices. A scoring system was used to determine beverage quality for type and frequency of beverages served. Beverages were assigned

a score within a range of 0-4 equal to the number of times served per day during meals, including breakfast, lunch, and dinner (if applicable), and snack time. Beverage servings that should be limited or never served (i.e. 100% juice and SSBs) were reverse coded. Beverage quality was reported by percentages and compared via cross-tabulations and chi-square analysis for CACFP vs. non-CACFP participating programs. Differences in beverages served by region were calculated via cross-tabulations and percentage estimates were computed by program location. Hypotheses tests were considered significant at $p < 0.05$. For all outcome variables, interactions among CACFP participation, and geographic region were considered to assess whether region modifies the effect of CACFP participation.

Analysis of an eLearning Survey and Qualitative Interviews to Determine Preferred eLearning Formats for ECE Providers

A brief eLearning survey was distributed with the statewide survey (see Appendix A). Participants were asked to complete the survey once they completed the statewide survey. This survey identified the Internet use; devices used (i.e. smartphone, laptop, desktop computer, tablet, or E-reader), eLearning preferences, and prior beverage policy training of the ECE providers. The survey also determined the likelihood an ECE provider would participate in a 15-minute educational session using the Internet. The eLearning format options included podcasts, video-based learning, interactive video, text message, phone app, and social-media based. Prototypes for each of these formats were developed before the statewide survey was sent out in March 2017. The prototypes consisted of snapshots of each format provided through PowerPoint. Based on the eLearning survey results, the top three prototypes were provided in two interviews with ECE center directors, an interview with a center teacher, and two focus groups with ECE teachers (6-11 participants). The interviews and focus groups were conducted in the Northeast

region of GA (Figure 3). Researchers developed the protocols for the interviews and focus groups. The aim of the interviews and focus groups was to determine what participants liked and disliked about each of the three top prototypes as well as any suggestions for enhancement. Each of the interviews and focus groups were recorded and transcribed. No information identifying the participants was collected in the recordings. The interviews and focus groups lasted approximately 30 minutes.

Descriptive statistics were calculated to determine the Internet use, devices used, eLearning preferences, and prior beverage policy training of the ECE providers from the survey data. IBM SPSS Statistics version 24 was used to analyze descriptive statistics. Qualitative data analysis was conducted for interview and focus group results. After interviews and focus groups were transcribed, themes for each question asked in the interviews and focus group were identified. Broad themes were determined using the method of content analysis. Once the theme identification occurred, statements relating to the themes were coded by hand. A trained qualitative researcher verified and reviewed each transcript for themes. Data was examined for emerging themes via use of qualitative data analysis software, Microsoft Excel version 14.7.1 and ATLAS.ti version 7.

CHAPTER 4

RESULTS

Preliminary Findings from the Georgia Child Care Wellness Survey

As the period of data collection for the paper distribution of the survey has not ended, preliminary findings from the online statewide survey are summarized. A total of 615 ECE providers responded to the statewide survey online. However, 505 completed the survey. Of the 505 respondents that finished the survey, 339 started the eLearning survey. A total of 327 participants completed the eLearning survey. There were instances of missing data for questions that were skipped from the beginning to the end of the surveys.

Georgia Child Care Wellness Survey Sample Characteristics

The sample included ECE centers (46%), other center based care, Head Start, Early Head Start (6%) and Military facilities (1%), Family Care Homes (35%), Georgia Pre-K programs (15%), and Exempt Programs (14%). Respondents could choose more than one category for program type, therefore, percentage total is greater than 100%. Each of the six GA CCR& R regions (see Figure 3) were represented by survey respondents: North (17%); Metro (14%); Central (18%); Southwest (16%); Southeast (14%); and East (21%). On average in each facility served children of different race/ethnicity at the following percentages: Black (48%), Hispanic (5.9%), White (41%), Asian (2.5%), and Other (1.9%). Ninety percent of ECE providers reported serving children ages 1-5 years. The income level of the majority of families served by ECE programs was below $35K. The majority of participants (90%) were site directors or

owners. A large number of programs participate in CACFP (64%), while 61% of programs reported that they are following the new 2017 CACFP meal pattern guidelines.

Beverages Served at ECE Programs in GA

Beverages were assigned a score within a range of 0-4 equal to the number of times served per day during meals. The higher the score the more often the beverage was served. Results are reported for SSBs, juice, milk, and water served. See Table 6 for a summary of beverage policy compliance among ECE providers and CACFP participation.

Table 6. Beverage Policy Compliance among ECE Providers and CACFP Participating Programs

Beverage Policy	% In Compliance[1]			Significant comparisons[2]
	ECE Providers	CACFP	Non-CACFP	CACFP (C) vs. non-CACFP (N)
No SSBs[3]	96	98	92	C > N*
Serve 4-6oz of juice[4]	85	83	90.1	C < N**
Whole milk to 1-2 year-olds	42	57	46	C > N**
Skim or 1% milk to children 2 years or older	57[5]	79[6]	29[6]	C > N**
Water is available all day[7]	31	36	23	C > N**

[1] Percentages of total, CACFP participating, and non-CACFP participating ECE providers reporting compliance with beverage policies
[2] For CACFP (C) vs. non-CACFP (N) comparisons by cross-tabulations and Chi-square tests:
* p < .05 ** p < .001
[3] Sugar-sweetened drinks are sweetened with sugar, high fructose corn syrup, or other caloric sweeteners
[4] Percentages include scores for serving no juice and serving juice once a day
[5] Percentage include scores for serving skim and 1% milk
[6] Percentage include scores for serving 1% milk only
[7] Percentages combined scores of serving water 3 or more times per day

SSBs

Most programs reported not serving any SSBs to children (96%). CACFP participating programs (97.9%) were less likely to serve SSBs compared to non-CACFP participating programs (92.3%) ($p < .05$). There was no significant difference among regions in serving SSBs.

100% Juice

Forty percent of providers did not serve 100% juice (beverage score = 0), while 45% served juice at least once per day (beverage score = -1); 9% twice per day (beverage score = -2),

and 4% 3 times per day (beverage score = -3), and 1% four times per day (beverage score = -4). Programs that participate in CACFP are more likely to serve 100% fruit or vegetable juice. CACFP programs (49.4%) served juice once a day; for non-CACFP programs, 38.6% served it once a day. Approximately, 51.5% of Non CACFP programs did not serve juice; 34.4% of CACFP programs did not serve juice. Programs that participate in CACFP are also more likely to serve juice twice, 3 times, or 4 times a day ($p < 0.001$). There were no significant differences in juice beverages scores across regions.

Milk

Some programs reported that they do not serve milk (11%). Twenty three percent of programs served milk once per day (beverage score = 1); 34% twice per day (beverage score = 2); 28% 3 times per day (beverage score = 3), and 4% four times per day (beverage score = 4). Programs that participate in CACFP serve milk more often than those who do not ($p < 0.001$). There was no significant difference in frequency of milk served by region. Examination of the type of milk served most often to children ages 1-2 years old showed that most providers served whole (42%) or 1% fat milk (21%). There is a statistically significant difference in the type of milk served to 1-2 year-olds depending on whether or not a program participates in CACFP ($p< 0.001$); participating programs are less likely to serve 2% milk (9.4% v. 30.8%) and more likely to serve 1% if not serving whole. There was no statistically significant difference in type of milk usually provided to 1-2 year-olds by region.

Results for the type of milk served most often for 2-5 year-olds indicated that 51% of programs serve 1% fat milk, 6% serve skim milk, and 15% serve 2% fat milk. There is a statistically significant difference in milk most often served to 2-5 year-olds based on CACFP participation; those who participate in CACFP are more likely to serve1% milk to 2-5 year-olds

and less likely to serve whole or 2% ($p < 0.001$). There was no statistically significant difference in milk served to 2-5 year-olds by region.

Water

Water served by programs was categorized as served from bottled water or tap water. A majority of programs reported that they do not serve bottled water. CACFP and non-CACFP programs are almost equally likely to not serve bottled water (63.2%) of CACFP do not serve bottled water, and 64.4% of non-CACFP do not serve bottled water. Therefore, there is no statistically significant difference between those who participate in CACFP and those who do not. There is not a statistically significant difference in the bottled water score across regions. Beverage frequencies and scores for tap water served were as follows: 29% no tap water served; 32% served water once per day (beverage score = 1); 8% twice per day (beverage score= 2); 26% 3 times per day (beverage score = 3), and 5% four times per day (beverage score = 4). CACFP programs are more likely to provide water on 3 or 4 occasions (combined 35.9% v.23.1%) ($p < .001$). There was no statistically significant difference in serving tap water across regions.

Table 7. Characteristics of ECE Providers who Completed the Online eLearning Survey[1]

By region[2]	**% ECE providers**
1	17.7
2	14.5
3	17.1
4	17.4
5	14.2
6	19.2
By facility type	**% ECE providers**
Child care learning center	42.5
Family child care learning home	38.1
Exempt[3]	19.5
By job title[4]	**% ECE providers**
Center or homeowner	39.5
Director or site supervisor	52.5
Family child care giver	20.1
Teacher	5
Other	5.3

[1] N = 339
[2] Child Care Resource and Referral Regions; (North), 2 (Metro), 3 (Central), 4 (Southwest), 5 (Southeast), and 6 (Northeast).
[3] Exempt ECE programs meet a specific set of requirement to legally operate with exemption form state licensure.
[4] Total percentages adds up to more than 100% because respondents were allowed to select more than one job title. Some other job titles chosen include chef, child nutritionist, or minister.

eLearning Survey Sample Characteristics

The number of ECE providers that responded to the online eLearning survey was 339 including both the Spanish and English versions. This resulted in a response rate of 54.1% when considering both incomplete and complete. Table 7 describes demographic data on the ECE providers who agreed to take the eLearning survey. Region 6, which is located in Northeast GA, had the highest percentage of ECE providers that took the survey at 19.2% (see Figure 2 for regions). Regions 1, 2, and 4 had a similar response rate of about 17%, while regions 2 and 3 had response rates of around 14% (see Table 7). Almost 43% of the ECE providers were center based, 38% worked at a family care learning home, and about 20% of the survey respondents were from an exempt ECE setting. Most of the respondents were directors or

Table 8. Characteristics of Children and Families Served

Average number of children served[1]		76
Race/ethnicity	Total # of children served	% Children served[2]
African American	8,523	40.7
Hispanic	1,229	5.9
White	9,670	46.2
Asian/Pacific Islander	980	4.7
Other	521	2.5
Age group[3]	Total # of children served	% Children served
Infants	1250	7.6
Toddlers	5,004	30.6
Preschoolers	10,096	61.7
Income level of majority families served[4]		% Income level of majority families served
< $20K		23
$20-$35K		26.9
$35K-$50K		21
50K-60K		12.3
> $60K		18.8

[1] n = 333
[2] The percentages were determined by diving the total number of children served per race (numerator) by the sum of the total number of children served from all race/ethnicities (20,923 denominator).
[3] Infants (birth to 11 months), toddlers (12-35 months), preschoolers (3-5 years). See Appendix B for survey. Results from the 0-5 months and 6-11 months were combined for infants, and the results from 12-23 months and 24-35 months categories were also combined for toddlers.
[4] n = 309

site supervisors. Some of the respondents reported multiple job titles, such as center or homeowner, director or supervisor, or teacher. Some of the responses from the "Other" category include chef, child nutritionist, minister, or recreation administer.

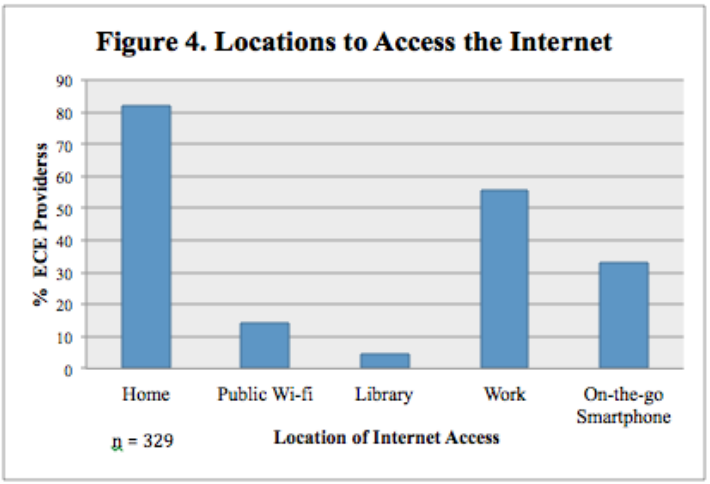
Table 8 describes the characteristics of the families and children served by the ECE providers who completed the online survey. The mean number of children served per program was 76. The percent of children served by race and ethnicity are as follows: African American (41%), Hispanic (6%), White (46%), Asian/Pacific Islander (5%), and Other (2%). Respondents reported serving infants (8%), toddlers (31%), and preschoolers (62%). The income level of the majority of families served by respondents was $20-35K (26.9%).

Table 9. CACFP Participation among ECE Providers who Completed eLearning Survey

Does your site participate in CACFP[1]?	% ECE providers n = 337
Yes	65.9
No	33.5
How much do you know about the new 2017 CACFP meal patterns[2]?	% ECE providers n = 336
Haven't heard of them	19
Heard of them but don't know much about them	12.5
Know a little about them	13.4
Know somewhat about them	21.4
Know a lot about them	33.6
Is your program following the new 2017 CACFP meal patterns?	% ECE programs n = 266
Yes	80.5
No	19.5
By facility type	**%** ECE facilities who reported yes[3] n = 266
Child care learning center	89.2
Family child care learning home	91.7
License-exempt	34

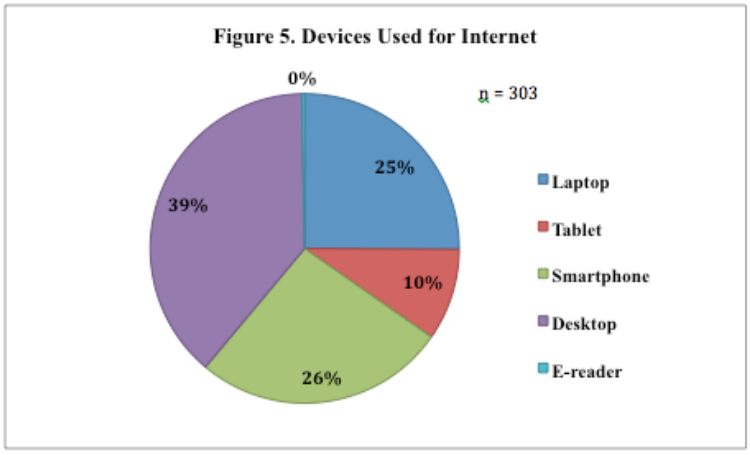
[1] The Child and Adult Care Food Program (CACFP) is a federal program that reimburses early care and education (ECE) programs for serving healthy meals and snacks.
[2] Compliance to new CACFP meal patterns will be required by October 1, 2017.
[3] % of ECE facilities that reported "yes" to implementing new CACFP meal patterns

Table 9 details information related to CACFP participation for those who completed the online eLearning survey. An estimated 66% of the programs reported participation in CACFP. Almost 34% were familiar with the new CACFP meal pattern guidelines that will require compliance by October 1, 2017, while 19% of the participants reported they had not heard of the new CACFP guidelines. Around 81% of the survey respondents reported their facility is already implementing the new CACFP meal pattern guidelines. A review of new meal pattern compliance by program type revealed 90% of ECE centers, 92% of family child care homes, and 34% of exempt ECE facilities were following the new guidelines.

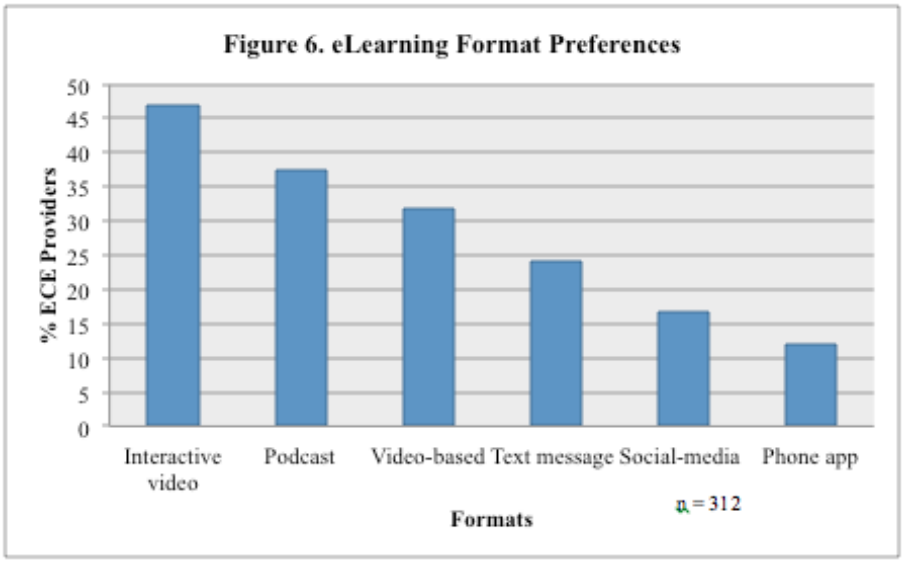


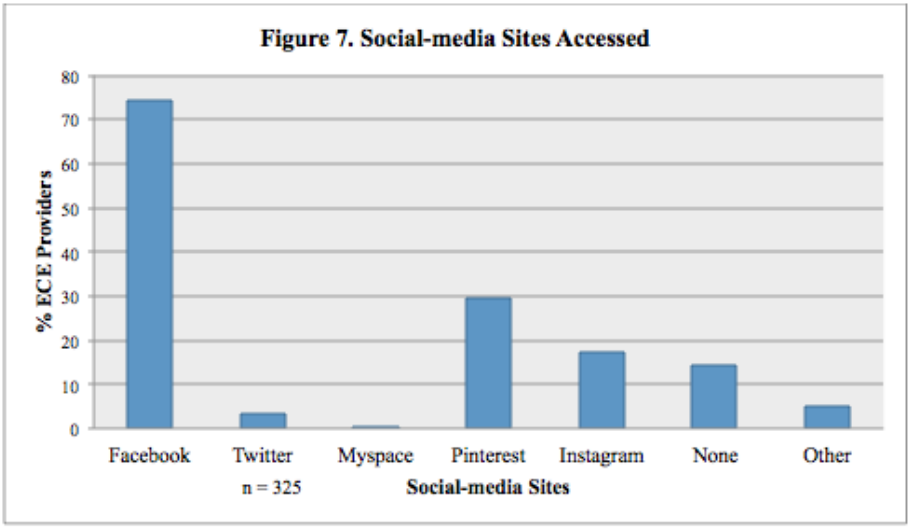
eLearning Survey Results

Almost all participants (98.5%) had access to the Internet. No significant difference was found between the region of program location and access to the Internet. A majority (81.8%) accessed the Internet at the home, and 55.6% accessed the Internet at work. Fewer respondents reported accessing the Internet on-the-go with a smartphone (32.8%), on public Wi-Fi (14.8%), and at the library (4.6%) (see Figure 4). The devices used by ECE providers to access the Internet most often include the desktop computer

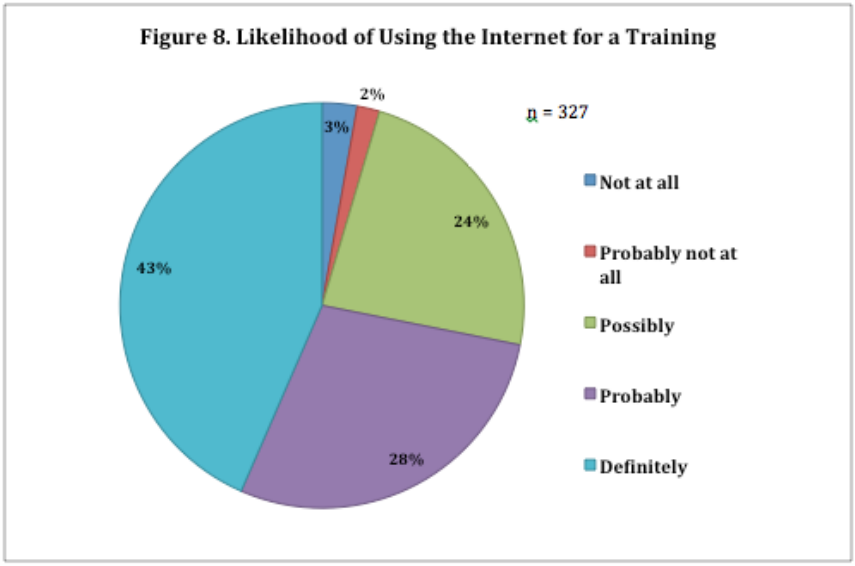


(38.6%), smartphone (26.4%), personal laptop (25.1%), tablet (9.6%), and E-reader (0.3%) (see Figure 5). Participants were instructed to choose the top three formats that interest them the most. Figure 6 details the online learning format preferences of the ECE providers, showing the following outcomes from most popular to least popular: Interactive video (46.8%), Podcast (37.5%), Video-based learning (31.7%), Text messaging (24%), social media (16.7%), and Phone app (11.9%). The most popular form of social media was Facebook with 74.5% of ECE providers reporting use of this social media site (see Figure 7).





Approximately 44% of survey respondents reported they would definitely use the Internet for a 15-minutes educational session on a topic that interests them. Twenty eight percent of ECE providers replied they would probably use the Internet, and 23.5% reported they would possibly use the Internet for the educational session (see Figure 8). There was no significant difference between region and likelihood of engaging in an online training. An estimated 87% of the ECE providers reported having no prior beverage policy training. No significant difference was found between region of program location and the likelihood of having previous beverage policy training. There was also no significant difference found between CACFP participation and a having a prior beverage policy training.



Qualitative Results from Interviews and Focus Groups

There were a total of 20 participants from the interviews and focus groups; 16 were teachers, and 4 were directors from ECE centers located in the Northeast GA region (region 6 of Figure 2). Two of the directors (one was an assistant director) participated in a focus group. The one-on-one interviews were conducted with two center directors and one ECE teacher. All

participants were female except for two. Two main themes were identified*: 1) interactive video was the most preferred format,* and *2) components of an effective training*. Sub-themes for components of an effective training include various approaches within the content, qualities, and incentives. The themes were paired with quotations from the participants to comprise the sub-themes.

Interactive Video as the Preferred Format

A majority of participants reported that the interactive video would be the best format for an eLearning beverage policy training after being shown the three prototypes. All of the participants from one of the focus groups agreed that the interactive video was the best format. All of the teachers from the other focus group preferred the interactive video, while the director did not prefer this format. One teacher participant stated, *"I absolutely love how interactive that is*," and another teacher participant felt, "*The more interactive, the better.*" One director preferred the interactive video for her teachers because they would have "*to put more thought into it*." Other comments related to the interactive video include, "the interactive is better for sure;" "I like that it's interactive," and "I want one like that." However, not everyone preferred the interactive video.

Three out of the 20 participants (15%) personally preferred a different format other than the interactive video. One of the directors from the focus groups that didn't like the interactive video preferred the video-based format instead. That participant did not care for the animated appearance of the interactive video and reported, "I don't like drag and drop, that's just me." Another director personally preferred the video-based format better because "[…] it's real clear. I'm receiving information; I'm processing; I'm taking in." One teacher reported, "For me, I

would prefer a podcast […]" but continued to report that the interactive video would meet the needs of more people.

Some noticeable patterns were indicated during thematic review of participants' remarks related to the format preferences. Most people did not like the podcast because they would have to multitask or could not focus on the audio. The teacher that preferred the podcast noted, "[…] a disadvantage of the podcast is people think that they can multitask, which they really can't […]." Another participant reported, "I could look at this while I'm listening, but then I would stop listening." A teacher mentioned, "I am not an audio learner. I cannot focus," and another teacher in the focus group agreed. Two teachers also agreed that they could not listen to the podcast while sitting at the computer. Further, one teacher claimed that listening to the podcast "would be like pulling teeth." One director even felt that the podcast would not be a training as well.

Another pattern noticed with regards to format preferences is that there is a negative correlation between age and interactive video preference. The older one was, the less likely they were to prefer the interactive video. Feedback from one director included,

> *It's a lot for me, but I think it's a lot for me only because of my generation. I think this would probably be something more appealing to millennials, to the 20-somethings who, this is what they are used to […]*

Another director, who was older than the teachers, preferred the video-based format to the interactive video. One teacher exclaiming about utilizing technology in general reported

> *I think there's a lot of older people in the field, and I think they're uncomfortable with technology. I had an assistance teacher who disliked taking anything online because she was uncomfortable with that […]*

However, after all of the prototypes were displayed to the participants, they were asked to share which format they thought would be best for an eLearning training. All of the participants except for one came to a clear decision that an interactive video format would be best.

Components of an Effective Training

Even though this study focused on determining the best format for an eLearning beverage policy training, the participants from the interviews and focus groups provided feedback on what they would want to have in a training. The feedback was combined and summarized into the theme *components of an effective training*. Sub-themes include overall qualities, various approaches in content, and incentives.

Overall Qualities

Qualities of the training need to be engaging, concise, and hold the trainee accountable. Participants preferred the interactive video because it was engaging. For instance, one director commented, "I like that it is interactive. It makes them work a little." Another participant stated, "I think because it is interactive, it is more engaging." The participants also want the training to be concise. Most of the participants did not want to receive the same information over and over again. A complaint made by one participant commenting about other trainings includes, "[…] a lot of trainings waste our time. It's a lot of the same information." Another participant reported, "And a lot of it depends on how much of the information keeps getting recycled over and over and over until you're like I've already done this five times in the last ten minutes." One focus group agreed that a training that takes longer than 20 minutes is too long, but another focus group felt that a 30-minute to an hour-long training is acceptable. Overall, the participants want the training to get to the point and not include any unnecessary activities or content. However, they still want the training to hold them accountable for the information. One teacher stated that

she liked the interactive video because “it holds you accountable for reading the slides.” A director preferred the interactive video too because, “ […] it makes them work a little harder […] They have to invest in it, you know?” In general, most participants want the training to be meaningful by being engaging and concise while holding one accountable for the information. The participants also provided specific various approaches the training developers can include in the training content.

Various Approaches Suggested for the Content

Content of the training should include the importance of the information and classroom applications, such as recipes, videos, and shareable information or activities. One participant stressed how important “the why” should be addressed within the content of the training, or in other words, be sure to explain why it is important to meet the beverage best practices. Specifically, the teacher stated,

> *“ […] but the why, I think, is huge because. So often, teachers with hand-washing, with diapering, with water, with whatever, they're told, "This is the best practice" "This is what you need to do," This is what you're supposed to do," but it's not necessarily ever explained to them, so they're not given the change to buy into it.”*

Another director commented

> *I'm big into the science of things. So for me, if you had "this is the science of why you should be. What does it do to your body and all this," and, "How does it make you grow and stuff" that would be something that speaks to me.*

The teachers also want examples of how they can practically apply the best practices in their classroom. One teacher made the suggestions that “it would be cool to have some recipes we could try.” A director thought having “a booklet of recipes for the teacher to use in the

classroom, like smoothies and stuff so they could make that are healthy beverages" would be helpful too. Participants agreed that showing how to use or make the recipe within a video would be helpful. A teacher combined the recipe and video ideas together by explaining that having

> *[…] simple recipes that they can make in the classroom to get the kids excited about cooking and teaches them about nutrition would be most helpful, as far as the videos goes.*

Participants prefer videos that show practical application of the information. One teacher liked the video from the video-based prototype by commenting,

> *I like how it has practical application in a classroom […] not a lot of trainings do that, where they show you like, they show you a theory and don't really show you how to implement it*.

A majority of the teachers liked how the video used in the video-based prototype displayed an example of how children can pour their own water. However, one participant was confused by it because the video didn't include what the teacher did afterwards. The participant suggested

> *if there was modeling of the child doing the self-clenaing or doing the cleaning, or the help that the teacher gave her, I think that would help*.

In addition to practical application of recipes and videos, participants agreed that having activities and printout materials for the children and parents would be beneficial to promote healthy beverages. One teacher stated

> *[…] I piloted a lot of [Read Right from the Start] curriculum in my classroom many, many years ago, which was really nice because it had built-in activities that helped children embrace concept and hands-on learning. I would think stuff like that would be really nice.*

Another teacher suggested that the training has, "[…] a section that we could share, maybe print outs to share with our children," and another teacher added, "Anything with the parents, maybe something that parents could take home." The participants want the training to be useful and meaningful to their work, and practical recipes, videos, activities, and printout information are some approaches to achieve an effective training.

Incentives for Doing the Training

The teachers were asked to note any incentives that might be useful to motivate them to take the training. Incentives suggested were related to points, an interesting topic, practical rewards, and employment. Teachers from one of the focus mentioned that having a training that involved them gaining points was motivating and satisfying. For instance one teacher claimed, "Getting the points are satisfying," and another teacher added, "And that is motivating." They further explained that the training would be better if it told the trainee how many points they could get. For instance, another teacher commented, " […] I'd like to know ahead of time, how many points is this one worth […]." The teachers agreed that it would motivating to try to achieve all of the points and if the points led to practical rewards, such as "money or food." A director mentioned that it would be helpful if the training rewarded them with " […] things that they can actually use," such as " […] a water bottle, or you know something fun." Another director felt that if the topic is interesting enough, that is an incentive in itself for her or for a teacher to do a training by explaining, "[…] It's like I don't know what that means. I want to go hear more." Furthermore, a majority of participants felt that if it was required for their job, then that's an incentive too. One teacher commented, "Usually, the big incentives are that they're required, and another teacher stated, "And our incentive is we have to have these hours in order to keep our employment." One teacher took it a step further and suggested that the training have

a tie-in with GA Quality Rated "because everyone has to do a training on healthy beverages in order to get that Quality Rated portion."

CHAPTER 5

DISCUSSION

We hypothesized that CACFP participating programs were more likely to comply with beverage policies. In general, these preliminary findings provided support for this hypothesis, although findings differed somewhat by type of beverage served. Participating respondents were serving significantly less SSBs to children. Additionally, programs participating in CACFP were significantly more likely to serve juice above recommended amounts indicating a need to reach these programs on juice recommendations. This contradicts findings from another study that found participating programs less likely to serve juice.[63] The results demonstrate education on juice recommendations is needed for CACFP participating programs. CACFP participating programs were less likely to serve 2% milk, but more likely to serve 1% milk to 1-2 year-old children. Additionally, participating programs are more likely to comply with milk recommendations for 2-5 year-old children. Participating providers were less likely to serve 2% or whole milk to children. Additionally, participating programs were more likely to comply with water policies. Although participating programs were more likely to serve juice above recommended amounts, they were more likely to comply with the SSBs, milk, and water policies; therefore, results from survey data indicate that CACFP participating programs were more likely to comply with beverage policies compared to non-participating programs.

Survey results indicate improvement in beverage policy compliance is needed among ECE providers in GA. Although a majority of the statewide respondents were meeting the SSB and juice policy, 14% of respondents served juice two or more times during the day; therefore,

some children in GA are receiving juice in amounts greater than 4-6oz. ECE providers were not complying as well with the milk and water policies. A little less than half of the providers were meeting the recommendation for serving whole milk to 1-2 year-old children, and a little over half of the respondents were serving 1% milk or skim milk to 2-5 year-old children. Results indicate a majority of ECE providers are not meeting the water recommendation to have water available throughout the day. Approximately 31% of programs serve water throughout the day (at least 3 times per day). Survey findings indicate ECE providers are not fully complying with beverage policies. Based on these results, compliance with beverage policies in ECE programs in GA can be improved among all beverage categories indicating a need for a beverage policy training.

A majority of survey respondents were directors, center owners, or family care homeowners. They may or may not be directly serving beverages to children, but they have influence on deciding beverages served to the children in their ECE program. Most of the respondents were also from ECE centers (43%) or family child care learning homes (38%). Very few studies have evaluated license-exempt ECE providers and their knowledge and practices on quality child care.[83] This can be due to a lack of standardized qualifications and a definition for license-exempt ECE providers as it greatly varies from state to state.[83] This study received approximately 20% responses from license-exempt ECE providers. Therefore, more insight into license-exempt ECE providers' behaviors and preferences has been gained.

Approximately two-thirds of respondents participated in CACFP, but only one-third knew a lot about the updated CACFP meal pattern guidelines. However, 81% reported they were already following new meal pattern guidelines. Because of the difference between those that know about the new guidelines and those that reported following new meal patterns, there is a

gap in knowledge and practices. Furthermore, 34% of the license-exempt ECE providers replied they were currently following CACFP meal patterns. Comparing these findings to the providers' from ECE centers (89%) and family child care learning homes (92%) that reported following new meal patterns, there is an established need to reach license-exempt ECE providers on quality nutrition practices.

There is evidence that racial disparity exists among young children in reference to overweight and obesity.[15] The majority of children served by survey respondents are White (46%) and African American (41%). African American children are twice as likely to have obesity compared to white children.[15] Additionally, lower income levels can increase a child's chance of becoming obese.[15] Although relatively close, a majority of the families served by survey participants fall within the two lowest income categories: < $20K (23%) and $20K-$35K (27%). Based on these findings, there is an established need for ensuring beverage practices in ECE programs in GA meet recommended standards.

The popularity of utilizing eLearning over the last few years has increased.[79] eLearning can be just as effective as in-person education, and it provides more convenience and other benefits over in-person trainings.[27,79] An increasing number of ECE providers are utilizing online professional development programs in other states.[27,80] Currently, there is no online professional development training for ECE providers in GA.[31] Online modules covering topics on nutrition and obesity prevention are popular with ECE providers.[27] Therefore, eLearning trainings are a feasible method for providing more education and training to ECE providers.[79]

This study was one of the first to assess the need for an eLearning beverage policy training for ECE providers in GA. This study found there is an established need for beverage policy training for GA ECE providers as 87% reported they had never had beverage policy training. The

use of an eLearning format for beverage policy training is promising because almost 45% of respondents claimed they would definitely use the Internet and 30% of respondents said they would probably use the Internet to do a short training. Almost all of the participants had access to the Internet. This is consistent with another study evaluating Internet access by ECE providers in GA that found 90% had Internet access.[84] These results, along with a similar study, indicate that eLearning is a viable platform for ECE providers in GA.[84]

Participants reported usual access to the Internet at home (82%) or work (56%). This too was similar to a study in GA that found home, work, and a phone to be the most likely locations to access the Internet.[84] Additionally, these results are supportive of other findings that most Americans have access to Internet.[78] The devices used the most to access the Internet by respondents include desktop computers (39%) or laptops (25%). The eLearning format should be adaptable for phone use as 33% reported using their smartphone to access the Internet and 26% respondents reported using their phone the most to access the Internet. These findings are indicative that the eLearning training must be accessible and function properly on both a computer and a smartphone.

This study aimed to identify the eLearning format preferred by GA ECE providers for a beverage policy training. We hypothesized that a majority of GA ECE providers would prefer an interactive video. Our hypothesis was correct, as 47% of ECE providers preferred the interactive video. These results are similar to other studies that found a preference for interactive and engaging trainings.[6,85] Results from the survey found the second and third most popular format to be a Podcast (second) and Video-based (third). The preference for a podcast contradicts findings that interactive trainings are preferred because podcasts are not typically interactive. However, the convenience, accessibility, and easiness of podcasts may have led participants to select podcasts.

Video-based educational programs have been accepted and helpful for ECE providers in the past, so these results are consistent with other findings.[6] As the long-term goal is to produce an effective training, all three formats were considered for the training. To substantiate the format preferences, prototypes of the top three formats were developed displayed in interviews and focus groups to determine the most preferred format and suggestions for an eLearning beverage policy training.

In this study, ECE directors and teachers in Northeast GA shared their thoughts on possible formats for a beverage policy training and provided information on what they want in a training. Because the interactive video was the most popular format from the eLearning survey, and 85% of participants from the interviews and focus groups preferred the interactive video, these findings suggest the format for the training should be an interactive video. The video-based format was preferred after the interactive video because it was to the point. Findings from the feedback related to the video-based format suggest that the interactive video should also be concise and not include extra information. However, the engaging aspect of the interactive video was the main reason why participants preferred the interactive video instead of the video-based format. Even though podcasts were the second most popular format from the eLearning survey, a majority of the participants reported they would not be able to focus on the podcast and would have to be doing something else. However, even if they were to multitask, they would get distracted and stop listening. These results illustrate the importance of using a mixed-method approach when conducting a needs assessment.

Findings from the focus groups and interviews also suggest that the older the ECE providers are the less likely to prefer an interactive video format or eLearning. This association has been shown in another study that found older ECE providers were more likely to be

uncomfortable with using the Internet and less likely to use the Internet at leisure.[84] However, a majority (68%) of ECE providers in GA were comfortable using the Internet.[84] Offering technical assistance can help ECE providers feel more comfortable with using an eLearning platform for a training.[84]

By conducting the interviews and focus groups, more in-depth information related to developing an effective training was acquired. Based on participants' comments, an effective training includes useful information and is meaningful to their work. The training should focus on why each of the beverage policies are important and provide practical examples on how they can implement the policies in the classroom. Other studies have shown that including examples of how ECE providers can implement nutrition policies to be satisfying.[86] Findings from this study suggest the eLearning training can provide practical examples through videos, recipes, activities, and printout information that can be shared with children and parents. Parent resistance has been known to be a barrier for ECE providers to have healthy beverages in their program.[45] Increasing parental involvement in improving the nutrition in the ECE environment is critical.[30] Previous studies revealed that providing educational materials for ECE providers, parents, and children are facilitators to increasing consumption of healthy beverages in the ECE setting.[46] Further, printable materials have been helpful in implementing obesity prevention strategies in ECE programs.[30]

Participants also listed several incentives that motivate them to utilize the trainings. Incentives mentioned included using points, employment requirements, interesting topics, and winning practical rewards. Interviewees stated that gathering points was fun and motivating while they work through the training. If points are used in the training, participants indicated that it would be helpful if they knew how much each question or component of the training is worth. These points can be a measurement of how the trainees are holding themselves accountable for

the information. A majority of the participants revealed that if completing the training was required of them, fulfilling the requirement was an incentive enough. Findings highlighted that partnering with GA's QRIS program would be beneficial to get ECE providers motivated for the training. This is possible because the GA Quality Rated Program includes beverage recommendations for ECE settings.[74] If trainees know in advance that they could win practical rewards, such as water bottles, recipes, or other prizes to improve beverages served in the ECE program, this may be an incentive for ECE providers to utilize a training. Further, training on interesting topics little known information could also be a motivator for the training. Considering 87% of ECE providers have not had a beverage policy training, it may be interesting enough to motivate ECE providers to learn more. As participants indicated that winning practical prices would be motivating, this substantiates the sub-theme that ECE providers want examples of practical application of the beverage policies in the classroom.

Strengths of this Study

There are some notable strengths to this study. Strengths of this formative study include involving a mixed method approach where the data collected in the eLearning survey was substantiated with data collected in interviews and focus groups. Another strength to this study includes having a large study sample for the eLearning with 339 ECE providers completing the eLearning survey. Additionally, several researchers evaluated the data collected from the interviews and focus groups, and themes and codes were agreed on. Collaborations among experts in qualitative research were carried out.

Limitations of this Study

There were a few limitations to this study. One limitation was that responses to the survey, interviews, and focus groups were self-report, so social-desirability bias may have led the

respondents to respond with higher beverage quality practices and other false information. A second limitation includes using a small convenience sample for the interviews and focus groups. Results may misrepresent ECE providers across the state. Further, because this study only took place in GA, the results from this study may not be representative of other states. Lastly, a time restraint caused this study to report on preliminary findings from online surveys, and does not include data from completed paper surveys. The data from paper survey and additional interviews and focus groups will be conducted through the larger study and will be analyzed before the eLearning training is developed.

Implications for Future Research

This study is the first to assess the need for a eLearning beverage policy training for ECE providers in GA. Findings from this study may provide information for researchers and policy makers within the ECE field on the feasibility and characteristics of a eLearning training for ECE providers in GA. A beverage policy training in an interactive video can be developed based on focus group and interview feedback. Before and after evaluation of beverages served may be useful in determining the effectiveness of the eLearning training. As GA, California, New York City, South Carolina, among other states have evaluated beverage policy compliance in the ECE Settings, states that have not can use this study as a foundation for a assessing obesity prevention measures.

CHAPTER 6

CONCLUSION

In conclusion, there is room for improvement of beverages served to young children in ECE settings in GA. ECE providers participating in CACFP were more likely to serve healthy beverages than non-CACFP participating ECE providers. This study found that a majority of ECE providers have access to the Internet, and they usually access the Internet at home or at work either on a desktop computer, laptop, or smartphone. A majority of ECE providers have never had a beverage policy training and are definitely willing to use the Internet for a short training. Further, findings reveal a gap in knowledge of CACFP guidelines, which is required through state licensing requirements, among license-exempt ECE providers and ECE centers and family child care learning homes. Survey findings suggested the top three most interesting formats for a beverage policy training include from most popular to least popular: 1) interactive video; 2) podcast, and 3) video-based. Interview and focus group data clarify that the interactive video would be the best format a beverage policy training. Interview and focus group also revealed that an engaging and concise training that also holds the trainee accountable would be an effective training for ECE providers. This can be accomplished through providing various approaches, such as practical classroom examples utilizing recipes, videos, and activities, shareable educational information for parents and children, and providing incentives. Incentives suggested included using points, practical prizes, interesting topics, and making it related to employment. All of these training characteristics must be considered when developing a training

for ECE providers in GA. The aim of the training is to help ECE providers understand the impact of serving healthy beverages to young children in to reduce the risk of childhood obesity.

REFERENCES

1. Alkon, A., Crowley, A. A., Neelon, S. E. B., Hill, S., Pan, Y., Nguyen, V., Rose, R., Savage, E., Forestieri, N., Shipman, L., & Kotch, J. B. (2014). Nutrition and physical activity randomized control trial in child care centers improves knowledge, policies, and children's body mass index. *BMC Public Health, 14*(1), 1-13. doi:10.1186/1471-2458-14-215

2. Larson, N., Ward, D. S., Neelon, S. B., & Story, M. (2011). What Role Can Child-Care Settings Play in Obesity Prevention? A Review of the Evidence and Call for Research Efforts. *Journal of the American Dietetic Association, 111*(9), 1343-1362. doi:http://dx.doi.org/10.1016/j.jada.2011.06.007

3. Centers fod Disease Control and Prevention. *Increasing Access to Drinking Water and Other Healthier Beverages in Early Care and Education Settings* (2014). Retrieved from http://www.cdc.gov/obesity/downloads/early-childhood-drinking-water-toolkit-final-508reduced.pdf.

4. Schwartz, C., Scholtens, P. A., Lalanne, A., Weenen, H., & Nicklaus, S. (2011). Development of healthy eating habits early in life. Review of recent evidence and selected guidelines. *Appetite, 57*(3), 796-807.

5. File, T. a. R., Camille. (2014). *Computer and Internet use in the United States: 2013.* Washington DC: American Community Survey Reports.

6. Schober, D. J., Sella, A. C., Fernandez, C., Ferrel, C., & Yaroch, A. L. (2016). Participatory Action Research to Develop Nutrition Education Videos for Child Care Providers The

Omaha Nutrition Education Collaborative. *Pedagogy in Health Promotion*, 2373379915627669.

7. eLearningNC. What is eLearning? Retrieved from http://www.elearningnc.gov/about_elearning/what_is_elearning/

8. Sahoo, K., Sahoo, B., Choudhury, A. K., Sufi, N. Y., Kumar, R., & Bhadoria, A. S. (2015). Childhood obesity: causes and consequences. *Journal of Family Medicine & Primary Care*, *4*(2), 187. doi:10.4103/2249-4863.154628

9. Ogden, C. L., Carroll, M. D., Lawman, H. G., Fryar, C. D., Kruszon-Moran, D., Kit, B. K., & Flegal, K. M. (2016). Trends in Obesity Prevalence Among Children and Adolescents in the United States, 1988-1994 Through 2013-2014. *JAMA*, *315*(21), 2292-2299.

10. Childhood Obesity Facts. (December 22, 2016). Retrieved from https://www.cdc.gov/obesity/data/childhood.html

11. Centers for Disease Control and Prevention. *State Guide to Address Childhood Obesity in Early Care and Education*.

12. Centers for Disease Control and Prevention. *Prevalence of High Weight-for-recumbent Length Among Infants and Toddlers From Birth to 24 Months of Age: United States, 1971-1974 Through 2013-2014*. (2016). Retrieved from https://www.cdc.gov/nchs/data/hestat/high_weight_recumbent_2013-14/high_weight_recumbent_length_2013_14.htm

13. Centers for Disease Control and Prevention. *State- and Terrotory-Specific Changes in the Prevalence of High Weight-for-Length (WFL) Among Infants in the WIC-PC Survey From 2000 Through 2004 and from 2010 through 2014*. (2016). Retrieved from: https://www.cdc.gov/obesity/data/high-weight-for-length-wicpc-2004-2014.html

14. Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2012). Prevalence of obesity and trends in body mass index among us children and adolescents, 1999-2010. *JAMA, 307*(5), 483-490. doi:10.1001/jama.2012.40

15. Robert Wood Johnson Foundation. (2016, September 2016). The State of Obesity Better Policies for a Healthier America. Retrieved from http://stateofobesity.org/files/stateofobesity2016.pdf

16. Battista, R. A., Oakley, H., Weddell, M. S., Mudd, L. M., Greene, J. B., & West, S. T. (2014). Improving the physical activity and nutrition environment through self-assessment (NAP SACC) in rural area child care centers in North Carolina. *Preventive Medicine, 67, Supplement 1*, S10-S16. doi:http://dx.doi.org/10.1016/j.ypmed.2014.01.022

17. Dev, D. A., Speirs, K. E., McBride, B. A., Donovan, S. M., & Chapman-Novakofski, K. (2014). Head Start and child care providers' motivators, barriers and facilitators to practicing family-style meal service. *Early Childhood Research Quarterly, 29*(4), 649-659. doi:http://dx.doi.org/10.1016/j.ecresq.2014.07.004

18. Briley, M., & McAllaster, M. (2011). Nutrition and the child-care setting. *J Am Diet Assoc, 111*(9), 1298-1300. doi:10.1016/j.jada.2011.06.012

19. Robert Wood Johnson Foundation. The State of Obesity in Georgia. (2016). Retrieved from http://stateofobesity.org/states/ga/

20. Seguin, R. A., Morgan, E. H., Hanson, K. L., Ammerman, A. S., Jilcott Pitts, S. B., Kolodinsky, J., Sitaker, M. B., Florense, A. C., & McGuirt, J. T. (2017). Farm Fresh Foods for Healthy Kids (F3HK): An innovative community supported agriculture intervention to prevent childhood obesity in low-income families and strengthen local

agricultural economies. *BMC Public Health*, *17*(1), 306-306. doi:10.1186/s12889-017-4202-2

21. Watt, T. T., Appel, L., Roberts, K., Flores, B., & Morris, S. (2013). Sugar, Stress, and the Supplemental Nutrition Assistance Program: Early Childhood Obesity Risks Among a Clinic-Based Sample of Low-Income Hispanics. *Journal of Community Health*, *38*(3), 513-520. doi:10.1007/s10900-012-9641-1

22. Levine, J. A. (2011). Poverty and obesity in the U.S. *Diabetes*, *60*(11), 2667-2668. doi:10.2337/db11-1118

23. Ward, D. S., Welker, E., Choate, A., Henderson, K. E., Lott, M., Tovar, A., Wilson, A., & Sallis, J. F. (2016). Strength of obesity prevention interventions in early care and education settings: A systematic review. *Preventive Medicine*. doi:10.1016/j.ypmed.2016.09.033

24. Reedy, J., & Krebs-Smith, S. M. (2010). Dietary Sources of Energy, Solid Fats, and Added Sugars among Children and Adolescents in the United States. *Journal of the American Dietetic Association*, *110*(10), 1477-1484. doi:http://dx.doi.org/10.1016/j.jada.2010.07.010

25. Lindsay, A. C., Salkeld, J. A., Greaney, M. L., & Sands, F. D. (2015). Latino family childcare providers' beliefs, attitudes, and practices related to promotion of healthy behaviors among preschool children: a qualitative study. *Journal Of Obesity, 2015*, 409742-409742. doi:10.1155/2015/409742

26. United States Department of Education. Definitions. Retrieved from https://www.ed.gov/early-learning/elc-draft-summary/definitions

27. Durden, T., Mincemoyer, C., Crandall, L., Alviz, K., & Garcia, A. (2016). Gateway to Quality: Online Professional Development for Family Childcare Providers. *Early Child Development and Care, 186*(7), 1079-1095.

28. Dev, D. A., McBride, B. A., Harrison, K., Bost, K., McBride, B., Donovan, S., Grisby-Toussain, D., Lietchy, J., Wiley, A., Teran-Garcia, M., & Fiese, B. (2013). Academy of Nutrition and Dietetics Benchmarks for Nutrition in Child Care 2011: Are Child-Care Providers across Contexts Meeting Recommendations? *Journal of the Academy of Nutrition and Dietetics, 113*(10), 1346-1353. doi:http://dx.doi.org/10.1016/j.jand.2013.05.023

29. Reynolds, M. A., Jackson Cotwright, C., Polhamus, B., Gertel-Rosenberg, A., & Chang, D. (2013). Obesity Prevention in the Early Care and Education Setting: Successful Initiatives across a Spectrum of Opportunities. *The Journal of Law, Medicine & Ethics, 41*(s2), 8-18. doi:10.1111/jlme.12104

30. Lyn, R., Evers, S., Davis, J., Maalouf, J., & Griffin, M. (2014). Barriers and Supports to Implementing a Nutrition and Physical Activity Intervention in Child Care: Directors' Perspectives. *Journal of Nutrition Education and Behavior, 46*(3), 171-180. doi:http://dx.doi.org/10.1016/j.jneb.2013.11.003

31. Centers for Disease Control and Prevention. *Early Care and Educaion State Indicator Report 2016*. (2016). Retrieved from https://www.cdc.gov/obesity/downloads/early-care-education-report.pdf

32. Kakietek, J., Osuji, T. A., O'Dell, S. A., Breck, A., & Kettel Khan, L. (2014). Compliance with New York City's beverage regulations and beverage consumption among children in

early child care centers. *Preventing Chronic Disease, 11*, E180-E180. doi:10.5888/pcd11.130430

33. Middleton, A. E., Henderson, K. E., & Schwartz, M. B. (2013). From Policy to Practice: Implementation of Water Policies in Child Care Centers in Connecticut. *Journal of Nutrition Education and Behavior, 45*(2), 119-125. doi:http://dx.doi.org/10.1016/j.jneb.2012.05.015

34. Sellers, K., Russo, T. J., Baker, I., & Dennison, B. A. (2005). The Role of Childcare Providers in the Prevention of Childhood Overweight. *Journal of Early Childhood Research, 3*(3), 227-242.

35. Erinosho, T. O., Hales, D. P., McWilliams, C. P., Emunah, J., & Ward, D. S. (2012). Nutrition Policies at Child-Care Centers and Impact on Role Modeling of Healthy Eating Behaviors of Caregivers. *Journal of the Academy of Nutrition and Dietetics, 112*(1), 119-124. doi:http://dx.doi.org/10.1016/j.jada.2011.08.048

36. Lutzkanin, K. M., Myers, A. K., Schaefer, E. W., & Sekhar, D. L. (2016). Report of Sugar-Sweetened Beverages Offered in Pennsylvania Childcare Centers. *Clinical Pediatrics, 55*(6), 518-524. doi:10.1177/0009922815591887

37. DeBoer, M. D., Scharf, R. J., & Demmer, R. T. (2013). Sugar-sweetened beverages and weight gain in 2- to 5-year-old children. *Pediatrics, 132*(3), 413-420. doi:10.1542/peds.2013-0570

38. Gillis, B., Mobley, C., Stadler, D. D., Hartstein, J., Virus, A., Volpe, S. L., El ghormli, L., Staten, M. A., Bridgeman, J., McCormick, S., & Group, H. S. (2009). Rationale, design and methods of the HEALTHY study nutrition intervention component. *Int J Obes (Lond), 33 Suppl 4*, S29-36. doi:10.1038/ijo.2009.114

39. Duffey, K. J., & Poti, J. (2016). Modeling the Effect of Replacing Sugar-Sweetened Beverage Consumption with Water on Energy Intake, HBI Score, and Obesity Prevalence. *Nutrients, 8*(7), 1-11. doi:10.3390/nu8070395

40. Lopez, N. V., Ayala, G. X., Corder, K., Eisenberg, C. M., Zive, M. M., Wood, C., & Elder, J. P. (2012). Parent Support and Parent-Mediated Behaviors Are Associated with Children's Sugary Beverage Consumption. *Journal of the Academy of Nutrition and Dietetics, 112*(4), 541-547. doi:http://dx.doi.org/10.1016/j.jand.2011.11.013

41. Adjoian, T., Dannefer, R., Sacks, R., & Van Wye, G. (2014). Comparing Sugary Drinks in the Food Retail Environment in Six NYC Neighborhoods. *Journal of Community Health, 39*(2), 327-335. doi:10.1007/s10900-013-9765-y

42. Wetter, S. A., & Hodge Jr, J. G. (2016). Taxing Sugar-Sweetened Beverages to Lower Childhood Obesity. *Journal of Law, Medicine & Ethics, 44*(2), 359-363. doi:10.1177/1073110516654129

43. Nickelson, J., Lawrence, J. C., Parton, J. M., Knowlden, A. P., & McDermott, R. J. (2014). What proportion of preschool-aged children consume sweetened beverages? *Journal of School Health, 84*(3), 185-194.

44. Shefferly, A., Scharf, R. J., & DeBoer, M. D. (2016). Longitudinal evaluation of 100% fruit juice consumption on BMI status in 2-5-year-old children. *Pediatric Obesity, 11*(3), 221-227. doi:10.1111/ijpo.12048

45. Ritchie, L. D., Sharma, S., Gildengorin, G., Yoshida, S., Braff-Guajardo, E., & Crawford, P. (2015). Policy Improves What Beverages Are Served to Young Children in Child Care. *Journal of the Academy of Nutrition and Dietetics, 115*(5), 724-730. doi:http://dx.doi.org/10.1016/j.jand.2014.07.019

46. Patel, A. I., & Hampton, K. E. (2011). Encouraging consumption of water in school and child care settings: access, challenges, and strategies for improvement. *American journal of public health, 101*(8), 1370-1379. doi:10.2105/AJPH.2011.300142

47. Pérez-Escamilla R, S.-P. S., Lott M, on behlaf of the RWJ HER Expert Panel on Best Practices fro Promoting Healthy Nutrition, Feeding Patterns, and Weight Status for Infants and Toddlers from Birth to 24 Months. (2017). Feeding Guidelines for Infants and Young Toddlers: A Responsive Parenting Approach. Guidelines for Health Professionals. Retrieved from http://healthyeatingresearch.org/research/feeding-guidelines-for-infants-and-young-toddlers-a-responsive-parenting-approach-guidelines-for-health-professionals/

48. Mullen, M. S., E. (2016, May 3, 2016). Water: How Much Do Kids Need? Retrieved from http://www.eatright.org/resource/fitness/sports-and-performance/hydrate-right/water-go-with-the-flow

49. American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education. *Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs*. 3rd Edidon. (2011). Elk Grove Village, IL: American Academy of Pediatrics; Washington, DC: American Public Healthy Association Retrieved from http://nrckids.org/CFOC3/PDFVersion/preventing_obesity.pdf.

50. Institute of Medicine. *Early Childhood Obesity Prevention Policies: Goals, Recommendations, and Potential Actions*. (2011). Fifth Street NW, Washington, DC. Retrieved from http://www.nationalacademies.org/hmd/~/media/Files/Report

Files/2011/Early-Childhood-Obesity-Prevention-Policies/Young Child Obesity 2011 Recommendations.pdf.

51. United States Department of Agriculture. *Child and Adult Care Food Program: Meal Pattern Revisions Related to the Healthy, Hunger-Free Kids Act of 2010*. (2016). Park Center Drive Alexandria, VA: United States Department of Agriculture Retrieved from https://www.gpo.gov/fdsys/pkg/FR-2016-04-25/pdf/2016-09412.pdf.

52. United States Department of Agriculture. Child and Adult Care Food Program (CACFP). (2015, November 20). Retrieved from http://www.fns.usda.gov/cacfp/child-and-adult-care-food-program

53. Kakietek, J., Dunn, L., O'Dell, S. A., Jernigan, J., & Kettel Khan, L. (2014). Training and technical assistance for compliance with beverage and physical activity components of New York City's regulations for early child care centers. *Preventing Chronic Disease, 11*, E177-E177. doi:10.5888/pcd11.130434

54. Sigman-Grant, M., Christiansen, E., Fernandez, G., Fletcher, J., Johnson, S. L., Branen, L., & Price, B. A. (2011). Child care provider training and a supportive feeding environment in child care settings in 4 states, 2003. *Prev Chronic Dis, 8*.

55. United States Department of Agriculture. *Optional Best Practices to Further Improve Nutrition in the Child and Adult Care Food Program Meal Pattern*. (2016). United States Department of Agridculture Food and Nutrition Service Retrieved from http://www.fns.usda.gov/sites/default/files/cacfp/CACFP 15-2016os.pdf.

56. Food Research and Action Center Retrieved. *New CACFP Nutrition Rule Healthier Beverages in Child Care and Afterschool Program* (2015). Retreived from http://frac.org/pdf/cacfp_beverages_fact_sheet_proposed_rule.pdf.

57. United States Department of Agriculture. *CACFP Child Meal Pattern*. Retrieved from https://www.fns.usda.gov/sites/default/files/cacfp/CACFP_childmealpattern.pdf

58. National Resource Center for Health and Safety in Child Care and Early Education. *Achieving a State of Healthy Weight: 2015 Update*. (2016). Aurora, CO: University of Colorado Denver Retrieved from http://nrckids.org/default/assets/File/Products/ASHW/ASHW Report 2015 Final 4-28-16.pdf.

59. National Resource Center for Health and Safety in Child Care and Early Education. *Achieving a State of Healthy Weight: 2015 Supplement: State Profiles*. (2016). Aurora, CO.

60. Natasha Frost, A. A. L., Julie Ralston Aoki, Angie Cradock, Erica Kenney, and Rebecca Mozaffarian. (2015). Child Care Licensing Laws for Nutrition, Active Play, and Screen Tme: Robert Wood Johnson Foundation.

61. U.S. Department of Health and Human Services, Administration for Children and Families. National Database of Child Care Licensing Regulations. Retrieved from: https://childcareta.acf.hhs.gov/licensing

62. Lessard, L., Lesesne, C., Kakietek, J., Breck, A., Jernigan, J., Dunn, L., Nonas, C., O'Dell, S.A., Stephens, R. L., Xu, Y., & S., Kettel Khan, L. (2014). Measurement of compliance with New York City's regulations on beverages, physical activity, and screen time in early child care centers. *Preventing Chronic Disease*, *11*, E183-E183. doi:10.5888/pcd11.130433

63. Ritchie, L. D., Boyle, M., Chandran, K., Spector, P., Whaley, S. E., James, P., Samuels, S., Hecht, K., & Crawford, P. (2012). Participation in the Child and Adult Care Food

Program Is Associated with More Nutritious Foods and Beverages in Child Care. *Childhood Obesity, 8*(3), 224-229. doi:http://dx.doi.org/10.1089/chi.2011.0061

64. Benjamin Neelon, S. E., Vaughn, A., Ball, S. C., McWilliams, C., & Ward, D. S. (2012). Nutrition practices and mealtime environments of North Carolina child care centers. *Child Obes, 8*(3), 216-223. doi:10.1089/chi.2011.0065

65. Benjamin Neelon, S. E., Mayhew, M., O'Neill, J. R., Neelon, B., Li, F., & Pate, R. R. (2016). Comparative Evaluation of a South Carolina Policy to Improve Nutrition in Child Care. *Journal of the Academy of Nutrition and Dietetics, 116*(6), 949-956. doi:http://dx.doi.org/10.1016/j.jand.2015.10.026

66. Nanney, M. S., LaRowe, T. L., Davey, C., Frost, N., Arcan, C., & O'Meara, J. (2016). Obesity Prevention in Early Child Care Settings: A Bistate (Minnesota and Wisconsin) Assessment of Best Practices, Implementation Difficulty, and Barriers. *Health Education & Behavior: The Official Publication Of The Society For Public Health Education*.

67. Bright from the Start Georgia Department of Early Care and Learning. Rules for Child Care Learning Centers Chapter 581-1-1. (2016). Retrieved from http://decal.ga.gov/documents/attachments/CCLCRulesandRegulations.pdf

68. Bright from the Start Georgia Department of Early Care and Learning (2016). History of Head Start. Retrieved from http://decal.ga.gov/HeadStart/History.aspx

69. Bright from the Start Georgia Department of Early Care and Learning. (2016). Types of Programs. Retrieved from http://decal.ga.gov/CCS/TypesofPrograms.aspx

70. Bright from the Start Georgia Department of Early Care and Learning (2016). Find Child Care Provider. Retrieved from http://decal.ga.gov/ProviderSearch/ChildCare

71. Bright from the Start Georgia Department of Early Care and Learning (2016). Enrolling in Georgia's Pre-K Program. Retrieved from http://decal.ga.gov/BftS/EnrollingInPreK.aspx

72. Bright from the Start Georgia Department of Early Care and Learning (2016). Exemptions. Retrieved from http://decal.ga.gov/CCS/Exemptions.aspx

73. Bright from the Start Georgia Department of Early Care and Learning. (2015). Rules for Child Care Learning Centers Chapter 591-1-1.

74. Bright from the Start Georgia Department of Early Care and Learning. (2015). Quality Rated Quality Improvement System.

75. Maalouf, J., Evers, S. C., Griffin, M., & Lyn, R. (2013). Assessment of mealtime environments and nutrition practices in child care centers in Georgia. *Childhood Obesity, 9*(5), 437-445.

76. Lyn, R., Maalouf, J., Evers, S., Davis, J., & Griffin, M. (2013). Nutrition and Physical Activity in Child Care Centers: the Impact of a Wellness Policy Initiative on Environment and Policy Assessment and Observation Outcomes, 2011. *Preventing Chronic Disease, 10,* E83. doi:10.5888/pcd10.120232

77. Pew Resource Center. (2015). Device Ownership [Press release]. Retrieved from http://www.pewresearch.org/data-trend/media-and-technology/device-ownership/

78. Pew Research Center. (2015). Home Broadband 2015 [Press release]. Retrieved from http://www.pewinternet.org/2015/12/21/home-broadband-2015/

79. LoCasale-Crouch, J., Hamre, B., Roberts, A., & Neesen, K. (2016). If You Build It, Will They Come? Predictors of Teachers' Participation in and Satisfaction with the "Effective

Classroom Interactions" Online Courses. *International Review of Research in Open and Distributed Learning, 17*(1), 100-122.

80. Olsen, H., Donaldson, A. J., & Hudson, S. D. (2010). Online professional development: Choices for early childhood educators. *Dimensions of early childhood, 38*(1), 12-18.

81. Donohue, C., Fox, S., & Torrence, D. (2007). Early Childhood Educators as eLearners: Engaging Approaches to Teaching and Learning Online. *Young Children, 62*(4), 34-41.

82. Lane, H., Porter, K., Estabrooks, P., & Zoellner, J. (2016). A systematic review to assess sugar-sweetened beverage interventions for children and adolescents across the socioecological model (Vol. 116, pp. 1295): Department of Human Nutrition, Foods, and Exercise, Virginia Tech, 1981 Kraft Dr, Blacksburg, VA 24061, USA. E-mail hglane07@vt.edu.

83. Clark, D. (2007). Exploring the potential of online technology as a tool for informing the practice of license-exempt child care providers. *E-Learning and Digital Media, 4*(1), 24-39.

84. Lindsay, E. W., & Diane, W. B. (2014). Online Professional Development for Child Care Providers: Do They Have Appropriate Access to and Comfort with the Internet? *Journal of Human Sciences and Extension, Vol 2, Iss 3, Pp 70-78 (2014)*(3), 70.

85. Miller, T., Chandler, L., & Mouttapa, M. (2015). A Needs Assessment, Development, and Formative Evaluation of a Health Promotion Smartphone Application for College Students. *American Journal of Health Education, 46*(4), 207-215.

86. Van Stan, S., Lessard, L., & Dupont Phillips, K. (2013). The Impact of a Statewide Training To Increase Child Care Providers' Knowledge of Nutrition and Physical Activity Rules in Delaware. *Childhood Obesity, 9*(1), 43-50. doi:10.1089/chi.2012.0057

APPENDIX A

STATEWIDE SURVEY AND eLEARNING SURVEY

SECTION A: *About Your Child Care Program*

1. **Zip code** of child care program	_____				
2. Total **number of staff** (counting yourself)	_____				
3. Total **number of children** enrolled in your program	_____				
4. Total number of children enrolled **by race/ethnicity**	Black _____	Hispanic_____	White_____	Asian/Pacific Islander__	Other (write in)_____
5. Number of children enrolled **by age**	0-5 months_____	6-11 months _____	12-23 months _____	24-35 months _____	3-5 years _____
6. Income level of majority families served by program	__< $20K	__$20K-$35K	__$35-$50K	__$50K-$60K	__>$60K
7. Child care offered	☐1 Full-day	☐2 Half-day	☐3 Both full- and half-day		
8. **Type** of child care site ***(choose all that apply)***	☐1 Child Care Learning Center __Head Start __Early Head Start __Military	☐2 Georgia Pre-K	☐3 Family Child Care Home	☐4 Exempt Program	
9. What is the job title of person completing survey? ***(choose all that apply)***	☐1 Center or home owner	☐2 Director or Site Supervisor	☐3 Family child care-giver	☐4 Teacher	☐5 Other (write in) _____
10. Who is responsible for **menu planning?** ***(choose all that apply)***	☐1 Center or family child care giver	☐2 Director or Site Supervisor	☐3 Cook or chef	☐4 Dietitian	☐5 Other (write in) _____

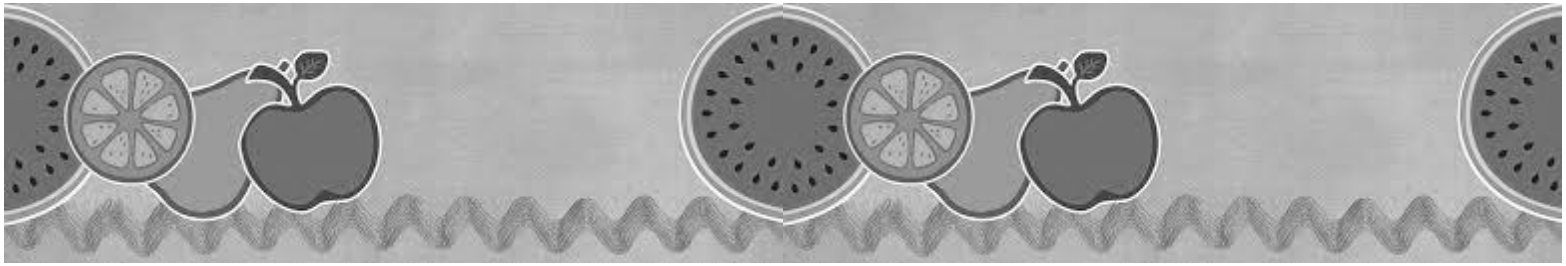
11. Does your site participate in **CACFP?** (Child and Adult Care **Food Program** is the reimbursement program)	☐1 Yes	☐2 No	☐3 Don't know		
12. How much do you know about the new **2017 CACFP meal patterns**?	☐1 Haven't heard of them	☐2 Heard of them but don't know much about	☐3 Know a little about them	☐4 Know somewhat about them	☐5 Know a lot about them
13. Is your program following the new 2017 CACFP guidelines?	☐1 Yes	☐2 No	☐3 Don't know		

14. Which meals and snacks are provided? ***(choose at least one answer per line)***	**Not provided**	**Usually provided by child care site**	**Usually brought from home by parents**
a. Breakfast	☐1	☐2	☐3
b. Lunch	☐1	☐2	☐3
c. Dinner	☐1	☐2	☐3
d. Mid-morning snack	☐1	☐2	☐3
e. Mid-afternoon snack	☐1	☐2	☐3
f. Evening snack	☐1	☐2	☐3

15. How is food prepared at your child care site? (do **not** include food brought in by parents) operation?	☐1 Prepared on site (at child care center/home)	☐2 Prepared at central kitchen operated by child care center(s)	☐3 Prepared by school food service	☐4 Pre-prepared by and purchased from independent food service company	☐5 Other (write in) _____
16. How **long** has your child care site been **open for**	☐1 Less than 6 months	☐2 6 months up to 1 year	☐3 1 year up to 3 years	☐4 3 years up to 5 years	☐5 5 or more years

Foods Offered to Children <u>1 to 5 years old</u>

SECTION B: *Think about the foods and beverages provided to **1-5 year old children** at your child care site **YESTERDAY** (or the most recent day children were in your care). Include all foods and beverages, including those brought in by parents and those used as treats or for parties. All answers should be about **1-5 year old children ONLY**. (For each food or beverage item, choose ALL the answers that apply.)*



*Which were provided **YESTERDAY to 1-5 year- olds**?*	**Not Provided**	**Provided at Breakfast**	**Provided at Lunch**	**Provided at Dinner**	**Provided at Snack-time**
1. **Fruit canned in syrup** (heavy or lite) or **sweetened applesauce**	☐1	☐2	☐3	☐4	☐5
2. **Other fruit** - fresh, canned in water or own juice, dried or frozen (do **not** include fruit juice)	☐1	☐2	☐3	☐4	☐5
3. **Fried potatoes** like french fries, tater tots, hash browns	☐1	☐2	☐3	☐4	☐5
4. **Beans** like pinto beans, black beans, chili with beans, refried beans	☐1	☐2	☐3	☐4	☐5
5. **Other vegetables** - fresh, frozen or canned (do **not** include fried potatoes or cooked dry beans)	☐1	☐2	☐3	☐4	☐5
6. **Vegetarian** hot dogs or burgers, tofu, tempeh or other meat substitutes	☐1	☐2	☐3	☐4	☐5
7. **Eggs**	☐1	☐2	☐3	☐4	☐5
8. **Baked or broiled chicken, turkey, or fish**	☐1	☐2	☐3	☐4	☐5

9. **Processed meats** like chicken nuggets, fish sticks, hot dogs, corn dogs, bologna or other lunch meat, sausage, bacon, ham	☐1	☐2	☐3	☐4	☐5
10. **Other meats** like beef, hamburger, pork	☐1	☐2	☐3	☐4	☐5
11. **Peanut butter, other nut spreads, nuts, or seeds**	☐1	☐2	☐3	☐4	☐5
12. **Processed cheese** like American cheese slices, cheese spread or dip	☐1	☐2	☐3	☐4	☐5
13. **Natural cheese** like cottage cheese, mozzarella, cheddar cheese, Monterey Jack	☐1	☐2	☐3	☐4	☐5
14. **Yogurt flavored** with fruit flavoring or added sugars (include Gogurt, drinkable yogurt)	☐1	☐2	☐3	☐4	☐5
15. **Yogurt plain** with ***no*** fruit flavoring or added sugars	☐1	☐2	☐3	☐4	☐5
16. **Frozen treats** like ice cream, shake, popsicle, Icee, frozen yogurt	☐1	☐2	☐3	☐4	☐5
17. **Candy** like hard candy, chocolate, gum, fruit roll up, fruit gummies	☐1	☐2	☐3	☐4	☐5
18. **Sweet cereals** like Frosted Flakes, Apple Jacks, Froot Loops, Sugar Smacks, Lucky Charms, Honey Nut Cheerios	☐1	☐2	☐3	☐4	☐5
19. **Sweet pastries** like cupcakes, cookies, animal crackers, graham crackers, brownies, pies, pop tarts, sweet rolls, donuts, muffins and other sweet grains	☐1	☐2	☐3	☐4	☐5
20. **Regular potato chips**, tortilla chips, corn chips, Cheetos, cheese puffs, pork rinds (do not include baked chips)	☐1	☐2	☐3	☐4	☐5
21. Other **salty snacks** like crackers, pretzels, popcorn, baked chips	☐1	☐2	☐3	☐4	☐5
22. **Whole grain** bread, oatmeal, brown rice, whole wheat tortillas, corn tortillas, whole grain cereal such as plain Cheerios (do **not** include Honey Nut Cheerios)	☐1	☐2	☐3	☐4	☐5
23. **White bread**, **white rice, pasta, noodles,** cornbread, biscuits, rolls, bagels, pancakes, waffles and **other grains** (do **not** include whole grains)	☐1	☐2	☐3	☐4	☐5
24. **Sugar-sweetened* drinks** like soda, sports drinks, Kool-aid, Sunny Delight, Capri Sun, Hawaiian Punch, lemonade, fruit drinks, aguas frescas, sweet tea (do **not** include diet drinks)*	☐1	☐2	☐3	☐4	☐5
25. **100% fruit or vegetable juice** (do **not** include fruit-flavored drinks like Kool-Aid, Sunny Delight, Capri Sun, Hawaiian Punch, lemonade, aguas frescas)	☐1	☐2	☐3	☐4	☐5
26. **Milk** (all types, including whole, low fat, nonfat, skim, flavored, rice or soy milk)	☐1	☐2	☐3	☐4	☐5
27. **Bottled water**	☐1	☐2	☐3	☐4	☐5
28. **Water from the tap or faucet**	☐1	☐2	☐3	☐4	☐5

*Sugar-sweetened drinks are sweetened with sugar, high fructose corn syrup, or other caloric sweeteners.

SECTION C: *Please answer these questions about the children who are **1 up to 5 years of age ONLY**.*

1.	What **type of milk is MOST OFTEN** provided to **1 up to 2 year-olds** at your child care site? ***(choose only one)***	☐1 Whole or regular	☐2 2% fat	☐3 1% fat	☐4 Non-fat or skim	☐5 Rice or soy milk	☐6 Flavored or sweetened (like chocolate, vanilla, horchata)
2.	What are **ALL of the types of milk** provided to **1 up to 2 year-olds** at your child care site? ***(choose all that apply)***	☐1 Whole or regular	☐2 2% fat	☐3 1% fat	☐4 Non-fat or skim	☐5 Rice or soy milk	☐6 Flavored or sweetened (like chocolate, vanilla, horchata)
3.	What **type of milk is MOST OFTEN** provided to **2 up to 5 year-olds** at your child care site? ***(choose only one)***	☐1 Whole or regular	☐2 2% fat	☐3 1% fat	☐4 Non-fat or skim	☐5 Rice or soy milk	☐6 Flavored or sweetened (like chocolate, vanilla, horchata)
4.	What are **ALL of the types of milk** provided to **2 up to 5 year-olds** at your child care site? ***(choose all that apply)***	☐1 Whole or regular	☐2 2% fat	☐3 1% fat	☐4 Non-fat or skim	☐5 Rice or soy milk	☐6 Flavored or sweetened (like chocolate, vanilla, horchata)

5.	Is drinking **water** available **outside** for children? ***(choose only one)***	☐1 Not easily available	☐2 Available **only** during planned water breaks	☐3 Given to children on request	☐4 Easily and visibly available for self-serve
6.	Is drinking **water** available **inside** for children? ***(choose only one)***	☐1 Not easily available	☐2 Available **only** during planned water breaks	☐3 Given to children on request	☐4 Easily and visibly available for self-serve
7.	How is drinking **water** made available to children **inside** ***(choose all that apply)***	☐1 Non-refrigerated drinking fountain/faucet	☐2 Refrigerated drinking fountain/faucet	☐3 Filtered drinking fountain/faucet	☐4 Unfiltered drinking fountain/faucet

	☐5 Individual sized disposable (single use) water bottles	☐6 Individual sized reusable water bottles	☐7 Large water bottles coolers, dispensers (like in office buildings)	☐8 Serving pitchers
	☐9 Other (write in): _____			
8. How is drinking **water** made available to children **outside** ***(choose all that apply)***	☐1 Non-refrigerated drinking fountain/faucet	☐2 Refrigerated drinking fountain/faucet	☐3 Filtered drinking fountain/faucet	☐4 Unfiltered drinking fountain/faucet
	☐5 Individual sized disposable (single use) water bottles	☐6 Individual sized reusable water bottles	☐7 Large water bottles coolers, dispensers (like in office buildings)	☐8 Serving pitchers
	☐9 Other (write in): _____			
9. How is drinking **water** provided **at the table at meals or snacks** (for example, in pitchers, cups, or bottles for children to drink)**? *(choose all that apply)***	☐1 Not provided at the table at meals or snacks	☐2 Provided at the table with meals	☐3 Provided at the table with snacks	☐4 Provided only after child finishes milk or juice
	☐5 Provided only after child finishes meal or snack	☐6 Children allowed only one serving	☐7 Children allowed to self-serve as much as want	☐8 Provided only upon request by child
10. What makes it hard to limit **fruit juice** served to children to no more than once per day? ***(choose all that apply)***	☐1 Children like taste	☐2 Parents bring to child care	☐3 High cost of whole fruit	
	☐4 Children do not like other drinks	☐5 Serving less juice is not a priority	☐6 It is not hard	
	☐7 Other (write in):_____			
11. What has or will help you to limit the amount of **fruit juice** served to children? ***(choose all that apply)***	☐1 Information for families	☐2 Training for providers	☐3 Support from parents/families	
	☐4 Written juice guidelines	☐5 None of these		
	☐6 Other (write in):_____			
	☐6 Other (write in):_____			
12. What makes it hard to provide only **unflavored whole milk** to **1 year-olds**? ***(choose all that apply)***	☐1 1 year-olds do not like unflavored milk	☐2 1 year-olds drink less milk if it's not flavored	☐3 Parents bring flavored milk to child care	☐4 High cost of unflavored whole milk
	☐5 Unflavored whole milk not available where I shop for food	☐6 Serving unflavored whole milk to 1 year-olds is not a priority	☐7 It is not hard	☐8 I don't provide care for 1 year-olds

☐9 Other (write in):_____

13. What has or will help you to provide only **unflavored whole milk** to **1 year-olds**? ***(choose all that apply)***

☐1 Information for families ☐2 Training for providers ☐3 Support from parents/families
☐4 Written milk guidelines ☐5 None of these ☐6 I don't provide care for 1 year-olds
☐7 Other (write in):_____

14. What makes it hard to provide only **unflavored low-fat or fat-free milk t**o children **2 to 5 years old**? ***(choose all that apply)***

☐1 Children do not like unflavored low-fat or fat-free milk
☐2 Children drink less milk if it's not flavored or low-fat/fat-free
☐3 Parents bring flavored or whole milk to child care
☐4 High cost of unflavored low-fat or fat-free milk
☐5 Unflavored low-fat or fat-free milk not available where I shop for food
☐6 Serving unflavored low-fat or fat-free milk to children is not a priority
☐7 It is not hard
☐8 Other (write in):_____

15. What has or will help you to provide **only unflavored low-fat or fat-free milk** to **2 to 5 year-olds**? ***(choose all that apply)***

☐1 Information for families ☐2 Training for providers ☐3 Support from parents/families
☐4 Written milk guidelines ☐5 None of these
☐6 Other (write in):_____

IF YOU <u>DO NOT</u> PROVIDE CHILD CARE TO INFANTS (0-12 MONTHS OLD), PLEASE CHECK BOX HERE ☐

AND DO NOT COMPLETE THE REST OF THE SURVEY

Foods Offered to Infants <u>0 up to 12 months old</u>

SECTION D: *Think about the foods and beverages provided to **0 up to 12-month-old infants** at your site **YESTERDAY** (or the most recent day infants were in your care). Include all foods and beverages, including those brought in by parents and those used as treats or for parties. Answer for infants up to **12 months of age ONLY**. (For each food or beverage, choose ALL answers that apply.)*

Which were provided YESTERDAY to 0-12 month olds?	Not Provided	Provided at Breakfast	Provided at Lunch	Provided at Dinner	Provided at Snack-time
1. **Baby food fruits in a jar or pouch** like apples, bananas, pears	☐1	☐2	☐3	☐4	☐5
2. **Canned fruit in syrup** (heavy or light) or **sweetened applesauce**	☐1	☐2	☐3	☐4	☐5
3. **Other fruit** like chopped bananas or other pureed fruits – fresh, canned in water or own juice, or frozen (do **not** include fruit juice)	☐1	☐2	☐3	☐4	☐5
4. **Baby food vegetables in a jar or pouch** like sweet potatoes, mixed vegetables, carrots, peas, squash, green beans	☐1	☐2	☐3	☐4	☐5
5. **Fried potatoes** like french fries, tater tots, hash browns	☐1	☐2	☐3	☐4	☐5
6. **Beans** like pinto beans, black beans, chili with beans, refried beans	☐1	☐2	☐3	☐4	☐5
7. **Other vegetables** – fresh, frozen or canned, cooked or pureed (do **not** include fried potatoes or cooked dry beans)	☐1	☐2	☐3	☐4	☐5
8. **Baby food meats in a jar or pouch** like chicken, turkey, beef	☐1	☐2	☐3	☐4	☐5
9. **Baby food dinners** like Gerber Lil' Entrees or other ready-made meals	☐1	☐2	☐3	☐4	☐5
10. **Eggs**	☐1	☐2	☐3	☐4	☐5
11. **Baked or broiled chicken, turkey, fish, tofu**	☐1	☐2	☐3	☐4	☐5
12. **Processed meats** including chicken nuggets, fish sticks, hot dogs, corn dogs, bologna or other lunch meat, sausage, bacon, ham	☐1	☐2	☐3	☐4	☐5

13. **Other meats** like beef, hamburger, pork	☐1	☐2	☐3	☐4	☐5
14. **Peanut butter or other nut spreads**	☐1	☐2	☐3	☐4	☐5
15. **Processed cheese** like American cheese slices, cheese spread or dip	☐1	☐2	☐3	☐4	☐5
16. **Natural cheese** like cottage cheese, mozzarella, cheddar cheese, Monterey Jack	☐1	☐2	☐3	☐4	☐5
17. **Yogurt flavored** with fruit flavoring or added sugars (include Gogurt, drinkable yogurt)	☐1	☐2	☐3	☐4	☐5
18. **Yogurt plain** with ***no*** fruit flavoring or added sugars	☐1	☐2	☐3	☐4	☐5
19. **Frozen treats** like ice cream, shake, popsicle, Icee, frozen yogurt	☐1	☐2	☐3	☐4	☐5
20. **Candy** like chocolate, fruit roll up, fruit gummies	☐1	☐2	☐3	☐4	☐5
21. **Sweet cereals** like Frosted Flakes, Apple Jacks, Fruit Loops, Sugar Smacks, Lucky Charms, Honey Nut Cheerios	☐1	☐2	☐3	☐4	☐5
22. **Infant cereals** like rice, oatmeal	☐1	☐2	☐3	☐4	☐5
Which were provided YESTERDAY to 0-12 month olds?	**Not Provided**	**Pro Provided at Breakfast**	**Provided at Lunch**	**Provided at Dinner**	**Provided at Snack-time**
23. **Sweet pastries** like cupcakes, cookies, animal crackers, graham crackers, brownies, pies, pop tarts, sweet rolls, donuts, muffins and other sweet grains	☐1	☐2	☐3	☐4	☐5
24. **Salty snacks** like crackers, pretzels, popcorn, baked chips	☐1	☐2	☐3	☐4	☐5
25. **Regular potato chips**, tortilla chips, corn chips, Cheetos, cheese puffs, pork rinds	☐1	☐2	☐3	☐4	☐5
26. **Whole grain** bread, whole grain pasta, oatmeal, brown rice, whole wheat tortillas, whole grain cereal such as plain Cheerios (do **not** include Honey Nut Cheerios)	☐1	☐2	☐3	☐4	☐5
27. **White bread, white rice, pasta, noodles,** cornbread, biscuits, rolls, bagels, pita, pancakes, waffles and **other grains** (do **not** include whole grains)	☐1	☐2	☐3	☐4	☐5
28. **Sugar-sweetened drinks** like Kool-aid, Sunny Delight, Capri Sun, Hawaiian Punch, lemonade, fruit drinks, aguas frescas	☐1	☐2	☐3	☐4	☐5
29. **100% fruit or vegetable juice** (do **not** include fruit-flavored drinks like Kool-Aid, Sunny Delight, Capri Sun, Hawaiian Punch, lemonade, aquas frescas)	☐1	☐2	☐3	☐4	☐5
30. **Bottled water**	☐1	☐2	☐3	☐4	☐5
31. **Water from the tap or faucet**	☐1	☐2	☐3	☐4	☐5

SECTION E: *Please answer these questions about the infants in your care who are* ***up to 12 months of age ONLY*****.**

1.	What **type of milk is MOST OFTEN** provided to infants up to 12 months at your child care site? ***(choose only one)***	☐1 Breast milk	☐2 Infant formula	☐3 Cow's milk	☐4 Soy milk
2.	What are **ALL of the types of milk** provided to infants up to 12 months at your child care site? ***(choose all that apply)***	☐1 Breast milk	☐2 Infant formula	☐3 Cow's milk	☐4 Soy milk
3.	Which statement best describes how many infants are given **breast milk versus formula** while at your site? ***(choose only one)***	☐1 Most infants get breast milk only	☐2 Most infants get formula only	☐3 About half of infants get breast milk and half get formula	
		☐4 Most infants get more breast milk than formula	☐5 Most infants get more formula than breast milk		
4.	What are some reasons that infants are not given **breast milk** in your child care? ***(choose all that apply)***	☐1 Breast milk is not provided by mothers	☐2 Not enough refrigerated storage for breast milk	☐3 Not enough private space for mothers to breastfeed or express milk	
		☐4 Mothers are unable to take time from work to come breastfeed or express milk	☐5 Not enough training for staff members on proper handling of breast milk	☐6 None of these because all are given breast milk	
		☐5 Other (write in): _____			
5.	What has or will help you to give infants **breast milk**? ***(choose all that apply)***	☐1 Telling pregnant mothers/families that this is a breastfeeding friendly center/home	☐2 Providing breastfeeding information and support to help mothers continue breastfeeding when working or going to school	☐3 Training for providers supporting mothers to breastfeed	
		☐4 Support from a local breastfeeding coalition	☐5 Written guidelines on breastfeeding in child care	☐6 Not applicable because help is not needed	

		☐7 Other (write in):_____
6.	What makes it hard to give *only* **breast milk or formula** to **younger infants**? ***(choose all that apply)***	☐1 Parents provide other solid food for their infants ☐2 Providing only breast milk or formula to infants is not a priority ☐3 It is not hard ☐4 Other (write in):_____
7.	What has or will help you to give *only* **breast milk or formula** to **younger infants**? ***(choose all that apply)***	☐1 Training providers on providing only breast milk or formula to infants ☐2 Educating parents on the importance of providing only breast milk or formula to infants ☐3 Written guidelines on serving only breast milk or formula ☐4 None of these ☐5 Other (write in):_____
8.	What makes it hard to give less **100% fruit juice** to infants? ***(choose all that apply)***	☐1 Infants like the taste of fruit juice ☐2 Infants do not like other drinks ☐3 Parents bring juice to child care ☐4 Serving less juice is not a priority ☐5 It is not hard ☐6 Other (write in):_____
9.	What has or will help you to limit **fruit juice** served to infants? ***(choose all that apply)***	☐1 Information for families ☐2 Training for providers ☐3 Support from parents/families ☐4 Written juice guidelines ☐5 None of these ☐6 Other (write in):_____
10.	At what age are **solid foods** generally first given to infants in your care? ***(choose all that apply)***	☐1 Under 3 months ☐2 4-6 months ☐3 7-9 months ☐4 10-12 months
11.	What makes it hard to give **solid foods** to infants when they are 4 – 6 months of age? ***(choose all that apply)***	☐1 Parents want their infants eating solid food sooner ☐2 Parents want their infants eating solid food later ☐3 The timing for introducing solid food is not a priority ☐4 It is not hard ☐5 Other (write in):_____
12.	What has or will help you to give **solid foods** to infants when they are 4 – 6 months of age? ***(choose all that apply)***	☐1 Information for families ☐2 Training for providers ☐3 Support from parents/families ☐4 Written guidelines on when and how to give solids to infants ☐5 None of these ☐6 Other (write in):_____

13. What makes it hard to provide **fruits and vegetables** as a snack to **older infants**? ***(choose all that apply)***

☐1 Infants do not like fruits and vegetables as a snack

☐2 Not sure what kind of fruits and vegetables to buy

☐3 Fruits and vegetables are too difficult to prepare as a snack

☐4 Fruits and vegetables are expensive

☐5 Fruits and vegetables are hard for me to find

☐6 Infants are not served snacks

☐7 Serving fruits and vegetables to infants is not a priority

☐8 It is not hard

☐9 Other (write in):_____

14. What has or will help you to serve **fruits and vegetables** as a snack to **older infants**? ***(choose all that apply)***

☐1 Information for families

☐2 Training for providers

☐3 Recipes or tips for serving fruits and vegetables that infants will eat

☐4 Support from parents or families

☐5 Written guidelines on snacks for infants

☐6 None of these

☐7 Other (write in):_____

THANK YOU FOR YOUR TIME!

Survey ID | | | | | |

E-Learning: If your time permits, please take a moment to answer 8 short questions about e-learning for child care providers.

1.	Do you have Internet access?	☐Yes	☐No				
2.	Where do you use to access the Internet?	☐Home	☐Public Wi-Fi (stores, restaurants)	☐Library	☐Work	☐E-reader (Kindle, Nook, etc.)	
3.	What device(s) do you use to access the Internet? ***(Choose all that apply)***	☐Laptop	☐Tablet	☐Smartphone	☐Desktop computer	☐Laptop	☐E-reader (Kindle, Nook, etc.)
4.	If you answered more than one to question #3, which do you use the most often? ***(Choose one)***	☐Laptop	☐Tablet	☐Smartphone	☐Desktop computer	☐Laptop	☐E-reader (Kindle, Nook, etc.)
5.	Which format for a training program interests you the most? ***(Choose three)***	☐Podcast: digital audio file available on the Internet	☐Video-based: static text reinforced by videos	☐Social-media based: training accessed through Pinterest, Facebook, Twitter, and/or Instagram	☐Interactive video: click and choose options on a video		
		☐Phone application: training that is available on a smartphone	☐Text message: get a daily or weekly tip through text message				
6.	Which social media sites do you use the most?	☐Facebook	☐MySpace	☐Pinterest	☐Instagram		
		☐Twitter	☐Other	☐I do not use social media			
7.	How likely are you to use the Internet to take a free 15-minute educational session or class on a topic that interests you? ***(choose only one)***	☐Not at all	☐Probably not at all	☐Possibly	☐Probably		
8.	Have you ever had beverage policy training?	☐Yes	☐No				

Please fill out the information below with your completed survey.

We will use your contact information to enter you in a drawing for a $250 gift certificate to your local grocery store. The first 204 programs to submit their survey will receive a resource kit filled with nutrition education materials for child care.

Your contact information and survey responses are completely confidential.

Thank you!

PRIZE ENTRY	
Your Name:	
Child Care Program Name:	
Program Address:	
Work Phone:	

APPENDIX B

DECAL LETTER FOR PARTICIPANTS

2 Martin Luther King Jr. Drive, SE, Suite 754, East Tower, Atlanta, GA 30334
(404) 656-5957

Nathan Deal
Governor

Amy M. Jacobs
Commissioner

April 26, 2017

Dear Georgia Child Care Provider:

I am writing to let you know that you have been selected to participate in a survey from Dr. Caree Cotwright of the Department of Foods and Nutrition at the University of Georgia (UGA). Dr. Cotwright has received funding to study the nutrition and beverage practices of Georgia's child care providers for children in child care settings.

The Georgia Department of Early Care and Learning (DECAL) did not commission the study, but we look forward to learning the findings from this important research. Findings from the study could help us identify the needs of child care programs, inform policy, and lead to the development of additional health and wellness training.

You can participate in the research study by **completing the enclosed survey**. Dr. Cotwright and UGA, not DECAL, are conducting the study, and your survey responses will be completely confidential. Individual programs will not be identified. DECAL will not have access to data except in total numbers.

In exchange for your time to complete the survey, you will be entered into a drawing for a **$250 gift card** from a grocery store. (You may, however, enter the drawing for the gift card without completing the survey.) The first 102 respondents will receive a **Healthy Child Care Resource Kit (valued at $15)** that includes items such as: a cookbook, a child-sized pitcher and cups, and healthy child care handouts. Dr. Cotwright and UGA, not DECAL, are providing these incentives to encourage your participation.

Please consider responding to Dr. Cotwright's survey. The information you provide could be critical to improving the health of young children in our state. Thank you for your willingness to support this effort.

Sincerely,

Amy M. Jacobs
Commissioner