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RE-AIM Framework: Best Practices for Implementing Cooking Matters in Georgia's District 4 WIC Clinics

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BA, University of California Berkeley, 2012

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An abstract of
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Abstract

RE-AIM Framework: Best Practices for Implementing Cooking Matters in Georgia's District 4 WIC Clinics

By Marisa Kanemitsu

The Special Supplemental Nutrition Assistance Program for Women, Infants, and Children (WIC) has been highlighted as one of the most effective federal nutrition assistance programs in the United States. As rates of childhood obesity continue to increase, WIC's nutrition education service has been recognized as a key target area to help combat this issue. Calls for innovation in nutrition education have resulted in various programs and services across the country; in Georgia, Georgia's WIC District 4 and Open Hand Atlanta have partnered to implement Cooking Matters, a hands-on nutrition education and cooking curriculum designed to help low-income families shop, cook, and eat healthier.

Using an implementation science tool known as the RE-AIM framework, this report highlights the lessons learned in the Cooking Matters implementation experience in Georgia. In-depth interviews with program implementers, unstructured observation of classes, and participant surveys were analyzed to understand the challenges and best practices of implementation. Over the course of nearly 5 years, the program has been adopted into all 14 District 4 WIC clinics and primarily reached parents and caretakers of children 1-5 years old. It has also led to positive outcomes among participants, such as improved confidence in nutritional concepts and shopping for and cooking healthy foods using WIC vouchers.

Important best practices that have helped District 4 overcome barriers or address concerns and achieve positive outcomes at multiple levels of the framework include: strategic and sustained partnerships, a highly skilled and dedicated nutrition educator, a culture of and innovation and prioritizing participant needs, and program champions at multiple levels of the organization. The best practices that program implementers used in the District 4 experience can help guide successful implementation of Cooking Matters in other WIC districts in Georgia and nationally.

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Tables and Figures

Chapter 1: Introduction

Diet Quality Among Pediatric Population in the US

Much of the world today is dealing with a nutritional transition, a phenomenon characterized by increasing consumption of processed, high-calorie foods and away from plant-based diets. This nutritional transition has manifested itself in increasing rates of obesity, particularly in high income countries [1]. In the United States, the prevalence of obesity has more than doubled over the last few decades [2]. While these numbers are higher among adults than children, childhood obesity in the United States has escalated into a larger public health issue faster than has adult obesity [3], and is now regarded as "one of the largest public health challenges of the 21st century" [4].

Although obesity is a complex issue with larger environmental, lifestyle, and socio-cultural factors, it is well known that diet is a direct determinant of overweight and obesity [5]. Recently, the energy imbalance seen in young children has been attributed to the empty nutritional value of foods such as fast food, snacks, and sugary beverages [6]. The Dietary Guidelines for Americans (DGAs) sets recommendations for a balanced diet with health promotion and disease prevention in mind, yet most children are not meeting recommended intakes of fruits, vegetables, and whole grains [7-9]. Vegetable intake is particularly low among children of all age groups, with white potatoes and french fries contributing to a significant portion of all vegetable intake [8, 10]. Meanwhile, intake of oils and solid fats, added sugars, saturated fats, and sodium is well above recommended maximum limits [7]. As a result, the discrepancy between the DGAs and actual intake means that children are not receiving adequate amounts of key nutrients critical to growth and development, including iron, Vitamin D, calcium, and dietary fiber [11, 12].

The emphasis on diet quality among younger children is due in part to many different factors. There is a concern for the first 1000 days of life, the period from conception to the first two years of life and the most critical time for growth and brain development [13]. Because the incidence of childhood

obesity is seen in increasingly younger children, with almost 14% of preschool aged children now classified as obese [14, 15], obesity development and prevention are key during this period. Evidence suggests that modifiable factors during pregnancy, infancy, and early childhood affect children's risk of developing obesity and other related health conditions later in life [16-18]. Children's food preferences are also established when they are young. The strongest determinants to what children ultimately eat include taste preferences, breastfeeding duration and foods their mothers were eating, and whether they have been eating certain foods from a young age [19]. Thus, it is critical to start young children off on a healthy trajectory before eating and dietary habits become normalized, which could be as early as 3-4 years old [20].

Effective Interventions to Improve Diet Quality

Effective interventions therefore focus on various eating and feeding behavior changes during the first 1000 days of life and into early childhood. Pietrobelli et. al. identified ten strategic areas where interventions have shown promise in preventing and reducing rates of childhood obesity [13]. One common theme was targeting efforts on parents' eating habits and modeling behaviors they exhibit to kids. Mothers' food preferences have been positively correlated to children's food preferences, which may limit children's exposure to certain foods and further highlights the importance of maternal acceptance of foods [21]. Evidence also suggests that even as early as the prenatal period, mothers who consume healthy diets can introduce those flavors to their infants in utero and through breastmilk [22]. Consequently, breastfeeding is recognized as another strategic intervention area. Not only is breastmilk nutritious and influential in infant's food preference development; the act of breastfeeding can also teach infants how to better regulate their food intake [23]. Finally, early and repeated exposure to a variety of fruits and vegetables has been shown to positively influence the dietary quality of children as they get older [19-21]. Promoting fruit and vegetable consumption has been a key intervention strategy

because fruits and vegetables offer many of the nutrients that are critical for disease prevention and healthy growth and development [24].

Nutrition interventions must also keep in mind the relationship between poverty and poor nutrition. When stratified by income, it becomes apparent that low-income children and women are disproportionately at risk for poor diet quality and chronic diseases like obesity [25, 26]. In the United States, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) has been proven to be one of the most effective food assistance programs available for low-income families [1]. The program targets the most nutritionally-at risk population in the country and encompasses many of the intervention strategies previously mentioned: breastfeeding, incentives for fruit and vegetable consumption, and encouragement of mothers' healthy dietary practices. Its three-fold delivery approach encompasses nutrition education, food packages, and referrals to other healthcare services, which has resulted in better birth outcomes, breastfeeding rates, and lower Medicaid costs among WIC mothers and babies compared to non-WIC mothers and babies [28]. Recently, WIC agencies have even seen a decline in obesity rates among children enrolled in the program, decreasing from 15.9% in 2010 to 14.5% in 2014 [29].

Chapter 2: Comprehensive Review of the Literature

Introduction to WIC

History of WIC

In the United States, the 1960s saw increased attention to the issues of malnutrition and poverty, which ultimately led to the expansion of existing food assistance programs like the Food Stamp Program and the creation of a new Commodity Supplemental Food Program in 1969 [30]. This new program specifically targeted nutritional assistance to pregnant and lactating women, infants, and children; however, it was not sufficiently meeting the unique nutritional needs of low-income pregnant

women and infants. Thus, WIC was established as a two-year pilot program in 1972 under the jurisdiction of the United States Department of Agriculture (USDA) [31]. In 1974, WIC was officially established as a permanent program aimed at providing "supplemental nutritious food as an adjunct to good health during such critical times of growth and development in order to prevent the occurrence of health problems" [32].

Eligibility and Benefits

Since 1974, the program has expanded from 88,000 participants to over 7 million women and children across the country every month [33]. In order to qualify for WIC, participants must meet categorical, residential, income, and nutritional risk eligibility requirements. The program is intended to serve only women who are pregnant, breastfeeding, or up to 6 months postpartum; infants less than a year; and children up to their fifth birthday. Women and children must be residents of the state in which they are applying; however, there is no requirement stating a specific length of residency time. States set their own income eligibility requirements, which range from 100% of the federal poverty level to 185% of the federal poverty level. Participants are also automatically income eligible if they participate in other income-dependent programs such as the Temporary Assistance for Needy Families, the Supplemental Nutrition Assistance Program, Medicaid, or other state specific programs. Nutritional risk is determined by a health professional at WIC clinics or by applicants' physicians and includes certain medical or dietary-based conditions, such as prior poor birth outcomes, anemia, or poor diet [34].

Once an applicant is deemed eligible by a WIC state or local agency, he or she gains access to a variety of WIC benefits, including supplemental nutritious foods, nutrition education and counseling, and screenings and health referrals to health and social service agencies. These food packages are designed to meet nutritional needs at various key biological stages of growth and development and are redeemable at state-authorized food delivery systems. Majority of these delivery systems are retail stores, with 84% of participants purchasing WIC food items where they normally shop [35]. Food

package quantities differ based on the type of participant; children, pregnant women, postpartum women, and breastfeeding women all receive different maximum monthly allowances of food types. However, all food packages consist of the same types of foods: juice, milk, breakfast cereal, cheese, eggs, fruits and vegetables, whole wheat bread, canned fish, legumes, and peanut butter [36]. WIC's nutrition education component includes breastfeeding promotion and support; broadly speaking, the goals are to highlight the importance of nutrition and physical activity on health and help participants understand how to achieve optimal health using the foods available to them in food packages [37]. Finally, WIC partners with other agencies and programs that can address needs that are outside the scope of the services WIC provides, examples of which include infant and child immunization and maternal depression screenings and referrals [38, 39]. Because eligibility periods are time-limited, WIC is intended to be a short-term program. Therefore, participants only receive these benefits for the time they remain eligible, which typically ranges from six months to a year [40].

2007 Interim Rule

As a result of calls for program improvements over the years, WIC has updated aspects of program policy and delivery particularly related to food packages. In 2007, the USDA published an interim rule changing components of WIC food packages in response to recommendations by the Institute of Medicine and the new 2005 Dietary Guidelines for Americans. All states were required to comply by 2009, and food packages now include more fruits and vegetables, whole grain food items, reduced juice allotment, and an emphasis on lower fat milk. States were also given more freedom in determining the types of eligible foods to better meet the cultural needs and preferences of their populations. This rule also introduced a new delivery option to participants; rather than purchasing a fixed quantity of food items, participants in some states could utilize a less restrictive cash value option through Electronic Benefit Transfer (EBT) [41].

Administration

Like other federal food assistance programs, WIC is housed in the United States Department of Agriculture's Food and Nutrition Service (FNS) branch. At the federal level, FNS provides some technical assistance to state agencies and evaluates program operations to make sure activities are aligned with program goals; however, the actual administration of the program is delegated to state WIC agencies. Across the country, the 90 state agencies, most of which are state health departments, determine how to most efficiently and effectively administer the program in line with federal regulations, which include selecting WIC eligible vendors and WIC-eligible food items and setting applicant income limits. Plans for program administration must be submitted annually to FNS by state agencies in order to receive federal funding. Underneath the state WIC agencies sit 1,900 local WIC agencies in 10,000 clinic sites. State agencies review applications from local agencies to determine eligibility and make selections based on a priority system. First priority is given to "a public or a private nonprofit health agency that will provide ongoing, routine pediatric and obstetric care and administrative services," while lower priority is given to similar agencies that do not directly offer such services in-house but rather partner with other organizations or make referrals to organizations that offer these services. Local agencies are often the ones implementing the program on the ground level, conducting client intakes, determining eligibility, and issuing the food delivery instrument (food or cash-value vouchers) [42, 43].

Priority System and Cost Containment

Unlike other federal food assistance programs, WIC operates under different financial restrictions. Programs like the Supplemental Nutrition Assistance Program (SNAP) and the National School Lunch Program fall under the category of entitlement programs, which means their operating budgets expand to allow every eligible applicant to receive benefits. WIC, on the other hand, receives discretionary funding from the US Senate and House Appropriations Committee, meaning annual funding and program costs drive the number of applicants that can participate. Since the program's

inception, WIC appropriation funding has increased to an amount intended to allow all eligible participants to receive benefits. However, WIC does not reach as many eligible people every year because of uncertainties around funding. Operational costs often have to be scaled back in preparation for potential budget cuts or reduced allocation [34].

Because WIC operates at capped capacity and with limited funding, there is a 7-tier priority system in place to ensure participation for those at highest nutritional risk. Medical nutritional risk is placed at a higher priority tier than dietary nutritional risk, and pregnant women, breastfeeding women, and infants are given higher priority than children or postpartum women [32]. Out of further concern for the WIC program's costs, federal regulations were passed in 1989 to enact cost containment measures on the supplemental food packages. State WIC agencies' strategies such as competitive bids for vendors, rebate systems, and limitations on the types of food brands have showed great success; WIC food costs have risen at half the rate of normal grocery food prices and infant formula cost containment is estimated to save the program about $1.5 billion every year [44].

Georgia WIC

In Georgia, the Georgia Department of Public Health serves as the state WIC agency, overseeing administrative functions and allocating funds to local agencies. There are 19 local WIC agencies, most of which are public health districts and 197 WIC clinics within those districts. Majority of WIC clinics in Georgia share a space in county health department buildings, but other clinics are also housed in community health centers, hospitals, military bases, or as stand-alone WIC clinics. Georgia WIC eligibility requirements are the same as the federal categorical, residency, nutritional risk, and income requirements [45]. Unlike many other states, however, Georgia continues to utilize paper vouchers, which specify dollar amounts of fruits and vegetables and amounts and types of other WIC eligible foods, such as milk and whole grains [46]. In accordance with the Healthy, Hunger Free Kids Act of 2010, Georgia will have to transition to the use of WIC EBT cards by October 1, 2020 [47].

Georgia is also a Home Rule state, which grants local counties relative autonomy to regulate their own affairs [48]. In the WIC context, this means that each WIC district has control over its Nutrition Services Plan (NSP), which outlines how each district will deliver nutrition education, breastfeeding promotion, program outreach, and staff training. According to state and federal policies, local WIC agencies provide breastfeeding women and caregivers of infants and young children with four nutrition education contacts throughout a 12-month certification period. One primary nutrition education session is administered in person at a certification visit and subsequent three secondary nutrition education sessions are administered either in group nutrition education classes or online. While each district's NSP must still align with Georgia's state plan and federal requirements around nutrition education, the details of Georgia's WIC nutrition education design and administration look slightly different depending on the district. Districts' also have the autonomy to pursue partnerships and collaborations for targeted nutrition education delivery [49].

WIC Nutrition Education

WIC's mission is "to safeguard the health of low-income women, infants, and children up to age 5 who are at nutrition risk by providing nutritious foods to supplement diets, information on healthy eating, and referrals to health care" [28]. The explicit mention of nutrition education and "information on healthy eating" makes WIC unique in the realm of federal food assistance programs because it goes beyond simply providing food items. Effective nutrition education, thus, is crucial to achieving the program's mission and ensuring WIC remains a key "premiere national public health nutrition program" [50].

The Nutrition Services Standards were established in 1988 to help state and local agencies self-assess their services and guide processes to improve quality and delivery. In 1999, WIC adopted the idea of Revitalizing Quality Nutrition Services (RQNS), an ongoing process of quality improvement that involves federal, state, and local partners with the ultimate goal of improving the effectiveness of

nutrition education services [51]. In 2011, the Nutrition Services Standards were updated with RQNS as an underlying foundation and in response to new changes and recommendations to the program, including changes to food packages and dietary risk assessments. While these standards are not mandatory, they were created with feasibility in mind and deemed essential for effective implementation of nutrition services. Of note are standards 2, clinic environment and customer service; 7, nutrition education and counseling; 9, breastfeeding peer counseling; and 16, quality improvement. Standard 2 emphasizes the importance of the clinic environment in client satisfaction and retention in the program. It states explicit guidelines for achieving a space that is conducive to learning and achieving positive health outcomes, such as identifiable signage, a clean and child-friendly waiting area, and positive, culturally diverse images displayed in the clinic. Standard 7 incorporates language around nutrition education delivery methods that are appealing, creative, and interactive, including participant-centered approaches and reinforcement materials. Standard 9 reflects the mandatory addition of a breastfeeding peer counselor to WIC programs as a way to provide additional support and role modeling for breastfeeding mothers. Finally, standard 16 was added to encourage agencies to engage in quality improvement projects that align with the goals of RQNS. These projects are recommended to operate in a clearly defined manner, with descriptions of processes, roles, and evaluation methods [50].

Under federal regulations, WIC programs are required to offer nutrition education, consisting of information or educational materials in an individual or group setting, on a quarterly basis. In many states, the first education session takes place during the initial certification and enrollment visit at the clinic, and the next three months later at the mid-certification visit. Because states are moving towards the electronic benefit card system, more and more clients no longer need to visit the clinic to pick up their WIC checks or vouchers, which is typically when nutrition education would be offered. In an effort to meet participants where they are, while also addressing nutritional needs and cultural preferences,

many WIC programs are exploring different ways to engage clients online and through other technological platforms [52, 53].

WIC Challenges

Among all of the USDA's Food and Nutrition Service territories, the Southeast region has the highest percent share of national WIC-eligible population, with almost 1 in 4 WIC-eligible people living in the Southeast. Georgia has the fifth highest percent of WIC-eligible people among all states in the US; however, the state's WIC coverage rate (48.2%) is lower than the national average (54.5%) [54]. Further research has shown that underutilization of WIC in Georgia could be due to a lack of participant recruitment and retention efforts [55].

A WIC Working Group was established as a public private partnership among WIC leaders; the Atlanta Community Food Bank; the Georgia Food Industry Association; and stakeholders in healthcare, food access and nutrition, and early childhood education to address these concerns. Focus groups, which were conducted to understand what barriers keep eligible families from participating in the program, highlighted the fact that many families were not aware of WIC's nutrition education component [56, 57]. Like other states, Georgia also faces challenges in delivering high-quality nutrition education and services. Federal funding through Nutrition Services and Administration grants fund WIC program's nutrition services, which encompasses the costs of participant services like intake and food benefit distribution, nutrition education, and breastfeeding promotion [53]. Consequently, WIC nutrition education often becomes a lower priority when staff attention is targeted towards client intake and recruitment activities [58].

Effective WIC Nutrition Education Programs

In light of these challenges, numerous studies have looked at strategic focus areas to inform effective nutrition education interventions. It is well known that nutrition education aimed at behavior

change is more effective than knowledge dissemination, such as handing out flyers or educational materials. In addition, people must have some motivation to make changes to their diet and cooking and purchasing habits [59]. Thus, successful WIC nutrition education programs must include elements like clear action steps to achieve health goals, engaging teaching strategies and an educational medium that offer opportunities for interaction and feedback, and constant reinforcement messages [60].

Many states have adopted innovative approaches to improving their nutrition education curriculum and delivery. For example, Massachusetts received a 2014 USDA WIC Special Projects Grant, to design and implement a hands-on cooking and shopping curriculum called The Good Food Project in WIC clinics across the state [61]. The Washington WIC program took a socio-ecological approach to improving fruit and vegetable consumption among WIC clients by partnering with local community stakeholders to provide hands-on nutrition, cooking, and gardening education [62]. Many of these innovative nutrition education programs have not only shown increased fruit and vegetable consumption among WIC participants; they have also shown the potential to improving state's client retention and benefit redemption rates.

WIC Cooking Matters and Social Marketing Campaign

In 2014, Georgia's District 4 WIC program partnered with Open Hand Atlanta, a local nonprofit dedicated to improving access to healthy meals and nutrition education [63]. As a member of the WIC Working Group, Open Hand Atlanta utilized results from focus group discussions with WIC families to inform a healthy food promotion intervention composed of Cooking Matters, a hands-on nutrition education and cooking education curriculum, and a social marketing campaign into WIC clinics in District 4. Cooking Matters is a program under Share Our Strength, a national nonprofit with a mission to end hunger and poverty [64]. Classes are designed using a social cognitive theoretical framework, with an emphasis on hands-on and participatory learning, to improve participants' self-efficacy around healthy food behaviors [65]. In WIC clinics, the traditional 6-week class series is adapted to meet WIC clinic

schedules; classes are offered once a month and taught by a volunteer chef and WIC nutrition educator. However, the WIC Cooking Matters curriculum covers all topics around nutrition, meal preparation, grocery shopping, and budgeting.

Community partners like Open Hand Atlanta implement Cooking Matters curriculum across the country at locations easily accessible to participants. By implementing Cooking Matters in Georgia's WIC clinics, WIC administrators and Open Hand staff aim to enhance client's experience with WIC's nutrition education and clinic environment overall. The adoption of Cooking Matters helps align WIC nutrition education curriculum with RQNS and WIC Nutrition Services Standards. Through applied, active learning (Nutrition Services Standard number 7) and visual reinforcement messages in the clinic (Nutrition Services Standard number 2), the partners hope to improve the retention and voucher redemption rates in Georgia, thereby improving the health and nutrition of low-income mothers and children.

Open Hand's partnership with District 4 WIC is the first attempt at implementing Cooking Matters in the WIC setting in Georgia. Thus, the aims of this report are two-fold: to understand barriers and facilitators for implementing Cooking Matters in District 4's WIC clinics and to disseminate best practices in adoption and implementation using a standardized reporting framework. Not only could the lessons learned from the District 4 experience be shared with WIC districts and partners across the state of Georgia, but it could also add to the knowledge base of national Cooking Matters and WIC nutrition education programs. Furthermore, utilizing a standardized framework could help future implementers think about essential program elements and further encourage successful, sustainable translation from knowledge to practice.

Chapter 3: Project Content

Methods

Study Design

This report utilizes the RE-AIM framework to present results and best practices from the Cooking Matters experience in District 4. The framework focuses on five essential domains of public health programming that facilitate successful adoption of effective interventions: Reach, which focuses on whether the target audience was reached; Effectiveness, or the participant-level program outcomes; Adoption, which focuses on program acceptability among WIC clinics; Implementation, or program fidelity; and Maintenance, or the long-term effects of programming on clinics and participants [66, 67]. The domains helped guide analyses of data collected to determine outcomes and best practices that WIC District 4 uses to achieve such outcomes.

A determination form was completed through Emory's Institutional Review Board. This evaluation received IRB exemption because it did not meet the federal regulations of human subjects research.

Setting

All 14 clinics in Georgia's Public Health District 4 received Cooking Matters nutrition education programming, including Carroll, Heard, Troup, Villa Rica, Coweta,

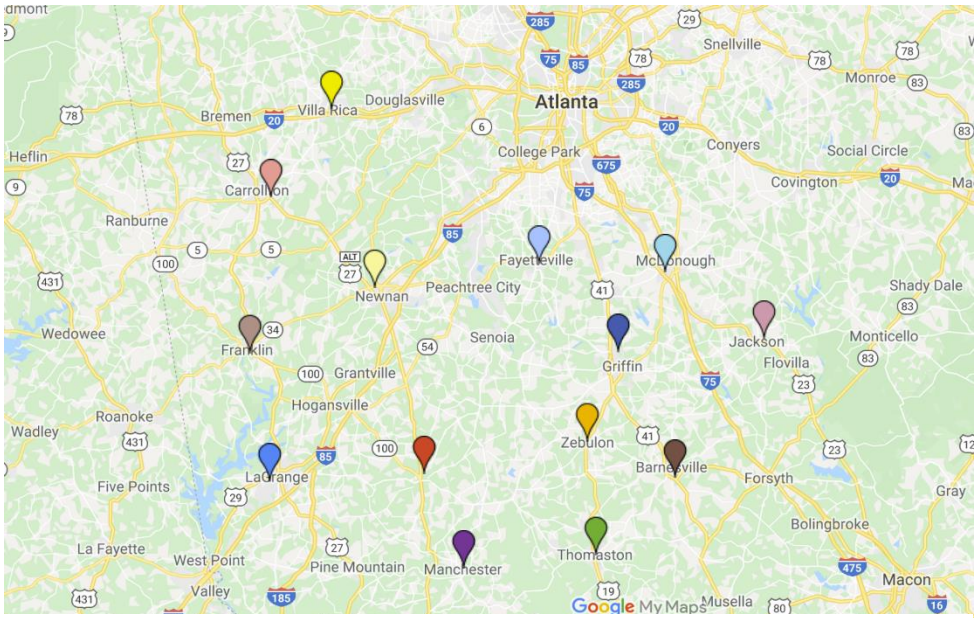

***Figure 1**: Map of District 4 WIC clinics*

Fayette, Manchester, Meriwether, Griffin, Lamar, Pike, Upson, Butts, and Henry WIC & Nutrition Centers. District 4 clinics are located in West Georgia, within 90 miles of Atlanta.

Data Collection Methods

Cooking Matters pre and post surveys were administered by the WIC nutrition educator at each WIC clinic via Amazon Fire tablets; each survey asked a set of pre-session questions that participants were asked to complete before the Cooking Matters class and a set of post-session questions which were completed after the class. WIC intercept surveys were administered by Emory Rollins School of Public Health graduate students for Open Hand during January and February and May and June of 2019. A total of 425 intercept surveys collected information about WIC clients' eligibility status, number of visits to the clinic in the past 6 months, and whether clients have heard about Cooking Matters classes. Surveys were built using Open Data Kit (ODK), an open-source software for collecting, managing, and storing data in field settings. The compatibility design of ODK allows forms to be used in conjunction with other data collection and management tools. Thus, Excel forms were built in ODK with skip logic and imported into Kobo Toolbox, a data collection and management tool. Kobo allows for offline data collection and storage on electronic devices, which was ideal for the WIC clinic setting. For data privacy purposes, pre-/post results from Cooking Matters surveys are not shared in this report. However, open response survey questions asking participants about challenges they face in cooking healthy meals for their families and feedback about classes were used to validate information heard in in-depth interviews with program implementers.

Qualitative data collection methods included in-depth interviews and an unstructured observation. The in-depth interview guide was developed using four main domains: timeline of Cooking Matters program development and implementation, facilitators to implementation, barriers to implementation, and advice for future implementers (Appendix A). Upon review by thesis chairs, the guide was sent out to all interviewees to build rapport, instill trust, and allow for prior thought to

answers. The researcher also conducted an unstructured observation of a pop-up store tour class taught at the Upson County WIC clinic in early February. With the nutrition educator's permission, the researcher sat in the class to observe how the class was taught and observe interactions between the educator and participants.

Four in-depth interviews were conducted from November 2019 through January 2020. Open Hand staff members were interviewed in-person at Open Hand's offices in Atlanta, while WIC administrative members were interviewed in-person at the Henry County Health Department and Coweta County Health Department. The interview style was informal and conversational, in order to make participants feel at ease talking about their experiences developing the Cooking Matters program for the WIC clinic setting. Emphasis was also put on the fact that the study was simply meant to understand best practices to implementing the program rather than providing critique or highlighting program shortcomings. Interviews were recorded using a smartphone for those who provided verbal consent and took about an hour of participants' time.

RE-AIM Measures

To understand the program's *Reach*, demographic data and other characteristics were compared between WIC clients who responded to WIC intercept surveys and national WIC data, which were used as proxies for county-level WIC data. The Georgia Department of Public Health's OASIS database includes demographic cluster data by county, which was used to compare race and ethnicity data [68]. National WIC data collected by the Food and Nutrition Service were used to compare age and sex data [69]. Ultimately, comparisons with intercept surveys and available state and national data bases were used to determine whether District 4 WIC clients were representative of the WIC population and whether Cooking Matters was reaching its target population. Information about participant needs and satisfaction of the class, gleaned from in-depth interviews with District 4 WIC administrators and

nutrition educator, helped to better understand the Effectiveness of Cooking Matters in the WIC context.

Adoption was explored through qualitative interviews with District 4 WIC administrators and the District 4 Nutrition Educator, which further sought to understand how the district decided to adopt Cooking Matters into their programming and how clinics have been adhering to the changes in programming. These interviews also sought to understand the barriers and facilitators to integrating Cooking Matters curriculum into existing nutrition education platforms. *Implementation* was also assessed at the clinic level through qualitative interviews. District WIC administrators and the Nutrition Educator spoke to the program's fidelity and how they have adapted the traditional Cooking Matters curriculum to the WIC setting. The researcher reviewed Cooking Matters curriculum with materials provided by the Nutrition Educator and observed a class at the Upson County WIC clinic to further assess protocol implementation. Finally, *Maintenance* of both participant-level behavior change and clinic-level implementation of Cooking Matters was assessed through qualitative interviews with WIC administrators and program staff from Open Hand Atlanta.

Data Analysis

Intercept surveys and Cooking Matters pre/post surveys were collected at WIC clinics and automatically uploaded into Kobo Toolbox, thus allowing researchers at Emory to access data in real time. The data were analyzed using STATA (Version 16), with the sole goal of generating descriptive statistics about the demographics of WIC intercept respondents and those who have heard about Cooking Matters. Open ended responses from the surveys were analyzed in Excel by grouping responses into common themes and topics.

Interviews with implementers and staff were transcribed verbatim. After reading through transcripts multiple times, codes were developed deductively using domains from the interview guide and organized into a codebook in Word. Once the codebook was developed, codes and code definitions

were used to code all the data. Transcripts were analyzed using thematic analysis to identify themes and patterns in the experiences of program implementers [70].

Because the researcher created the interview guide, developed codes, and coded data, steps were taken throughout the process to practice reflexivity. Particularly considering the fact that many codes were developed deductively, the researcher utilized the comment function in Word to document thought processes while reading the data. These memos allowed the researcher to actively engage with the data and check biases or expectations about participants' answers.

Results

Cooking Matters Reach

Most Cooking Matters participants have a child 1-5 years old whereas most intercept survey respondents have a child less than 12 months old. Cooking Matters participants' ethnicity and age were comparable to state and national data; District 4 counties (Henry, Carroll, Coweta, Fayette, Griffin, Lamar, Manchester, Meriwether, Pike, Spalding, Troup, Upson, and Villa Rica) are primarily African American or White, with some clusters of Hispanic populations in Butts and Heard counties [68]. National WIC data show that WIC eligible women are primarily in the 18-34 age category, which is consistent with District 4's Cooking Matters participants [69].

These comparisons of summary demographic data suggest that Cooking Matters participants are similar to District 4's population and national WIC participants in age and ethnicity. Furthermore, the program is targeting its intended audience of parents with children older than 12 months. Intercept surveys further elaborate the program's reach, showing that more than half (53%) of WIC clients have heard of

Heard of Cooking Matters	
Yes	144 (53.53%)
No	125 (46.47%)
Have attended/planning on attending Cooking Matters class	
Didn't know about the class	60 (14.12%)
Heard of it, didn't participate	81 (19.06%)
Participated	174 (40.94%)
Missing	110 (25.88%)

Table 1: *Percent of intercept survey respondents who have heard of or participated in a Cooking Matters class*

Cooking Matters and many WIC clients (41%) have participated in at least one Cooking Matters class (Table 1).

Interviews with WIC staff and administrators pointed to many best practices that District 4 has used to achieve their program reach, which generally fell into three categories: advertising, scheduling, and staff training (Table 3). District 4 recognized the importance of advertising as a way to spread the word and raise awareness of Cooking Matters classes. WIC administrators reported utilizing a number of passive and active advertising techniques to reach as many people in as many ways possible. Some examples of passive techniques included posters and a bright Cooking Matters recipe of the month board in every clinic waiting room or posts on District 4's social media; these approaches were highly visible but perhaps not always noticed by WIC clients. More active techniques included direct interactions with WIC staff, who talk to clients about Cooking Matters. District 4 incorporates Cooking Matters into its staff training; in the initial implementation stages, District 4 administrators spoke to concerns around "misconceptions" and mixed messages about Cooking Matters. As a result, all new staff members are required to experience a class in order to help them speak about classes more effectively with clients and to make messaging around Cooking Matters more consistent. District 4 administrators also stated that "word of mouth goes a long way when it comes to advertising." They consistently mentioned word of mouth as an important advertising technique because hearing directly from participants "could spark the interest of somebody else who was on the fence about [Cooking Matters]." Scheduling was another strategy that helped District 4 maximize participation. The leadership team built the district-wide Cooking Matters class schedule with WIC clients' schedules in mind. Once enrolled in a class, participants are called 24 hours in advance of the class in order to further encourage them to attend or to reschedule for another day.

Cooking Matters Effectiveness

Because of concerns around data privacy, the researcher did not have permission to present pre and post Cooking Matters survey data. However, findings generally support positive outcomes among Cooking Matters participants such as increased confidence using nutrition labels on foods, using MyPlate to plan meals and shopping lists, preparing healthy meals on a budget, preparing healthy meals from scratch, and shopping for healthy foods using WIC vouchers.

During interviews, District 4 leadership expressed some concern regarding program acceptability among WIC clients (Table 3), but pre/post surveys identified participants' enjoyment with their experience and the information they learned. District 4 administrators described the confidence they had in the program, yet they were "hoping that the participants would see [Cooking Matters] for its benefit and hoping that the clients would enjoy [it]." When asked about what they liked most about the class, participants commonly wrote about the cooking experience, with one participant stating that "the hands-on was the highlight." Many participants also wrote that the class was "very informative" and "it gave [them] more ideas." Perhaps most importantly, many responses mentioned intentions to take information learned at class and apply it at home. For example, one participant wrote that "I will start to compare labels," while another wrote, "I will improve all of the food groups for my child." Furthermore, many expressed intentions to "come back next month" and recommended to "continue doing the class [because] it can help many families."

In order to monitor and evaluate these program outcomes, District 4 leadership recommended that other districts utilize a rapid and seamless data collection method that allows for regular program monitoring. Initially, District 4 administrators mentioned their use of paper surveys, which were "time consuming and not as modernized." Open Hand helped District 4 update their evaluation processes by offering tablet-based data collection methods with near instantaneous data uploading to a cloud-based secure server allowing for immediate processing and analysis. Depending on the monitoring and

evaluation plan, this method could be periodic surveys, observations, or interviews; however, as District 4 administrators emphasized, this data is important for implementers and external partners or funders to ensure program fidelity and efficacy.

Open ended responses from Cooking Matters surveys and WIC leadership highlighted the importance of an effective educator for positive outcomes. An engaging, welcoming, and competent facilitator is crucial for making classes more enjoyable and a safe learning space for participants. Many participants expressed their enjoyment with a "friendly teacher," "positive energy," and the ability to "ask questions and speak freely." The "teacher made [them] feel confident" and "the information was presented in a way that was easy to understand." Cooking Matters participants also enter the class with a range of experiences in cooking and knowledge of nutrition. According to the nutrition educator, "a lot of people will tell you I don't know how to cook, I don't cook at home" or that "a lot of vegetables they just haven't been exposed to [so] some come to the class that have never had mango before [or] tell me, you know I've never had kale before." This was validated by participant responses; when asked about their biggest challenges in cooking healthy meals, many participants wrote about "not knowing how [to cook]" or "knowing what to cook." Thus, program implementers emphasized the importance of the nutrition educator's ability to meet participants where they are and tailor classes to the skill and knowledge levels of participants.

The interview with the nutrition educator and observation of a Cooking Matters class provided more context and insight into the specific techniques the nutrition educator utilizes to adapt classes to participants' needs. As described by the nutrition educator, "there's no cookie cutter class when it comes to WIC because we have a lot of different personalities that come through that door. You just have to get a feel of the class." During the observed pop-up store tour class, the nutrition educator began the class with a review of MyPlate and unit price information that was covered in the previous session. She asked the participant open-ended questions, such as, "What can you tell me about

MyPlate?" and "How does your plate compare to MyPlate?" to gauge understanding of concepts. When the participant struggled to answer one of her questions, the nutrition educator provided responses like, "That's okay!" and "That's why we're reviewing the information!" that, to the researcher, seemed non-judgmental and reassuring. Throughout the whole session, the nutrition educator seemed to be facilitating a discussion, rather than giving a lecture; she used participant engagement techniques, such as continuously asking the participant questions about her understanding or her experiences shopping at the grocery store. When the participant mentioned that she mostly buys canned vegetables for her family, the nutrition educator shifted towards a discussion around reading labels on canned goods and comparing the benefits and disadvantages of canned and fresh produce. Because the pop-up store tour class does not include a cooking demonstration, the researcher was not able to observe techniques that the facilitator uses when cooking is involved. However, she spoke about how she engages participants who tell her they do not cook at home. When talking about participants who say their mother or grandmother won't allow them in the kitchen, the nutrition educator explained that "it's a big deal when I delegate out different tasks. If I say well okay you do this task so you know step by step what you're doing with this recipe since you're not a cook, why don't you come over to the skillet and you'll put everything together for us." The nutrition educator also spoke about participants' wishes for childcare during Cooking Matters classes. Many mothers do not have childcare at home and bring their children to class with them; however, the nutrition educator emphasized the importance of including children in the kitchen and taking time in class to show mothers how to cook with children. Depending on the recipe, the nutrition educator will encourage mothers to "wash their little hands and bring them up to the table to tear lettuce" or "measure seasonings together." In large part by watching class dynamics and listening to what participants say about their experiences or understanding of concepts, the nutrition educator modifies task delegation or elaborates discussion about topics relevant to the participants present for that particular class.

Cooking Matters Adoption

All 14 clinics in District 4 have been providing classes on a consistent basis, twice a day and at least one day per month, since 2015. Following the 6-class Cooking Matters curriculum, each clinic provides the same lesson and recipe to participants each month: MyPlate and turkey tacos; the nutritional importance of fruits, vegetables, and whole grains with a roasted vegetable pasta recipe; reading food labels and chicken soup; menu planning and Mexican black beans and rice; smart shopping habits with a $10 meal challenge activity; and healthy drinks with a fruit smoothie or flavored water recipe. WIC leadership noted that Cooking Matters' evidence-based curriculum, specifically designed for low-income families and for limited settings, allowed them "to connect the dots with what [they] were already trying to do." In particular, leadership pointed to the appeal of Cooking Matters classes being "hands on, so you were involving participants and teaching actually, able to actually teach them how to cook [and] that most of the recipes could be done in an electric skillet." The engaging nature of the curriculum not only aligned with their "value enhanced and engaging" goals for WIC's nutrition education, but the logistical practicality also helped convince leadership that classes could be feasibly taught in clinics.

The similarity in program adoption and delivery among clinics points to the fidelity of Cooking Matters in District 4. Program adoption has been a result of decisions made by District 4's managers and District 4's culture. As seen by the program's implementation timeline, program adoption happened fairly quickly (Figure 2). Once the initial program champion, the Nutrition Services Director at the time, brought up the idea of incorporating Cooking Matters into the district's programming, the District Health Director and upper leadership showed their support for the program. At the time, District 4 administrators were also preparing to make adjustments to their appointment schedules, a change made only once every few years to better accommodate services to WIC clients' schedules. Because

district-wide changes to clinic schedules and service options were already in the process, administrators decided to redo the entire schedule with Cooking Matters added.

Interview respondents also cited different ways leadership engaged key stakeholders, such as clinic staff, throughout the adoption and implementation process which increased buy-in at each clinic (Table 3). District 4 leadership recommended that to make adoption and implementation successful, other district leaders "make [their staff] feel as if they have a part in the implementation and success of the program"; this allows the district to build staff buy-in for new programs and new ideas, as well as enforces the participant-centered philosophy in the services they offer.

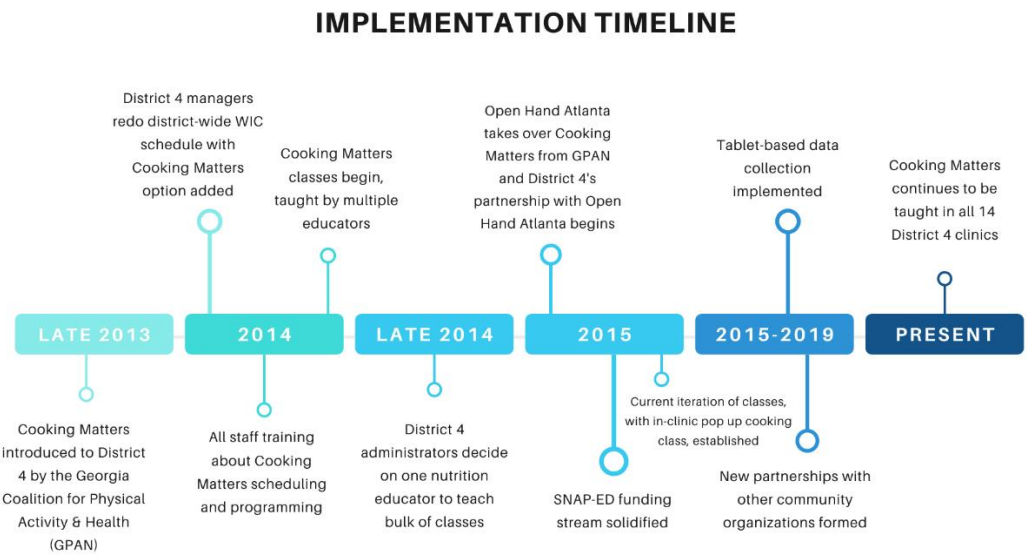

Figure 2: *Implementation timeline*

Cooking Matters Implementation

In early planning stages, District 4 administrators and Open Hand Atlanta realized that some elements of the traditional Cooking Matters format required adaptation to meet the constraints of the WIC setting (Table 3). Initially, District 4 administrators were concerned that these adaptations would not allow them to continue using the Cooking Matters name and brand; however, partners at Open

Hand Atlanta provided reassurance regarding adaptations. Thus, while the traditional 6-class Cooking Matters format is taught once a week for 2 hours, over the course of 6 weeks, WIC classes are taught once a month for 1 hour, over the course of 6 months. Cooking Matters participants commonly listed time as a major barrier to preparing meals for their families; thus, recognizing time constrains and sporadic visits to the clinic, WIC leadership decided that clients would likely not attend classes for 6 consecutive weeks, let alone sit for a class for 2 hours. WIC leadership also stressed the importance of incorporating the use of WIC vouchers and WIC-approved foods into lessons. Participants wrote about budgetary concerns and "knowing what ingredients to buy" as additional barriers to cooking healthy meals, and WIC leadership recognized that teaching participants how to utilize their vouchers could help bridge that gap.

Although District 4 decided to implement the program in all 14 clinics from the start, leadership also recommended that other districts pilot Cooking Matters in a select few clinics rather than immediately going district wide. Particularly for a district as large as District 4, leadership noted that testing out classes in different clinic types, both rural and urban, would allow districts to see how implementation would differ. Piloting would allow staff and administrators to work out differences in clinics and understand what works best for staff and participants before scaling the program up to the entire district.

Once the program was adopted into all clinics, WIC administrators pointed to staffing, logistical, and budgetary concerns during the early implementation stage. Recognizing that program acceptability and implementation relied heavily on how classes were delivered, District 4 administrators expressed huge concern about who would teach Cooking Matters classes initially. When classes were first introduced to clinics, District 4 had multiple people teaching classes including people like the Nutrition Services Director and Breastfeeding Coordinator, who were willing to teach as the district figured out what would work best. Ultimately, though, the district concluded that "not everyone's cut out to teach"

and recognized that implementation depends heavily on the nutrition educator facilitating the classes. WIC leadership hired one nutrition educator to teach classes in all but one clinic to ensure consistency in program delivery and, consequently, program experience. Open Hand's Cooking Matters trainings, in addition to training materials provided by Share Our Strength on the Cooking Matters website, provide the nutrition educator with the knowledge and guidance to follow the Cooking Matters guidelines. Although the educator tailors classes to the participants at each clinic, she follows a standardized lesson plan for shopping, preparation, teaching, and cleaning up for each session.

District 4 administrators also acknowledged two main logistical considerations: scheduling participants and managing supplies and travel to all clinics for one nutrition educator (Table 3). In early stages, classes were not capped, and administrators noted that some clinics would face overflow issues and, subsequently, "a mass of people that need their vouchers at the same time." By capping classes to 15 participants, District 4 clinics were able to find a balance between anticipated no-show rates and maximum capacity. As administrators also pointed out, capped participation and one-hour class lengths gave WIC clerks enough time to print vouchers for participants and avoid "bottlenecks" of participants waiting for their vouchers to be printed after classes. An additional logistical concern was how one educator would teach all classes for a district with a large geographical span and what supplies she would need for each class. District 4 interviewees expressed the financial burden WIC would face if the nutrition educator were to be reimbursed for travel to clinics that could be up to an hour and a half apart; however, with the support of leadership, WIC was gifted a vehicle solely for the educator to use for travel to each clinic. Each clinic site is also now equipped with essential tools and materials, such as a skillet, blender, Cooking Matters paperwork, pens, and clipboards, to make delivery more efficient and convenient for the educator.

Cooking Matters Maintenance

At the participant level, free responses on participant surveys demonstrated participants' wish for the classes to continue because the knowledge helps them and their families "live a better and healthier lifestyle." The dates of participant surveys also support the sustainability of Cooking Matters programming; Cooking Matters has maintained stable participation rates throughout the 2018-2019 time period (Table 2) despite a fairly consistent 5% annual loss of participation among Georgia WIC clinics [71].

Month	Percent of Total Participation
Aug. 2018	0.45
Sept. 2018	6.86
Oct. 2018	8.89
Nov. 2018	8.38
Dec. 2018	3.77
Jan. 2019	6.41
Feb. 2019	10.35
Mar. 2019	6.07
Apr. 2019	5.62
May 2019	6.07
Jun. 2019	5.79
Jul. 2019	4.95
Aug. 2019	6.52
Sep. 2019	7.09
Oct. 2019	7.09
Nov. 2019	5.68

Table 2: *2018-2019 Cooking Matters participation rates*

Best practices in program maintenance are largely related to a district-wide culture of innovation and strategic partnerships (Table 3). Because WIC, like many other government organizations, has a top-down management structure, it is crucial to create buy-in from senior leadership in order to create and sustain meaningful change. In the case of District 4, one interviewee noted that district leaders have "an innovative spirit" that allows them to say, "we're gonna try new things." This culture of innovation underlies the success of Georgia WIC District 4, allowing the district to overcome challenges and barriers rather than halt progress altogether.

District 4 leadership also stated that partnerships with nonprofit organizations, particularly Open Hand Atlanta, "that [are] serving the same population that WIC is serving," have allowed parties to unite around common missions and overcome implementation barriers. For example, one of the potential barriers that District 4 faced was how to deliver the healthy shopping class, which is traditionally taught in a community grocery store. District 4 had questions of how to adapt that to the WIC setting and if these adaptations would still allow them to use the Cooking Matters brand name. The partnership with Open Hand allowed WIC leadership to implement a pop-up store tour in clinic and "turned a barrier into something [that] was something that was very, very practical for the participant."

Another key result of the partnership between WIC and Open Hand has been funding for Cooking Matters programming. District 4 administrators' main sustainability concern was how the program would continue being funded, particularly how food supplies would continue to be purchased. With the SNAP-Ed grant that Open Hand receives, District 4 WIC administrators have been able to sustain food purchases for classes. As pediatric obesity continues to become a larger issue for communities around the United States, the USDA's Food and Nutrition Service pushes federal funding towards innovative approaches to combat obesity; thus program managers at Open Hand specifically pointed to Cooking Matters education in a WIC setting as a growth area the organization, and something that is likely to continue being funded. Ultimately, both implementing partners highlighted partnerships as "ways to increase reach" and "opportunities to collaborate to help build and sustain programs."

Table 3: Summary of District 4's challenges and best practices by RE-AIM domain

RE-AIM Measure	Challenge/Concern	Best Practice/Recommendation for Overcoming Challenge *See Appendix B for full list of best practices*
Reach	How to increase awareness of Cooking Matters among WIC clients	Apply a range of passive and active advertising techniques
	WIC clients' misconceptions around Cooking Matters	Make scheduling easy and convenient for participants
		Train staff to talk about Cooking Matters to ensure consistency in messaging
Effectiveness	How to ensure program acceptability and enjoyment among WIC clients	Classes are taught by an engaging, competent, and personable nutrition educator
	How to effectively evaluate program outcomes	Tailor classes to WIC population's knowledge, skill, and exposure levels
		Implement tools for monitoring and evaluation of program activities and outcomes

Adoption	How to ensure program acceptability among WIC staff	Include clinic managers in decision making to build staff buy-in Upper leadership support Redo district-wide schedule with Cooking Matters added
Implementation	How to adapt the Cooking Matters program to fit in the WIC context while maintaining program integrity	One nutrition educator teaches all Cooking Matters classes to maintain consistency and quality Nutrition educator receives standardized training and utilizes a standardized lesson plan Pilot Cooking Matters in 1-2 clinics to begin Provide a car for nutrition educator to use for travel between clinics Cap classes to 15 participants Keep essential tools and materials at each clinic site
	Teaching logistics	
	How to schedule participants for classes while maintaining clinic flow	
Maintenance	How to navigate questions about Cooking Matters and determine best strategies for better adapting program for the WIC setting	Foster a culture of innovation throughout WIC District, particularly at district-level leadership Seek and maintain strategic partnerships to expand program reach and financial support
	How to sustain food purchases	

Table adapted from Besculides, et al [72]

Chapter 4: Discussion, Recommendations, and Conclusion

Discussion

Application of the RE-AIM framework identified several key contributors of program success: strategic and sustained partnerships, a highly skilled and dedicated nutrition educator, a culture of innovation and prioritizing participant needs, and program champions at multiple levels of the organization. These best practices helped District 4 overcome barriers or address concerns and achieve positive outcomes at multiple levels of the framework, as demonstrated by qualitative data and participant surveys. Although survey data could not be presented in this report, findings generally

support positive outcomes related to confidence in shopping and eating healthier. They also demonstrated that classes are primarily reaching mothers and caretakers of children between the ages of 1and 5, which is important when considering the literature around developing healthy eating behaviors from an early age and the drop off in WIC participation after a child turns one year old.

Community partnerships have helped program implementers successfully implement and maintain Cooking Matters programming in District 4, which is consistent with other experiences in community-based, public health work [73, 74]. For complex health issues like childhood obesity, in particular, the need for multi-sectoral, collaborative efforts is great; to properly address many factors that contribute to the development of obesity, public health interventions must involve collaboration among many community stakeholders [75]. Using the National Collaborative on Childhood Obesity Research's 6-step framework for collaborative building, the experience of implementing Cooking Matters into Georgia's District 4 WIC clinics provides insight into effective partnership building and maintenance [76]. The first step is identifying key knowledge gaps; District 4 WIC and Open Hand Atlanta crossed paths based on mutual interest in seeking and implementing innovative nutrition education programs. The second step of creating a shared identity was enumerated across many interviews with program implementers. Both District 4 WIC and Open Hand Atlanta stated that their goal was to focus on delivering high quality, engaging nutrition education and to recognize the commonality in the populations both organizations serve. Next, program implementers developed a structure for collaboration that was largely based on trust and open communication. Over time, each partner demonstrated their continued commitment to program deliver via regularly scheduled meetings and by working through challenges together. The fourth step of identifying effective leaders was also developed over time, as roles were solidified and changes were made. Currently, the District 4 WIC administrators, District 4 WIC nutrition educator, and Open Hand Atlanta's Director of Cooking Matters oversee Cooking Matters programming in District 4 WIC clinics and serve as liaisons to their respective

organizations on Georgia's WIC Working Group. The fifth step of facilitating continuous knowledge exchanges had been achieved through WIC Working Group meetings, where updates and news related to WIC programming is shared across many stakeholders. Finally, program implementers have supported assessment of progress through regular monitoring of program activities. Using data from Cooking Matters pre-post survey and WIC intercept surveys, partners have been able to share annual reports and track program progress over time.

Another key component of program success in District 4 was the nutrition educator; interviews and participant surveys provided insight into the nutrition educator's role in achieving program fidelity and acceptability. Within the world of nutrition education, the nutrition educator is recognized as having a key role in encouraging group discussion and participatory learning [77]. In this way, there is a shift from the paradigm of "power over," where the educator is the expert, to "power with," where the educator works with the participant to take control of his or her own health decisions [78]. Thus, effective educators need to be flexible and adaptable to meet participants' needs and abilities and foster a safe and supportive learning environment, where participants feel comfortable expressing views and engaging in activities [79].

Ultimately, the success of Cooking Matters in District 4 can be attributed to the participant-centered approach to services and the organization's willingness to innovate in order to best serve clients. Not only does this ideology align with WIC's Revitalizing Quality Nutrition Services' goal of strengthening the effectiveness of nutrition services [51], but it also supports existing literature around human resource management in government and nonprofit settings. Studies have shown that those who seek employment in the public sector place greater value on helping others and giving back to society compared to more extrinsic motivational factors such as promotions [80]. Using what is known as "public-service motivation," or an individual's predisposition to respond to motives grounded in

public institutions [81], the government sector can take steps toward fostering these motivations and leaning in on the altruistic rewards of programming like Cooking Matters [80, 82].

This philosophy runs across all levels of the organization but is particularly important at the upper leadership level and at the level of the nutrition educator. The nutrition educator, working on the ground and directly with participants, acts as the program ambassador and can advocate for the benefits of programming for participants. However, in previous attempts at implementing Cooking Matters in other WIC Districts in Georgia, implementation never overcame initial barriers because these districts only had a nutrition educator champion that pushed for progress. Without support from senior leadership, the one champion was not enough of a catalyst for change through a bottom-up process. This dual-champion model of innovation adoption in the WIC setting is consistent with champion-driven change seen in other settings. The Tandem Model of Championship and Complexity Leadership Theory [83] have been used to explain leadership structures needed to challenge status quo and push for innovation. In complex situations with many actors and where outcomes are difficult to predict, unidirectional forms of leadership are ineffective at addressing problems with many moving parts. Thus, organizations need multi-directional, top-down and bottom-up, leadership to fully undertake these issues [83]. Taylor et al discusses the various levels at which leadership interacts; at the top, administrative leadership directs the strategic planning aspects of the complex issue at hand, while adaptive leadership comes from champions at the project-level who collaborate with upper levels to solve problems and overcome challenges [84]. Complementary to the Complexity Leadership Theory, the Tandem Model of Championship recognizes the significant barriers that come along with adopting a new innovation and the promoters necessary to overcoming these barriers. The champion at the top, who has inherent power to create change due to their hierarchical standing, and the staff-level champion, who has specific knowledge or training about the proposed innovation, work together to overcome barriers of “not wanting or not knowing” [85].

Limitations

Due to the privacy concerns around sharing pre-post Cooking Matters data, participant-level outcomes could not be shared in this report. In assessing program reach, demographic data from District 4 WIC was not available for comparison to Cooking Matters demographic data. Thus, overall county demographic data and national WIC demographic data were used as proxies for comparison instead. Because these data are not specific to the District 4 WIC population, these data might not be entirely representative.

The qualitative component of this evaluation did not include any interviews with Cooking Matters participants, other WIC staff and upper leadership, or implementers in other districts. For instance, interviews with WIC clinic managers could have validated information about staff acceptability of the program and further explained class scheduling logistics and clinic flow. Interviews with upper leadership, including the District Health Director, could have elaborated the district's culture of innovation and helped to understand how leadership approaches innovation in the WIC setting. Finally, the research could have been enhanced by interviews with implementers in other districts, who have either tried to implement Cooking Matters but were unsuccessful or would like to implement in the future. This information could be used to compare with District 4's experience in adoption or implementation and helped to further understand what common barriers across districts look like.

The qualitative component of the research could have also been strengthened with further observation sessions. Because of time and scheduling constraints, the researcher was only able to observe one class in one clinic. The hands-on activity in this particular class did not involve any cooking and only one participant was in attendance, so the researcher could not observe interactions between participants and how the nutrition educator manages group dynamics. Observing more classes could have provided a better understanding of all the facilitation methods the nutrition educator uses,

particularly during cooking demonstrations. Observations in other clinics could have also provided more context about the similarities and differences between clinics and how classes are taught.

Policy and Practice Recommendations

Current studies predict that 57% of children in the US today will be overweight or obese by the time they reach the age of 35 [86]. With this public health problem in mind, the USDA's Food and Nutrition Service has called for new innovations in technologies and services among state and local agencies administering childhood nutrition programs. In September 2019, FNS announced a WIC Special Project Innovation Grant to WIC state and local agencies to fund innovations in the WIC setting [87]. This push for innovative solutions to combat childhood obesity means a reliable and available source of government funding for the foreseeable future. As with any public health programming, funding can be the single biggest concern or barrier in adopting and implementing programs. However, there is good evidence to suggest that the government and local partner agencies, such as Open Hand Atlanta, are looking to the WIC setting as the space to invest in innovative programs.

For future program implementers, it is important to recognize the components of Cooking Matters that remained unchanged and which components were adapted to meet the WIC setting. The format and content of WIC Cooking Matters classes, such as instructional techniques and curriculum, remained consistent with traditional Cooking Matters classes. As previously mentioned, District 4 program implementers stressed the importance of hiring an experienced facilitator with nutrition knowledge; without someone personable, relatable, and adaptable delivering the intervention, classes would not be well received by participants. The hands-on learning opportunities are also a critical piece of Cooking Matters, without which participants would find less motivation to participate and experience less feelings of empowerment. Participants explicitly linked their enjoyment of the experience to the hands-on cooking and learning components of the class, which further supports existing literature around effective nutrition education strategies [88, 89]. Finally, Cooking Matters' 6-course curriculum

includes information around meal preparation, grocery shopping, food budgeting and nutrition that have been specially designed to meet the needs of low-income families. Because there is an evidence base and social relevance to the information presented in these courses, there is little need to adapt this aspect of the program.

There were some adaptations that had to be made in order to meet the needs and requirements of WIC. WIC participants' limited availability and their intermittent clinic visits meant that the 6-week model of Cooking Matters would not fit scheduling requirements. Thus, the program had to be adapted to a once a month, 6-month long delivery rotation of lessons. Scheduling limitations also meant that the grocery store tour session could not be held at local grocery stores, as planned in the traditional Cooking Matters model. Instead, Open Hand collaborated with WIC to provide pop-up store tours, which simulate the grocery shopping experience in clinic. While course content was not changed, information about grocery shopping and nutrition did incorporate WIC approved foods and use of WIC vouchers to purchase healthy foods. Including WIC vouchers further improved the relevancy of classes, with the intention of improving fruit and vegetable voucher redemptions as well.

One challenge that District 4 continues to face is the low participation rates in smaller counties, such as Heard and Manchester. The demographics of these counties are different than others in District 4, which could explain the differences in Cooking Matters and overall WIC participation. The populations served by these clinics are the most rural and low income among counties in District 4; those living in rural Georgia face higher rates of food insecurity and hunger because of higher rates of unemployment and lack of food resources [90]. Although larger policy changes might better address the root causes of this issue, smaller steps can be taken at the clinic level to engage clients. Staff and administration have attempted to increase participation rates by advertising classes, ensuring that clients are scheduled for a Cooking Matters class, and making reminder calls. However, more resources and engagement strategies could be targeted towards these clinics. If resources allow, incentives could be given to those who

attend classes to encourage participation. Staff could also take time during appointments to explicitly speak about Cooking Matters and explain the benefits of participating. Information taught in classes might also need to be adjusted to better meet the needs of these populations. For example, recipes should only include foods available at the nearest food outlet or include ingredients that are shelf-stable, if clients purchase mainly non-perishable food items.

Despite some challenges that continue to persist, the data from District 4 point to important program impacts. The difference between Cooking Matters participants and the sample of District 4 WIC clients from intercept surveys show that Cooking Matters is a great way to engage parents or caretakers of older WIC eligible children. For WIC programs looking to increase retention rates beyond a child's first birthday, perhaps Cooking Matters advertising could be more heavily advertised to parents whose children are reaching the age of 1. Because word of mouth was identified as a powerful advertising method, WIC staff could potentially work with Cooking Matters participants who are willing to share their positive experiences to collect testimonials or even pair them with potentially interested participants. Finally, low participation numbers might not be representative of the program's full impact. Most participants are parents with smaller children at home who state that they will take information learned in class and apply it at home; consequently, one Cooking Matters participant likely represents many more who will benefit from the knowledge and skills learned in class.

Conclusions

This evaluation presents the patient and clinic-level outcomes of Cooking Matters programming and provides a set of best practices from implementing the program in Georgia's District 4 WIC clinics. From interviews with WIC staff and Open Hand Atlanta and the behavior change outcomes seen among Cooking Matters participants, it is clear that Cooking Matters aligns with the goals of WIC and WIC participant's needs. A large majority of WIC participants have limited knowledge and experience with cooking and nutrition; thus, Cooking Matters offers a safe and engaging space for people to learn and

build confidence in healthy behaviors. Because the Cooking Matters, Open Hand Atlanta, and WIC partnership is relatively new, there are still lessons to be learned, particularly around increasing participation numbers among the smallest counties in District 4 and encouraging continued participation beyond the first few classes. However, considering the need for innovative approaches to nutrition education in WIC clinics and the need to mitigate growing childhood obesity rates, other WIC clinics and local organizations can use these best practices in the context of the RE-AIM framework in order to better inform implementation in their communities.

Appendix A1: Interview Guide, District 4 WIC Administrators

Introduction

Hello, my name is Marisa Kanemitsu and I am a student at the Rollins School of Public Health. How are you? For my thesis, I am interviewing folks who were involved in planning and implementing Cooking Matters into WIC nutrition education throughout WIC District 4 clinics. I'm hoping to learn more about the process, what worked, and what challenges were faced. Your participation is completely voluntary and please do not feel obligated to answer a question that makes you uncomfortable. You also can choose to stop the interview at any point.

I want to make sure I don't miss anything you say, so I would like to record this interview. The recording will be kept completely confidential and no one besides myself will have access to the interview tape or know what you said. All documents relating back to this interview will also be kept anonymous and confidential as well. Do you have any questions about anything I have said so far? Would it be okay if I record our discussion?

I have some topics I would like us to talk about, but please feel free to share anything else that you feel is relevant or share how you honestly feel. I am interested in hearing your personal experiences and thoughts, so there are no right or wrong answers. Are you ready to get started?

A. Understand Individuals' Roles

I'd like to get a better understanding of your role both within your organization and your role in the planning and implementation process.

1. What is your role in [organization]?
2. Can you tell me a little bit about your role in the integration of Cooking Matters in WIC District 4?
3. How would you describe your philosophies when it comes to trying new programs in WIC clinics?

B. Understand Timeline

Now I'd like you to walk me through the process of rolling out Cooking Matters in WIC District 4 – from when you first heard about the program to when the first class was delivered in a clinic. Can you walk me through the different activities and conversations that happened?

1. When did you first hear about CM program?
2. What was it about the program that interested you / made you think it might be worth trying in WIC?
3. How long did it take from the time you first heard about it until the first class?
4. Who was involved in setting up the first class? Where was the program piloted?
5. What different administrative or logistic things had to happen before you could run that first class?
6. Whose support / buy-in did you need?

Moving on from that first class – What was the process for integrating Cooking Matters into other clinics?

7. In thinking back through this timeline, in your opinion, what were some of the key events or turning points in this timeline?

C. Identify Facilitators in Planning and Implementation Process

Let's shift to talking about what went well throughout the process.

1. Can you talk about some things that went well in the planning stage of the program?
    a. Why do you think they went well?
    b. What resources helped facilitate the planning process?
2. Can you talk about some things that went well in the implementation stage of the program?
    a. Why do you think they went well?
    b. What resources helped facilitate the implementation process?

D. Identify Barriers and Challenges in Planning and Implementation Process

So now let's talk about some of the challenges you and the collaborating team faced.

1. [WIC people] What challenges do District 4 WIC clinics face in delivering nutrition education to WIC participants?
2. What were some challenges you faced in the planning process?
    a. How did you overcome these challenges?
3. What were some challenges you faced in the implementation process?
    a. How did you overcome these challenges?
4. What would you say was the most difficult barrier you faced throughout the entire process?
    a. Why was it the most difficult?

E. Identify Best Practices or Advice for Future Implementation

The last thing I would like to go over is any advice or recommendations you have to folks who would like to implement a similar program in other WIC districts or clinics.

1. If you could go back and re-do anything, what would you change about the process?

2. What information would you share with another WIC program that is considering CM programming?
3. What resources are needed for successful implementation?
    a. If this intervention were to be implemented in other districts, who needs to be on the team?
4. What do you wish you knew going into this partnership?
5. What advice do you have about relationship building in order to facilitate successful implementation?

Thank you for your time! Do you have any final thoughts or questions?

Appendix A2: Interview Guide, District 4 WIC Nutrition Educator

A. Understand Individuals' Roles

I'd like to get a better understanding of your role both within your organization and your role in the planning and implementation process.

4. What is your role as a nutrition educator for District 4?
5. Can you tell me a little bit about your role in the integration of Cooking Matters in WIC District 4?

B. Understand Timeline

Now I'd like you to walk me through the process of rolling out Cooking Matters in WIC District 4 – from when you first heard about the program to when the first class was delivered in a clinic. Can you walk me through the different activities and conversations that happened?

8. When did you first hear about CM program?
9. What was it about the program that interested you / made you think it might be worth trying in WIC?
10. How long did it take from the time you first heard about it until the first class?
11. Who was involved in setting up the first class?
12. What different administrative or logistic things had to happen before you could run that first class?
13. Whose support / buy-in did you need?
14. In thinking back through this timeline, in your opinion, what were some of the key events or turning points in this timeline?

C. Identify Facilitators in Teaching a Class

Let's shift to talking about what has helped you in teaching the classes.

3. Can you talk about some things that help you prepare for classes?
    a. What resources help you with preparation?
4. Can you talk about some things that help classes run smoothly?
    a. What resources help you facilitate classes?
5. What helps participants enjoy these classes?

D. Identify Barriers and Challenges in Planning and Implementation Process

So now let's talk about some of the challenges you face when teaching classes.

5. What challenges do District 4 WIC clinics face in delivering nutrition education to WIC participants?
6. What were some challenges you face in preparing for classes?
    a. How did you overcome these challenges?
7. What were some challenges you face in teaching classes?
    a. What is your biggest challenge as it relates to participants?
    b. How did you overcome these challenges?

E. Identify Best Practices or Advice for Future Implementation

I would like to go over any advice or recommendations you have to folks who would like to implement a similar program in other WIC districts or clinics.

6. If you could go back and re-do anything, what would you change about the process?
7. What information would you share with other WIC nutrition educators that might use CM curriculum?
8. What resources are needed for successful implementation?
    a. If this intervention were to be implemented in other districts, who needs to be on the team?
9. What do you wish you knew going into this partnership?
10. What advice do you have about relationship building in order to facilitate successful implementation?

F. Feedback from Participants

The last thing I would like to go over is what you've heard from Cooking Matters participants.

a. What is your general perception of participants' experience with the classes?
b. What have participants liked about the classes?
c. What have participants not liked about the classes?

Thank you for your time! Do you have any final thoughts or questions?

Appendix A3: Interview Guide, Open Hand

A. Understand Individuals' Roles

I'd like to get a better understanding of your role both within your organization and your role in the planning and implementation process.

6. What is your role at Open Hand?
7. Can you tell me a little bit about your role in the integration of Cooking Matters in WIC District 4?

B. Understand Timeline

Now I'd like you to walk me through the process of rolling out Cooking Matters in WIC District 4 – from when the WIC partnership happened to when the first class was delivered in clinics. Can you walk me through the different activities and conversations that happened?

15. How did Open Hand come to partner with WIC District 4?
16. Whose support / buy-in did you need?
17. In thinking back through this timeline, in your opinion, what were some of the key events or turning points in this timeline?

C. Identify Facilitators in Planning and Implementation Process

Let's shift to talking about what went well throughout the process.

6. Can you talk about some things that went well in the planning stage of the program?
    a. Why do you think they went well?
    b. What resources helped facilitate the planning process?
7. Can you talk about some things that went well in the implementation stage of the program?
    a. Why do you think they went well?
    b. What resources helped facilitate the implementation process?

D. Identify Barriers and Challenges in Planning and Implementation Process

So now let's talk about some of the challenges you and the collaborating team faced.

8. What were some challenges you faced in the planning process?
    a. How did you overcome these challenges?
9. What were some challenges you faced in the implementation process?
    a. How did you overcome these challenges?
10. What would you say was the most difficult barrier you faced throughout the entire process?
    a. Why was it the most difficult?

E. Identify Best Practices or Advice for Future Implementation

The last thing I would like to go over is any advice or recommendations you have to other community partners who might be looking to collaborate with Georgia WIC.

11. If you could go back and re-do anything, what would you change about the process?
12. What information would you share with another WIC program that is considering CM programming?
13. What resources are needed for successful implementation?
    a. If this intervention were to be implemented in other districts, who needs to be on the team?
14. What do you wish you knew going into this partnership?
15. What advice do you have about relationship building in order to facilitate successful implementation?

Thank you for your time! Do you have any final thoughts or questions?

Appendix B: Complete List of Best Practices/Recommendations

RE-AIM Measure	Best Practices/Recommendations

Reach	Advertising Techniques:
	• Passive:
	  ○ Recipe of the month on social media
	  ○ Social media promotion of Cooking Matters during National Nutrition Month
	  ○ Flyers in waiting rooms
	  ○ Digital signage in waiting rooms
	  ○ Call center on hold messaging about Cooking Matters
	• Active:
	  ○ Word of mouth by Cooking Matters participants
	  ○ WIC staff explaining Cooking Matters to WIC clients
	Scheduling:
	• Schedule classes during peak clinic times (10:00am and 1:00pm)
	• Provide reminder phone calls to scheduled participants 24 hours in advance of class
	• Automatically enroll all WIC clients in one Cooking Matters class
	Staff Training:
	• Build a Cooking Matters demonstration into new staff orientation so staff members feel comfortable speaking about Cooking Matters

Effectiveness	Nutrition Educator: • Classes are taught by an engaging and personable nutrition educator • Educator is comfortable and knowledgeable in facilitation techniques and multitasking • Include mock facilitation or cooking lesson when interviewing potential candidates for the position Meet Participants Where They're At: • Understand the cooking/nutrition knowledge and skill level of participants • Tailor classes to WIC population's knowledge, skill, and exposure levels Monitoring and Evaluation:

	• Implement tools for monitoring and evaluation of program activities and outcomes, ideally electronic methods that aid in ease of data collection
Adoption	Organization Culture: • Include clinic managers in decision making process to build ownership of program • Foster a team environment to help build staff morale • Prioritize participant needs and take a participant-centered approach to services offered
Implementation	Standardization: • All nutrition educators receive standardized training by Open Hand Cooking Matters instructors • Nutrition educator follows a standardized lesson plan • One nutrition educator teaches all Cooking Matters classes throughout the district to maintain consistency and quality Pilot Test: • Pilot Cooking Matters in one clinic before scaling up to understand participant needs and logistics Clinic Flow: • Balance no show rates while limiting class capacity (schedule 10 people for classes) • Understand the logistics of classes- avoid staff burden of printing vouchers after classes for large numbers of class participants Class/Teaching Logistics: • Provide a car for nutrition educator to travel between clinics • Keep essential tools and materials at each clinic site (i.e. electric skillet, Ninja blender, sanitation supplies)
Maintenance	Organization Culture: • Foster a culture of innovation throughout WIC District, particularly at district-level leadership • Multi-level program champions (top leadership down to lower level staff) Strategic Partnerships: • Identify organizations in the community with shared missions and goals • Seek and maintain strategic partnerships to expand program reach and support Funding: • Identify and establish sustainable funding stream towards early stages of adoption and implementation, particularly to sustain food purchases

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