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***SNAP Education and Evaluation
Case Study Report:***

*New York State Department of Health's
Eat Well Play Hard in Child Care Settings Program*

Volume I: Report



United States
Department of
Agriculture

Food and
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SNAP Education and Evaluation Case Study Report:

New York State Department of Health's Eat Well Play Hard in Child Care Settings Program

Volume I: Report

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Executive Summary

This executive summary presents the background, methods and highlights key findings from one of four case study reports produced for the *Models of SNAP Education and Evaluation, Wave I*. This report is specific to the evaluation of the New York State Department of Health (NYSDOH)'s Eat Well Play Hard in Child Care Settings (EWPHCCS) Supplemental Nutrition Assistance Program-Education (SNAP-Ed) demonstration project. The evaluation, which was sponsored by the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture (USDA), included three components: a process evaluation of the program's implementation, an evaluation of the program's impact on nutrition behaviors, and an assessment of the methods and results of NYSDOH's own evaluation of its program.

EWPHCCS is a child-care center based SNAP-Ed program which targets preschool children and their parents and caregivers. The program seeks to improve children's healthy eating and physical activity behavior through a combination of direct and indirect education components targeted to children, their parents and caregivers, and the staff at their childcare center. The program's key behavioral objectives focus on improving children's fruit and vegetable consumption, ensuring they are offered 1 percent or fat-free milk rather than milk with higher fat content, and increasing their physical activity levels. However, the focus of this independent evaluation was on changes in at-home fruit and vegetable consumption and use of 1% or fat-free milk.

The EWPHCCS program had a significant impact on children's daily at-home consumption of vegetables and their at-home use of 1% or fat-free milk based on parental reports. There was also a significant increase in the rate of child-initiated vegetable snacking and a trend toward increased parental offerings of vegetables as a snack, which may have led to the increase in vegetable consumption. Because the effect of the program on fruit consumption was smaller than the effect on vegetable consumption and because the inclusion of fruit increased the variability of the consumption estimates, the effect of the program on the combined measure of fruits and vegetables was not statistically significant.

The process evaluation revealed a high degree of satisfaction with the program by childcare center staff, teachers, parents, and caregivers. Key informants attributed this to the quality of the curriculum content and design, the hands-on activities and practical program materials, and the commitment of the program managers to program fidelity and quality through training and continuing education for the direct educators. However, they also noted the need to identify ways to better reach parents, caregivers, and the diverse populations enrolled at the targeted centers.

A. Background on SNAP-Ed

Under subcontract agreements with State SNAP agencies, a variety of organizations partner to implement SNAP-Ed within States. The goal of these programs is to improve the likelihood that SNAP participants and persons eligible for SNAP nutrition assistance will make healthy food choices within a limited budget and choose physically active lifestyles. FNS' SNAP-Ed Guiding Principles call for interventions that are science-based and behaviorally focused. FNS also requests that States' SNAP-Ed efforts be consistent with the current (2010) Dietary Guidelines for Americans, including the following¹:

¹ See SNAP-Ed Plan Guidance at: <http://www.nal.usda.gov/fns/Guidance/FY2012SNAP-EdGuidance.pdf> and SNAP-Ed Connections website at: <http://snap.nal.usda.gov>

- Eat fruits and vegetables, whole grains, and fat-free or low-fat milk products every day;
- Be physically active every day as part of a healthy lifestyle; and
- Balance caloric intake from food and beverages with calories expended.

The SNAP-Education Plan Guidance also encourages all States to include a component in their SNAP-Education Plans to evaluate the effectiveness of their SNAP-Education interventions. These can include formative, process, outcome, and impact evaluations. In Federal Fiscal Year (FY) 2004, 74 percent of SNAP-Education implementing agencies (IA) reported that they did conduct outcome evaluations on at least some aspects of services. However, based on interviews with 17 IAs, these evaluations were focused to a greater extent on process outcomes, such as program use, than they were on participant behavior change (FNS, 2006). As one of the largest Federal funding sources for nutrition education, FNS, States, and local IAs have a significant stake in ensuring that SNAP-Education meets FNS' goals.

To identify effective models of SNAP-Education and evaluation and to collect information on the implementation and impacts of SNAP-Education programs, FNS contracted with Altarum Institute and RTI International to conduct a rigorous independent evaluation of four competitively selected models of SNAP-Education that show promise for behavior change. The goal of this study is to determine whether the selected projects can serve as good examples of SNAP-Education delivery by meeting the following criteria:

- ▲ Positively affecting the nutrition and health behaviors of SNAP clients while adhering to FNS Guiding Principles,
- ▲ Exhibiting the potential to serve as models of effective nutrition intervention for large segments of the SNAP audience that can be replicated by other IAs, and
- ▲ Providing methodologically robust yet logistically practical examples of project-level SNAP-Education evaluation efforts.

FNS also sought to understand the factors influencing the implementation of these nutrition education programs and lessons learned from these projects' experiences. In early 2009, an FNS study review committee competitively selected four SNAP-Education IAs to participate in the study, including New York State Department of Health (NYSDOH)'s EWP-HCCS program. Each of the four agencies implemented their demonstration programs between March and August of FY 2010 and conducted their own evaluations.

B. Overview of the Eat Well Play Hard in Child Care Settings Program

The EWP-HCCS program was developed as a SNAP-Education program by the NYSDOH and first implemented in 2006. It continues today, operating through seven local subcontracting agencies in 27 counties and four New York City boroughs. The goal of the program is to improve the knowledge, attitudes, and skills of low-income preschool-age children and their parents and caregivers to achieve four broad behavioral goals:

- Increasing young children's consumption of fruits and vegetables
- Ensuring that children drink 1% or fat-free milk rather than milk with higher fat content,
- Increasing the amount of time that young children spend in physical activity, and
- Decreasing the amount of time young children spend watching television.

The design of the EWPHCCS program is based upon the social ecological model of behavior change. Thus, to achieve the desired outcomes of improving children’s dietary habits and increasing physical activity, the EWPHCCS curriculum and materials include multilevel messaging targeted to preschool children, their parents and caregivers, and the people who shape the policies and practices in their childcare environment (i.e., childcare center staff). The program’s three complementary components are described in figure ES-1.

Figure ES-1. —EWPHCCS Program Components

- ▲ **Direct education.** The EWPHCCS curriculum includes ten modules, each with detailed lesson plans and activities that the direct educators use to provide a series of classes for children and their parents or other caregivers. The direct educators select six of the curriculum’s modules, including one focused on physical activity, to implement at each center. They provide six classes to children in individual classrooms, and six classes are offered to parents who are recruited and volunteer to participate. While complementary in terms of their messages and goals, the lessons are taught separately to children and parents on a weekly basis over a 6- to 10-week period.
- ▲ **Indirect education to parents and caregivers provided through take-home materials and activities.** At the end of each child lesson, children take home a newsletter, *Parent Pages*, which introduces their families to the lesson of the day and includes a recipe, activities the adults can do with their children, and complementary informational worksheets on specific nutrition topics intended to extend the lesson to the home. Adults who participate in the parent classes receive additional educational materials that complement the week’s lesson.
- ▲ **Self-assessments and training for childcare center staff.** The EWPHCCS educator works with each center director to identify areas of policy improvement that can enhance nutrition and physical activity opportunities at the center. The educator also teaches at least two classes to the center’s staff members to help them integrate the program’s messages into their classroom activities when the EWPHCCS educator is not there.

C. Study Methodology

1. Evaluation Design

The independent evaluation was designed to examine the implementation and impact of the program in two strata: services provided in New York City and services provided elsewhere in New York State. From within each stratum, six pairs of SNAP-Ed-eligible centers were selected for inclusion in the study based on center type (standard versus Head Start), region, and size. Within each pair, one center was randomly assigned to receive the intervention, while the other was assigned to the control group. Twelve centers received the EWPHCCS program between March and June 2010 and were included in both the impact and process evaluations.

2. Process Evaluation Methods

The EWPHCCS process evaluation began by creating a baseline description of the objectives, approach, and components of the design, administration, and implementation of the program. This information was

obtained from interviews with program-level staff members and from secondary documents.² Once the intervention was implemented, data collection and analysis of information on factors influencing the implementation and the lessons learned for program improvement and replicability began. This information was gained from in-person and telephone interviews with state and subcontracting agency program managers, educators who implemented EWPHCCS, center directors, and teachers. To supplement the interviews, onsite observations of direct education at three centers were conducted to assess how well direct educators followed the curriculum for the child and parent classes, observe child and parent engagement levels, and to document any factors that may have supported or impeded program implementation. Key informant responses to each interview or questionnaire item were compiled into a master Microsoft Word 2007 document and organized by broad process evaluation research questions and process indicators. This approach helped to organize the extensive amount of information that was available and allowed for the identification of broad themes (e.g., implementation facilitators and challenges) and specific topics (e.g., lesson plan scheduling) as well as agreement and disagreement amongst respondents.

Another important component of the process evaluation was the assessment of the experience and satisfaction of the parents and caregivers with the intervention. Information was collected on factors such as program accessibility for parents and caregivers, perceived goals of the program, how the program helped them change their children's nutrition behaviors, and potential barriers faced in trying to increase their children's fruit and vegetable intake. These data were collected through a follow-up parent survey and focus groups with a subset of parents and caregivers at three intervention sites who attended at least one of the parent classes.

Program administrative data were used to assess the program's reach and estimate the amount of exposure that child and adult participants had to the EWPHCCS. The process evaluation findings also describe the resources and costs NYSDOH needed to implement and evaluate the EWPHCCS program and the cost per child participant.

The analysis approach for the process evaluation was primarily qualitative, encompassing the triangulation of information collected from secondary data sources, interviews with key informants, and parent and caregiver focus groups. Quantitative analysis was conducted on program reach, dosage, cost, and the parent follow-up survey responses.

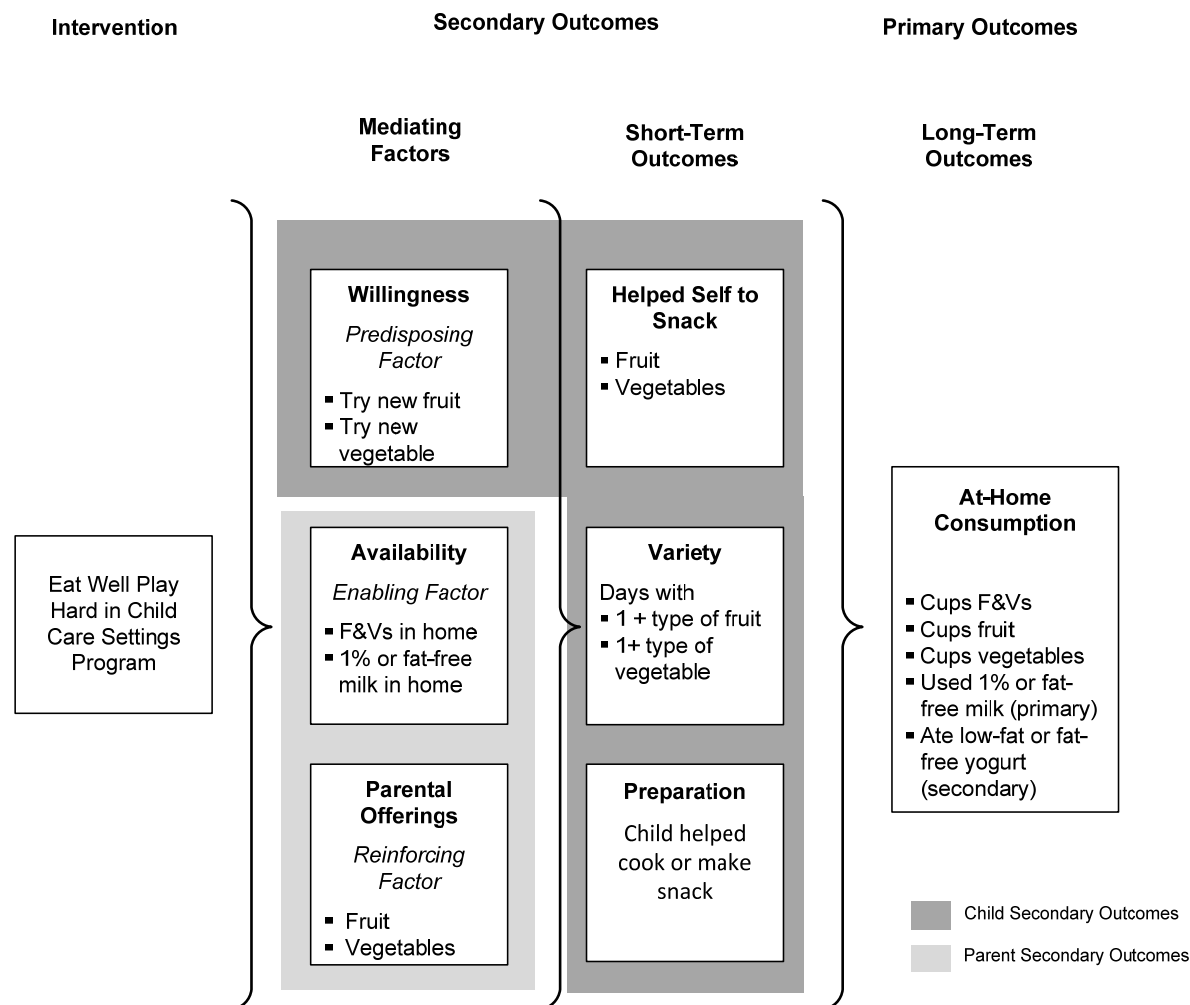
3. Impact Evaluation Methods

To better understand the factors affecting behavioral change, the analysis included an examination of potential program effects. The framework shown in figure ES-2 enables the evaluation of the effects of the EWPHCCS program through the specification of secondary outcomes that link the intervention to the long-term outcome of the child's average daily at-home consumption of fruits and vegetables. The secondary outcomes capture, in greater detail, some of the complexity of the behavior change process. The greater the number and strength of the changes seen among the secondary outcomes, the greater the likelihood of observing change in fruit and vegetable consumption.

The independent evaluators assessed the impact of the program on the primary outcome measure of the child's average daily at-home consumption of fruits and vegetables. Based on FNS's interest in observing

² Documents included NYSDOH's application to FNS for this study, NYSDOH program reports, the EWPHCCS curriculum, and outlines used for training direct educators.

Figure ES-2.— Conceptual Framework for the EWPHCCS Program Impact Evaluation



Adapted from: Green, L. W., Kreuter, M. W., Deeds, S. G., & Partridge, K. B. (1980). *Health education planning: A diagnostic approach*. Palo Alto, CA: Mayfield Publishing Co.

a minimum increase in children’s dietary intake of 0.30 standard deviation units, it was hypothesized that children participating in the program would increase their average daily at-home consumption of fruits and vegetables by approximately 0.30 cups per day compared with children not participating in the program. The impact of the program on use of 1% or fat-free milk during the past week (primary outcome) and consumption of low-fat or fat-free yogurt (secondary outcome) was also examined.

The impact analysis considered the following secondary outcome measures:

- ▲ Variety—eat more than one type of fruit or vegetable each day,
- ▲ Snacking—help oneself to or request a fruit or vegetable as a snack,
- ▲ Preparation—help parent make snacks or meals,
- ▲ Willingness—willingness to try new fruits and vegetables,

- ▲ Availability—average weekly at-home availability of fruits and vegetables and 1% or fat-free milk, and
- ▲ Parental offerings—frequency of parental offerings of fruits or vegetables as a snack and at dinner.

Using a mail and telephone survey approach, parents and caregivers were surveyed at baseline and follow-up to collect information on their child’s consumption and other dietary behaviors at home.³ The combined consent and response rate for the baseline survey was 76 percent for the intervention group and 74 percent for the control group. The response rate for the follow-up survey was 80 percent for the intervention group and 78 percent for the control group. The potential impact of attrition from the evaluation study on generalizability was investigated by comparing the pre-intervention similarity of study participants who provided follow-up data and those who did not. The two groups differed with regard to respondent race and ethnicity and age.

General linear mixed models (continuous impact variables) and generalized linear mixed models (dichotomous impact variables) were used to evaluate the impact of the program while accounting for the clustering of children within childcare centers. These models were estimated via difference-in-difference estimates of program effect, comparing change across time (baseline and follow-up) in the intervention group with change across time in the control group. Covariates in the model included child age, child sex, household size, respondent race and ethnicity, respondent age, and respondent sex. Because the treatment impact for the primary outcome measure did not differ between the two regions (within versus outside New York City), it was not necessary to include region in the impact model specification.

4. Methods for the Assessment of NYSDOH’s Self-Evaluation

This study also examined the soundness of the NYSDOH’s self-evaluation. This assessment included a detailed description of NYSDOH’s evaluation methodology, including the management, staffing, and costs of the evaluation; an assessment of the quality of NYSDOH’s evaluation, including an identification of strengths, weaknesses, and areas of improvement; and a comparison of NYSDOH’s evaluation results with those of the independent impact evaluation.

D. Process Evaluation Findings

In FY 2010, 17 full-time equivalent direct educators conducted the EWPHCCS program at 246 childcare centers across New York State. Approximately half (51 percent) of these centers were located in New York City, and the remainder were located in 27 counties elsewhere in the State. That year, the program reached 10,314 preschool children statewide. Based on the program’s statewide reach and FY 2010 implementation costs, it cost approximately \$296 per child to implement the EWPHCCS program.

At the subset of 12 intervention centers included in the evaluation, 728 children participated in EWPHCCS classes and according to the parent survey results, 97 percent of parents and caregivers received and read all or some of the weekly program newsletters (Parent Pages) and 77 percent used one or more of the EWPHCCS fruit and vegetable worksheets with their child. Attendance at the program’s weekly parent classes, however, was very low at the intervention centers. According to NYSDOH administrative data, only 88 parents at these sites participated in one more EWPHCCS class, equal to 12 percent of the child participants. The percent of eligible parents and caregivers who participated in

³ The survey instrument and other survey materials were available in English and Spanish.

EWPHCCS classes was notably higher in the New York City sites than elsewhere in the State, but still low in both regions (20 percent versus 6 percent).

1. Key Informant Perspectives on Program Implementation

Overall, program managers, direct educators, and childcare staff involved with the EWPHCCS demonstration project reported that many factors in the program’s design and the relevance of its materials and teaching methods for the selected target audience make it a most relevant and enjoyable program to implement. The program’s direct educators generally also found it easy to recruit childcare centers to participate, based on its positive reputation. The most commonly reported facilitators to program implementation were: high levels of engagement and support from most center directors; the usefulness and relevance of its nutrition education messages, teaching methods, and take-home materials; and the fact that nearly all the classroom teachers incorporated the EWPHCCS messages at least once weekly, and usually more often, in their interactions with the children at mealtime and in the classroom.

At the same time, interviews with the program implementers and our nutrition education observations also identified several critical challenges to implementing this program in centers. The most commonly reported challenges were reaching and engaging parents and caregivers to participate in the classes, the varied levels of center director engagement, and the large number of non-English speaking parents at the targeted centers.

2. Caregiver Satisfaction and Use of Program Materials and Classes

Parent and caregiver survey results and focus group discussions revealed a relatively high level of satisfaction with the EWPHCCS program materials. When parent and caregiver follow-up survey respondents were asked about their level of understanding of the program materials, 79 percent reported that the materials were very easy or easy to understand. When asked to quantify how useful the program materials and classes were in helping their child eat healthier foods, 68 percent of respondents found the EWPHCCS written materials “very useful” or “useful.” Although attendance in the parent classes was very low, approximately one-half (51 percent) of those who came to at least one EWPHCCS parent class came back and attended a total of three or more of the six-class series. Moreover, 90 percent of respondents who attended EWPHCCS parent classes reported that these lessons were “very useful” or “useful” for them.

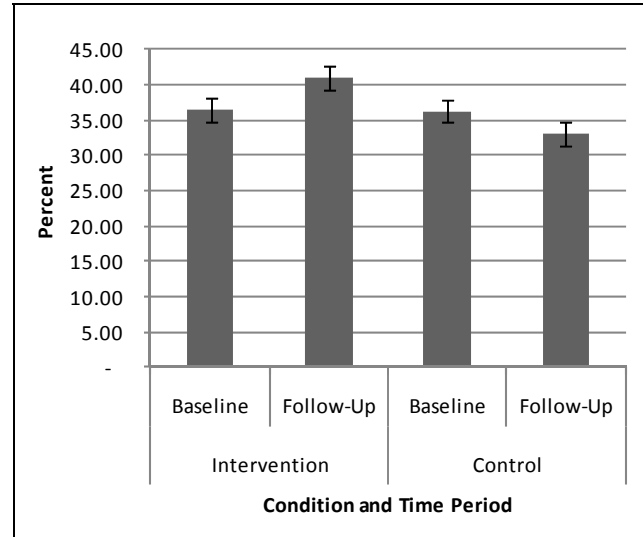
E. Impact Evaluation Findings

1. Primary Impact Results

The baseline analysis included 1,143 parent and caregiver respondents, with 552 in the intervention group and 591 in the control group. Approximately half the parents and caregivers participating in the evaluation were from NYC centers. At baseline, children in the intervention and control groups were significantly different in age (4.51 vs. 4.34 years, $p = 0.0003$). However, this difference of a couple months is unlikely to translate into a meaningful difference developmentally between groups in terms of its impact on program outcomes. There were no statistically significant differences in the characteristics of parent and caregiver respondents and their households or in outcome measures between the intervention and control groups.

Effects on use of 1% or fat-free milk. The EWPHCCS program had a significant impact on whether a child used 1% or fat-free milk at home during the past week (see figure ES-3). Between baseline and follow-up, the proportion of parents and caregivers who reported that their child used 1% or fat-free milk increased in the intervention group and decreased in the control group. The results of the impact model suggest that children in the intervention group were about 39 percent more likely than children in the control group to drink or use 1% or fat-free milk on their cereal. The WIC Program’s food packages added a requirement for children to be issued 1% or less milk on October 1, 2009, substantially before the intervention, thus ruling this out as an environmental factor contributing to the observed increase.

Figure ES-3. — Changes in Percentage of Children Using 1% or Fat-Free Milk during the Past Week (p = 0.0241)

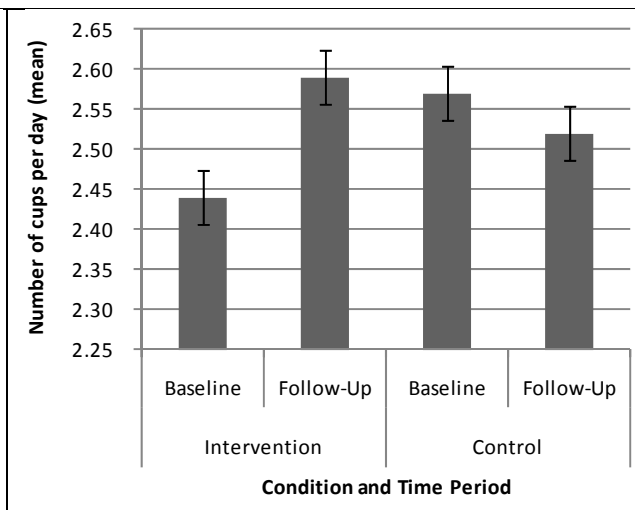
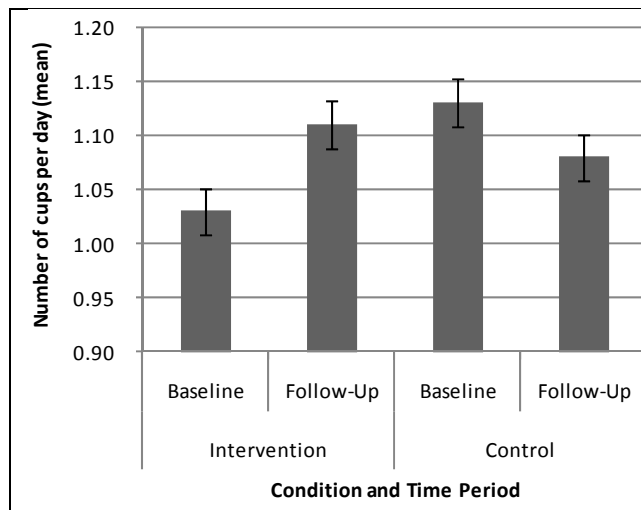


Impacts on vegetable consumption. Between baseline and follow-up, the mean number of cups of vegetables that children consumed each day increased for the intervention group and decreased for the control group. These changes resulted in a net increase of 0.12 mean cups, which was a statistically significant change over time (see figure ES-4).

A similar pattern was observed for total fruits and vegetables: a net increase of approximately 0.19 cups in the mean number of fruit and vegetables consumed by children a day. However, because the effect of the program on fruit consumption was smaller than the effect on vegetable consumption and because the inclusion of fruit increased the variability of the consumption estimates, the effect of the program on the combined measure of fruits and vegetables was not statistically significant (see figure ES-5).

Figure ES-4. — Changes in Daily At-Home Consumption of Vegetables (p = 0.0427)

Figure ES-5. — Changes in Daily At-Home Consumption of Fruits and Vegetables (p = 0.1737)



2. Secondary Impact Results

Consistent with the impacts on vegetable consumption, there was a statistically significant increase in the rate of child-initiated vegetable snacking (see figure ES-6) and a trend toward increased parent and caregiver offerings of vegetables as snacks (see figure ES-7), which may have caused the observed increase in vegetable consumption. The net increase in the number of days per week that children helped themselves or asked for vegetables as a snack was 0.34 days; which is equal to about 1 day for a 5-week period.

Figure ES-6. — Changes in Children Asking or Helping Themselves to Vegetables as a Snack (p = 0.0146)

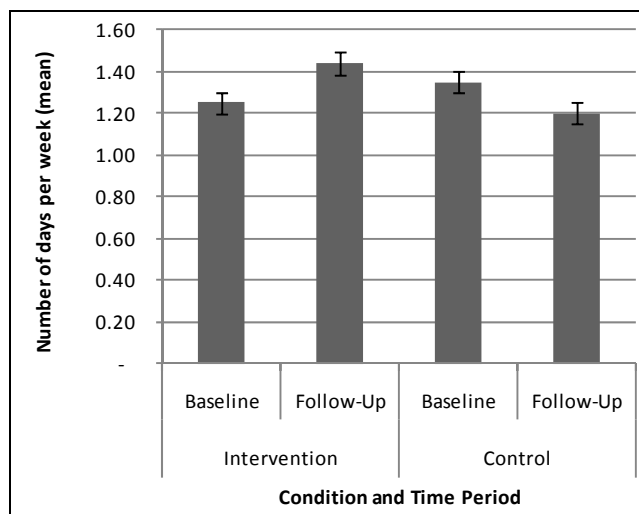
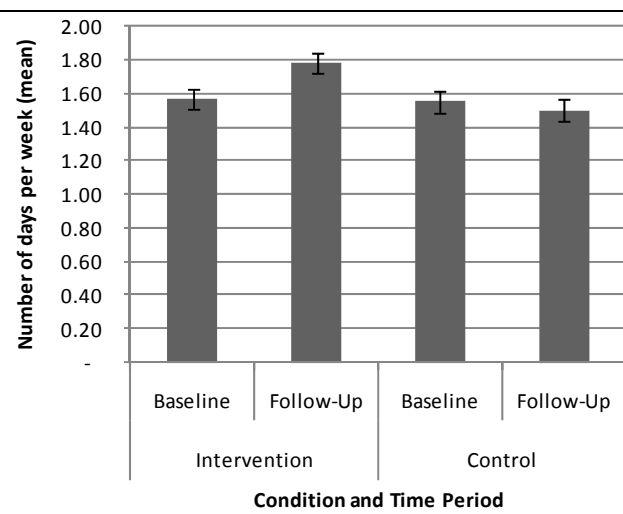


Figure ES-7. — Changes in Parents Offering Vegetables as a Snack (p = 0.0644)



The net increase in the number of days that parents and caregivers offered their child a vegetable as a snack was 0.25 days. Although this increase was not statistically significant at the 0.05 level, the change is in the predicted direction, and the pattern is consistent with other results for vegetable consumption. These findings suggest that the EWPHCCS program encouraged children to eat more vegetables at home. These behaviors, if sustained, may lead to a greater increase in at-home consumption of vegetables among children.

F. Findings from the Assessment of NYSDOH's Self-Evaluation

The NYSDOH evaluation employed a one-group pre-post test design using surveys of parents of children enrolled in EWPHCCS. A strength of the evaluation was the low amount of item nonresponse (missing data) for a mail survey. Weaknesses included a poor comparison strategy, an inadequate sampling approach, lack of standardized procedures for the data collection, and data analyses that were not appropriate for the given evaluation design (i.e., their analyses did not account for the clustering of children within centers).

The NYSDOH evaluation found that the EWPHCCS program had a statistically significant increase on children's use of 1% or fat-free milk at home, which is consistent with the findings from the independent evaluation. Although the NYSDOH evaluation did not measure children's fruit and vegetable

consumption, significant improvements were reported for parent-related behavior (increased frequency of offering their child fruit two or times a day and offering new fruits and vegetables. The independent evaluation did not show an impact on similar measures (children eating a variety of fruits and vegetables, children's willingness to try new fruits and vegetables, or parental offerings of fruits or vegetables at dinner) but did find a statistically significant impact for at-home vegetable consumption. Differences in the evaluation methodology for NYSDOH's evaluation and the independent evaluation, including instrumentation and analysis procedures, need to be considered when comparing the results of the two studies.

Based on lessons learned by NYSDOH during this demonstration project evaluation, the agency hopes to improve future program evaluation efforts. NYSDOH is interested in conducting a qualitative data collection effort that would build upon the process findings from this independent evaluation. Should resources permit, NYSDOH staff also expressed an interest in standardizing their survey data collection procedures, testing the validity of their survey instrument, and considering a more rigorous evaluation that would survey parents only at a sample, rather than the universe, of the intervention centers.

G. Recommendations

Based on the findings from the independent evaluation, the EWPCCS intervention resulted in a measurable increase in children's daily at-home consumption of vegetables and their use of 1% or fat-free milk during the past week. A significant increase and an upward trend were also observed in two of the secondary outcome measures. Additionally, program managers, direct educators, and center staff reported that EWPCCS program implementation is not burdensome on centers and is relatively easy to implement. Parents and caregivers of children receiving the intervention reported high levels of satisfaction with the program's messages and materials, high use of its take-home materials, and more than 90 percent of those who attended the parent classes said they were very useful or useful in helping them to change their children's nutrition behaviors. For these reasons, the EWPCCS program exhibits the potential to serve as a national model of effective nutrition education for preschool children and their families, who comprise a large portion of the SNAP audience.

▲ Key Areas for Program Improvement

Overall, input from program staff, parents, and caregivers suggests that revisions could further enhance the effectiveness of the EWPCCS program in reaching its target audiences. The process evaluation findings suggest the following recommendations for program improvements:

- **Maximize parent and caregiver participation.** To reach more parents and caregivers with the direct education component of the program, key informants suggested revising the class scheduling, for example by offering classes at both morning and afternoon time slots. Participation might also increase if the format of the parent classes was modified. Suggestions include offering some joint parent and child events and asking parents to share recipes they use to help their children try fruits and vegetables.
- **Communicate expectations to center directors for assistance needed in program implementation.** To further enhance center directors' engagement and their support in program implementation, written expectations for center director engagement could be provided at the time centers are recruited to participate. If more center directors are actively engaged in raising awareness and recruiting for the parent classes, this could help increase both parent and center staff interest and engagement in the program's educational activities.

- **Increase bilingual educators and revise materials to reach non-English speaking adults.** To better reach the large number of non-English speaking parents served by the program in New York, key informants also suggested hiring more bilingual direct educators and reviewing the program's recipes to better tailor them to diverse cultural food habits. As NYSDOH is currently planning, program materials should be revised to include more visuals that could be universally understood by non-English speakers and parents and caregivers with low literacy levels.
- **Address the cost barrier raised by parents and caregivers.** To more adequately address parent and caregiver concerns about the costs of fruits and vegetables, the parent lessons and take home materials could be supplemented with more information on meal planning and shopping on a limited budget. Consistent with the current (2010) Dietary Guidelines for Americans, SNAP-Ed program materials and direct educators should encourage the use of all forms of fruits and vegetables, including fresh, frozen, canned, and dried (USDA, CNPP 2011). Revisions or additions to the program handouts could be made to include more recipes using the same fruits or vegetables. Additionally, the program should provide parents and caregivers informational materials to help them access food assistance programs they may be eligible for including SNAP, WIC, and emergency food programs.

Some of these suggested program improvements would require additional resources and may not be feasible for NYSDOH to implement. However, adopting one or more of these recommendations could improve the program's implementation and potentially enhance its desired behavioral impacts.

▲ **Suggestions for Improving Evaluations**

Because a rigorous impact evaluation was conducted for the EWPHCCS and the program was found to impact several nutrition behaviors, it may not be necessary for NYSDOH to conduct future evaluations of the program, unless significant changes are made to the intervention. If NYSDOH decides to conduct a future evaluation of EWPHCCS or when planning evaluations of other programs, NYSDOH may want to consider revisions to their evaluation approach to improve its rigor. Their evaluation can be strengthened by reducing the number of centers for which data are collected for the evaluation study. If resources permit, NYSDOH may want to include a control or comparison group; however, if this is not feasible an alternative approach would be to conduct several rounds of data collection pre- and post-intervention for interrupted time series analyses. It is also recommended that NYSDOH determine the anticipated size of the program impact on the target audience before the intervention, account for the clustering of children within centers when conducting their analyses, and use standardized procedures for data collection including procedures to maximize the response rate. These changes would improve the quality of NYSDOH's future evaluations and increase their ability to accurately measure changes attributable to the program.

Chapter I • Introduction

Nutrition education is an optional component of the Supplemental Nutrition Assistance Program (SNAP), known as SNAP-Education or SNAP-Ed. The goal of SNAP-Ed is to improve the likelihood that SNAP participants and persons eligible for SNAP nutrition assistance will make healthy food choices within a limited budget and choose physically active lifestyles consistent with the current (2010) Dietary Guidelines for Americans (USDA, CNPP, 2011).

The Food and Nutrition Service's (FNS) official SNAP-Ed Guidance not only provides information to help States in designing and implementing SNAP-Ed programs, but also specifically encourages States to evaluate the effectiveness of their SNAP-Ed programs.⁴ In FY 2004, 74 percent of SNAP-Ed implementing agencies (IA) reported that they conducted outcome evaluations on at least some aspects of services. However, based on interviews with 17 IAs these evaluations were focused to a greater extent on program use than they were on participant behavior change (FNS, 2006). As one of the largest Federal funding sources for nutrition education, FNS, States, and local IAs have a significant stake in ensuring that SNAP-Ed nutrition education meets FNS' goals.

This study, *Models of SNAP Education and Evaluation (Wave I)*, is the first of two FNS-initiated independent evaluations designed to identify potential models of effective SNAP-Ed nutrition education and impact evaluation. The overarching goal of this evaluation is to determine whether the selected projects can serve as good examples of effective nutrition education and promotion activities within SNAP-Ed by meeting the following criteria:

- Positively impacting the nutrition and health behaviors of SNAP participants while adhering to FNS SNAP-Ed Guiding Principles,
- Exhibiting the potential to serve as models of effective nutrition intervention for large segments of the SNAP audience while requiring levels of resources that are manageable by a large percentage of SNAP-Ed implementing agencies, and
- Providing methodologically robust yet logistically practical examples of project-level SNAP-Ed evaluation efforts.

To accomplish the study goal, three complementary types of assessments were conducted: a process evaluation, an impact evaluation, and an assessment of the demonstration project's own outcome or impact evaluations. Exhibit I-1 lists the broad research questions framing the design and measures used in each component of the evaluation.

⁴ See SNAP-Ed Plan Guidance at: <http://www.nal.usda.gov/fns/Guidance/FY2012SNAP-EdGuidance.pdf>

Exhibit I-1.— Research Questions

Process Evaluation

- What were the demonstration project’s overall objectives and approach?
- How was the interventions implemented and administered?
- How many people did the intervention reach, and how much exposure did participants have to it?
- What resources and costs were needed for the design (where relevant) and implementation of the intervention?
- What were the facilitators, challenges, and lessons learned regarding implementation and administration of the intervention?
- What feedback did participants have about the implementation of and their satisfaction with the intervention?

Impact Evaluation

- What was the intervention’s impact on primary nutrition behavioral outcomes (i.e., cups of fruits and vegetables consumed)?
- What was the intervention’s impact on secondary outcomes (i.e., eating a variety of fruits and vegetables each day)?

Assessment of the Demonstration Project’s Self-Evaluation

- How did the demonstration project’s actual evaluation compare with its ideal planned evaluation?
- What were the resources needed and costs of the evaluation?
- What were the results of the self-evaluation, and how did they compare with the independent impact evaluation?
- What were the lessons learned?

A. Selection of Wave I Demonstration Projects

In FY 2008, FNS issued a request for applications to states to propose models of SNAP-Education and evaluation and participate in the FNS-funded independent evaluation. Applicants proposed various program and evaluation designs with children and/or women as their primary target audience. Numerous applications were received, including ongoing SNAP-Ed programs, modifications to existing programs, or new programming models. Each application was competitively scored and ranked by an independent technical review panel, chaired by FNS. The quality criteria used for scoring are shown in exhibit I-2. The highest scoring applicants were selected as finalists and asked to respond to clarification questions. Based on these responses, the review panel selected four projects to participate in the study:

- ▲ **New York State Department of Health’s (NYSDOH) Eat Well Play Hard in Child Care Settings,**
- ▲ **University of Nevada Cooperative Extension Service’s (UNCE) All 4 Kids,**
- ▲ **Chickasaw Nation Nutrition Services’ (CNNS) Eagle Adventure, and**
- ▲ **Pennsylvania State University’s (PSU) About Eating.**

Each of the four agencies implemented model SNAP-Ed programs in fiscal year (FY) 2010 and conducted their own evaluations, supported by SNAP-Ed administrative funds and State and local matching resources. Selected demonstration projects received a \$100,000 incentive to offset expenses directly incurred as a result of their participation in this evaluation project, such as those associated with facilitating access to SNAP-Ed participants, participation in interviews, record keeping, and providing documents describing the implementer’s SNAP-Ed intervention and evaluation processes.

Exhibit I-2.— Scoring Criteria Used For Demonstration Project Selection

Criterion	Specific Requirements
Quality of intervention plan (30 points)	<ul style="list-style-type: none">• Incorporates SNAP-Ed Guiding Principles• Budgets are provided as per SNAP-Ed annual guidance
Intervention schedule fits the proposed FNS data collection period (5 points)	<ul style="list-style-type: none">• Intervention will begin and end sometime between March 2010 and September 2010
Suitability for an FNS evaluation using a rigorous impact evaluation design (30 points)	<ul style="list-style-type: none">• Can support the random assignment of multiple units (person, classes, etc.) to treatment and control conditions or the quasi-experimental, non-random assignment of matched units to both treatment and control groups• If <i>other</i> nutrition education or promotions are delivered to the target audience, they are delivered to both the treatment and control groups during the course of the project
Promise for replication (15 points)	<ul style="list-style-type: none">• <i>Does not</i> require unusually high levels of resources and technical expertise• Materials and curricula are, or can be made, readily accessible to other nutrition educators
Quality of staff and staffing plan (20 points)	<ul style="list-style-type: none">• Individuals with key project responsibilities are identified and their allocated hours are indicated and adequate• Proposed staff members are well qualified and planned training is provided

The evaluation of NYSDOH’s Eat Well Play Hard in Child Care Settings (EWPHCCS) program is the focus of this case study report. Similar case study reports have been prepared for the other demonstration projects. Key evaluation findings and cross-cutting themes from across all Wave I demonstration projects are presented in a separate final report.⁵

B. Overview of the Eat Well Play Hard in Child Care Settings Program

The EWPHCCS program was developed as a SNAP-Ed program by the NYSDOH and first implemented in 2006. It continues today, operating in 27 counties and four New York City boroughs. The four behavioral outcome goals of the EWPHCCS program are to:

- increase young children’s consumption of fruits and vegetables,
- ensure that children drink 1% or fat-free milk rather than milk with higher fat content,
- increase the amount of time that young children spend in physical activity, and
- decrease the amount of time they spend watching television.

The design of the EWPHCCS program is based upon the social ecological model of behavior change. Thus, to achieve the desired outcomes of improving dietary habits and increasing physical activity, the EWPHCCS curriculum and materials include multilevel messaging targeted to preschool children, their parents and caregivers, and other adults who are influential role models for young children and shape the policies and practices in the childcare environment (i.e., childcare center staff). The program’s three complementary components are as follows:

⁵ The individual case studies and integrated final report are published separately and available at www.fns.usda.gov/ora/.

- **Direct education.** The EWPHCCS curriculum includes ten modules, each with detailed lesson plans and activities that the direct educators use to provide a series of classes for children and their parents or other caregivers. The direct educators select six of the curriculum’s modules, including one focused on physical activity, to implement at each center. They provide six classes to children in individual classrooms, and six classes are offered to parents who are recruited and volunteer to participate. While complementary in terms of their messages and goals, the lessons are taught separately to children and parents on a weekly basis over a 6- to 10-week period.
- **Indirect education to parents and caregivers provided through take-home materials and activities.** At the end of each child lesson, children take home a newsletter, *Parent Pages*, which introduces their families to the lesson of the day and includes a recipe, activities the adults can do with their children, and corresponding informational worksheets on specific nutrition topics intended to extend the lesson to the home. Adults who participate in the parent classes receive additional educational materials that complement the week’s lesson.
- **Self-assessments and training for childcare center staff.** The EWPHCCS educator works with each center director to identify areas of policy improvement that can enhance nutrition and physical activity opportunities at the center. The educator also teaches at least two classes to the center’s staff members to help them integrate the program’s messages into their classroom activities when the EWPHCCS educator is not there.

The program is administered at the state level by the NYSDOH and locally through seven subcontracting agencies. The subcontracting agencies employ and directly supervise the program’s direct educators who implement the program at childcare centers. To be eligible to participate, centers must be actively enrolled in the Child and Adult Care Food Program (CACFP) and at least 50 percent of the children they serve must qualify for free or reduced-price meals.

During Federal fiscal year (FFY) 2010, the EWPHCCS program was implemented at 246 childcare centers, reaching more than 10,000 children and their parents and caregivers. The FNS independent evaluation was conducted at a sample of 12 of these centers, using the same program staff and program guidelines as the statewide program. The evaluation included six intervention childcare centers in New York City and six elsewhere in New York State. Eleven direct educators taught the program at these sites, each implementing the program within a 6- to 10-week timeframe between March and June 2010. Twelve centers that were also eligible to participate in EWPHCCS in FY 2010 served as comparison sites.

C. Organization of the Report

This report provides a detailed summary of the findings and conclusions of, as well as the specific methods used in, the evaluation of the EWPHCCS demonstration project. Outlined below are the topics addressed in each of the remaining chapters of this report:

- Chapter II: Process Evaluation Methods and Results,
- Chapter III: Impact Evaluation Methods and Results,
- Chapter IV: Assessment of NYSDOH’s Self-Evaluation, and
- Chapter V: Conclusions and Discussion.

Following these chapters is a series of appendices which include data collection instruments, supplemental data, and detailed descriptions of the methods employed for each of the three components of the evaluation. Additionally, Appendix J provides a complete list of all cited references within this report.

Chapter II ● Process Evaluation Methods and Results

This chapter describes the findings of the process evaluation of the New York State Department of Health (NYSDOH)'s Eat Well Play Hard in Child Care Settings (EWPHCCS) program. The overall goal of the process evaluation is to describe the design and implementation of the intervention as well as examine the success of the implementation process from the perspectives of the program managers, direct educators, intervention site staff, and program participants. The data sources, data collection methods, and analysis approach for the process evaluation are summarized below and detailed in appendix G.

A. Process Evaluation Methods

The broad process-focused research questions described in Chapter I guided the design of the EWPHCCS evaluation. To address the research questions it was necessary to gather both objective and subjective information; as such, the process evaluation team acquired and assessed data from secondary and primary data sources using multiple methods, including data abstraction; in-depth, open-ended interviews with stakeholders; direct nutrition education observation; and focus groups with parents and caregivers of children who attended the EWPHCCS lessons at the demonstration project's intervention sites.

1. Data Sources

The secondary data sources that were collected and reviewed at various stages of the evaluation are provided in exhibit II-1. These served as rich sources of descriptive, objective information on key aspects of the demonstration project's design and implementation. The data sources that were collected and reviewed by the evaluation team can be categorized into four groups: planning and reporting documents, implementation documents, administrative data on program reach and dosage, and program costs.

Key Findings

- **Program Reach and Cost:** In FFY 2010, the New York State EWPHCCS program reached 10,314 children and their parents and caregivers at 246 childcare centers, at an estimated cost of \$296.36 per child.
- **Ease of Implementation:** EWPHCCS program managers, direct educators, and childcare center staff reported that the design of EWPHCCS, including the format of the lesson plans and its emphasis on quality improvement and training, make it easy to recruit centers and implement the program.
- **Caregiver Satisfaction:** Parent and caregiver survey results and focus group discussions revealed a high level of use and satisfaction with the program materials.
- **Center Director Support:** Center directors interviewed were highly satisfied with the design of EWPHCCS program. EWPHCCS direct educators reported that the overall high level of center director satisfaction with the program and support many provided in encouraging teacher and parent engagement was key to their successful implementation.
- **Parent and Caregiver Participation:** Parent and caregiver participation in the formal classes was very low. Scheduling conflicts and lack of awareness were by far the most common reasons cited by parents and caregivers for not attending these classes. Revisions could be made to increase parent class attendance and provide other in-person educational opportunities for parents and caregivers.

Exhibit II-1.— Secondary Data Collected for the Process Evaluation of the EWPHCCS Demonstration Project

Document Category	Specific Documents Reviewed
Planning and Reporting Documents	<ul style="list-style-type: none"> • Demonstration project application • FY 2010 SNAP-Ed Plan
Implementation Documents	<ul style="list-style-type: none"> • The EWPHCCS curriculum (10 modules) • Copies of <i>Parent Pages</i> for each module (take-home educational materials) • Direct educator toolkit (list of items needed to implement EWPHCCS) • Direct educator training agenda • EWPHCCS childcare center training observation form • Link-it-lessons (used in the program only in NYC) • Nutrition education lesson plans
Administrative Data on Program Reach and Dosage	<ul style="list-style-type: none"> • NYSDOH administrative data collected for the SNAP-Ed Education and Administrative Reporting System (by site) on: number and demographics of child and parent participants in EWPHCCS, number of lessons offered per center, and class attendance per child participant
Program Costs^a	<ul style="list-style-type: none"> • Standardized cost tables consistent with FNS SNAP-Ed expenditure reporting requirements

^a The evaluators provided a form for NYSDOH to complete to ensure cost data were collected in a standardized way (see “Resource and expenses tracking form” in appendix A).

Primary data were collected through questionnaires and interviews with three categories of key informants: EWPHCCS program-level staff (program managers and direct educators), intervention site key informants (childcare center directors and classroom teachers), and parents and caregivers of children who participated in EWPHCCS. The interviews with center directors were conducted on-site at three selected childcare centers (one in Troy and two in New York City). The program staff and center directors were interviewed approximately one month prior to the start of the EWPHCCS program at the intervention sites and within 1–3 weeks after completion of the last lesson. Process information was collected from the classroom teachers only post-intervention, after the last EWPHCCS class was completed at their center. At three centers the teachers filled out survey questionnaires during an evaluation site visit. At the other 9 intervention centers teachers were mailed the questionnaire. In total, 32 of 40 intervention classroom teachers completed the questionnaires.

Another important component of the process evaluation was the assessment of the experience and satisfaction of the parents and caregivers with the intervention. Information was collected on factors such as program accessibility for parents and caregivers, perceived goals of the program, how the program helped them change their children’s nutrition behaviors, and potential barriers faced in trying to increase their children’s fruit and vegetable intake. These data were collected through a follow-up parent survey and post-intervention focus groups with a subset of parents and caregivers who had attended at least one EWPHCCS parent class.

Descriptive information about the types of respondents, number of respondents by type, and timing of data collection are presented in exhibit II-2. Descriptive statistics on the demographics of focus group participants are provided in appendix B.

Exhibit II-2.— EWPHCCS Process Evaluation Respondent Types, Data Collection Methods, and Number of Respondents

Type of Respondent	Data Collection Method	Number of Respondents	
		Pre-intervention	Post-intervention
EWPHCCS Program Staff			
State Implementing Agency Program Managers	Interview	3	3
New York City Subcontracting Agency Program Managers	Interview	2	n/a
Direct Educators	Interview	11	11
Intervention Site Staff			
Center Directors	Interview	3	3
Lead Teachers	Questionnaire	n/a	32
Program Participants			
Parents or Other Primary Caregivers of Children Who Participated in EWPHCCS Program	Focus Group	n/a	3 groups (23 adults)
	Survey ^a	n/a	440

^aProcess questions included in parent follow-up survey

Note: n/a = not applicable

At each of the three center site visits, evaluation team members also observed several child classes and one parent class. During these observations, the classroom setting, classroom teachers’ role, participants’ interest in the nutrition education lessons, and a description of how implementation was consistent with or deviated from the lesson plan were documented. The evaluator also spoke briefly with the direct educator after the class observation to identify facilitators and challenges to implementation of the lesson plan in the observed setting.

2. Instrumentation

Data collectors used a set of standardized secondary data abstraction tools and primary data collection instruments for the evaluation. The wording of many of the questions in each key informant interview guide and the focus group discussion guide was tailored to the specific characteristics of the EWPHCCS program. All data collectors were trained on the use of these approved instruments to collect information essential to answering the process-related research questions and queries. In addition, key informant interviews included relevant, probing questions to allow for in-depth discussions of important issues or topics. Copies of most of the instruments are provided in appendix A. The parent follow-up survey instrument which was also used for the impact evaluation is included in appendix C.

3. Analysis Approach

The evaluation team applied an analysis approach to the data that takes into account the range of data and respondent types used in the process evaluation. Key informant responses to each interview or questionnaire item were compiled into a master Microsoft Word 2007 document and organized by broad process evaluation research questions and process indicators. This approach helped to organize the extensive amount of information that was available and allowed for the identification of broad themes (e.g., implementation facilitators and challenges) and specific topics (e.g., lesson plan scheduling) as well as

agreement and disagreement amongst respondents. Direct quotations were also identified where relevant and used to support key findings.

Quantitative process data were primarily used to describe objective aspects of the EWPHCCS intervention, such as those related to dose, reach, and costs. With the exception of cost data, which were provided through a series of standardized tables, these data were received in or entered into Microsoft Excel spreadsheets. Excel was then used to conduct basic frequencies and mean tabulations. Quantitative process data collected from parents or caregivers through the post-intervention parent survey were analyzed using SAS 9.2. Frequencies of participant responses to each process question are reported in appendix B and incorporated with the qualitative findings that follow in this chapter.

Transcripts from focus groups with parents or caregivers of nutrition education recipients were coded in QSR International NVivo version 8, which allowed the evaluation team to systematically organize, process, and summarize information provided by this key stakeholder group. It also allowed the team to capture the breadth of opinions offered by parents and caregivers while identifying common themes and issues. Direct quotations were also identified and used to support the parent survey findings and common themes from the focus groups.

B. Program Development and Design

1. Program Development

In 1998, the NYSDOH Division of Nutrition identified childhood obesity as an emerging issue and developed common messages and goals for many of the state's nutrition programs under the umbrella of an "Eat Well Play Hard" framework. Building on this framework, in 2005, NYSDOH created the EWPHCCS program targeted to SNAP eligibles served in childcare centers. Desiring to reach families in the early years of their children's development, NYSDOH explained their rationale for choosing childcare facilities as the channel for this nutrition education program as follows:

"Childcare settings provide opportunities for changing food and dietary practices, incorporating healthful eating, and offering avenues for reaching parents to encourage the same beneficial changes at home" (NYSDOH, 2008).

Prior to drafting the EWPHCCS curricula, NYSDOH conducted formative research that included literature reviews, review of existing programs from other states, a survey of childcare center staff, and focus groups with parents of children in centers participating in the Child and Adult Care Food Program (CACFP). The New York CACFP director, who was also one of the primary authors of the curriculum, points out that they sought to design a curriculum that would feature clear, age-appropriate messages and complementary lesson plans for parents and staff that could be easily implemented and adapted to various childcare settings. The curriculum's authors stated that early input from focus groups with parents and interviews with center staff were key to meeting this design goal. For example, the interviews with childcare staff provided information on the logistical aspects of recruiting for and implementing child and parent classes at childcare centers and ways to garner staff support and buy-in.

While the curriculum was not pilot tested with the target audiences, NYSDOH pointed out that experts in nutrition, physical activity and early childhood education from Syracuse University, New York University, and the State University of New York College at Cortland reviewed the draft curriculum and provided input before it was finalized and used in the field in 2006.

2. Theoretical Framework

The design of EWPHCCS is based upon the social ecological model of behavior change, which suggests that an individual's health behaviors are influenced on multiple levels: individual, interpersonal, organizational, community, and societal (McElroy, Bibeau, Steckler, & Glanz, 1988). Thus, to achieve the desired outcomes of improving dietary habits and increasing physical activity, EWPHCCS includes direct and indirect education methods targeted to preschool children, their parents and caregivers, and other adults who are influential role models for young children and shape the policies and practices in the childcare environment (i.e., childcare center staff). The EWPHCCS program education approach was also influenced by the Institute of Medicine recommendation that school-based obesity prevention interventions include not only the children, but also their parents, teachers, and other influential role models (Institute of Medicine, 2005).

3. Description of Curriculum

▲ Direct education lessons for children and their caregivers

The EWPHCCS core curriculum includes ten modules, each made up of child and caregiver lessons with compatible messages.⁶ Eight lessons in the curriculum focus on nutrition, cooking, and mealtime behavior and two focus on increasing physical activity among children. The EWPHCCS direct educators, in consultation with the center director, select six of the ten curriculum modules to teach at each center. While the program allows flexibility in the selection of the lesson modules and activities at each program site, the same six module topics are taught in the child and parent classes. Each module in the curriculum is structured with lesson plans and step-by-step instructions for preparing and implementing the lesson. Food preparation or food tasting activities are typically included in each child and parent lesson plan to encourage children to have fun with food, try new foods, and teach parents/caregivers food preparation skills. The plans highlight the lesson goals, objectives, and key points. They also describe three activities from which the direct educators can choose and suggest the topics to highlight at the close of the lesson to reinforce its key messages. The classes for children are designed to last approximately 30 minutes, while the parent classes run 30–60 minutes per session.

According to lesson logs maintained by the direct educators for this evaluation and NYSDOH statewide EWPHCCS administrative data, six modules—Food Mood, Vary Your Veggies, Flavorful Fruit, Dairylicious, Smart Snacking, and Fitness Is Fun—were most often taught at the intervention sites and statewide in Federal fiscal year (FFY) 2010. These six modules made up 88 percent of all the EWPHCCS lessons taught at the evaluation's 12 intervention sites and 90 percent of lessons taught statewide. Exhibit II-3 describes the learning objectives for these six modules. The EWPHCCS lessons for parents and caregivers incorporate FNS' core nutrition messages about the importance of parents as role models of

EWPHCCS Module Topics

- Food Mood*
- Vary Your Veggies*
- Flavorful Fruit*
- Dairylicious*
- Smart Snacking*
- Fitness Is Fun*
- Cooking With Children
- Awesome Appetites
- Choose Your Fun
- Growing Goodness

* Most frequently taught in FY 2010

⁶ The EWPHCCS curriculum is available on-line at:
http://www.health.state.ny.us/prevention/nutrition/cacfp/ewphccs_curriculum/index.htm.

healthy eating habits, parents and children cooking and eating together, and the division of feeding responsibility.⁷

Exhibit II-3.— Lesson Objectives for Most Frequently Taught EWP/HCCS Modules

Module Topic	Learning Objectives
Food Mood	<p><i>For children and caregivers:</i></p> <ul style="list-style-type: none"> • Increase knowledge and awareness that eating a variety of foods can help children be healthy <p><i>For children:</i></p> <ul style="list-style-type: none"> • Become open to trying new foods • Learn how to politely accept or refuse foods offered to them <p><i>For caregivers:</i></p> <ul style="list-style-type: none"> • Learn that it is their responsibility to ensure their children come to the table for regularly scheduled healthy meals and snacks • Learn to allow their children to decide what foods they try and how much to eat in a pleasant mealtime environment
Vary Your Veggies	<p><i>For children and caregivers:</i></p> <ul style="list-style-type: none"> • Increase knowledge and awareness of the importance of eating more vegetables, especially colorful and locally grown vegetables, every day • Be able to name colorful and locally grown vegetables <p><i>For children:</i></p> <ul style="list-style-type: none"> • Name one new vegetable that they are willing to try <p><i>For caregivers:</i></p> <ul style="list-style-type: none"> • Learn at least one way in which to add vegetables to the family diet without increasing the cost of the meal • Learn how to purchase, store, and safely prepare at least one new vegetable that could be served at home
Flavorful Fruit	<p><i>For children and caregivers:</i></p> <ul style="list-style-type: none"> • Increase knowledge and awareness of the importance of eating fruits, especially colorful ones, every day <p><i>For children:</i></p> <ul style="list-style-type: none"> • Name three colorful fruits • Name one new fruit that they are willing to try <p><i>For caregivers:</i></p> <ul style="list-style-type: none"> • Learn at least one way to add colorful fruit to the family diet without increasing the cost of the meal • Learn how to purchase, store, and safely prepare at least one new fruit that could be served at home
Dairylicious	<p><i>For children and caregivers:</i></p> <ul style="list-style-type: none"> • Increase knowledge and awareness of the benefits of eating dairy products, especially in relation to children’s teeth and bone development <p><i>For children:</i></p> <ul style="list-style-type: none"> • Identify at least two sources of dairy products <p><i>For caregivers:</i></p> <ul style="list-style-type: none"> • Learn the health benefits of nonfat and 1% dairy products

⁷ See FNS Core Nutrition Messages at: <http://www.fns.usda.gov/fns/corenutritionmessages/Files/AllMessages.pdf>.

Module Topic	Learning Objectives
Smart Snacking	<ul style="list-style-type: none"> Learn at least one way to incorporate low-fat dairy products into the family diet without increasing the cost of the meal <p><i>For children and caregivers:</i></p> <ul style="list-style-type: none"> Increase knowledge and awareness of importance of eating nutritious snacks <p><i>For children:</i></p> <ul style="list-style-type: none"> Identify one healthy snack that they will try <p><i>For caregivers:</i></p> <ul style="list-style-type: none"> Learn at least one healthy snack to offer at home
Fitness Is Fun	<p><i>For children and caregivers:</i></p> <ul style="list-style-type: none"> Increase knowledge and awareness of age-appropriate physical activity for preschoolers and the importance of physical activity to health <p><i>For caregivers:</i></p> <ul style="list-style-type: none"> Learn new ways to engage in active play with their children and be more physically active themselves

The four less frequently used EWPCCS modules, also consistent with the program’s objectives, focused on: helping children listen to their own body’s signs of hunger and fullness (Awesome Appetites); safe and healthy food preparation with young children (Cooking with Children); identifying, buying, and preparing locally grown fruits and vegetables (Growing Goodness); and a lesson providing additional ideas for increased physical activity and decreasing television watching at home (Choose Your Fun).

▲ Indirect education to parents and caregivers through take-home materials and activities

Each week, EWPCCS educational materials are sent home with the child in their backpacks or in mailboxes for parents at the center. These are designed to extend the messages of the child classes into the home and help parents and caregivers try new foods, purchase foods at affordable prices, and find ways to work with their children in promoting healthy eating and physical activity. The program provides weekly *Parent Pages* newsletters that include recipes, activities, and other suggestions for extending each module topic to the home. Additional handouts are sent home with the children, such as charts for children to put a sticker on each time that they eat a fruit or vegetable during the day, a “vegetable treasure hunt” that parents can use with their children at the grocery store, and more recipes. Those who attend the parent classes also receive take-home materials that include recipes, shopping hints, and examples of activities that children and adults can do together in the home. These handouts have been translated and are widely available for distribution in Spanish, Chinese, Russian, Arabic, French, and Haitian Creole.

▲ Self-assessments, training and other supports for childcare center staff

The EWPCCS program also seeks to promote changes in childcare policies and integrate its messages into ongoing classroom activities. To this end, the program works with each center’s director to conduct a self-assessment of their policies and practices on nutrition and physical activity to help them set goals for their improvement. The self-assessment is based on the Nutrition and Physical Activity Self Assessment for Child Care (NAP SACC) assessment tool (Ammerman, Benjamin, Sommers, & Ward, 2007). In addition, usually at the beginning of the program series, the direct educators hold classes for the staff on at least two of these five topics: childhood obesity, healthy eating, physical activity, personal health and

wellness, and working with families. To encourage staff participation in these classes, continuing education credits are provided to the staff for their participation.⁸

In New York City, the EWPHCCS direct educators also provide weekly “link-it lessons” to the teachers at each center where they teach the program. These are short handouts that describe the lesson’s educational objective and a simple activity that teachers can use to reinforce the EWPHCCS messages in their classroom or at mealtimes. To encourage use of these lessons, after each class the direct educators distribute forms for the teachers to document when and how they implemented the “link-it lesson” during the week.⁹

C. How the EWPHCCS Program Is Implemented

1. Program Management and Oversight

NYSDOH is the state implementing agency (IA) for the EWPHCCS. Program oversight is provided by three senior staff members at NYSDOH within the Division of Nutrition who each bring more than 17 years of experience in nutrition education and program administration. The New York CACFP director is ultimately responsible for the fiscal and organizational integrity of the program. The EWPHCCS program director and contract manager are responsible for the operation of the program, quality assurance and oversight of the subcontracting agencies who directly administer the program, and training of the direct educators who carry out the program at childcare centers. The division of roles and responsibilities between the program director and contract manager is shown in exhibit II-4.

Exhibit II-4.— Summary of EWPHCCS Senior Manager Roles and Responsibilities

Program Director

- Provides administrative, budgetary, and implementation oversight for the program, including the administration of grant funds to local agencies
- Writes the SNAP-Ed applications and quarterly and annual program reports
- Develops requests for applications, and leads the application review and awarding of grant funds to local agencies
- Directly supervises all State EWPHCCS staff
- Identifies staff training needs, and oversees the development of training programs
- Works closely with the NYSDOH’s evaluation manager in revising parent surveys as needed and in the collection and quality control of data entered into the Food and Nutrition Service (FNS) Education and Administration Reporting System

Contract Manager

- Serves as a liaison with local implementing agencies
- Organizes and plays a lead role in grantee conference calls and face-to-face trainings
- Conducts site visits to monitor program implementation and regulatory compliance
- Assists local implementing agencies in developing budgets and work plans that comply with the SNAP-Ed guidance and reviews and approves their expenditures
- Revises EWPHCCS curriculum and handouts as needed

⁸ For these staff classes, EWPHCCS direct educators use the NAP SACC training modules for childcare center staff (available at <http://www.center-trt.org>).

⁹ At the time of this evaluation, the link-it lessons were not available to centers outside of New York City.

2. Partnerships

EWPCCS is implemented locally through seven subcontracted agencies: six childcare resource and referral agencies (CCR&R) and the New York City Department of Health and Mental Hygiene (NYCDOHMH). The State agency provides these seven subcontractors funds for staff salaries as well as for tools or equipment required to carry out the program. As the CACFP director remarked, CCR&Rs are “natural partners” for implementation of EWPCCS since they are already providing technical assistance and training to childcare facilities in their regions and are a trusted source of information for the childcare provider community and the families they serve. The expansion of the program into New York City was accomplished through a subcontract with the NYCDOHMH, which administers about one-half of the statewide program. NYSDOH program managers stressed that the experience staff from these seven agencies have in working directly with childcare agencies has been key to the program’s success in recruiting and working directly with childcare centers.

3. Direct Educators and Their Training

Each subcontracting agency employs direct educators who are responsible for recruiting centers to participate in the program, carrying out the program at individual sites, and completing the administrative and reporting functions required by the State agency. Each subcontractor employs and supervises one full-time employee (FTE) direct educator for every 13–15 centers where EWPCCS is implemented. In FY 2010, there were a total of 17 FTE direct educators employed at the seven subcontractor agencies. Nine of these positions were located at NYCDOHMH and eight at the six CCR&Rs implementing the program outside of New York City.

NYSDOH requires all direct educators to have a college degree in nutrition, public health, or a related field, and certification as a Registered Dietitian (RD). According to their self-report, the majority (7 of 11) of the director educators were experienced nutrition educators before they joined the EWPCCS program, each with 3 or more years of prior experience providing nutrition and health education for children and families in community-based settings. These nutrition professionals serve as the liaisons for the state implementing agency (NYSDOH) at the participating centers.

When an educator is hired for this program, she or he receives an orientation training that usually lasts 2½ days and is facilitated by the NYSDOH program director and contract manager, together with experienced EWPCCS direct educators. The training is designed to communicate the program goals, objectives, and structure; the rationale for the program’s links to the CACFP and SNAP-Ed programs; and explain its administrative and documentation requirements. A large segment of the training is dedicated to providing a teaching demonstration as well as opportunities for the trainees to practice teaching the lessons from the curriculum. The training also provides practical information on how to recruit centers, the importance of working very closely with the center directors and staff, and how to market the parent classes.

Ongoing training is also an integral part of the program’s efforts to promote continuous quality improvement. Direct educators are required to participate in quarterly meetings coordinated by NYSDOH. These meetings provide opportunities for continued training, information sharing among the direct educators about their experiences and challenges in program delivery, as well as ideas about how to address the challenges. Topics covered during these sessions include how to engage parents more effectively, how to work with multicultural groups, and effective early childhood teaching strategies. Speakers are frequently brought in to provide training on specialized topics. The direct educators in New York City have additional bimonthly team meetings.

4. Recruitment of Childcare Centers

Centers that participate in EWPCHCCS receive no financial support for their participation. They voluntarily choose to participate based on their perception of the program's merits and value for the center. For this reason, marketing and recruitment of eligible centers is a key aspect of EWPCHCCS implementation. Each year, NYSDOH program managers prepare lists of EWPCHCCS eligible centers and provide these to the local subcontracting agencies for recruitment purposes. These lists include only centers that are in good standing with the CACFP, have 50 percent or more of enrolled families eligible for free or reduced-price meals, and have not participated in the EWPCHCCS program for two years. The first two criteria enable the program to target SNAP-Ed eligible households and the latter criteria is designed to ensure the program reaches different 3- and 4-year-olds and their families each year.

When the subcontracting agencies receive the list of eligible centers, the direct educators are responsible for contacting the center director to tell them about the program, encourage their participation, and ask whether they are interested in scheduling a visit to discuss timelines for program implementation. As noted below in section D, the direct educators reported that recruitment of centers for EWPCHCCS is not very difficult because there is high overall interest in the program, with some challenges reported recently in New York City due to the different types of centers they began recruiting in FFY 2010.

5. Recruitment of Parents and Other Caregivers

The EWPCHCCS program reaches parents and caregivers through its weekly take-home materials. However, because parent and caregiver involvement is considered a critical component of the program, several additional measures are taken to ensure that parents and caregivers attend and participate in classes held at the center.

▲ Incentives

Each subcontracting agency provides the direct educators with gifts of small items to distribute to parents and caregivers who attend classes. State program materials indicate that these incentives are usually kitchen tools such as vegetable brushes, apple corers, or cutting boards. Consistent with the current SNAP-Ed Plan Guidance, these incentives cost \$4 or less.

▲ Flyers, posters, and calendar listings

The most common recruitment method, mentioned by all direct educators who taught the program at the intervention sites, was the displaying of mini-posters at the centers and distribution of colorful flyers that provide the schedules and topics of the six classes, as well as a description of the incentives. These marketing materials, which are produced and funded by grantees, are sent home with the children to their parents and caregivers and displayed in center hallways and classrooms. Where needed, translated materials provided by NYSDOH are distributed to non-English-speaking families and posted at the center. EWPCHCCS posters advertising the parent classes in Spanish were observed at the two New York City childcare centers visited for the evaluation.

Three of the 11 interviewed direct educators mentioned that they had been successful in having the parent classes incorporated into the intervention centers' monthly event calendars. This recruitment method may be particularly effective because the parents and caregivers are used to checking these calendars as a resource for information on upcoming activities at the center.

▲ Center directors and staff

Five of the 11 direct educators who taught the EWPHCCS lessons at the intervention sites said that based on their experience the childcare center director is critically important in helping to recruit parents or caregivers to classes. A few reported that the center director at their intervention site reached out to individual parents and caregivers in person or by phone to inform them of an upcoming class and to remind them on the day of the class, and that this was not an uncommon occurrence. The EWPHCCS direct educator for one intervention Head Start center noted that recruiting parents to all activities at the center is part of the routine expectation for Head Start programming. Several direct educators also noted that at some centers teachers were informal recruiters for the parent classes.

▲ Marketers in New York City

Unique to the program as it is administered in New York City, NYCDOHMH recently added marketers as part of their program staff. Marketers were involved at four of the six demonstration project intervention sites in New York City. These marketers are paraprofessionals with community health education or outreach experience who visit the centers during child drop-off or pick-up times to conduct individual outreach to parents for the classes, engage them in interactive games (e.g., a nutrition trivia game), offer food tastings, and distribute EWPHCCS handouts.

6. Methods for Quality Assurance and Tracking Program Fidelity

While the EWPHCCS direct educators work directly for the subcontracting implementing agencies, the State program staff members play an important role in overseeing the quality of their work. Each month, the direct educators submit work plans and class attendance sheets for each center where they conduct the program and these are reviewed by the NYSDOH program managers. Each direct educator also receives a minimum of two visits annually by a state program manager to observe his or her teaching and offer constructive feedback. In New York City, the NYCDOHMH program manager also conducts site visits to provide technical assistance to her team of nine direct educators. According to the EWPHCCS contract manager, there is a standardized monitoring form and process for the quality assurance site visits. The highlights of the observations and technical assistance offered are documented on this form, both to help the individual direct educator and identify common staff training needs.

7. Program Reach

In FFY 2010, 246 centers in 27 counties and four New York City boroughs participated in the EWPHCCS program, serving 10,314 children. Approximately one-half of the program's reach was in New York City at 125 childcare centers.¹⁰ NYSDOH EWPHCCS administrative data indicate that statewide parent and caregiver enrollment in EWPHCCS classes is equal to only 18 percent of the total number of children who participated in the program.¹¹ While parent and caregiver class participation was relatively low across the state, the administrative data show higher participation in New York City than outside of New York City (22 percent versus 13 percent, respectively). (See table II-1).

¹⁰ Children reached or participating in EWPHCCS are defined in this evaluation as those who participated in at least one EWPHCCS lesson taught by the EWPHCCS direct educators. These figures do not include children who participated in classes at 40 "self-run centers," where EWPHCCS staff members train the teachers to conduct nutrition and physical classes in their own classrooms.

¹¹ Parents and caregivers reached by EWPHCCS are defined as those who formally enrolled in the EWPHCCS classes and attended at least one lesson, based on statewide program data provided by NYSDOH from their administrative database. However, the number of caregivers documented in the NYSDOH administrative database may underestimate the total number of caregivers who actually attended the EWPHCCS classes because adults are only entered in the administrative database if they completed the enrollment forms.

Table II-1.—FFY 2010 Statewide EWPHCCS Program Reach Among Centers, Children, and Parents and Caregivers, by Region

	Total Number of Centers and Individuals Participating in EWPHCCS in FFY 2010			Enrolled and Participating Parents and Caregivers as a % of Enrolled Children
	Centers	Children ^a	Parents and Caregivers ^a	
Program Location				
Statewide	246	10,314	1,860	18.03%
New York City	125	6,043	1,303	21.56%
Outside New York City	121	4,271	557	13.04%

^a Child and parent or caregiver participants are defined as those who attended at least one EWPHCCS class.

Source: NYSDOH EWPHCCS administrative data

At the sample of 12 centers selected as intervention sites for this evaluation, EWPHCCS classes reached 728 children in 45 classrooms. Additionally, the administrative data indicate that 88 parents and caregivers at the 12 intervention participated in at least one EWPHCCS class. The number of EWPHCCS parents and caregivers participating in classes as a percentage of participating children was much lower at the intervention sites than statewide (11.95 percent compared to 18.23 percent; see tables II-1 and II-2).¹²

Table II-2.—EWPHCCS Program Reach at 12 Intervention Centers Participating in the Evaluation, by Region

Intervention Location (number of centers)	Child Reach			Caregiver Reach	
	Number of Participating Classrooms	Number of Child Participants ^a	Mean Number of Child Participants per Classroom	Number of Parents and Caregivers Who Participated in the Intervention ^a	Participating Parents and Caregivers as a Percentage of Participating Children
New York City (n = 6)	19	326	17	65	19.63%
Outside New York City (n = 6)	26	402	16	23	5.72%
Overall Total (n = 12)	45	728	17	88	11.95%

^a Child, parent, and caregiver participants are defined as those who attended at least one EWPHCCS class.

Source: NYSDOH EWPHCCS administrative data

¹² The survey results on parent class attendance indicated that 138 of 440 respondents attended one or more parent classes while NYSDOH EWPHCCS administrative data showed only 88 parents and caregivers of the 708 participating children attended these classes. This difference can most likely be explained by variations in reporting. Only parents and caregivers who officially signed in and enrolled in at least one parent class are documented in the NYSDOH SNAP-Ed administrative data, whereas survey respondents likely reported attending parent classes if they were physically present for any part of the class. However, NYSDOH administrative data were used as the most reliable data available to calculate “participating parents and caregivers as a percentage of participating children” because survey respondents may have been much more likely to attend parent classes than nonrespondents.

At the 12 intervention sites, as in the statewide program, parent and caregiver participation rates were much higher at New York City centers than elsewhere in the state (19.63 percent compared to 5.72 percent; see tables II-1 and II-2). Several factors could be influencing these higher participation rates in New York City, such as the placement of marketers at these sites to conduct parent outreach. It may also be easier for parents and caregivers of children attending centers in New York City to travel to and from the center because of the availability and accessibility of public transportation or because they live in closer proximity to the center than parents and caregivers of children attending centers outside of New York City. Tables II-3 and II-4 show the racial, ethnic, and gender demographics of the children and caregivers who participated in the EWPCCS classes at the 12 intervention sites.

Table II-3.—Demographics of Children Who Participated in One or More EWPCCS Classes Across Intervention Sites, by Region

	Total Sample	NYC	Outside NYC
Characteristic	n (%)	n (%)	n (%)
Race			
American Indian/Alaskan Native	0 (0.00)	0 (0.00)	0 (0.00)
Asian	60 (8.24)	57 (17.59)	3 (1.00)
Black or African-American	178 (24.45)	100 (30.86)	78 (19.35)
Native Hawaiian/Pacific Islander	2 (0.27)	0 (0.00)	2 (0.49)
White	286 (39.29)	22 (6.79)	264 (65.51)
Multiracial	201 (27.61)	145 (44.75)	56 (13.90)
Ethnicity			
Hispanic	240 (33.01)	161 (49.69)	79 (19.60)
Non-Hispanic	487 (66.99)	163 (50.31)	324 (80.40)
Gender			
Female	348 (47.74)	163 (50.00)	185 (45.91)
Male	381 (52.26)	163 (50.00)	218 (54.09)

Source: NYSDOH EWPCCS administrative data

Table II-4.—Demographics of Parents and Caregivers Who Participated in One or More EWPCCS Parent Classes Across Intervention Sites, by Region

	Total Sample (n = 88)	NYC (n = 65)	Outside NYC (n = 23)
Characteristic	n (%)	n (%)	n (%)
Race			
American Indian/Alaskan Native	0 (0.00)	0 (0.00)	0 (0.00)
Asian	5 (5.68)	4 (6.15)	1 (4.35)
Black or African-American	21 (23.86)	20 (30.77)	1 (4.35)
Native Hawaiian/Pacific Islander	0 (0.00)	0 (0.00)	0 (0.00)
White	23 (26.14)	7 (10.77)	16 (69.57)
Multiracial	39 (44.32)	34 (52.31)	5 (21.74)
Ethnicity			
Hispanic	41 (46.59)	35 (53.85)	6 (26.09)
Non-Hispanic	47 (53.41)	30 (46.15)	17 (73.91)

	Total Sample (n = 88)	NYC (n = 65)	Outside NYC (n = 23)
Characteristic	n (%)	n (%)	n (%)
Gender			
Female	81 (92.05)	59 (90.77)	22 (95.65)
Male	7 (7.95)	6 (9.23)	1 (4.35)
Age (years)			
Under age 18 (age not specified)	1 (1.14)	1 (1.54)	0 (0.00)
18-59	83 (94.32)	62 (95.39)	21 (91.30)
60+	4 (4.55)	2 (3.08)	2 (8.70)

Source: NYSDOH EWPCCS administrative data

8. Exposure

In addition to knowing the program's reach, it is important to determine the exposure level that participants have to the program. In this section we present analysis of available data on children and parents and caregivers' exposure to the program classes. Class exposure is defined as the number of classes each person attended and the number of minutes spent at the classes.

a. Children's exposure to classes

Analysis of the NYSDOH program administrative data shows that, on average, enrolled children statewide attended 4.4 of the six lessons and most commonly attended all six classes. Their class dosage did not vary substantially by region. (See table II-5.) NYSDOH reports that each EWPCCS lesson lasted approximately 30 minutes; therefore, participating children statewide received an average of approximately 132 minutes of exposure to the intervention nutrition education.

Table II-5.— FFY 2010 Statewide EWPCCS Child Class Dosage Among Participating Children, by Region^a

Program Location (number of child participants)	Number of Classes Attended by Children Who Attended at Least One EWPCCS Class		Number and Percentage of Child Participants Attending Less Than 3 Classes
	Mean	Mode	N (%)
Statewide (n = 10,201)	4.4	6	1,522 (14.93)
New York City (n = 5,990)	4.4	6	781 (13.04)
Outside New York City (n = 4,211)	4.3	6	741 (17.60)

^a Data provided by the NYSDOH includes centers that participated in the program for any duration in FFY 2010. In most cases the EWPCCS lesson series was implemented completely in FFY 2010; however, NYSDOH recognizes that for some of the centers included in the EWPCCS FFY 2010 administrative data the lesson series spanned over two FFYs and attendance information for lessons implemented outside of the FFY timeframe could not be provided. For this reason, mean class dosage presented in this table underestimates actual class dosage received by children participating in the program and the percent of child participants attending less than three classes presented in this table overestimates that percentage. This is not the case for the dosage data for the intervention sites, displayed in table II-6 below, which implemented the program only within FFY 2010.

Source: NYSDOH EWPCCS statewide administrative data

Children who participated in at least one EWPCHCCS class at the sample of 12 intervention classrooms attended an average of 5.04 classes. Further, only 6 percent of the children at all of the intervention sites attended less than three classes and children most commonly attended all six classes (see table II-6). According to the NYSDOH, each EWPCHCCS lesson lasted approximately 30 minutes; therefore, children participating at the intervention sites received a total of approximately 150 minutes of nutrition education, on average. It appears that the mean class dosage for children at the intervention sites was slightly higher than the state average for FFY 2010 (5.0 versus 4.4 classes; see tables II-5 and II-6). However, this may not represent a true difference because the statewide child EWPCHCCS class attendance data only include the number of lessons children attended within FFY 2010 even though program classes in some cases spilled over from the prior fiscal year or into the following fiscal year.

Table II-6.—Exposure of Children at the 12 intervention sites to EWPCHCCS Lessons, by Region^a

Intervention Location (number of centers)	Number of EWPCHCCS Lessons That Children Attended		Number and Percentage of Child Participants Attending Less Than 3 Classes
	Mean	Mode	N (%)
New York City (n = 6)	4.85	5.83	25 (7.67%)
Outside of New York City (n = 6)	5.24	5.83	20 (4.93%)
Overall Total (n= 12)	5.04	5.83	45 (6.18%)

^a Includes only children in the intervention classrooms who attended at least one EWPCHCCS lesson.

Source: NYSDOH EWPCHCCS administrative data

In addition to the 30-minute weekly lessons taught by the program’s direct educators, nearly all childcare center teachers in the intervention classrooms reported using EWPCHCCS nutrition messages or activities during the intervention period in their classrooms. Furthermore, as presented in figure II-2 in section D below, approximately two-thirds of the surveyed classroom teachers reported that they used EWPCHCCS messages or activities at least “a couple” or “a few” times a week, resulting in additional EWPCHCCS message exposure per child, though not in quantifiable terms.

b. Parent and caregiver exposure to classes and take-home materials

As shown in Table II-2 above, only 12 percent of the eligible parents and caregivers attended EWPCHCCS parent classes; therefore among all parents and caregivers of children participating in the intervention exposure to the parent classes was very low. However, based on parent follow-up survey responses, among those who attended any parent classes at the 12 intervention sites, slightly over half (51 percent) came back and attended a total of 3 or more of the 6 parent classes. As with the parent reach data cited above, parent and caregiver class exposure was much greater in New York City than in the rest of the State. In New York City, 57 percent of parents and caregivers who attended any classes attended three or more, while outside of New York City only 40 percent of this group attended three or more classes. (See table II-7).

Table II-7.—Exposure to EWPHCCS Parent Classes among Parents and Caregivers Attending Any Classes at the 12 Intervention Sites, by Region^a

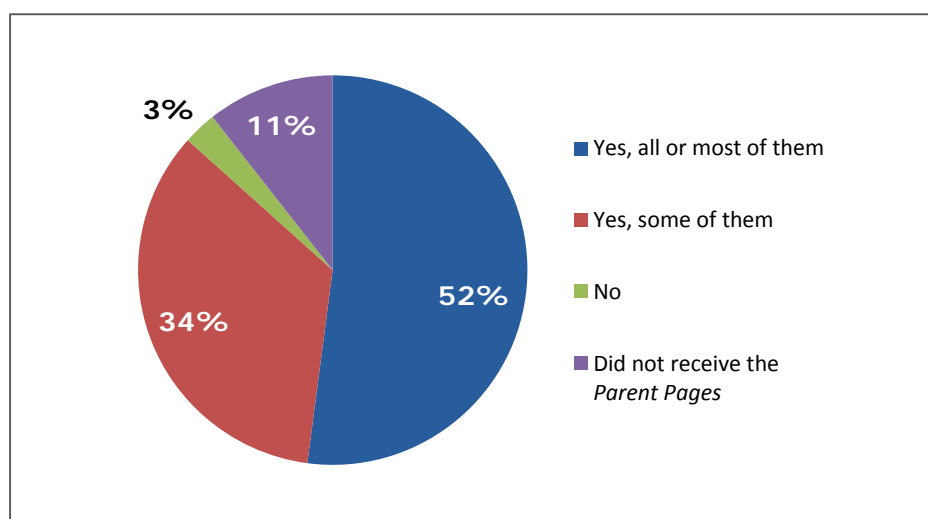
	Overall (n = 138)	NYC (n = 91)	Outside of NYC (n = 47)
Mean number of classes attended by caregivers who attended at least one class	2.9	3.0	2.6
Number of caregiver classes attended	n (%)	n (%)	n (%)
One	34 (24.64)	14 (15.38)	20 (42.53)
Two	33 (23.91)	25 (27.47)	8 (17.02)
Three	30 (21.74)	25 (27.47)	5 (10.64)
Four	14 (10.14)	10 (10.98)	4 (8.51)
Five	9 (6.50)	5 (5.49)	4 (8.51)
Six	18 (13.04)	12 (13.19)	6 (12.77)

^a NYSDOH's administrative dataset does not provide unduplicated counts of caregiver class attendance. For this reason, parent and caregiver class exposure calculations are based on the responses of the 138 of 440 parent follow-up survey respondents who reported attending at least one EWPHCCS parent class. All survey respondents were eligible to participate in the EWPHCCS classes because they had children enrolled in the program.

Source: Parent and caregiver follow-up survey, descriptive tables for process questions, table B-1 on "Number of EWPHCCS Program Parent Classes Attended," in appendix B

Data on caregivers' use of the EWPHCCS take-home materials reflect a much higher exposure to the program's messages through the take-home materials than the classes. As depicted in figure II-1, when surveyed caregivers were asked whether they received and read the *Parent Pages* that were distributed weekly through their children's childcare centers, 52 percent reported reading all or most of the series of six *Parent Pages*, an additional 34 percent reported reading some of them, and only 3 percent said that they had received the newsletters but did not read any of them.

Figure II-1.—Percentage of Parents and Caregivers Who Reported Reading *Parent Pages* Newsletters (n = 434)^a

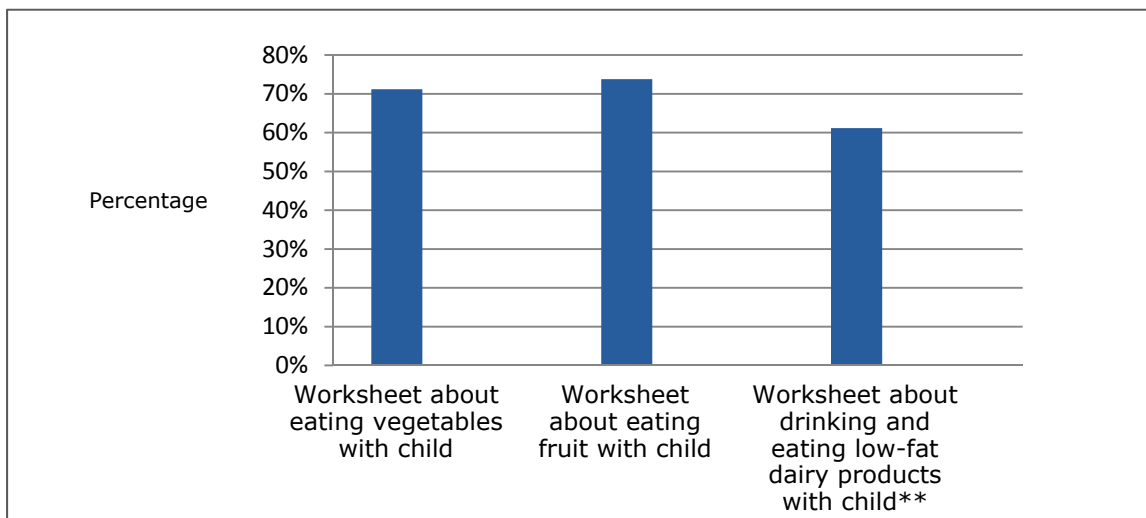


^a The number excludes the six respondents who answered "don't know" or had no response to this question.

Source: Parent and caregiver follow-up survey, table B-3 on "Parent or Caregiver Use of EWPHCCS Program Take-Home Materials," in appendix B

Use of the worksheets on fruits, vegetables, and drinking and eating low-fat dairy products was also very high. Seventy-seven percent of parents and caregiver survey respondents said they used one or more of these worksheets with their child and two thirds of these used the worksheets on all three topics. Specifically, among all respondents, 56 percent said they used all three worksheets, 17 percent said they used two worksheets, and 4 percent said they used only one worksheet.¹³ Figure II-2 shows the worksheet use by specific nutrition topic area, indicating that use of the fruit or vegetable worksheets was higher than use of the dairy worksheet.

Figure II-2.—Percentage of Parents and Caregivers Who Reported Using EWPCCS Worksheets with Their Child, by Worksheet Type*



*Excludes those who answered don't know or had no response

**The dairy lesson was not provided at the Unity House childcare center at the request of the center director; thus, responses to this question for the parent respondents at this center are excluded from the analysis

Source: Parent and caregiver follow-up survey, descriptive tables for process questions, table B-3 on "Parent or Caregiver Use of EWPCCS Program Take-Home Materials-Overall and by Region," in appendix B

9. Resources and Costs of Program Implementation

Because cost information is not tracked at the individual site level, this section details the costs and resources required to implement the EWPCCS program statewide in FY 2010, including a breakout of the reported cost centers. It also includes an analysis, where appropriate, of the costs as they related to the number of individuals served. The detailed budget tables NYSDOH provided for this evaluation, including a breakout of non-Federal and non-Federal matching funding for each budget category, and a listing of staff resources, are included in appendix B.¹⁴ Costs associated with the intervention-led evaluation of the project are reported separately in chapter IV.

¹³ This analysis excludes the 58 respondents from one childcare center where the EWPCCS dairy lesson was not taught and the 8 respondents who answered don't know or had no response to questions about worksheet use.

¹⁴ FY 2010 implementation costs reported by NYSDOH for this evaluation include the staffing and other administrative costs for carrying out both the EWPCCS program model evaluated for this study and a modified version of the program that NYSDOH was piloting in FY 2010 called "self-run centers." At the 40 self-run centers EWPCCS direct educators did not teach the EWPCCS classes for children or parents, but instead taught the staff to implement the EWPCCS curriculum. Although the children reached through the self-run centers were excluded from the program reach data for this evaluation, the administrative costs associated with the self-run centers could not be separated out by NYSDOH. Therefore, the total implementation costs and estimated per participant costs for the EWPCCS demonstration project may be modestly overstated.

a. Overall costs for program implementation

Table II-8 shows the actual expenditures NYSDOH reports as the costs of EWPHCCS implementation in FFY 2010. Costs associated with implementing the EWPHCCS program, which includes direct and indirect costs, totaled \$3,056,675. Fifty percent of these costs were funded by Federal SNAP-Ed funds and 50 percent by non-Federal, non-cash (in-kind) funds. Salaries and benefits were the most substantial cost center, accounting for 77 percent of all program costs. The following is a description of the major costs centers of program implementation and the types of expenditures accounted for in each:¹⁵

- **Salary and benefits.** This expense includes the salaries of the State staff and subcontractor agency staff that support EWPHCCS implementation directly or administratively. NYSDOH estimates that one FTE nutritionist is needed for every 13–15 centers where the program is implemented. Salary and benefit costs for EWPHCCS implementation include the following staff members at the State and implementing agency levels:

Staff at NYSDOH:

- 3.9 FTEs in senior program management
- 1 FTE administrative aide
- 0.4 FTE program aide

Staff at NYCDOHMH

- 3.1 FTEs in senior program management and oversight
- 1 FTE program assistant
- 8.1 FTE nutritionists (direct educators who provide nutrition education in the center)
- 3 FTE marketers

Staff at the six CCR&Rs

- 1.4 FTEs in senior program management and oversight
- 0.7 FTE clerical/administrative assistant
- 7.2 FTE nutritionists (the direct educators who provide nutrition education in the center)

- **Noncapital equipment and supplies.** This line includes the cost of items such as teaching tools that the State provides the subcontractors for the direct educators' toolkits (e.g., books for preschool children and child-sized serving bowls, pitchers, and utensils); CDs containing revised EWPHCCS forms and handouts; and materials distributed at EWPHCCS trainings and meetings. For the subcontractors, it includes expenses such as office supplies, furniture, computer equipment and software, printing and copying of program materials, and postage.
- **Materials.** This expense line is only a cost of the local subcontractors and includes food and nonfood supplies needed to implement class activities. Examples of nonfood supplies include disposable dishware, construction paper, and incentives for parent class attendees.

¹⁵ Budget justification language was provided by NYSDOH to Altarum Institute and FTE information was extracted from Resource and Expenses Tracking Form completed by NYSDOH (see appendix B).

- **Administrative.** The administrative expenditures include the costs for temporary staff payments, honorariums for speakers at the staff meetings and trainings, and consulting by contractors for services such as bookkeeping, audit, and IT support.
- **Travel.** The program travel expenditures include the costs for State program staff to travel to the EWPHCCS educator trainings and to the subcontracting agencies and childcare sites to monitor and provide technical assistance. This line also includes the direct educators’ costs of travel to the centers and to program central offices for meetings.

Table II -8.— Summary of NYSDOH Costs for Statewide Implementation of EWPHCCS Program (FFY 2010)

Budget Category	Expenditures	Percent of total costs
Salary/benefits	\$2,354,857	77.0
Noncapital equipment/supplies	\$220,981	7.2
Materials	\$91,195	3.0
Administrative	\$81,473	2.7
Travel	\$49,312	1.6
Total direct costs	\$2,797,818	91.5
Total indirect costs	\$258,857	8.5
TOTAL COSTS	\$3,056,675	100.0

Source: Cost data provided by NYSDOH (see completed “Resource and expense tracking form” in appendix B)

b. Per participant program cost

Cost per program participant is difficult to calculate. Depending on the type of intervention, one can calculate this cost based upon the number of clients who actually received a single intervention dose, those who completed the entire intervention, or those enrolled in a “site” where interventions are being conducted, whether or not they attended all interventions or received materials. In addition, costs for parent involvement in the interventions, and costs of indirect education (take-home materials) are hard to distribute and account for in any sort of cost allocation by participant type.

New York’s demonstration project was unique in that the study sample was a subset (12 intervention sites) of a much larger intervention effort statewide. We considered only reporting the costs associated with the intervention group, but realized that cost accounting in New York could not provide the costs of program implementation for only these sites. Further, there is no evidence that the resources needed per center or per child under any of the cost lines outlined above would be different for the intervention sites than the rest of the program. Therefore, it was determined that the logical construct for reporting cost per “participant” was to use the number of children participating in EWPHCCS statewide as the basis for calculations. Using Federal FY 2010 cost for statewide program implementation (\$3,056,675) as the numerator and the total number of children who were participating in the program that year (10,314) as the denominator, the estimated cost per child participant was \$296.36.

D. Factors Affecting Program Implementation and Opportunities for Improvement

Overall, program managers, direct educators, intervention site staff members, and parents and caregivers of children participating in the EWPHCCS program reported a high degree of satisfaction with the program saying that they liked the content and approach. Direct educators said the program was easy to implement and attributed this to both clarity of the lesson plans and the program's emphasis on training and quality oversight and improvement. Intervention site staff members emphasized that all three types of EWPHCCS classes—for children, parents, and staff—were critical to achieving the program's desired behavioral outcomes and cited the direct educators' enthusiasm and teaching skills as key to the program's acceptance and effectiveness. Key informants' responses highlighted the critical role that childcare directors and teachers play in facilitating the program's implementation and reinforcing its messages.

The process evaluation also identified several critical challenges to implementing this program in childcare centers. In particular, the findings highlighted the difficulty experienced in scheduling parent classes to maximize attendance and the challenge of reaching the program's diverse target audiences including non-English speaking adults and children with special needs.

The most commonly reported facilitators and challenges to program implementation are listed in exhibit II-5 and described in greater detail below. Opportunities for improving the program to address the challenges identified are also discussed. Quotes from key informants are included to highlight their perspectives.

Exhibit II-5.— Key Facilitators and Challenges to EWPHCCS Implementation

Facilitators

- Ease of intervention site recruitment
- Design and format well received among direct educators and center staff
- Widespread parent satisfaction with program materials and classes
- Implementation support from center directors
- Broad teacher support and EWPHCCS message reinforcement
- Emphasis on continuous quality improvement and training

Challenges

- Low participation in parent classes
- Cross cultural concerns
- Maximizing center staff engagement
- Serving large numbers of non-English speaking families
- Tailoring the curriculum for younger children and children with special needs
- Food costs

1. Facilitators of Program Implementation

▲ Ease of intervention site recruitment

The direct educators reported that many centers newly recruited to the program had heard of EWPHCCS and agreed to participate based on its positive reputation. They also noted that their success in recruitment may be in part due to the program offering a series of classes for the children and staff classes that provide

much needed continuing education credits. Direct educators also noted that once a center has participated in one round of EWP HCCS they nearly always welcome the program back in 2 years when they can participate again. During post-intervention site visits to three childcare centers, one of the center directors emphasized that her continued involvement was based on the program's past successes at her center.

What helped us stay interested in this program was seeing how it reached children and parents with simple messages and fun activities in the classroom and the constant effort to teach children and parents about eating healthily."

—Childcare center director

While none of the direct educators reported lack of success in their recruitment efforts, two direct educators from New York City noted that in FFY 2010 their success required more time and investments in call backs and direct visits to centers than in the past. They attributed this to the fact that they were reaching out that year to a pool of centers receiving public childcare subsidies. They explained that many of these centers have relatively fewer administrative and staff resources, making it more difficult for them to be responsive to outside programming.

▲ Program design and format well received among direct educators and center staff

When asked what factors contribute most to promoting quality and successful implementation of the program, the majority of key informants—including direct educators, childcare center directors, and teachers—said that the design and format of the EWP HCCS curriculum make its implementation easy and effective.

Several of the direct educators teaching the EWP HCCS curriculum at the intervention sites also noted that they found it easy to implement because the objectives and lessons are laid out simply, and the lesson messages reinforce one another. The direct educators added that the curriculum's flexibility and choice of activities and teaching aids enabled them to successfully adapt the lessons to the amount of space and the populations at each center; it also allows them to engage children using varied teaching methods and aids.

"This curriculum hits on all the different types of learners. Some are hands-on, and some are visual.... The objectives and points in the curriculum are very well explained. They can be accomplished in different ways like picture books, food tastings, and making the food, depending on the age group of children in the classroom."

—EWP HCCS program direct educator

Approximately two-thirds (22 of 32) of the intervention site classroom teachers who responded to the teacher survey praised the hands-on approach of the program, including the food tastings and preparation of foods at each nutrition lesson, as the key to its success in engaging the interest of preschoolers.¹⁶ This success was confirmed during onsite observations of the nutrition classes at three intervention sites where a majority of children, even in a large class setting, were attentive to the educator and intrigued with looking at and touching the fruits and vegetables they were offered. When the EWP HCCS direct educator prepared a recipe on site, the children were observed to be interested in watching the educator blend a smoothie or arrange various fruits that were then offered to them; most children were willing to try the new foods that the direct educator offered.

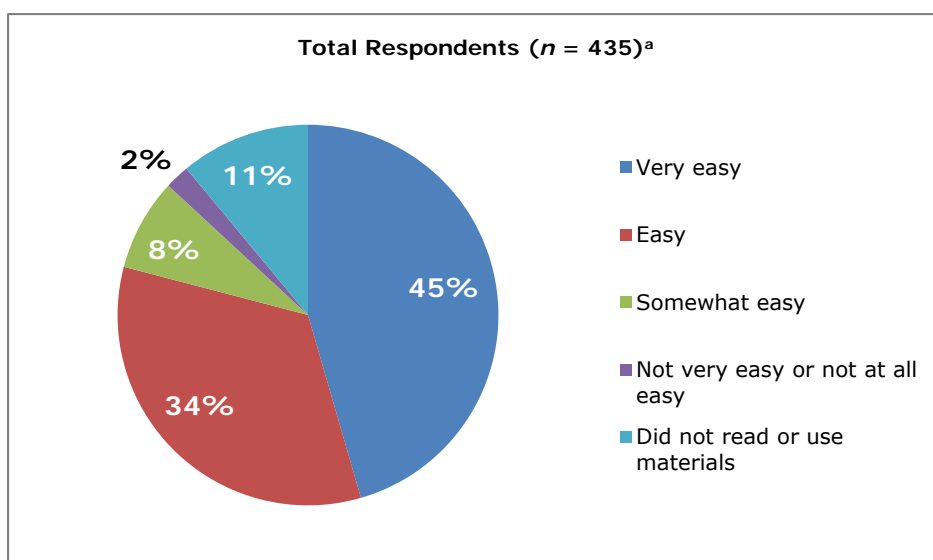
¹⁶ A questionnaire with open and close-ended questions was distributed to 14 teachers during onsite visits and to 26 teachers by mail. In total, 32 of 40 teachers responded to this survey.

The center staff members' enthusiasm for the program was exemplified by their desire to see the program expanded beyond six lessons. Teachers in centers outside of New York City, where "link-it lessons" were not available, asked for more tools to help them incorporate the EWPHCCS messages into their classroom activities.

▲ Widespread parent satisfaction with program materials and classes

Parents and caregivers who responded to the survey and participated in the focus groups provided largely positive feedback on the program materials and classes. Eighty-nine percent of respondents had read or used the materials and 79 percent found the EWPHCCS materials "very easy" or "easy" to understand. Only 2 percent found them "not very easy" or "not at all easy" to understand. (See figure II-3.)

Figure II-3.—Parents' and Caregivers' Level of Understanding of EWPHCCS Program Materials



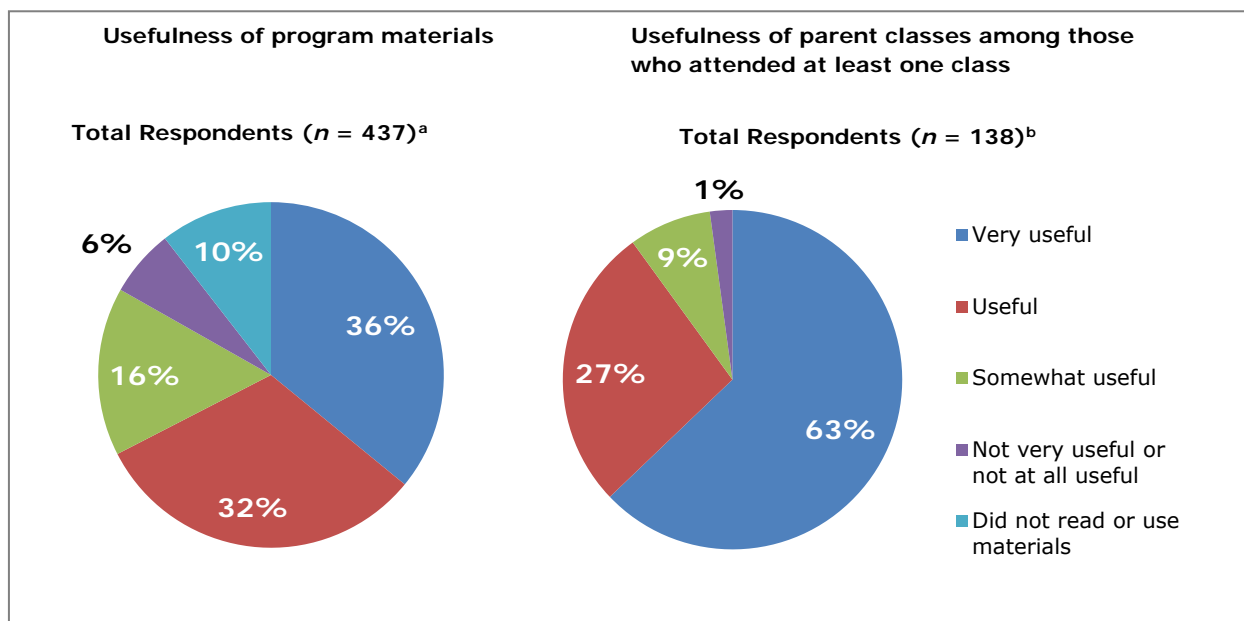
^a The number excludes the five respondents who answered don't know or had no response to this question.

Source: Parent and caregiver follow-up survey, descriptive tables for process questions, table B-4 on "Parent or Caregiver Satisfaction with EWPHCCS Program Take Home Materials and Parent Classes," in appendix B

Focus group results were consistent with this survey finding. Caregivers uniformly said that they had no difficulty understanding the program materials. This was also true in the one focus group of native Spanish-speakers, which reported that the EWPHCCS materials translated into Spanish were easily understood.

The majority of the parent follow-up survey respondents not only reported that the written materials were easy to understand, they also found the materials and the parent classes useful in helping their child eat healthier foods. When asked to quantify how useful the program materials and classes were in helping their child eat healthier foods, 68 percent of survey respondents found the written materials "very useful" or "useful." Conversely, only 6 percent found them either "not at all useful" or "not very useful." (See figure II-4.)

Figure II-4.— Parents’ and Caregivers’ Perceptions of the Usefulness of the EWPHCCS Program Materials and Parent Classes in Helping Their Child Eat Healthier Foods



^a The number excludes the 3 respondents who answered “don’t know” or had no response to this question.

^b Analysis includes only the 138 respondents who reported attending at least one parent class.

Source: Parent and caregiver follow-up survey, descriptive tables for process questions, table B-4 on “Parent or Caregiver Satisfaction with EWPHCCS Program Take Home Materials and Parent Classes,” in appendix B

When focus group participants were asked whether and how the EWPHCCS written materials were useful to them in helping shape their children’s dietary behaviors, they often singled out the recipes and ideas for activities that accompanied the *Parent Pages*.

“I liked the recipes, because I did not know how to make those foods until I got the recipe.”

—Caregiver focus group participant

“The activity ideas we got are very helpful at home. It gives the parents new and different activities that are easy to do with our kids.”

—Caregiver focus group participant

The views of parents and caregivers who attended the parent classes were also very positive; 90 percent of this group reported that the lessons they attended were “very useful” or “useful” and only 1 percent said they were “not very useful” in helping their child eat healthier foods (See figure II-3). Parents and caregivers in the focus groups also applauded the approach of the parent classes. They praised the quality of the direct educator, her ability to answer their questions with an understanding of their life situation, and the new recipes they prepared in the class. They also mentioned the use of visuals in the classes was particularly effective. One example offered was the demonstration of the differences in milk fat content.

“I loved the classes they gave about nutrition. For example, she showed us the fat in whole milk and low-fat milk. I was amazed to see how much fat whole milk has.”

—Caregiver focus group participant

In all the focus groups, the majority of the parents and caregivers said that their children were now trying new vegetables and fruits at home. They attributed this change not just to what they were preparing at home, but also to the child's exposure to new foods in the EWPHCCS classes and to a lesser extent at center mealtimes. Below are a few examples from the three different focus groups reflecting how parents or caregivers described the positive changes resulting from the healthy eating messages of the EWPHCCS program.

"I learned things to do with your kids that not only are fun, but are good for the nutrition and activity.... I was flabbergasted that my son actually tried new things at home just because they were in different shapes."

—Caregiver focus group participant

"My child comes home excited and motivated. It's an incentive for you to do things too. She would tell her brother,... '[L]ook; let me show you. My teacher did a strawberry shake. Come on; let's do it.'"

—Caregiver focus group participant

"If we are going to be healthy, we need to eat a lot of fruits and vegetables.' That is what my daughter would tell me when she would get home."

—Caregiver focus group participant

"My daughter started putting stickers on you if you ate vegetables."

—Caregiver focus group participant

It should be noted that many focus group participants also expressed appreciation for one of the program's core messages: the importance of offering children new foods but not forcing them to try them. In the words of one caregiver:

"The nutritionist is stating 'just let them try it.' If they don't like it now they may like it later."

—Caregiver focus group participant

▲ Implementation support from center directors

Several direct educators said that the presence of an engaged center director was a major facilitator of their success. They noted that directors who are more engaged and promote the program to their staff help make the program more effective by increasing staff and parent participation, providing adequate space for the parent classes, and ensuring teachers stay in the classrooms during the child lessons. Direct educators also said that when the center director is engaged, she or he can also support reinforcement of the messages in the classrooms by talking with the teachers about the program and encouraging them to try different activities that support its messages. The EWPHCCS program director emphasized that center staff engagement was an integral part of the direct educator training.

"When we train EWPHCCS RDs we advise them to work very closely with staff at each center. They can gather much valuable information from center staff, and staff buy-in is key to successful implementation."

—EWPHCCS program director

The direct educators particularly emphasized the association between center director engagement and parent attendance in classes.

“If there is a high level of involvement from directors and a dietitian who makes the director buy into the program, then they will be more successful getting more parents.”

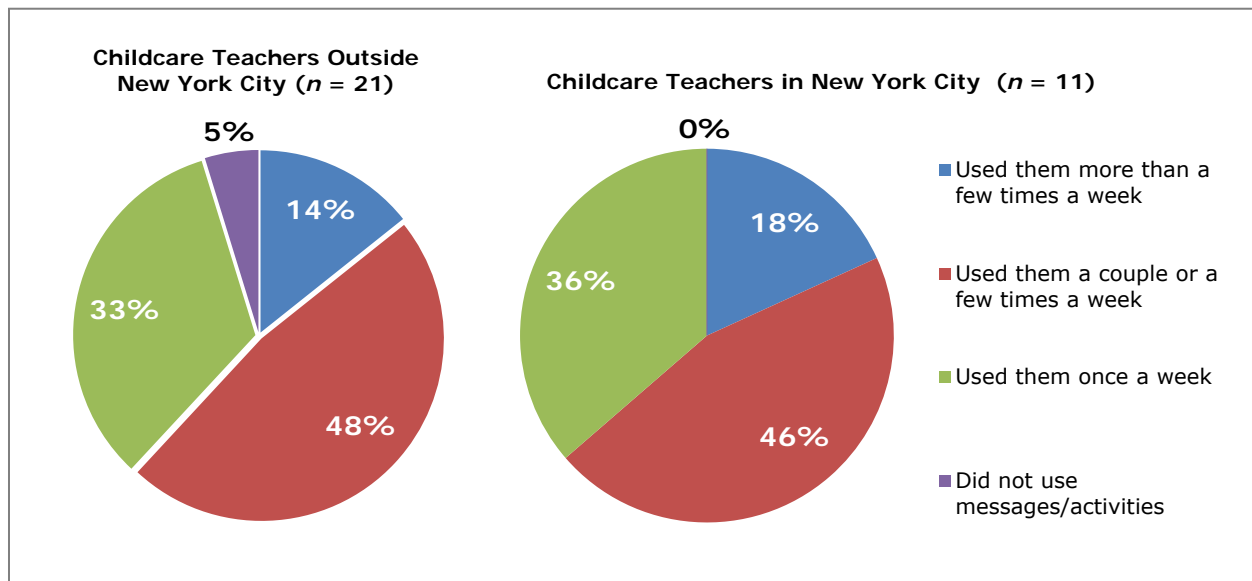
—EWPHCCS program direct educator

Corroborating the perceptions of the direct educators about center directors as key to parental engagement in the program, parent focus group participants most often cited outreach by their child’s childcare center director as the principal factor in their decision to join EWPHCCS classes. In the words of one caregiver, “She [the director] chases me down and lets me know about classes here.”

▲ Broad teacher support and EWPHCCS message reinforcement

Teacher survey responses reveal that the large majority of the classroom teachers have used nutrition messages and sample activities from the EWPHCCS lessons with the children in their classrooms. As depicted in figure II-5, all of the teacher respondents in New York City and all but one teacher respondent outside of New York City reported speaking with the children about the EWPHCCS nutrition messages in their classrooms. Further, as noted in the previous section on child exposure to the program, nearly two-thirds of the center teachers in each region of the State reported that they used these messages or activities “a couple” or “more than a few” times a week.

Figure II-5.— Percentage of Childcare Teachers Who Reported Using the EWPHCCS Nutrition Education Messages and Sample Activities, by Location



Source: Questionnaires completed by 32 lead classroom teachers from the 12 intervention sites in the independent evaluation

Among the 31 teachers who said they used the EWPHCCS messages with the children in their classroom, 19 offered examples of how they were doing so. The most common method, described by 10 of these teachers, was talking with the children during meal and snack time about the foods being served and how these related to the EWPHCCS lesson. These teachers said they focused on encouraging children to try colorful vegetables that the children might not have eaten before.

The second most common strategy for incorporating EWPHCCS messages in the classroom was to make and talk about healthy snacks with colorful fruits and vegetables. A few teachers also reported other creative activities in which they were engaged to reinforce the EWPHCCS messages. For example, a few said that they helped children make art projects with pictures or drawings of the fruits and vegetables they were learning about. One teacher in New York City explained that she posted pictures of fruits and vegetables on the classroom bulletin board to teach about colors and remind the children to “eat their colors.” These displays were also observed during our process evaluation site visit at this center. Another lead teacher from New York City explained that she planned to incorporate the entire packet of “link-it lesson” activities in her classroom throughout the year.

▲ **Emphasis on continuous quality improvement and training**

A majority of the program’s direct educators said that they believe that there is a commitment from EWPHCCS program managers to promote quality delivery of the curriculum. The NYSDOH program trainers reported that they try to tailor the trainings to meet the expressed needs of the educators and that they proactively ask for their input on which topics should be covered. They expressed a commitment to ensuring program quality and fidelity, while allowing the directors the flexibility and independence to use their own creativity, professional nutrition expertise, and teaching skills most effectively.

The majority of the program direct educators offered positive feedback on the format of the training and the technical assistance they had received when they joined the program as well as the format and content of the ongoing in-service trainings. Additionally, the direct educators appreciated the structured opportunities during staff meetings for networking and sharing lessons learned with their professional colleagues. While these nutrition professionals had past experience in nutrition education, some had not taught preschool age children before and several mentioned that the one-on-one feedback they received from the EWPHCCS program managers provided new ideas they can use to improve the quality of their implementation.

2. Challenges

▲ **Low participation in parent classes**

Though the large majority of parents and caregivers reported understanding and using the EWPHCCS take home materials, as previously noted, participation in the parent classes was very low at the intervention sites, as is the case for the statewide program. Many key informants suggested that overcoming low participation in the parent classes may be the greatest challenge for implementing the EWPHCCS program as it is currently designed.

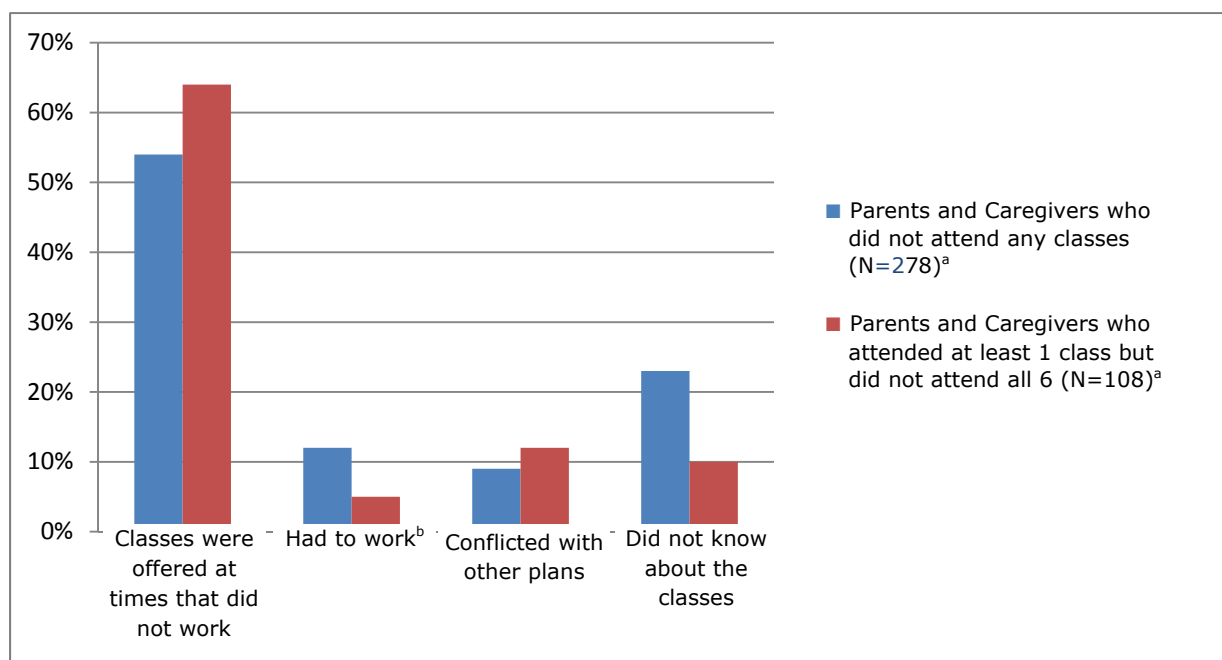
“I don’t know what to do anymore. At this center, a nurse helped with recruitment and I talked to the teachers to ask them to help and we still got a small turnout. My hope is that the kids talk to their parents and we are indirectly getting through to them to try new foods with their children.”

—EWPHCCS program direct educator

When asked about the reasons for low parent and caregiver participation, most teachers and the childcare center directors interviewed explained that the parents and caregivers at these centers are working at one or two jobs or have other obligations. Parent survey respondents confirmed that scheduling conflicts were the most common reason they did not attend the EWPHCCS classes; the scheduled time either conflicted with their work schedules or other commitments, including the need to care for one or more children. As depicted in figure II-6, 54 percent of survey respondents who did not attend any of these classes reported

that it was because “the classes were offered at times that did not work” while 12 percent said it was because they “had to work.” Similarly, among survey respondents who participated in some but not all of the classes, 64 percent said they missed classes because they “were offered at times that did not work” for them. Only 2 percent of the survey respondents who did not attend any of the classes said it was because they “did not think the class would be useful” or because they “do not like to go to classes like this.” (For a listing and frequency of all responses to this question, see “Parent and caregiver follow-up survey: descriptive tables for process questions,” table B-2 on “Reasons for nonparticipation in the EWPHCCS program parent classes,” in appendix B.)

Figure II-6.—Most Commonly Reported Reasons for Nonparticipation in EWPHCCS Classes for Parents and Caregivers^a



* Respondents could select multiple responses; “N” equals the number of parents and caregivers who responded to this question with at least one reason.

^b This category was created for a grouping of write-in responses.

Source: Parent and caregiver follow-up survey, descriptive tables for process questions, table B-2 on “Reasons for Nonparticipation in EWPHCCS Program Parent Classes,” in appendix B

Among parents and caregivers in the focus groups, each of whom had participated in at least one class, the most common reasons mentioned for not participating in more parent classes also had to do with the times the classes were offered, and their work and other scheduling conflicts. In the words of two focus group participants:

“For me work doesn’t stop after I get off the clock. So it’s hard to just give up that time to just sit down here and come to a class when you have a tremendous amount of stuff to do when you get home.”

—Caregiver focus group participant

“Even though I don’t work right now, I’m still very busy as a very hardworking mom. I don’t have a babysitter.”

—Caregiver focus group participant

Despite the large amount of materials that reportedly are sent home or posted at the childcare centers about the EWPCCS classes, the second most common reason parents and caregivers reported for not attending any classes was that they were unaware of them. Among survey respondents who did not attend any EWPCCS classes, 23 percent said they “did not know about the classes” (see figure II-5).

Opportunities for improvement. Each of the three center directors interviewed for the process evaluation suggested that while the goal of reaching parents is an important part of what they think makes EWPCCS successful, the number of parent classes offered and the class format should be re-examined. Many of the center directors, teachers, direct educators, and caregivers also suggested offering the parent classes at two different time slots, one in the morning and another in the afternoon. They suggested that this would better accommodate parents’ and caregivers’ varying work schedules.

Several childcare center directors and EWPCCS direct educators suggested that the program should offer fewer parent classes. The directors and direct educators who made this recommendation added that if they could focus their recruitment of parents to a fewer number of events they might be more successful in increasing parent turnout for the classes that are offered. A few of the direct educators interviewed also suggested that the program could substitute some brief, less structured educational opportunities for the educators to talk with parents one-on-one instead of some of the weekly classes.

Many teachers, center directors, and direct educators suggested that the program might achieve better caregiver participation if at least some of the events targeting parent education invited the parents to join their children together in a fun, engaging event.

“Do a joint parent-child lesson where they come together. The kids would be excited about it, and it would make the parents want to participate.”

—Childcare teacher

▲ **Cross cultural concerns**

Center directors and direct educators reported that a large proportion of the families at the SNAP-Ed eligible centers in New York State speak English as a second language or do not speak English at all. While three direct educators are fluent in Spanish and one in Chinese, this may not be sufficient bilingual staff to serve the population in need. Several parents and caregivers in two focus groups in New York City confirmed this concern. For example, several Latino caregivers in one focus group said that others like them may not want to come to a class if they think the foods that will be discussed are unfamiliar to them or inconsistent with their culture’s traditional dietary habits. In both groups, parents said that several families at their center who only speak Spanish likely did not come to the EWPCCS classes because the direct educator taught the class in English. A few parents at one center where a Spanish-speaking translator had come to most of the classes added that having a translator was not a good option because this makes the classes seem longer and, in the words of one of the parents, “sometimes you lose things in the translation.”

Opportunities for improvement. To address the challenge of serving large numbers of non-English speaking adults in this program, NYSDOH could consider working with their subcontracting agencies to hire more qualified bilingual direct educators, particularly Spanish speakers. Based on recommendations from direct educators, NYSDOH should also consider reviewing the recipes in the parent materials to

expand the options to enable educators to select dishes tailored to the specific cultural groups that are dominant at each center.

"[It] would help if you took traditional dishes commonly eaten by a particular cultural group at the center and make it (for them) in a healthier version."

—EWPHCCS program direct educator

▲ Maximizing center staff engagement

The majority of the direct educators said that the level of engagement by the center director can be either an asset or an obstacle to successful implementation of the program. While most educators stressed that the center directors were very helpful and enthusiastically supported their implementation of the program, 3 of the 11 direct educators at the intervention sites mentioned that the center director offered little assistance to them in implementing the program. One direct educator specifically mentioned a center director who offered no assistance in communicating and reinforcing the program's goals to the staff or parents and two mentioned that the director had not helped them with scheduling or reserving adequate space for the parent classes.

At the same time, program managers and direct educators recognized that childcare center staff members have many responsibilities. They emphasized that being flexible and responsive to the center staff is vital to gaining their support in implementing the program.

"...have to be flexible with daycare centers. The staff is underpaid, and they don't have a lot of time, so you have to work with them."

—EWPHCCS program nutritionist

Opportunities for improvement. To promote broad center director engagement and support for the program, NYSDOH could develop a list of expectations for center director assistance in program implementation. This list could be provided to the director at the time of their recruitment and include requirements and options for ways to help schedule and market the EWPHCCS parent classes.

While all but one of the teachers surveyed said they talk about the EWPHCCS lessons and messages with the children at mealtime or in their classroom, many of the teachers outside of New York City suggested that the program provide tools to help them integrate the EWPHCCS messages in more and different ways into their classrooms. For this reason, NYSDOH could consider using an approach outside of New York City that is similar to the "link-it lessons" that were developed and distributed to teachers at New York City centers participating in EWPHCCS.

▲ Tailoring the curriculum for younger children and children with special needs

Several direct educators noted that the EWPHCCS curriculum, while designed for 3–5-year-olds, is sometimes implemented in classrooms with 2-year-olds or recent 3-year-olds at the request of the center director. These younger children are less attentive and not able to engage in the lesson plan activities. Additionally, at two of the intervention centers, the direct educator pointed out that there were a large number of children with learning disabilities or other special needs in the classrooms. During their interviews, when asked about special training needs, several direct educators said they lack knowledge and experience working with this subgroup of preschoolers and feel ill-equipped to effectively teach the EWPHCCS messages to them.

Opportunities for improvement. If two-year old child care classrooms are to be included in the program, NYSDOH should offer adaptations to the lesson plans to better serve these children. NYSDOH

may also want to partner with the State Developmental Disabilities Council to review the EWPCCS curriculum for recommendations for tailoring its lesson plans to effectively teach children with special needs. An in-person training session on this topic for all the EWPCCS direct educators would also be beneficial. To plan for adapting the classroom activities prior to teaching the classes, direct educators should work with each center director to determine the number of children with special needs in each classroom, the types of needs they have, and whether there will be anyone present in the classroom to help these children participate during the EWPCCS lesson.

▲ Food costs

In the focus group discussions, some caregivers pointed out that while they very much liked the goals and methods of the program, the cost of fruits and vegetables and of trying new recipes on a very limited budget was a major barrier to offering these foods to their children.

“You have to be going around town searching for the least expensive place to buy vegetables and that takes time and money.”

—Caregiver focus group participant

“We are putting out a lot of our cash besides food stamps to get extra food we need for the whole month. Sometimes you have them [the ingredients] in your house, those [recipes] are the easier ones. But when it comes to putting everything together for a recipe and you’re not even sure the kids are going to eat... so why even try. I guess that’s how I honestly feel sometimes.”

—Caregiver focus group participant

Opportunities for Improvement. EWPCCS take-home materials include information on how to plan and shop for meals with fruits and vegetables on a limited budget and how to apply for SNAP. The focus group input clearly demonstrates that more could be done to address parent and caregiver concerns about the cost of purchasing fruits and vegetables. For example, the Parent Pages and other parent class hand-outs could be supplemented with more informational materials on meal planning and shopping on a limited budget. NYSDOH could also work with the State Cooperative Extension Service to duplicate or develop materials listing convenient local sites that sell fruits and vegetables at lower cost. Consistent with the current (2010) Dietary Guidelines for Americans, program materials and educators should encourage the use of all forms of fruits and vegetables, including fresh, frozen, canned and dried (USDA, CNPP, 2011). To help parents stretch their shopping dollar, the recipes included in the EWPCCS take-home materials could also be revised to ensure that several recipes include the same fruits or vegetables. As a way to motivate the parents to read and use the information, NYSDOH could consider presenting this information in a format that would allow the children to decorate the pages and bring them home to their parents.

A. Conceptual Framework for the Impact Evaluation

To provide an integrative understanding of the impacts of the Eat Well Play Hard in Child Care Settings (EWPHCCS) program, the analysis was guided by a conceptual framework that helped track the range of potential program effects. The framework enabled the evaluation of the effects of the EWPHCCS program through the specification of secondary outcomes that link the intervention to the long-term outcomes of the child's consumption of fruits and vegetables and 1% or fat-free milk. The secondary outcomes capture, in greater detail, the complexity of the behavior change process. The greater the number and strength of the changes seen among the secondary outcomes, the greater the likelihood of observing changes in consumption.

The framework presented in figure III-1 is adapted from Green and colleagues (1980). It has been applied in other studies to capture the main types of secondary outcomes associated with changes in nutrition behavior (Mullen, Hersey, & Iverson, 1987). The secondary outcomes include mediating factors and short-term outcomes. Three main types of mediating factors can influence changes in dietary consumption:

- **Predisposing factors** include the knowledge and attitudes of an individual related to the motivation to act. In this evaluation, an example of a predisposing factor is the willingness of a child to try new fruits and vegetables.
- **Enabling factors** include the skills and resources needed to engage in good nutrition. In this evaluation, an example of an enabling factor is the availability of fruits and vegetables or 1% or fat-free milk in a child's home.
- **Reinforcing factors** include factors that help reinforce healthy nutrition. In this evaluation, an example of a reinforcing factor is a parent offering fruits and vegetables as options for snacks or at dinner.

These mediating factors could affect dietary-related behaviors that include the following short-term outcomes: (1) child helped self to fruits or vegetables as snack, (2) daily variety of fruits and vegetables eaten by the child, (3) child helped parent prepare a meal or snack, and (4) consumption of low-fat or fat-free yogurt. These short-term outcomes are directly related to lessons in the EWPHCCS curriculum. For example, according to the model, greater willingness to try new fruits and vegetables may influence the frequency with which a child eats a variety of fruits and vegetables or asks for fruits or vegetables as a snack, which might, in turn, influence at-home consumption of fruits and vegetables.

Key Findings

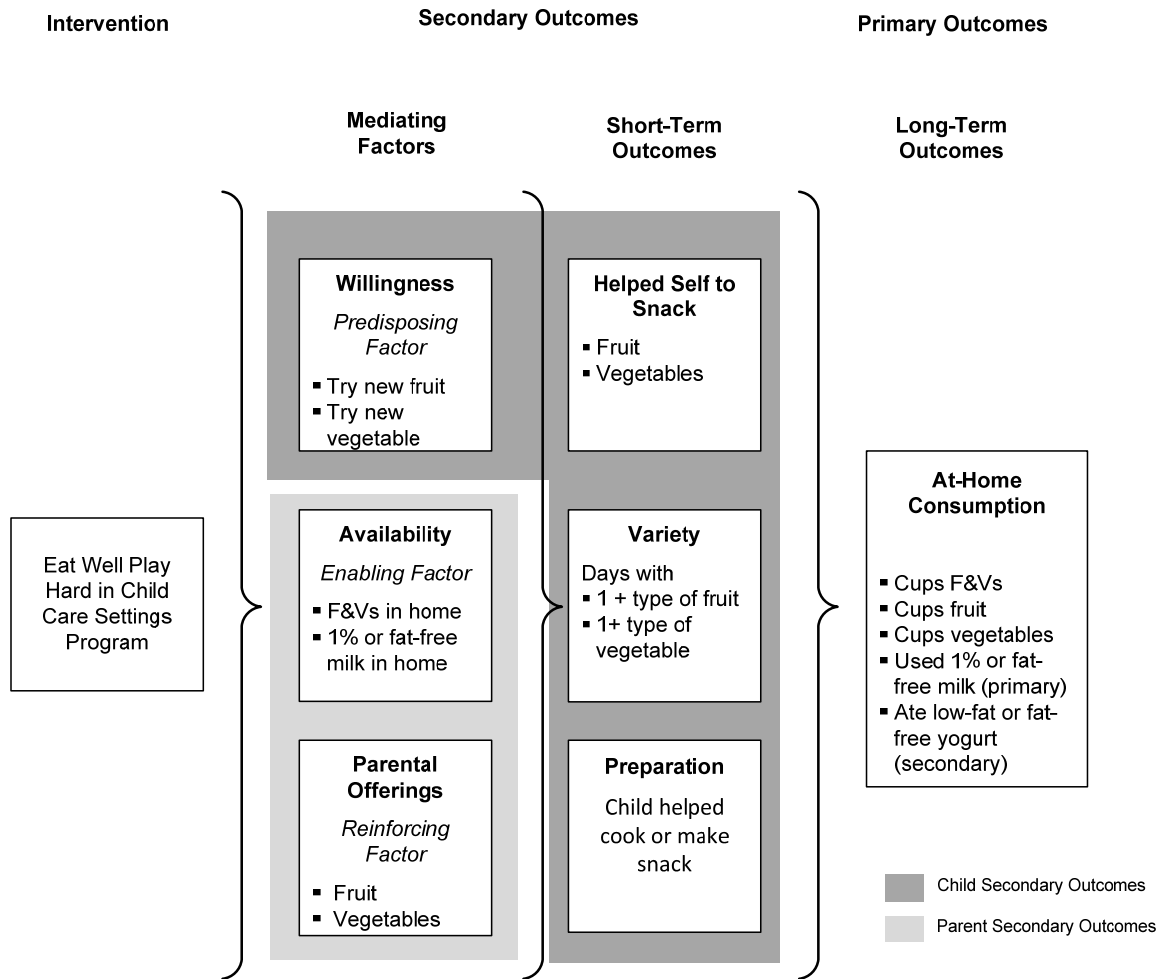
Primary Impacts

- The EWPHCCS program had a statistically significant impact on children's daily at-home consumption of vegetables and their at-home use of 1% or fat-free milk.

Secondary Impacts

- There was a significant increase in the rate of child-initiated vegetable snacking and a trend toward increased parental offerings of vegetables, which may have led to the observed increase in vegetable consumption.

Figure III-1.—Conceptual Framework for the EWPHCCS Program Impact Evaluation



Adapted from: Green, L. W., Kreuter, M. W., Deeds, S. G., & Partridge, K. B. (1980). *Health education planning: A diagnostic approach*. Palo Alto, CA: Mayfield Publishing Co.

Although this conceptual framework is helpful in tracking program impacts, it is not intended to represent a comprehensive logic model for the EWPHCCS program. The program could affect consumption through other pathways that are not reflected in this framework. Nonetheless, the use of this conceptual framework helps provide a fuller evaluation of the impacts of the EWPHCCS program.

B. Methodology

1. Evaluation Design and Sample Selection

The EWPHCCS evaluation was designed to examine the implementation and impact of the program statewide. Using an experimental research design, a stratified sample of childcare centers participating in the Child and Adult Care Food Program (CACFP) that were eligible for participation in the EWPHCCS intervention were selected for the evaluation. Within each strata (within versus outside New York City), the centers were matched on center type (standard versus Head Start), region, and size; for each matched pair, random assignment was made to the intervention group ($n = 12$) or control group ($n = 12$).

Sample size was estimated following commonly accepted evaluation practices (i.e., 80 percent statistical power and a type I error rate of 0.05 with a two-tailed test). Sample size estimation was based on observing a change in daily at-home consumption of fruits and vegetables combined of 0.30 standard deviation units or better as specified by the Food and Nutrition Service (FNS). Estimates were based on a statistical model that assesses change across time between the intervention and control groups. The analysis indicated that to observe a net difference of 0.30 cups with 12 centers in each study condition the study would need complete baseline and follow-up information from 550 parent or caregivers. Appendix H provides additional information on the evaluation design and sample size calculations.

2. Primary and Secondary Outcome Measures

Exhibit III-1 lists the primary and secondary outcome measures for the impact evaluation of the EWPHCCS program. This evaluation estimated the impact of the program on the primary outcome measure of the child's average daily at-home consumption of fruits and vegetables and use of 1% or fat-free milk during the past week as reported by their parents. It was hypothesized that children participating in the program would increase their average daily at-home consumption of fruits and vegetables by approximately 0.30 cups per day compared with children not participating in the program. The secondary outcome measures describe mediators and short-term outcomes that may influence at-home consumption of fruits and vegetables or use of 1% or fat-free milk. The secondary outcome measures are grouped into two categories: (1) child's other dietary behaviors and (2) parent behavior and household variables.

3. Instrument Development and Testing

To develop the impact evaluation instruments for the baseline and follow-up surveys, the project team reviewed New York State Department of Health (NYSDOH)'s application and the EWPHCCS program curriculum and talked with project staff to identify the primary and secondary outcome measures for the intervention. Existing instruments as compiled for the literature review conducted for this study (Altarum Institute and RTI International, 2009) were reviewed to identify those that address these outcomes and are feasible, appropriate for the target audience, reliable, valid, and sensitive to change.

In developing the impact instruments, the appropriateness of the existing instruments were assessed for collecting data on fruit and vegetable outcomes. Exhibit III-2 provides information on the study population, mode(s) of data collection, reliability, validity, and sensitivity to change for the instruments used to develop the questionnaire items on outcome measures for the impact evaluation. The majority of the items were taken or adapted from instruments that have been administered successfully with low-income audiences, validated, and demonstrated to be reliable and sensitive to change in previous studies.

For the primary outcome measures, child's dietary intake, questions from previously validated instruments—the Food Stamp Program Fruit and Vegetable Checklist (Townsend, Kaiser, Allen, Joy, & Murphy, 2003), and University of California Cooperative Extension Food Behavior Checklist (Townsend, Silva, Martin, Metz, & Wooten-Swanson, 2008)—were modified to ask the respondent (parent or other caregiver) to report on his or her child's consumption of fruits and vegetables. Respondents were instructed not to include meals eaten at childcare so that they were reporting only on observed consumption behavior.

Two rounds of interviews were conducted with parents and caregivers to test and refine the instruments. The readability of the instruments was assessed using the Fry Test, which examines the proportion of syllables and sentence length and is a commonly used measure of reading level (Fry, 1968). Generally,

Exhibit III-1.— Primary and Secondary Outcome Measures for the EWPHCCS Program Impact Evaluation

Primary outcomes: child’s dietary intake at home

- Cups of fruits and vegetables consumed each day^a
- Cups of fruits consumed each day
- Cups of vegetables consumed each day
- Use of 1% or fat-free milk (drunk or used on cereal) during past week

Secondary outcomes: child’s other dietary behaviors at home

- Number of days child ate more than one type of fruit during past week
- Number of days child ate more than one type of vegetable during past week
- Number of days child helped self or requested fruit as snack during past week
- Number of days child helped self or requested vegetables as snack during past week
- Number of days helped parent make snack or meal during past week
- Willingness to try a new kind of fruit
- Willingness to try a new kind of vegetable
- Number of days ate low-fat or fat-free yogurt during past week

Secondary outcomes: parent behavior and household variables

- Availability of fruits and vegetables at home during past week^b
- Availability of 1% or fat-free milk at home during past week
- Number of days parent offered fruit as snack during past week
- Number of days parent offered fruit at dinner during past week
- Number of days parent offered vegetables as snack during past week
- Number of days parent offered vegetables at dinner during past week

^a This measure represents an index of dietary intake created by summing two survey items: one asks for the number of cups of fruit eaten in the home and the other asks for the number of cups of vegetables eaten in the home. Each survey item includes response options that range from “none” to “three or more cups,” giving the index a range of “zero” to “six or more.”

^b Calculated an index score (0–6) based on the number of the following fruits and vegetables available in the home during the past week: bananas, apples, grapes, melons, strawberries, and carrots.

Exhibit III-2.— Summary of Instruments Used to Develop Impact Instruments for the EWPHCCS Impact Evaluation

Outcome Measures	Instrument	Study Population(s)	Mode(s) of Data Collection	Reliability	Validity	Sensitivity to Change
Cups of fruits, vegetables, and fruits and vegetables consumed by child each day ^a Child ate variety of fruits each day ^a Child ate variety of vegetables each day ^a	Food Stamp Program Fruit and Vegetable Checklist (Townsend et al., 2003) University of California Cooperative Extension Food Behavior Checklist (Townsend et al., 2008)	Low-income women	Self-administered, self-administered in group setting, and interviewer administered individually and in groups	The internal consistency for the 7-item fruit and vegetable subscale was high ($\alpha = 0.80$)	The 7-item fruit and vegetable subscale showed a significant correlation with serum carotenoid values ($r = 0.44$, $p < 0.001$), indicating acceptable criterion validity, and showed significant correlation with dietary variables	Demonstrated sensitivity to change for items expected to change as a result of the study intervention
Child used 1% or fat-free milk	NHANES 2005–2006 (CDC, 2007)	General population	Interviewer administered	Not reported	Not reported	Not reported
Willingness of child to try new fruits Willingness of child to try new vegetables	Willingness to try new fruits and vegetables (Jamelske, Bica, McCarty, & Meinen, 2008)	4th, 7th, and 9th graders	Self-administered	Not reported	Not reported	Compared with controls, intervention participants reported an increased willingness to try new fruits and vegetables at school ($p < 0.01$)
Availability of fruits and vegetables at home during past week	Fruit, juice, and vegetable availability questionnaire (Marsh, Cullen, & Baranowski, 2003; Cullen et al., 2003)	Parents of 4th and 6th graders	Self-administered and interviewer administered via telephone	The internal consistencies for the fruit and vegetable availability items were high	There was significant agreement between self-reported and observed at-home availability for all fruit juices and most fruits and vegetables	Fruit, juice, and vegetable availability was a significant predictor of child fruit, juice, and vegetable consumption ($p < 0.05$)

^a The questions were modified to ask the respondent (parent or other caregiver) to report on his or her child’s consumption of fruits and vegetables.

the questions were at the fifth-grade reading level. Appendix C provides a copy of the final survey instruments and appendix D provides a copy of the final survey materials.

4. Survey Administration Procedures and Response

To collect information on the program's impact, parents and caregivers of children who participated in the evaluation before and after the intervention completed a survey. A multimodal survey approach was used to maximize the survey response rate. Staff in the childcare centers in the study sent home packets with information on the study and the survey questionnaire. The study team contacted nonrespondents by telephone and attempted to complete the survey over the phone. For the follow-up survey, the study team mailed the survey questionnaire, then contacted nonrespondents, and attempted to complete the survey by phone. Incentives of \$10 cash (baseline) and \$15 cash (follow-up) were provided for completing the survey. The questionnaires and other survey materials were available in English and Spanish. Appendix H provides additional information on interviewer training and the survey procedures.

At baseline, 76 percent of the intervention group participants ($n = 552$) and 74 percent of the control group participants ($n = 591$) consented to be in the study and completed the baseline survey. At follow-up, 440 participants in the intervention group and 462 participants in the control group completed the survey, thus exceeding the sample size requirements (550 total required). The response rate for the follow-up survey was 80 percent for the intervention group and 78 percent for the control group.

5. Impact Analysis Procedures

The impact evaluation included repeated measures on individual respondents who are nested within centers, and centers that are nested in a study condition (i.e., intervention or control). When data are nested, responses within the same cluster tend to be correlated. If the correlated nature of the data is ignored in the specification of the model, it is likely to lead to inflated type I error rates. A series of hierarchical, or mixed-effects, regression models were developed to account for correlated responses by allowing for the inclusion of multiple sources of random variation.

This evaluation examined whether there were significant differences between the intervention and control groups by region (within versus outside New York City) for the primary outcome variable. Because the treatment impact for the primary outcome measure did not differ between the two regions, it was not necessary to include region in the impact model specification.

General linear mixed models were used for continuous impact variables, and generalized linear mixed models were used for dichotomous impact variables to evaluate program impacts while accounting for the clustering of children within centers. These models were estimated via difference-in-difference estimates of program effect, comparing change across time (baseline and follow-up) in the intervention group with change across time in the control group. Covariates in the model included child age, child sex, household size, respondent race and ethnicity, respondent age, and respondent sex. Missing data for covariates ranged from 7 to 10 percent of responses. Appendix H provides additional detail on the sampling models and link functions that describe the statistical models used to assess program outcomes and the structural models that detail the explanatory variables and the model coefficients.

Before conducting the impact analyses, the potential impact of attrition from the evaluation study on generalizability was assessed by comparing the pre-intervention similarity of study participants who

provided follow-up data and those who did not.¹⁷ This comparison was made by fitting a logistic regression model that regressed completion status on variables that describe survey responders and their children (child's sex, child's age, respondent's age, respondent's sex, respondent's race and ethnicity, and household size). This analysis provided odds ratios that highlight any association between the descriptive characteristics of participants and the likelihood of providing data at follow-up.

C. Impact Analysis Results

This section describes the baseline demographic characteristics of parents and children who participated in the evaluation study and the baseline outcome measures, discusses the results of the attrition analysis, and presents the results of the impact analysis. A p -value of 0.05 was used for determining statistical significance.

1. Baseline Data

The baseline analysis included 1,143 parent respondents: 552 in the intervention group and 591 in the control group. Table III-1 shows the baseline demographic characteristics for parent respondents and their children who participated in the EWPHCCS evaluation study overall and by study condition.¹⁸ Children in the intervention and control groups were similar with regard to their sex but significantly different in age (4.51 versus 4.34 years, $p = 0.0003$). However, this difference of a couple months is unlikely to translate into a meaningful difference developmentally between groups in terms of its impact on outcomes. At baseline, there were no statistically significant differences in the characteristics of parent respondents and their households for the intervention and control groups.

Appendix E provides the baseline outcome measures by region (table E-3) and by study condition (table E-4).¹⁹ At baseline, there were no statistically significant differences in outcome measures between the intervention group and the control group. However, a trend was observed with a difference between the mean number of cups of vegetables consumed by the child at home each day reported by parent respondents from the intervention group and the control group (1.04 versus 1.15 cups, $p = 0.0606$).

The baseline mean daily at-home consumption of fruits and vegetables combined was 2.46 cups (1.42 for fruits and 1.04 for vegetables) for the intervention group and 2.61 cups (1.46 for fruits and 1.15 for vegetables) for the control group. These data are for at-home consumption and do not include fruits and vegetables consumed while at childcare. As a point of reference, the U.S. Department of Agriculture (USDA) recommends that preschoolers (2 to 5 years) eat about 1 to 2 cups of vegetables each day and 1 to 1.5 cups of fruit each day, depending on the child's gender and activity level (USDA, 2011). According to figures III-2 and III-3, which show the baseline distribution of daily at-home consumption of fruits and vegetables, respectively, for children participating in the evaluation by condition, most children are meeting the guideline for fruit and may be meeting the guideline for vegetables depending on their age and gender.

¹⁷ Attrition includes individuals who did not complete the intervention (e.g., their child stopped going to the childcare center during the intervention) and individuals who did not complete the follow-up survey.

¹⁸ Appendix E, Tables E-1 and E-2 provide the baseline demographic characteristics by strata (region) and by study condition.

¹⁹ Appendix E, Tables E-5 and E-6 provide the unadjusted baseline means and post-test means for the 440 intervention group participants and 462 control group participants who completed the baseline and follow-up surveys.

Table III-1.— Baseline Demographic Characteristics for Parent Respondents and their Children Who Participated in the EWPCCS Evaluation Program Study, Overall and by Condition

Characteristic	Overall (SE)	Intervention Group (SE)	Control Group (SE)	Difference
Child demographics				
Sex, % male	51.85 (1.88)	51.43 (2.72)	52.26 (2.69)	-0.83
Age	4.44 (0.06)	4.51 (0.03)	4.34 (0.03)	0.17**
Parent ^a /household demographics				
Respondent's age, %				
18 to 34	67.41 (2.91)	64.09 (4.11)	70.71 (4.11)	-6.62
35 to 44	26.98 (2.46)	29.53 (3.52)	24.46 (3.51)	5.07
45 or older	5.28 (0.75)	5.97 (1.08)	4.62 (1.06)	1.35
Respondent's sex, % male	8.82 (1.26)	8.60 (1.84)	9.05 (1.82)	-0.45
Respondent is Hispanic or Latino	37.04 (6.17)	40.52 (8.87)	33.56 (8.86)	6.97
Respondent's race, %				
American Indian or Alaska Native	3.11 (1.13)	4.89 (1.56)	1.37 (1.54)	3.52
Asian	7.63 (3.47)	11.10 (4.92)	4.19 (4.90)	6.91
Black or African American	39.76 (6.40)	34.27 (9.13)	45.20 (9.09)	-10.94
Native Hawaiian or other Pacific Islander	3.02 (0.83)	2.10 (1.17)	3.87 (1.13)	-1.77
White	42.32 (6.51)	44.21 (9.41)	40.44 (9.38)	3.78
More than one race ^b	4.15 (0.86)	2.74 (1.18)	5.49 (1.13)	-2.75
Size of household	4.68 (0.08)	4.65 (0.11)	4.71 (0.11)	-0.05
Single-adult household, %	18.62 (1.52)	20.00 (2.15)	17.26 (2.13)	2.74
Language spoken by family at home, %				
Speak English all of the time	57.31 (5.97)	55.33 (8.62)	59.29 (8.61)	-3.96
Speak English some of the time and speak another language some of the time	36.10 (5.04)	36.49 (7.29)	35.69 (7.28)	0.81
Speak another language all of the time	6.79 (1.37)	8.30 (1.94)	5.29 (1.93)	3.01

(continued)

Table III-1.— Baseline Demographic Characteristics for Parent Respondents and their Children Who Participated in the EWPCCS Evaluation Program Study, Overall and by Condition (continued)

Characteristic	Overall (SE)	Intervention Group (SE)	Control Group (SE)	Difference
Center-provided food, %				
Received two meals (breakfast and lunch) ^c	50.84 (4.77)	50.17 (6.90)	51.53 (6.89)	-1.36
Received one meal (breakfast or lunch) ^c	28.62 (2.79)	26.21 (3.95)	31.02 (3.94)	-4.81
Received snacks only	8.63 (2.17)	10.58 (3.09)	6.69 (3.09)	3.90
Received no food from center	12.19 (3.15)	13.06 (4.56)	11.31 (4.55)	1.75
Number of respondents (%)	1,143	552	591	
Number of centers	24	12	12	

**Indicates statistical significance if the *p*-value is less than or equal to 0.01.

^a Represents the parent/caregiver who completed the survey.

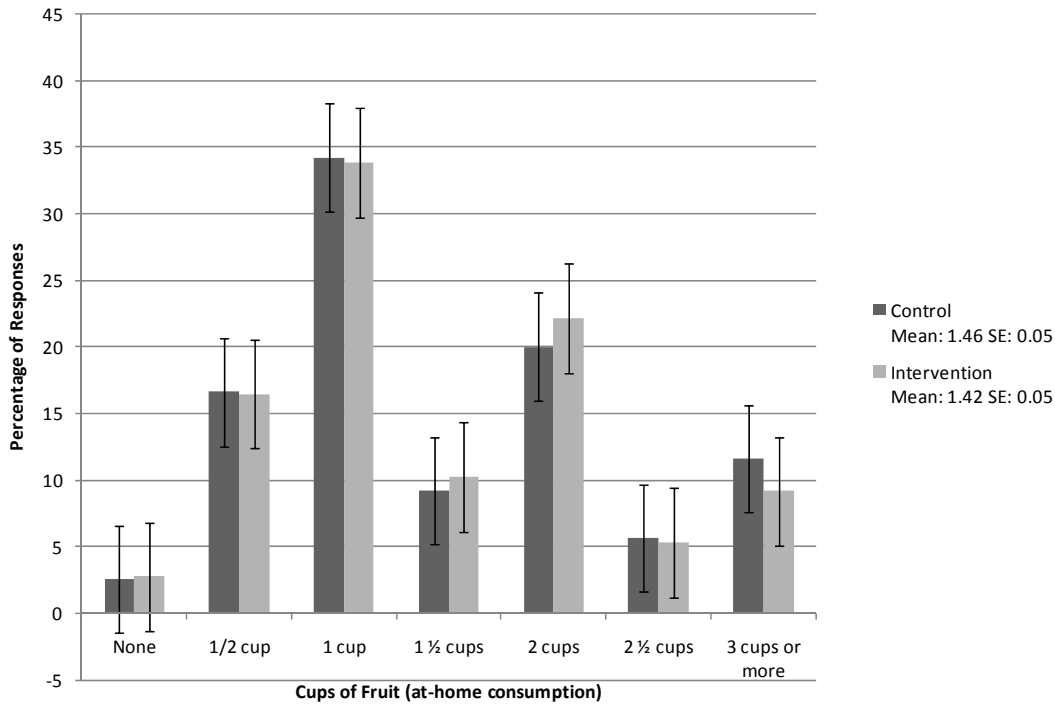
^b Includes respondents who selected more than one race category.

^c Some in this category also reported receiving center-provided snacks.

Note: Standard errors (SEs) and t-statistic used to test the null hypothesis of no difference between intervention and control groups were derived from model-based comparisons adjusted for clustering of students within centers.

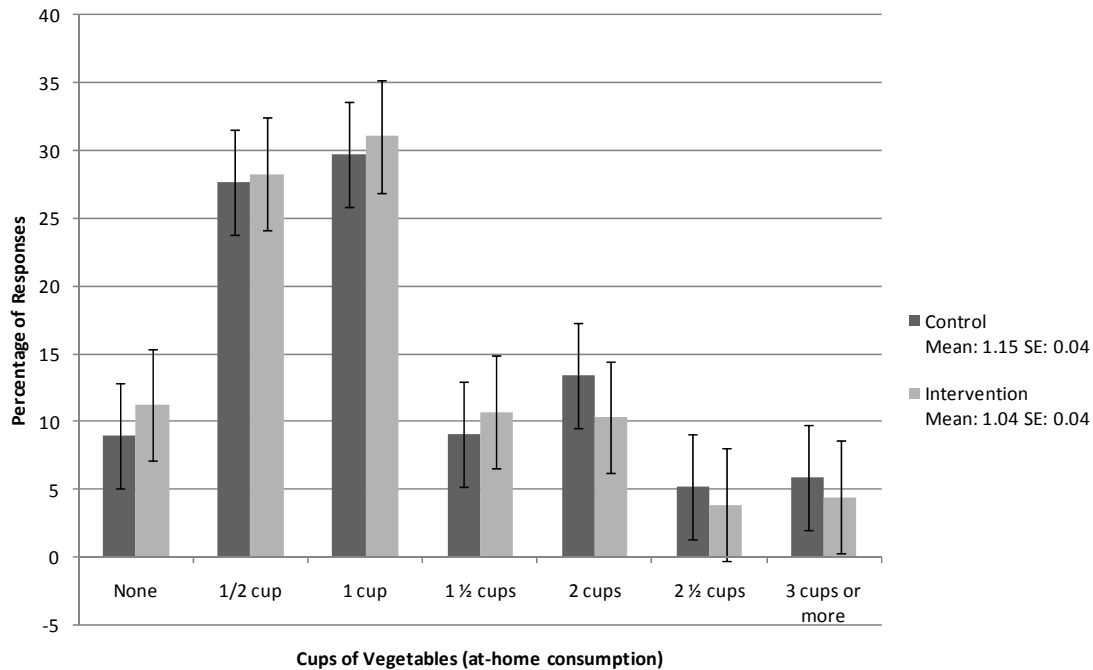
Source: Parent Baseline Survey, data collected spring 2010

Figure III-2.—Baseline Distribution of Cups of Fruit Consumed at Home by Children Who Participated in the EWPHCCS Program, by Condition



Source: Parent Baseline Survey, data collected spring 2010

Figure III-3.—Baseline Distribution of Cups of Vegetables Consumed at Home by Children Who Participated in the EWPHCCS Program, by Condition



Source: Parent Baseline Survey, data collected spring 2010

At baseline, the proportion of parents who reported their child used 1% or fat-free milk during the past week was 37.2 percent for the intervention group and 35.8 percent for the control group. With regard to the secondary outcome measures, this study found the following at baseline for all study participants (intervention and control groups) (see table E-3 in Appendix E):

- Children ate more than one type of fruit each day about 4 days during the past week and more than one type of vegetable each day about 3 days during the past week.
- Children helped themselves or requested fruit as a snack about 3 days during the past week and helped themselves or requested vegetables as a snack once during the past week.
- Children helped their parent make snacks or prepare meals about 2 days during the past week.
- Fifty-one percent of parents reported that their children are willing to try new fruits, and 36 percent of parents reported that their children are willing to try new vegetables.
- Children ate low-fat or fat-free yogurt about 2 days during the past week.
- The at-home availability of six fruits and vegetables during the past week was 4.28 (index score: 0–6).
- Parents reported offering fruit as a snack about 4 days during the past week and fruit at dinner about 2 days during the past week.
- Parents reported offering vegetables as a snack about 2 days during the past week and vegetables at dinner about 4 days during the past week.

2. Attrition Analysis

The potential impact of attrition from the evaluation study on generalizability was investigated by comparing the pre-intervention similarity of study participants who provided follow-up data to those who did not. Appendix E, table E-7 provides the results of this analysis. There were some differences between the two groups. Parents/caregivers who were 35 years or older were more likely to complete the follow-up survey than those in the 18 to 34 years age group ($p = 0.0011$ for the 35 to 44 age group and $p = 0.0292$ for the 45 or older age group). Black respondents were less likely to complete the follow-up survey than white respondents ($p = 0.0231$).

3. Child Primary Impact Results

Table III-2 shows the model-adjusted means at baseline and follow-up for the intervention and control groups and the estimated impact on number of combined cups of fruits and vegetables, cups of fruits, and cups of vegetables consumed at home, as well as whether the child used 1% or fat-free milk. Between baseline and follow-up, there was an increase in the model-adjusted mean number of cups of vegetables that children in the intervention group consumed at home each day and a decrease in the control group. These changes resulted in a net increase of 0.12 mean cups consumed by children in the intervention group relative to the number of cups consumed by the control group. This difference in the mean model-adjusted changes over time was statistically significant ($p = 0.0427$), thus the program had a significant impact on children's at-home consumption of vegetables.

Between baseline and follow-up, there was an increase in the mean number of cups of fruit that children in the intervention group consumed at home each day (from 1.41 to 1.47 cups) and virtually no change in the mean number of cups of fruit that children in the control group consumed at home each day (from 1.44 to 1.45) but the net increase was not statistically significant.

Table III-2.— Child’s Dietary Intake: Primary Impacts for the Evaluation of the EWPHCCS Program

Child’s Dietary Intake (at-home consumption)	Model-Adjusted Baseline Means (SE)		Model-Adjusted Follow-Up Means (SE)		Estimated Impact (95% CI) ^a	Wald Chi- Square <i>p</i> -value
	Intervention Group	Control Group	Intervention Group	Control Group		
Cups of fruits and vegetables	2.44 (0.08)	2.57 (0.08)	2.59 (0.08)	2.52 (0.08)	0.19 (−0.09, 0.48)	0.1737
Cups of fruits	1.41 (0.05)	1.44 (0.05)	1.47 (0.05)	1.45 (0.05)	0.06 (−0.12, 0.24)	0.4964
Cups of vegetables	1.03 (0.05)	1.13 (0.04)	1.11 (0.05)	1.08 (0.05)	0.12 (0.00, 0.24)*	0.0427
Used 1% or fat-free milk ^b	36.53 (0.03)	36.31 (0.03)	41.03 (0.03)	33.16 (0.03)	1.39 (1.05, 1.84)*	0.0241
Number of respondents	552	591	440	462		
Number of centers	12	12	12	12		

*Indicates statistical significance if the *p*-value is less than or equal to 0.05.

^a Program impact (with 95% confidence limits) was estimated via difference-in-difference models comparing change across time in the intervention versus control groups. Impact estimates are provided as odds ratios for dichotomous variables.

^b Dichotomous variable indicates the proportion responding yes.

Notes: General linear mixed models (SAS PROC MIXED) were used to evaluate the program impact while accounting for the clustering of students within centers. Covariates in the model included child age, child sex, number of people in the household, respondent race/ethnicity, respondent age, and respondent sex. SE = standard error. CI = confidence interval.

Source: Parent Survey, spring 2010 (Baseline) and summer 2010 (Follow-Up)

A similar pattern was observed for fruits and vegetables combined: a net increase of 0.19 mean cups in the model-adjusted mean number of fruits and vegetables consumed by children a day. However, because the effect of the program on fruit consumption was smaller than the effect on vegetable consumption (and because the inclusion of fruit increased the variability of the consumption estimates), the effect of the program on the combined measure of fruits and vegetables was not statistically significant. Hence, one cannot conclude that the EWPHCCS program had an impact on children's average daily at-home consumption of fruits and vegetables.

The EWPHCCS program had a significant impact on whether a child used 1% or fat-free milk during the past week. Between baseline and follow-up, the proportion of parents who reported their child used 1% or fat-free milk increased in the intervention group (from 36.5 to 41.0 percent in the model-adjusted estimate—a relative increase of 12.3 percent) and decreased in the control group (from 36.3 to 33.2 percent—a relative decrease of 8.7 percent). In the estimated model, these observed changes suggest that children in the intervention group were about 39 percent more likely than children in the control group to drink or use 1% or fat-free milk on their cereal (odds ratio = 1.39, $p = 0.0241$).

There were no significant differences between the intervention and control groups by region for cups of vegetables and for children using 1% or fat-free milk. Appendix E, table E-8 provides the results of these analyses.

4. Child Secondary Impact Results

Table III-3 shows the model-adjusted means at baseline and follow-up for the intervention and control groups and the estimated impact on the child's other dietary behaviors. Parents in the intervention group reported an increase in the number of days per week that their children helped themselves or asked for vegetables as a snack (from 1.25 to 1.44 days—a relative increase of 15 percent), while parents in the control group reported a decrease in this behavior over the same period (from 1.35 to 1.20 days—a relative decrease of 11 percent). The observed impact resulted in a statistically significant net increase of 0.34 days per week ($p = 0.0146$); alternatively this can be thought of as an approximate increase of 1 day per 5-week period. There is no indication that the EWPHCCS program had an impact on children's other dietary behaviors (eating a variety of fruits or vegetables, helping oneself to or requesting fruit as a snack, willingness to try new fruits or vegetables, helping a parent make snacks or meals, and eating low-fat or fat-free yogurt).

5. Parent Secondary Impact Results

Table III-4 shows the model-adjusted means at baseline and follow-up for the intervention and control groups and the estimated impact on parent offerings of fruits and vegetables and at-home availability of six fruits and vegetables and 1% or fat-free milk. Parents in the intervention group reported an increase in the number of days per week they offered their child a vegetable as a snack (from 1.57 to 1.78 days), while parents in the control group reported a slight decrease in this behavior over the same period (from 1.55 to 1.50 days). The observed impact results in a trend toward an increase in the rate of parents offering their child a vegetable as a snack ($p = 0.0644$). There is no indication that the EWPHCCS program had an impact on other parent behaviors and household variables (availability of fruits and vegetables and 1% or fat-free milk, offering fruit as a snack, and offering fruits or vegetables at dinner).

Table III-3.— Child’s Other Dietary Behaviors: Secondary Impacts for the Evaluation of the EWPHCCS Program

Child’s Other Dietary Behaviors ^a	Model-Adjusted Baseline Means (SE)		Model-Adjusted Follow-Up Means (SE)		Estimated Impact (95% CI) ^b	Wald Chi-Square <i>p</i> -value
	Intervention Group	Control Group	Intervention Group	Control Group		
Ate variety of fruits ^c	4.16 (0.10)	4.11 (0.10)	4.33 (0.11)	4.19 (0.11)	0.08 (–0.23, 0.39)	0.5839
Ate variety of vegetables ^c	3.31 (0.16)	3.40 (0.16)	3.36 (0.16)	3.39 (0.16)	0.06 (–0.32, 0.43)	0.7596
Helped self/requested fruit as snack ^c	3.30 (0.12)	3.33 (0.12)	3.41 (0.12)	3.19 (0.12)	0.24 (–0.14, 0.62)	0.2067
Helped self/requested vegetable as snack ^c	1.25 (0.10)	1.35 (0.10)	1.44 (0.11)	1.20 (0.11)	0.34 (0.07, 0.61)*	0.0146
Helped parent make snacks or meals ^c	2.09 (0.11)	1.89 (0.11)	2.33 (0.12)	2.15 (0.12)	–0.02 (–0.41, 0.38)	0.9383
Willingness to try new fruits ^d	49.06 (0.03)	52.70 (0.03)	59.21 (0.03)	57.63 (0.03)	1.23 (0.86, 1.78)	0.2457
Willingness to try new vegetables ^d	35.48 (0.02)	35.88 (0.02)	42.83 (0.03)	39.81 (0.03)	1.15 (0.86, 1.55)	0.3322
Ate low-fat or fat-free yogurt ^c	2.18 (0.13)	2.06 (0.13)	2.36 (0.14)	2.20 (0.14)	0.04 (–0.31, 0.39)	0.8175
Number of respondents	552	591	440	462		
Number of centers	12	12	12	12		

*Indicates statistical significance if the *p*-value is less than or equal to 0.05.

^a Based on continuous measures of the identified construct, unless otherwise indicated.

^b Program impact (with 95% confidence limits) was estimated via difference-in-difference models comparing change across time in the intervention versus control groups. Impact estimates are provided as odds ratios for dichotomous variables.

^c Reported as the number of days in the past week.

^d Dichotomous variable indicates the proportion responding yes.

Notes: General linear mixed models (SAS PROC MIXED) for continuous impact variables and generalized linear mixed models (SAS PROC GLIMMIX) for dichotomous impact variables were used to evaluate the program impact while accounting for the clustering of students within centers. Covariates in the model included child age, child sex, number of people in the household, respondent race/ethnicity, respondent age, and respondent sex. SE = standard error. CI = confidence interval.

Source: Parent Survey, spring (Baseline) and summer 2010 (Follow-Up)

Table III-4.— Parent Offerings and Fruit and Vegetable Availability in Households: Secondary Impacts for the Evaluation of the EWPCCS Program

Parent Behavior and Household Variables	Model-Adjusted Baseline Means (SE)		Model-Adjusted Follow-Up Means (SE)		Estimated Impact (95% CI) ^a	Wald Chi-Square <i>p</i> -value
	Intervention Group	Control Group	Intervention Group	Control Group		
Availability of fruits and vegetables ^b	4.28 (0.08)	4.25 (0.08)	4.50 (0.08)	4.57 (0.08)	-0.11 (-0.35, 0.13)	0.3583
Parent offered fruit as snack ^c	3.81 (0.10)	3.72 (0.10)	3.94 (0.11)	3.85 (0.11)	0.00 (-0.34, 0.34)	0.9876
Parent offered fruit at dinner ^c	1.94 (0.12)	1.79 (0.12)	2.24 (0.13)	1.90 (0.13)	0.19 (-0.14, 0.53)	0.2499
Parent offered vegetable as snack ^c	1.57 (0.10)	1.55 (0.10)	1.78 (0.11)	1.50 (0.11)	0.25 (-0.02, 0.53)	0.0644
Parent offered vegetable at dinner ^c	3.90 (0.17)	3.74 (0.17)	4.09 (0.17)	3.72 (0.17)	0.21 (-0.08, 0.50)	0.1403
Availability of 1% or fat-free milk ^d	49.73 (0.03)	47.68 (0.03)	53.56 (0.03)	50.50 (0.03)	1.04 (0.78, 1.39)	0.7756
Number of respondents	552	591	440	462		
Number of centers	12	12	12	12		

^a Program impact (with 95% confidence limits) was estimated via difference-in-difference models comparing change across time in the intervention versus control groups. Impact estimates are provided as odds ratios for dichotomous variables.

^b Index score (0–6) based on reported household availability of six fruits and vegetables.

^c Reported as the number of days in the past week.

^d Dichotomous variable indicates the proportion responding yes.

Notes: Generalized linear mixed models (SAS PROC MIXED) were used to evaluate the program impact while accounting for the clustering of students within centers. Covariates in the model included child age, child sex, number of people in the household, respondent race/ethnicity, respondent age, and respondent sex. SE = standard error. CI = confidence interval.

Source: Parent Survey, spring 2010 (Baseline) and summer 2010 (Follow-Up)

In summary, the EWPHCCS program had a significant impact on children's daily at-home consumption of vegetables with an increase of 0.12 cups of vegetables per day. There was a significant increase in the rate of child-initiated vegetable snacking and a trend toward increased parental offerings of vegetables as a snack, which may have led to the increase in vegetable consumption. Although it is debatable whether an increase of 0.12 cups of vegetables for children in the intervention group is nutritionally meaningful, together these findings suggest real progress toward increasing vegetable consumption. The EWPHCCS program also had a significant impact on whether a child used 1% or fat-free milk.

Chapter IV ● Assessment of NYSDOH's Self-Evaluation

A. Methodology

Determining the effectiveness of the evaluation conducted by New York State's Department of Health (NYSDOH) required a clear understanding of the planning, design, and implementation of the evaluation based on both objective and subjective measures. To the extent possible, the assessment was based on objective information such as the evaluation report prepared by NYSDOH. Qualitative methods were used to gather in-depth information and perspectives of key players in the evaluation (e.g., program administrators and the evaluation manager). Exhibit IV-1 describes the data sources used for the assessment, and appendix F provides copies of the forms and instruments used in the assessment.

The assessment of NYSDOH's evaluation of the Eat Well Play Hard in Child Care Settings (EWPHCCS) program included a detailed description of their evaluation methodology, including management, staffing, and costs of the evaluation; an assessment of the quality of NYSDOH's evaluation, including strengths and weaknesses; a comparison of NYSDOH's study design and results with the Food and Nutrition Service (FNS) independent evaluation; and an assessment of lessons learned based on the quality assessment, cost analysis, and reported factors affecting evaluation implementation. Appendix I provides additional information on the methodology for the assessment of NYSDOH's self-evaluation.

Key Findings

- The NYSDOH evaluation employed a one-group pre-post test design with surveys of parents and caregivers of children to measure the impact of the program.
- Weaknesses of NYSDOH's evaluation included a poor comparison strategy, an inadequate sampling approach, lack of standardized procedures for data collection, and the data analyses did not account for the clustering of individuals within centers.
- The results of the NYSDOH evaluation and the independent evaluation suggest the EWPHCCS program had an impact on the use of 1% or fat-free milk at home, but differed in their findings with regard to behaviors related to fruit and vegetable consumption.

B. Description of NYSDOH's Self-Evaluation

This section describes the methodology NYSDOH used to evaluate the EWPHCCS program and provides information on the management, staffing, and costs of the NYSDOH evaluation. The description is based on NYSDOH's demonstration project application (NYSDOH, 2008) and its evaluation report (NYSDOH, 2010).

1. Research Objectives and Hypotheses and Outcome Measures

Exhibit IV-2 provides the project-level goals and objectives for the EWPHCCS evaluation. The NYSDOH evaluation included the following outcome measures:

- How often the parent or caregiver offers fruits and vegetables to the child at snacks and meals;
- Whether, in the last week, the parent or caregiver had offered the child a fruit or vegetable that the child had never tasted before;
- How efficacious the parent or caregiver is in offering fruit, vegetables, and low-fat or fat-free milk;

Exhibit IV-1.—Description and Use of Data Sources for the Assessment of NYSDOH's Self-Evaluation

Data Source	Description and Use
NYSDOH's application	The application to request funding as a demonstration project provided information on the proposed evaluation procedures. The study team abstracted information from NYSDOH's application to describe their evaluation approach and identify any differences between their planned and actual evaluation approach.
Evaluation review form	This form included eight evaluation components (e.g., viable comparison strategy and data analysis), each of which was scored on a 1 to 5 scale. The study team completed the form using information from NYSDOH's application and evaluation report and additional information obtained in the key informant interviews conducted following the evaluation. The team used the completed review form to prepare a descriptive assessment of the quality of NYSDOH's evaluation that identified the strengths and weaknesses of the evaluation and detailed areas for improvement.
Evaluation cost form	This form, completed by NYSDOH, documented the resources used and costs incurred to evaluate the EWPHCCS program. The study team used the completed form and the findings from the key informant interviews to prepare a descriptive assessment of the cost of conducting the evaluation.
NYSDOH's evaluation report	The team provided NYSDOH with an outline for preparing a report on their evaluation methodology and results. The team reviewed and abstracted key information from the report to complete the assessment of the quality of NYSDOH's evaluation and to compare NYSDOH's study design and results with the FNS independent evaluation.
Key informant interviews	Using structured interview guides, the study team conducted in-depth interviews with the evaluation manager before and after the evaluation was conducted and the EWPHCCS program directors and supervisor of the EWPHCCS direct educators after the evaluation. The findings from these interviews informed all aspects of the assessment of NYSDOH's self-evaluation, in particular, the assessment of the management of the evaluation and lessons learned from conducting the evaluation.

- Whether the child usually drinks fat-free or low-fat milk at home;
- How often the child helps the parent or caregiver cook a meal;
- Typical daily amount of time the child spends on screen time (watching TV, DVDs, or videos);
- Typical amount of time the child spends daily playing outdoors (morning, afternoon, and evening); and
- Caregiver's self-efficacy for helping child reduce screen time and play outside more often.

Among these goals, this analysis of the NYSDOH evaluation focused on the subset of outcome measures that overlapped with the FNS independent evaluation:

- How often the parent or caregiver offers fruits and vegetables as a snack and at dinner,
- Whether the child uses 1% or fat-free milk at home, and
- How often the child helps the parent or caregiver cook or make snacks.

Exhibit IV-2.—Project-Level Goals and Objectives for the NYSDOH Evaluation

Project-Level Goals

1. Increase parent and caregiver self-efficacy and behavioral capabilities related to nutrition and physical activity.
2. Increase parent and caregiver offerings of fruits and offering of vegetables to children at meals and snacks.
3. Increase the proportion of children who drink fat-free or low-fat milk at home.

Project-Level Objectives

1. At the completion of six nutrition education lessons, parents and caregivers will demonstrate improved knowledge, attitudes, and behaviors regarding fruits, vegetables, and low-fat dairy products.
2. At the completion of six nutrition education lessons, parents and caregivers will offer fruits, vegetables, and low-fat milk and dairy products to their children daily.

Sources: NYSDOH Models of Food Stamp Nutrition and Education Demonstration Project Application, 2008; NYSDOH Evaluation Report, 2011

2. Research Design and Sample Selection

NYSDOH's research design was nonexperimental; parent and caregiver survey data were collected before and after the intervention. As detailed in its evaluation report, NYSDOH conducted the intervention at 196 centers (106 centers in New York City and 90 centers elsewhere in the state). NYSDOH attempted to administer parent/caregiver surveys at all of the centers delivering EWPCCS, excluding the 12 intervention centers in the independent evaluation. The practice of surveying all participating childcare centers is consistent with how NYSDOH has evaluated the program in the past.

Ultimately, 8,043 children participated in the intervention during the period NYSDOH collected data for their evaluation (October 2009 – June 2010). In New York City, the NYSDOH evaluation sample included 70 centers in four boroughs and 2,180 parents and caregivers. Outside of New York City, the NYSDOH evaluation sample included 62 centers in 24 counties and 1,207 parents and caregivers. The evaluation sample size is smaller (132 centers) than the total number of intervention centers because it only included centers where at least one parent survey was received.

3. Survey Administration Procedures and Response

NYSDOH conducted its data collection between October 1, 2009, and June 30, 2010. NYSDOH evaluation staff did not specify a standard protocol for distributing or collecting the surveys across the program statewide, so there was a lot of variability as to how the surveys were distributed, collected, and the use of incentives. The EWPCCS direct educators and childcare center staff distributed pre- and post-test surveys via children's cubbies and asked parents to return them to the childcare center within 1 week. Direct educators depended on center staff for both survey distribution and collection of the surveys. Pre-test surveys were distributed 1 week before the first class, and only surveys returned before the start of the intervention were considered valid and used in the analysis. Post-surveys were distributed after the last class. For some childcare centers, parents and caregivers who completed and returned a survey received a low-cost (less than \$4) incentive. Table IV-1 presents information on pre- and post-survey response rates.

Table IV-1.— Pre- and Post-survey Response Rates^a

Location	Pre-test Response Rate (%)	Post-test Response Rate (%)
Outside of New York City	32.3% (989/3,061)	22.6% (694/3,061)
New York City	35.3% (1,760/4,982)	27.6% (1,377/4,982)
Total for New York State	35.1% (2,824/8,043)	26.5% (2,131/8,043)

^a The rates were calculated by dividing the total number of surveys returned from respondents with enrolled children by the total number of children enrolled; this is the response rate assuming that each enrolled child's family was given one survey. These rates may include multiple children in the same family enrolled at a given center and multiple surveys returned by a family.

Source: NYSDOH Evaluation Report, 2011

4. Analysis Procedures

NYSDOH compared the pre- and post-test intervention group means using studentized t-tests and chi-squares depending on the variable type. The primary analyses examined the previously mentioned evaluation sample. A secondary analysis examined the sample of caregivers who returned both the pre- and post-test surveys (paired survey analysis). These data represent 1,462 pairs of pre- and post-test surveys from 127 childcare centers in 26 counties.

5. Management, Staffing, and Costs of the Evaluation

NYSDOH's evaluation of the EWPHCCS program was conducted by three staff in the Division of Nutrition's evaluation unit. They worked closely with the State EWPHCCS program staff in the design of their evaluation logic model, determination of measures for inclusion as program impacts, and design of the survey questions. At the same time the data analysis was conducted separately within the evaluation unit to maintain independence from the interests of the program staff.

NYSDOH reports the costs of their evaluation of EWPHCCS as totaling \$242,142. Eighty-five percent of the evaluation costs are attributed to staff salaries and benefits, with modest costs for supplies, materials, administrative, and travel costs as described below.²⁰ (See Table IV-2.)

- **Salary and benefits.** This expense includes the salaries of the following NYSDOH staff and subcontractor agency staff who supported NYSDOH's evaluation of EWPHCCS for this demonstration project:

Staff at NYSDOH:

- 0.65 FTE research scientist (two part-time)
- 0.18 FTE senior evaluator
- 0.15 FTE Senior Program staff (two part-time)
- 0.6 FTE program aide

²⁰ Budget justification language was provided by NYSDOH.

Table IV-2.— Summary of NYSDOH Costs for Evaluation of EWPHCCS (Federal FY 2010)^a

Budget Category	Expenditures	(Percent of total costs)
Salary and benefits	\$205,477	(84.86)
Contracts	0	
Supplies	\$3,000	(1.24)
Materials	\$10,620	(4.39)
Administrative	\$1,535	(0.63)
Travel	\$419	(0.17)
Total direct costs	\$221,051	(91.29)
Total indirect costs	\$21,091	(8.71)
Total costs	\$242,142	100

^a Not all of the salaries and indirect costs associated with the evaluation staff that appear in this table were reported by NYSDOH in its annual USDA EWPHCCS SNAP-Ed reports because NYSDOH received FNS-supported incentive funding for this demonstration project that funded the salary and benefits of one research scientist. This staff person was not used as local cost share for SNAP-Ed.

Source: Cost data provided by NYSDOH (see completed "Resource and expense tracking form" in appendix B)

Staff at NYCDOHMH (the largest EWPHCCS-implementing agency that includes more than half the program's reach):

- 0.0375 FTEs in senior program management
- 0.05 FTE program assistant
- 0.9 FTE direct educators (the same staff who provide education in the centers)

Staff at the six CCR&Rs (the EWPHCCS-implementing agencies that implement the program outside of New York City)

- 0.8 FTE direct educators (the same staff who provide education in the centers)

NYSDOH administrative staff members were responsible for the survey data entry and the two research scientists were responsible for quality control review of the entered survey data. These staff also conducted the data analyses. The senior research scientist (Research Scientist III) managed the evaluation, including the development of the evaluation logic models, data analysis plan and models; reviewed the initial data analysis; conducted the final data checking and analysis; and authored the evaluation report and tables with results, which were provided to the independent evaluators. The senior program management staff at NYSDOH and NYSDOHMH oversaw the data collection and entry, the program assistants conducted data entry, and the direct educators spent time with the local centers to distribute the parent surveys, send reminders to promote parents' responses, follow-up with each center to collect the paper copies, and compile the information for data entry.

- **Noncapital equipment and supplies.** This expense line includes the cost for paper and printing the NYSDOH parent pre-and post-surveys.
- **Materials.** This expense line represents the cost of the incentives (less than or equal to \$4) direct educators provided to parents to encourage their return of the surveys.

- **Administrative.** The administrative expenditures include the data entry costs for a temporary worker who was hired to enter data from the surveys.
- **Travel.** This line covers the expense of two NYSDOH evaluation staff who traveled to New York City to provide the team of EWPHCCS direct educators with preliminary findings of the 2009 parent surveys and discuss strategies for increasing response rates for the parent pre and post surveys.

C. Assessment of the Quality of NYSDOH's Self-Evaluation

Although FNS' SNAP-Ed Guidance encourages all States to evaluate the effectiveness of their SNAP-Ed interventions, measuring and identifying the results of nutrition education in terms of concrete changes to dietary behaviors is a challenge for both FNS and its State and local partners. In FY 2004, 74 percent of SNAP-Ed implementing agencies reported that they conducted outcome evaluations on at least some aspects of services. However, their evaluations often did not distinguish between activity monitoring and outcome evaluations (USDA FNS, 2006). Based on interviews with staff from 17 implementing agencies, the focus of their evaluations was to some extent on behavior change among participants, but to a much greater extent on program use (e.g., quantifying the number of events held, the number of participants reached, and the number of contacts per participant). Forty-three percent of implementing agencies surveyed in 2004 indicated that significant barriers to conducting successful evaluations included a lack of funds and expertise on the part of their local project staff and subcontractors (USDA FNS, 2006).

To compare findings from an intervention's self-evaluation with a rigorous independent evaluation, a scoring tool was adapted based on the one used by the Center for Substance Abuse Prevention in development of the National Registry of Evidence-based Programs and Practices (NREPP) database (see <http://nrepp.samhsa.gov/> for additional information). The evaluation review form, provided in appendix F, includes eight evaluation components and requires a reviewer to assign a numerical score ranging from one to five for each component. Reviewers were provided the following anchors for scoring:

- 1 = missing or so poorly described that its value to the evaluation cannot be determined;
- 2 = is inappropriate, misunderstood, or misrepresented in such a way that it cannot contribute to an effective evaluation of the program. The actions or materials reported are not appropriate for the evaluation effort proposed;
- 3 = shows a general understanding of its role in the evaluation. However, key details have been overlooked or not thoroughly reported. Needs moderate revision to be considered acceptable;
- 4 = is appropriate for the evaluation, technically correct, and is described well enough to show a general understanding of its role in the overall evaluation. Evidence shows that it will or has been implemented properly, but minor details may be missing or unclear; and
- 5 = is appropriate for the program being evaluated and is presented in a way that shows the evaluator has a clear understanding of its role in the evaluation.

Scores of 1, 2, and 3 indicate components that are not aligned with the overall evaluation design in a way that makes them unlikely to contribute useful or interpretable information. Scores in this range indicate opportunities for improvement in future evaluations. Scores of 4 and 5 indicate components that are well matched to the design; these components are likely to contribute useful or interpretable information to the overall evaluation. Scores in this range indicate evaluation components that could be replicated in future evaluations.

Using the evaluation review form, two members of the impact evaluation staff (one rater was the designated impact evaluation leader for the independent evaluation) rated each evaluation component. The study team assessed inter-rater agreement and came to a consensus score for each evaluation component. Table IV-3 provides the results of the completed review form.

Table IV-3.— Assessment Scores for NYSDOH’s Self-Evaluation^a

Evaluation Component	Score
Research objectives and hypotheses	3
Viable comparison strategy	2
Sampling size and strategy	3
Outcome measures	3
Data collection	2
Data analysis	3
Attrition/nonreponse between the pre- and post-surveys	2
Missing data (i.e., survey item nonresponse)	5

^a Appendix I provides a description of the criteria used to assess each evaluation component.

Exhibit IV-3 provides a descriptive assessment of the strengths and weaknesses of NYSDOH’s self-evaluation. The NYSDOH evaluation did not state the research objectives in quantifiable terms, employ a comparison or control group (which limits the ability to make causal inferences and to know what changes might have occurred absent the intervention), or conduct a power analysis to determine the required sample size. The evaluation instrument used mostly single-item outcome measures that were modified or adapted from published measures, some with no apparent validity or reliability testing data.

Exhibit IV-3.— Summary of Strengths and Weaknesses of NYSDOH’s Self-Evaluation

Strengths

- Participant data were coded with anonymous numeric identifiers (no names linked to data).
- Very few data were missing for the impact analysis.

Weaknesses

- The research objectives and hypotheses were not stated in quantifiable terms, making it difficult to assess whether program goals and objectives were realistic and how well they were achieved.
- The lack of a comparison or control group limited NYSDOH’s ability to eliminate numerous validity threats.
- A power analysis was not conducted. The assumed goal was to survey the parents or caregivers of all children who participated in the intervention (with the exception of the intervention centers included in the independent evaluation). There was no specific information on the anticipated size of the program’s effect.
- The evaluation instrument used mostly single-item outcome measures that were modified or adapted from published measures, some with no apparent validity or reliability testing.
- No standard protocol existed regarding distribution and collection of surveys across centers, which led to great variability in the survey administration procedures.
- The data analyses did not take into account the clustering on individuals within centers. Standard errors are likely to be underestimated, and reported p-values may overestimate significance.
- The high nonresponse rate and attrition for the surveys limit the generalizability of the study findings.

With regard to data collection, the reviewers expressed some concern about quality control during the data collection process. It appears that the data security procedures could have been strengthened; in one instance, surveys were stolen from a data collector's vehicle, although numbered identifiers were used so the identity of the respondents was not revealed. There were no standard protocols regarding distribution and collection of surveys across centers (e.g., the direct educators inconsistently provided incentives for caregivers who returned surveys, and the time period for returning the post-survey was not specified so the data collection period varied). The response rate for the surveys was very low (27 to 35 percent) and only 1,462 of 8,043 parents completed both the pre- and post-surveys for the paired survey analysis. This high attrition and nonresponse limit the generalizability of results and suggest that the self-evaluation could have been enhanced by more intensive methods to increase response rates. Efforts to enhance response rates often require additional resources. These types of problems suggest that more could have been done to enhance the integrity and quality of the data collection process and survey data set.

The analysis procedures used to prepare the results presented in the evaluation report did not consider the clustering of students, parents, and caregivers within centers, which is likely to lead to inflated significance levels in tests of intervention effectiveness. Otherwise, the pre- and post-test paired analyses were consistent with the study design. The high attrition rate limits the generalizability of the study findings. A strength of the evaluation was the low amount of item nonresponse (missing data) for a mail survey (1 to 4 percent).

NYSDOH collected data on competing nutrition education programs offered at centers before and after the intervention period in an effort to identify and rule out alternative explanations of program effects; however, this information was not used in their analysis. Additional information on the weaknesses, and a discussion on why these weaknesses are a concern, is provided in section D, which compares NYSDOH's evaluation methodology with that of the independent evaluation.

D. Comparison of Evaluation Methods and Results for the NYSDOH and Independent Evaluations

This section discusses the similarities and differences between the NYSDOH evaluation and the independent evaluation. After comparing and contrasting the methodologies employed to evaluate the EWPHCCS program, this section examines the findings, noting how differences in the findings relate to differences in evaluation methodology.

Exhibit IV-4 compares and contrasts the study design for NYSDOH's evaluation with the study design employed for the independent impact evaluation. The NYSDOH evaluation employed a one-group pre-post-test design to measure the impact of the EWPHCCS program. This design has no control or comparison group data. Instead, data are collected on the same measures from the same individuals at baseline and follow-up (NYSDOH had paired data for a limited subset of parent and caregivers), and changes in the reported outcomes are assumed to be the result of the intervention. This is generally considered a weak evaluation design because it does not allow evaluators to eliminate the possibility that events beyond the program influenced the measured outcomes. Without a good comparison or control group, observed changes may reflect natural changes over time (maturation), events that occurred before the intervention (history), or factors related to measurement (testing effects). In contrast, the independent evaluation design adds a control group to the simple pre- and post-test design described above.

Exhibit IV-4.—Comparison of Study Designs for the NYSDOH and the Independent Evaluations

Study Design Characteristics	NYSDOH Evaluation	Independent Evaluation
Comparison strategy	Observational one-group design	Experimental design with matched control group in terms of type (standard versus Head Start), region, and size
Impact estimate	Pre- and post-test change among intervention group	Pre- and post-test change between intervention and control groups
Sample size estimation	Power analysis was not conducted to determine required sample size	Sample size determined <i>a priori</i> based on expected program impact and characteristics of the research design
Evaluation sample	Parents and caregivers of preschool children enrolled in 132 EWPHCCS intervention sites (excluding the 12 intervention centers from the independent evaluation)	Parents and caregivers of preschool children enrolled in 24 CACFP childcare centers (12 intervention and 12 control) sampled from approximately 156 CACFP centers
Primary outcome measures	Frequency with which parent or caregiver offers fruits and vegetables to the child at meals and snacks Whether the child usually drinks low-fat or fat-free milk at home	Average daily at-home consumption of fruits and vegetables Percentage of children who used 1% or fat-free milk during past week
Data collection	Pre-test and post-test surveys distributed via children’s cubbies and returned to the center with collection by RDs and center staff	Mail survey of parents and caregivers, with follow-up by telephone for nonrespondents
Data analysis	Compared the intervention group percentage means from pre-test to post-test using chi-square, Wilcoxon signed-rank, and McNemer’s tests	Mixed model regressions using maximum likelihood estimation

The independent evaluation conducted *a priori* sample size estimation that specified childcare centers as the unit of analysis (i.e., level of independence) and included data from individuals nested within centers. In contrast, NYSDOH did not conduct *a priori* sample size estimation but planned to survey parents of all children participating in the intervention (excluding the 12 intervention centers from the independent evaluation). *A priori* sample size estimation takes into account the assumed effect size (i.e., program impact) and known or assumed information about the variation in the measurement to determine the number of individuals that would be needed to determine that an observed change occurred because of the intervention and not because of chance or measurement error. Without some understanding of the way these factors interact, it is difficult to determine whether failure to achieve statistically significant findings is due to evaluation design characteristics or programmatic factors. The independent evaluation completed the required number of surveys based on the power analysis; however, the NYSDOH evaluation was unable to complete surveys with all participating parents; thus, the potential for nonresponse bias exists.

Both evaluations collected survey data from parents and caregivers of preschool children enrolled in EWPHCCS intervention sites at pre- and post-intervention. Both evaluations focused on parents’ and caregivers’ recollections of their children’s at-home dietary intake and diet-related behaviors. NYSDOH’s

primary outcome measure was frequency with which fruits and vegetables are offered by the parent or caregiver to the child at meals and snacks, whereas the primary outcome measure for the independent evaluation was the child's increased consumption of fruits and vegetables at home. Both evaluations examined children's use of 1% or fat-free milk as a primary outcome measure.

The NYSDOH evaluation surveyed parents and caregivers by distributing surveys via children's cubbies and requesting that parents return them to the centers. There was no standard protocol for the time frame within which parents were required to return the surveys. Using this approach, the post-test response rate was poor at 26.5 percent, and there was a limited number of caregivers who returned both the pre- and post-test surveys for the paired survey analysis. The independent evaluation used a mail survey with follow-ups by telephone to nonrespondents. Using this multimodal survey approach yielded a response rate of 78 to 80 percent for the follow-up survey.

The data analyses of the independent evaluation account for the nesting of individual-level observations. When analyses are conducted on data from respondents who are embedded (i.e., nested) in predefined social units (such as childcare centers), there is a strong potential that their responses to survey items could be similar because of shared experiences or similar sociodemographics. This similarity reflects the fact that individuals do not aggregate in social units randomly. Children within the same center may have similar family economics or shared values, and they certainly have shared experiences that are unique to the childcare setting. This similarity results in correlated observations that, if ignored, will likely lead to underestimated standard errors and falsely inflated test statistics (Zucker, 1990; Murray et al., 1996; Murray, 1998). By specifying centers as the between-subjects factor and employing a mixed modeling approach, one can account for potential correlation among individuals within the same center and provide *p*-values from tests of program impacts that are accurate. In contrast, the analyses provided by NYSDOH made no adjustments to account for correlated data at the center level; thus, the *p*-values reported in their evaluation are likely to be inflated.

Tables IV-4 and IV-5 present the results of NYSDOH's evaluation. Table IV-4 provides the pre- and post-intervention comparisons made using chi-square tests. EWPCCS participants reported a statistically significant increased frequency of offering their child fruit two or more times per day, offering their child low-fat or fat-free milk, offering their child a new fruit or vegetable in the past week, and having their child help prepare a meal. However, EWPCCS participants reported a statistically significant decrease in their confidence in their ability to offer fruit to their child.

Table IV-5 presents pre and post-intervention comparisons of a subset of caregivers who returned both pre- and post-test surveys made using Wilcoxon Signed Rank and McNemer's tests. The EWPCCS participants reported a statistically significant increased frequency of their child usually using low-fat or fat-free milk at home, their child helping to prepare a meal, and offering their child a fruit or vegetable they had never tasted before—all at statistically significant ($p \leq .05$) levels.

Based on the results of the NYSDOH evaluation and the independent evaluation, the EWPCCS program had an impact on children's use of low-fat or fat-free milk at home. Although NYSDOH did not measure children's fruit and vegetable consumption, several measures of parent-related behavior showed significant improvements: increased frequency offering fruit two or more times a day and offering new fruits and vegetables. The FNS evaluation, however, did not show an impact on similar measures, namely children eating a variety of fruits and vegetables, children's willingness to try new fruits and vegetables, or offering fruits or vegetables at dinner. However, differences in evaluation methodology and instrumentation need to be considered.

Table IV-4.— Results of NYSDOH Evaluation: Comparisons Between Pre- and Post-intervention Groups on Outcome Measures

Measure	Pre Sample Size	Post Sample Size	Pre Percent (SE)	Post Percent (SE)	χ^2	<i>p</i>
Whether caregiver offers vegetables 3+ times per day	2,621	1,981	7.5 (0.51)	8.0 (0.61)	0.40	0.5214
Whether caregiver offers fruit 2+ times per day	2,658	2,002	31.2 (0.90)	33.9 (1.06)	3.99	0.0458
Whether caregiver offers child low-fat or fat-free milk	2,644	1,979	41.8 (0.96)	46.4 (1.12)	9.92	0.0016
Whether caregiver offered child a new fruit or vegetable in the past week	2,647	1,938	45.1 (0.97)	56.8 (1.12)	61.96	<0.0001
Percentage of caregivers reporting that their child helps prepare a meal sometimes, usually, or always vs. rarely or never	2,649	1,976	58.1 (0.96)	63.1 (1.09)	11.68	0.0006
Whether caregiver is fairly or very confident in their ability to offer fruit to their child	2,618	1,990	92.5 (0.51)	89.7 (0.68)	19.34	<0.0001
Whether caregiver is fairly or very confident in their ability to offer vegetables to their child	2,630	1,991	87.3 (0.65)	86.1 (0.77)	1.34	0.2475
Whether caregiver is fairly or very confident in their ability to offer fat-free or low-fat milk to their child	2,637	1,985	80.1 (0.78)	80.4 (0.89)	0.07	0.7921

Source: NYSDOH Evaluation Report, 2011. The data in this table reflect completed surveys from parents at 62 centers outside of New York City and 70 centers in New York City

Table IV-5.— Results of NYSDOH Evaluation from Paired Surveys: Comparisons between Pre- and Post-intervention Groups on Outcome Measures

	Pre n (%)		Post n (%)		<i>p</i>
What type of milk does your child usually drink at home? ^a					
Fat-free or low-fat	586	(41.8)	662	(47.2)	<0.0001
Reduced fat	381	(27.2)	386	(27.5)	
Whole	361	(25.7)	286	(20.4)	
Other	75	(5.4)	69	(4.9)	
How often do you offer fresh, canned or frozen fruit at meals and for snacks? ^a					
< once per week	91	(6.4)	75	(5.3)	0.4082
1–3 times per week	332	(23.4)	343	(24.2)	
4–6 times per week	275	(19.4)	309	(21.8)	
Once per day	281	(19.8)	203	(14.3)	
Twice per day	291	(20.5)	316	(22.3)	
3+ times per day	150	(10.7)	174	(12.3)	
How often do you offer fresh, canned or frozen vegetables at meals and for snacks? ^a					
< once per week	85	(6.2)	84	(6.1)	0.0936
1–3 per week	305	(22.1)	286	(20.8)	
4–6 per week	273	(19.8)	272	(19.7)	
1 per day	344	(25.0)	330	(24.0)	
2 per day	274	(19.9)	287	(20.8)	
3+ per day	97	(7.0)	121	(8.6)	
How often does your child help you make or cook a meal? ^a					
Never	351	(25.1)	248	(17.8)	<0.0001
Rarely	264	(18.9)	272	(19.5)	
Sometimes	606	(43.4)	678	(48.5)	
Usually	115	(8.2)	130	(9.3)	
Always	61	(4.4)	69	(4.9)	
In the past week, did you offer your child a fruit or vegetable they had never tasted before? ^b					
Yes	629	(45.7)	799	(58.1)	<0.0001
No	747	(54.3)	577	(41.9)	
How confident are you that you can offer fruit to your child? ^a					
Not at all confident	12	(0.9)	17	(1.2)	0.1571
A little confident	31	(2.2)	41	(2.9)	
Somewhat confident	75	(5.4)	86	(6.2)	
Fairly confident	248	(17.8)	225	(16.1)	
Very confident	1031	(73.8)	1028	(73.6)	

(continued)

Table IV-5.— Results of NYSDOH Evaluation from Paired Surveys: Comparisons between Pre- and Post-intervention Groups on Outcome Measures (continued)

	Pre n (%)		Post n (%)		<i>p</i>
How confident are you that you can offer vegetables to your child? ^a					
Not at all confident	16	(1.1)	21	(1.5)	0.5781
A little confident	61	(4.3)	41	(2.9)	
Somewhat confident	116	(8.3)	137	(9.8)	
Fairly confident	286	(20.4)	253	(18.0)	
Very confident	925	(65.9)	952	(67.8)	
How confident are you that you can offer fat-free or low-fat milk to your child? ^a					
Not at all confident	75	(5.4)	66	(4.7)	0.7539
A little confident	66	(4.7)	72	(5.1)	
Somewhat confident	131	(9.4)	128	(9.1)	
Fairly confident	240	(17.1)	245	(17.5)	
Very confident	889	(63.7)	890	(63.5)	

^a Wilcoxon signed-rank test, n = 1,462.

^b McNemer's test, n = 1,476.

Note: t-statistics were not provided in the NYSDOH Evaluation Report.

Source: NSYDOH Evaluation Report, 2011

E. Lessons Learned

In order to better understand NYSDOH's experiences in its evaluation and the State's plans for dissemination and use of the evaluation results, information was gathered from a variety of sources. These include existing documents, written responses to our evaluation interview questions, and follow-up in-depth interviews with NYSDOH.

1. Facilitators and Challenges to Implementation of the Evaluation as Planned

Both the evaluation lead and the program director emphasized the importance of conducting program evaluation. At the same time, both identified several critical challenges that they faced in implementing an evaluation of this program. The most commonly reported facilitators and challenges are described below.

a. Facilitators

▲ Evaluation and program staff at NYSDOH functioned independently but collaborated well on the survey and evaluation design

The evaluation lead and senior program managers suggested that having an evaluation unit in the agency, under separate direction from the EWP/HCCS program staff, contributed to an objective and impartial evaluation. At the same time, NYSDOH staff indicated that these two units communicate well in order to ensure that the evaluation impact measures, survey content, and data analysis plan reflect the program's goals.

▲ Improvements were made to the EWPHCCS parent survey

While the parent surveys have been an integral component of the EWPHCCS program for several years, State program managers said that, for the demonstration evaluation, they improved the survey instrument based on discussions with the NYSDOH evaluation team about the key program impacts and input from the program nutritionists who work directly with the target audience. The survey questions were simplified to lower reading levels and the survey length was condensed to two pages and, when available, validated questions were added to the survey.

▲ Concerted efforts were made to increase survey response rates

Knowing the importance of a high survey response rate to the success of the evaluation, the evaluation team engaged individual RDs directly to identify strategies for increasing what had historically been a low rate of response. At a quarterly training meeting for the RDs, the evaluation team presented the most recent year's survey results and discussed how important evaluation is to the program. They also highlighted why obtaining both a pre- and post-intervention survey from parents is critical to accurately assessing the program's impacts. During this meeting the evaluation team worked together with the direct educators to identify methods to improve the response rate for the parent survey. With the application of these methods, including working more closely with the center staff to explain the importance of the survey responses and offering parents \$4 incentives for returning the pre- and post-intervention surveys, the evaluation team said that the parent and caregiver survey response rate was higher than in the past. Despite these efforts, the response rate for the parent survey was low and limited data were available for the paired pre- and post-survey analysis.

b. Challenges

▲ Data collection procedures varied across the centers

The evaluation manager identified the lack of standardized procedures for data collection as one of the greatest challenges to the effective implementation of the EWPHCCS evaluation. The extent of survey response is in large part dependent upon the voluntary efforts of each childcare center staff member to distribute and collect the surveys from parents. Although many of the RDs offer small financial incentives to the parents who return surveys (in the form of incentives valued at up to \$4), this practice varies greatly and is at the discretion of each RD. The evaluation manager emphasized that it would be difficult, without a dedicated team of data collectors, to standardize or impose quality controls on the RDs and centers responsible for survey distribution and collection.

▲ Low response rate limits the generalizability of the evaluation results

Less than 20 percent of parents completed both the pre- and post-surveys; thus limited data were available for the paired-survey analysis. The low response rate limits the generalizability of the analysis results.

2. Intended Use of Evaluation Results

The program director and evaluation manager hope to publish preliminary findings of their evaluation in late 2011. They also hope to present the preliminary findings at conferences and mentioned that the Centers for Disease Control and Prevention may request their impact evaluation results for inclusion in a new guide on child obesity prevention in childcare settings.

The program director emphasized that dissemination of what they are learning has been a priority from the beginning of the EWPHCCS effort. The CACFP bureau director and EWPHCCS program director feel that evaluation and dissemination of evaluations results are not only valuable to their efforts in New

York but could also aid those who may want to replicate the EWPHCCS intervention in other settings given the success of the program in increasing the frequency of children’s use of 1% or fat-free milk and changing precursors to consumption of fruits and vegetables.

3. NYSDOH Future Evaluation Plans

The EWPHCCS program director said that she has learned “how important it is for the direct educators to work closely with each center director” in order to successfully complete the evaluation. The evaluation manager also stressed the importance of having clear processes in place to make sure the parent surveys are distributed and returned in a standard fashion. Recognizing the limitations of their data collection procedures for this evaluation, NYSDOH plans to reassess their current evaluation system, including the distribution, collection, and analysis of parent surveys.

In fact, the agency plans to build upon this experience to improve future program evaluation efforts in several ways. First, they would like to include a qualitative component, using focus groups to learn more about how the program can more effectively help parents and families overcome the barriers to improving healthy eating and physical activity behaviors. If resources were made available, the evaluation manager said she also would like to perform a more rigorous evaluation on a sample of the centers and hire data collectors, providing them the resources to work with each center in the sample to maximize the survey response rate. Evaluation and program staff members also noted that, if resources were available, they would like to further improve their survey instrument and then test its reliability and validity.

4. Suggestions for Improving Evaluations

Because a rigorous impact evaluation was conducted for EWPHCCS and the program was found to impact several nutrition behaviors, it may not be necessary for NYSDOH to conduct future evaluations of the program to assess behavior changes, unless significant changes are made to the intervention. Instead, NYSDOH may want to use a surveillance approach to monitor the implementation of the program. If NYSDOH decides to conduct a future impact evaluation of EWPHCCS or when planning evaluations of other programs, NYSDOH may want to consider revisions to their evaluation approach. Based on the assessment of NYSDOH’s evaluation of the EWPHCCS program, this study identified the following as future opportunities for improved evaluation within the financial and personnel constraints that are typical of SNAP-Ed programs.

▲ Use designs that can reduce plausible alternative explanations of program impact

As previously described, NYSDOH used an uncontrolled pre-test/post-test design to determine whether participation in the EWPHCCS program led to an increase in the outcomes of interest. In this type of design, a person serves as his/her own comparison, and the logic of the design assumes that any change from pre-test to post-test is due to the intervention. This design can be useful when it is difficult for factors beyond the intervention to affect the outcome of interest, when a person’s responses can be assumed to be relatively stable over time, and when the evaluation includes a very large sample. Absent these conditions, there may be many plausible alternative explanations for measured changes (or differences) in program outcomes.

The NYSDOH evaluation design would have been strengthened by steps that would have allowed the investigators to rule out plausible alternative explanations such as maturation (i.e., as children age, they naturally change and these changes may either mask or appear as program-related changes), selection (i.e., when factors related to participant selection are also associated with the outcome of interest, it is possible that the selection process itself may influence the size of the program’s effects), and secular

trends (i.e., the importance of a healthy diet is well known and highly publicized). Program participants may be changing for reasons related to community factors (e.g., the introduction of farmer's markets or the influence of media campaigns that emulate the program's effects). While randomization is typically seen as the best solution for these problems, other potential solutions include the following:

- **Use of nonrandomized control groups as was done in the independent evaluation.** For the same level of resources used to conduct a census of intervention centers, NYSDOH may be able to select a sample of intervention centers and matched control centers.
- **Collection of additional waves of data for trend and interrupted time-series analyses.** In this approach, a string of observations is interrupted by the implementation of an intervention, and the investigator can assess whether this phenomenon altered the slope (change over time) in the outcome of interest. For example, three rounds of data collection are conducted before the intervention, and three rounds of data collection are conducted after the intervention from the same cohort. This design expresses change as a function of time, making it more difficult to construct plausible alternative explanations for changes in the outcome of interest. Contemporaneous measurement of environmental factors such as media campaigns should also be considered.
- **Use of measures with small standard deviations.** The denominator of the statistic used to assess a program's impact is generally influenced by two factors: sample size and measurement error. When programs cannot afford to recruit or collect data on a large number of participants, careful selection of measurement tools can protect their ability to identify program-related change. For example, as a general rule of thumb, continuous measures of an outcome tend to have smaller standard deviations than dichotomous (yes/no) measures.

▲ **Determine the anticipated size of the program impact on the target audience**

Before the intervention, NYSDOH did not determine how much of an effect the EWPHCCS program would have on program participants. When resources are limited, investigators can examine the published literature and assess the magnitude of programs similar to the intervention under consideration. Systematic reviews, such as the meta-analysis published by Knai and colleagues (2006), can be very useful. Investigators may take these values, use their best judgment regarding the degree of similarity between the published findings and the intervention under consideration, and make best case/worst case estimations to help in other facets of program planning.

▲ **Match analytic strategies to the characteristics of the evaluation design**

The analysis procedures used by NYSDOH did not account for the complexities of the evaluation design (e.g., clustering of children within centers). Accordingly, results of their analyses must be viewed with caution because the level of variation in measured outcomes is likely to be underestimated. Statistical programs are now available within most of the standard analytic software packages that can address these designs. Alternatively, post-hoc corrections can be applied to test statistics. Blitstein and colleagues (2005) describe methods for post-hoc correction.

A few well-selected variables can be added to most data collection efforts without additional cost or participant burden and can provide a great benefit to program evaluation. Variables that are related to the outcome, independent of the program and assignment to treatment condition, and not on the causal pathway can be used to account for systematic variation and to improve the precision of the impact evaluation. The NYSDOH team did not include information from covariates in its analysis. In a clustered design, covariates can be included that account for systematic variation at the cluster (e.g., center) or the

individual level. Covariates at the individual level can be included when available without adverse effect; covariates at the cluster level must be added with care, because these covariates will reduce the statistical power for the test of the intervention.

▲ Use standardized procedures for data collection and implement procedures to maximize the response rate

The data collection procedures used by NYSDOH were not standardized across centers. For future evaluations, it would be useful to develop protocols and provide training on the distribution and collection of the parent and caregiver surveys and use of incentives so that all centers are following the same procedures. The use of a standard protocol and training will help to ensure consistency across the centers and would likely lead to higher return rates for the pre- and post-surveys and a larger number of surveys for which paired data are available. NYSDOH may also want to consider implementing low-cost procedures to maximize the response rate for the survey, such as increasing the response time from one to two weeks and reminding parents and caregivers to return the survey (e.g., send home a card that thanks those who have already participated and reminds those that have not to return the survey by the due date)

Chapter V • Conclusions and Discussion

Eat Well Play Hard in Child Care Settings (EWPHCCS) is a SNAP-Ed nutrition education program conducted by the New York State Department of Health since 2006. This childcare center based program is designed to change the knowledge, attitudes, and skills of preschool children and their parents and caregivers to increase children’s consumption of fruits and vegetables, ensure that children drink 1% or fat-free milk rather than milk with higher fat content, increase the amount of time that young children spend in physical activity, and decrease the amount of time they spend watching television. The program is implemented over a 6–10 week period at each center and includes six classes for children, six classes and take-home materials for parents and caregivers, and at least two classes for childcare center staff. Each child lesson includes food tastings and other hands-on activities, and the parent classes and materials include food preparation activities, recipes, and other activities for parents to engage their children in healthy eating and physical activity. The program also has a focus on changing the child care center environment to reinforce EWPHCCS messages at mealtimes and in the classroom.

In Federal fiscal year 2010, EWPHCCS was implemented in 246 childcare centers in 26 counties and four New York City boroughs. That year the program served approximately 10,000 children and their parents and caregivers at an estimated cost of \$296 per child. A sample of 12 intervention centers (six within and six outside New York City) was included in an independent evaluation of EWPHCCS to examine the implementation and impact of the program. This final chapter presents a summary and discussion of the key findings.

A. Key Process Evaluation Findings: Factors Supporting Implementation

Program managers, direct educators, and the directors and teachers from the intervention sites reported that it was relatively easy to recruit childcare centers to participate in the EWPHCCS program and to implement it in diverse childcare settings across the state. Key informants identified many factors that contributed to its successful implementation, including:

- **Engagement and support from center directors.** NYSDOH program managers and the direct educators who implemented EWPHCCS reported that most center directors were very receptive to the program and helpful in communicating the program’s goals to staff members and parents, selecting the lessons to be included at their site, and scheduling the child, parent and staff classes. NYSDOH officials also noted that childcare center staff members also provided critically important input early on when the curriculum was being developed. The center directors interviewed for this evaluation confirmed that they share a high level of satisfaction and support for the EWPHCCS program. Specifically, they praised its educational approach and emphasized that it was not burdensome on their classroom schedules and was well received by their staff. Reflecting this high level of support, many childcare directors reported personally recruiting parents to the EWPHCCS classes. It should be noted that direct educators suggested that this can be the most effective method of parent outreach for the program.
- **Useful and relevant program messages and materials.** Parents and caregivers reported high levels of EWPHCCS program material use. While the attendance at parent classes was very low, 90 percent of those who attended the classes were highly satisfied with them. In focus groups, parents and caregivers also praised the content and quality of the EWPHCCS program materials,

the in-class demonstrations, the fun activities they can do with their children, and the practical information they received from the direct educator.

- **Childcare teachers reinforced the EWPHCCS messages in their classrooms.** In carrying out the program, childcare classroom teachers are asked to stay in the classroom during EWPHCCS lessons, and the teachers are encouraged to reinforce the program’s messages at other times in their classrooms. Teacher survey results indicate this aspect of the program has been very effective. All but one of the teachers reported incorporating EWPHCCS messages at least once weekly, and usually more often, in their interactions with the children at mealtime and in the classrooms as well.

B. Key Process Evaluation Findings: Challenges to Implementation

Key informants identified some challenges to the implementation of the EWPHCCS, including:

- **Maximizing parents and caregiver reach.** The EWPHCCS program managers and direct educators uniformly recognized that reaching parents was a critical component of the program’s success. While parents and caregivers reported high use of the EWPHCCS take-home materials, there was much lower participation in the weekly parent classes held at the centers. Parent survey results indicated that scheduling conflicts were the main reason parents did not attend classes and lack of awareness of these classes was the second most common reason for nonparticipation. While intensive efforts have been made to recruit parents, finding new ways to maximize the parent and caregiver reach of the program may be the greatest challenge for the EWPHCCS program managers and direct educators.
- **Serving diverse cultural and linguistic groups.** Center directors and program educators reported that there are a large number of the families enrolled at SNAP-Ed eligible childcare centers in New York State who do not speak or read English. To better serve this diverse population, NYSDOH has translated EWPHCCS program materials into six other languages. However, the program’s subcontracting agencies have only three educators fluent in Spanish and one fluent in Chinese. During two parent focus groups, several parents and caregivers reported that despite a large number of Spanish speaking parents at their center, the classes were taught only in English; at one center a translator was available. However, they added, non-English speaking parents did not attend the parent classes. Several Latino caregivers in one focus group conducted in Spanish added that, despite the language being spoken, others like them may not want to come to a class if they think the foods that will be discussed are unfamiliar to them or inconsistent with their culture’s traditional dietary habits.
- **Varied levels of center director engagement.** While center director engagement was an important facilitator to program implementation at most intervention sites, at some sites this was not the case. Three of the 11 educators mentioned that the director at their intervention site offered little assistance in implementing the program, either in outreach to parents, communicating the goals of the program to staff, or in helping with the scheduling and securing space for the parent classes.
- **Costs of fruits and vegetables.** When caregivers were asked whether anything external to the program prevented them from trying the nutrition suggestions and recipes provided in the program materials, the most frequently cited factor was cost. Several focus group participants emphasized that while they liked the recipes and shopping ideas provided by the program materials, they are shopping on a very limited budget. They felt that the cost of purchasing fruits

and vegetables in their neighborhoods was prohibitive, they did not want to “waste” money buying foods their children would not eat, and finding stores with affordable quality fruits and vegetables was very time consuming.

C. Key Impact Evaluation Findings

The goal of the impact evaluation was to assess the impact of the EWPHCCS program on children’s daily at-home fruit and vegetable consumption and the use of 1% or fat-free milk. The key findings from the impact findings are as follows:

- **The EWPHCCS program had a statistically significant impact on children’s daily at-home consumption of vegetables.** Between baseline and follow-up, there was a net increase of 0.12 mean cups of vegetables consumed by children in the intervention group relative to the number of cups consumed by the control group. A similar pattern was observed for total fruits and vegetables: a net increase of approximately 0.19 mean cups consumed by children daily. However, because the effect of the program on fruit consumption was smaller than the effect on vegetable consumption (0.06 versus 0.12 mean cups) and because the inclusion of fruit increased the variability of the consumption estimates, the effect of the program on the combined measure of fruits and vegetables was not statistically significant. There was a statistically significant increase in the rate of child-initiated vegetable snacking and a trend toward increased parental offerings of vegetables as a snack. Collectively, these findings suggest that the EWPHCCS program encouraged children to eat more vegetables at home.
- **The EWPHCCS program had a significant impact on whether a child used 1% or fat-free milk at home.** Children in the intervention group were about 39 percent more likely than children in the control group to drink 1% or fat-free milk or use it on their cereal. The study team was concerned at the beginning of this project that changes in the Special Supplemental Nutrition Program for Women Infants and Children (WIC) food package might bias the intent of the intervention to increase consumption of the target foods, because WIC added fruits and vegetables to its new WIC food package and restricted families to purchasing 1% or fat-free milk. However, New York implemented the new WIC food package earlier than other States did. Because these WIC food package changes occurred substantially before implementation of the intervention, this can be ruled out as a significant environmental factor contributing to the observed change in the type of milk used.

D. Key Findings from the Assessment of NYSDOH’s Self-Evaluation

The quality of NYSDOH’s self-evaluation was assessed, and the methods and results of NYSDOH’s self-evaluation were compared with those of the independent evaluation.

- **The assessment identified strengths and weaknesses of the NYSDOH evaluation.** The NYSDOH evaluation employed a one-group pre-post test design with surveys of parents and caregivers participating in the intervention to measure the impact of the EWPHCCS program. A strength of the evaluation was the low amount of item nonresponse (missing data) for a mail survey. Weaknesses included a poor comparison strategy, an inadequate sampling approach, the lack of standardized procedures for data collection, and the data analyses did not account for the clustering of individuals within centers.

- **The assessment compared the results of the NYSDOH’s self-evaluation with those of the independent evaluation.** Both evaluations found that the EWPHCCS program had a statistically significant impact on children’s use of 1% or fat-free milk at home. The independent evaluation found that the EWPHCCS program had a statistically significant impact on children’s daily at-home consumption of vegetables. Although NYSDOH did not measure children’s fruit and vegetable consumption, significant improvements were reported by NYSDOH for parent-related behavior (increased frequency of offering their child fruit and offering new fruits and vegetables). The independent evaluation did not show an impact on similar measures; however, differences in evaluation methodology and instrumentation need to be considered.

E. Recommendations

The success of the EWPHCCS program in increasing children’s at-home vegetable consumption and use of 1% and fat-free milk is an important finding. Further, the model was implemented in a manner that was enthusiastically received by the childcare centers across the State with diverse populations. Parents and caregivers of children receiving the intervention reported relatively high use of the EWPHCCS take-home materials and also expressed satisfaction with the program overall.

For these reasons, the EWPHCCS can serve as a model of effective nutrition intervention for preschool children and their parents and caregivers. At the same time, there is room to strengthen the program, and particularly the parent component, to potentially increase the program’s behavioral impacts for children.

Because a rigorous independent impact evaluation was conducted for the EWPHCCS and the program was found to impact several nutrition behaviors, it may not be necessary for NYSDOH to conduct future evaluations of the program, unless significant changes are made to the intervention. If NYSDOH decides to conduct a future evaluation of EWPHCCS or when planning evaluations of other programs, NYSDOH may want to consider revisions to their evaluation approach. If NYSDOH decides to conduct future evaluations of this or other center-based interventions, their evaluations can be strengthened by reducing the number of centers for which data are collected for the evaluation study while simultaneously increasing its rigor. This suggested change in methodology would not affect program implementation, in that NYSDOH could continue to implement the program at the same number of centers while focusing evaluation efforts on a sample of implementation sites.

▲ Key areas for program improvement

While this evaluation found the EWPHCCS has a significant positive impact on parent offerings at home and children’s consumption of vegetables and low-fat dairy products, to replicate this program in other states, SNAP-Education implementing agencies should consider the following actions for program improvement.

- **Maximize parent and caregiver participation.** To reach more parents and caregivers with the direct education component of the program, key informants suggested revising the class scheduling, for example by offering classes at both morning and afternoon time slots. Participation might also increase if the format of the parent classes was modified. Suggestions include offering some joint parent and child events and asking parents to share recipes they use to help their children try fruits and vegetables.
- **Communicate expectations to center directors for assistance needed in program implementation.** To further enhance center directors’ engagement and their support in program implementation, written expectations for center director engagement could be provided at the time centers are recruited to participate. If more center directors are actively engaged in raising

awareness and recruiting for the parent classes, this could help increase both parent and center staff interest and engagement in the program's educational activities.

- **Increase bilingual educators and revise materials to reach non-English speaking adults.** To better reach the large number of non-English speaking parents served by the program in New York, key informants also suggested hiring more bilingual direct educators and reviewing the program's recipes to better tailor them to diverse cultural food habits. As NYSDOH is currently planning, program materials should be revised to include more visuals that could be universally understood by non-English speakers and parents and caregivers with low literacy levels.

Other changes that could be considered as this program continues in New York or is implemented in other locations include:

- **Reduce the number of modules in the curriculum to those six modules most commonly implemented in New York and require that the dairy module be taught at every center.** Though it would reduce direct educators' flexibility in lesson selection, the curriculum could be further standardized so that the same six lessons are taught at every center. Since increasing children's use of 1% and fat-free milk at home is a key program objective, this module should also be a required component of the program, with adaptations in the lesson plans available for classrooms where a large portion of the children have dairy allergies. This modification would include the modules that have been demonstrated in this evaluation to have positive nutrition behavioral impacts and increase the program's fidelity in implementation.
- **Address cost barrier raised by parents and caregivers.** To more adequately address parent and caregiver concerns about the costs of fruits and vegetables, the curriculum could be supplemented with more informational materials on meal planning and shopping on a limited budget. Consistent with the current (2010) Dietary Guidelines for Americans, SNAP-Ed program materials and direct educators should encourage the use of all forms of fruits and vegetables, including fresh, frozen, canned, and dried (USDA, CNRP 2011). Additionally, revisions or additions to the program handouts for parents could be made to include more recipes using the same fruits or vegetables.
- **Explore use of paraprofessionals as direct educators.** NYSDOH and other agencies implementing EWP/HCCS in the future, may want to explore using paraprofessionals as direct educators instead of relying solely on nutrition professionals with registered dietitian certification. This alternative staffing model may reduce program costs and could help break down cultural and language barriers identified by some of the program's direct educators. However, because this evaluation found New York's current implementation model was effective in improving children's nutrition behaviors, the use of paraprofessionals needs to be carefully explored. A State could test this staffing model using cost-effectiveness analysis to weight savings in staff salaries against measurable outcomes, as well as process measures such as changes in the quality or fidelity of program implementation.

▲ **Suggestions for improving evaluations**

If NYSDOH decides to conduct future impact evaluations, it is suggested that NYSDOH use an evaluation design that can reduce plausible alternative explanations of program impact (such as including a control group), determine the anticipated size of the program impact on the target audience before the intervention, match the analytic strategies to the characteristics of the evaluation design, and use standardized procedures for data collection including procedures to maximize the response rate. These changes would improve the quality of the evaluation and increase NYSDOH's ability to accurately measure changes attributable to the program.