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Hip-Hop to Health Boosters | June 2012 | Number T12-004

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# Executive Summary

Childhood obesity is a major public health problem in New York State. Recent data from the NYS Strategic Plan for Overweight and Obesity Prevention note that the obesity prevalence in children and teenagers has sharply increased over the past twenty years. In Monroe County, approximated one-third of children ages 2-10 are considered obese or overweight. Several community projects have been implemented to address this issue. This report presents an evaluation of a program delivering a nutrition and physical activity curriculum in family child care home settings for use with children 2-5 years old.

The curriculum for Hip-Hop to Health Jr. (HHtoH) was developed by Dr. Melinda Stolley, Associate Professor at the University of Illinois at Chicago, for children ages 3-7 receiving care in childcare centers. This literacy-based, interactive curriculum was evaluated in randomized trials that demonstrated effectiveness in curtailing children's trajectories toward increasing body mass index (BMI), which leads to overweight and obesity. This evidence-based approach was adapted for the initial (2007) and current (2011) projects for use in family child care settings with children ages 2-5.

Hip-Hop to Health Jr. was delivered to family child care providers in Monroe County, New York from September 2007 through December 2010 as part of the Greater Rochester Healthy Child Care 2010 (GRHCC2010) initiative. Findings from the evaluation of the initial program suggested the likely benefits of reinforcing the curriculum lessons by revisiting providers and offering focused "booster" sessions. A team of home visitors, trained in the HHtoH curriculum, presented quarterly booster sessions over a one-year period, beginning in March 2011.

This evaluation describes the findings from a battery of instruments used to measure how effectively family child care providers adopted the healthy eating and physical activity practices into their child care activities. Of interest were providers' intentions to make changes, their knowledge and understanding of nutrition and exercise, and their daily practices with children. In addition to the quantitative results, comments and suggestions from participating child care providers and recommendations for future activities are presented.

## Findings from Evaluation

Of the original 282 family child care providers (GRHCC2010), 123 were enrolled in the booster session program and a total of 87 participated through the fourth (and final) booster session.

A substantial proportion of providers reported their readiness to make changes to their practices regarding both the foods they serve and the opportunities for physical activity they provide.

Almost all providers (97%) had retained at least some of the Hip-Hop curriculum materials from the initial intervention, but fewer than half were using the materials regularly.

By the completion of the booster program, curriculum materials were replenished and new resources added to facilitate continuation of healthy behaviors.

## Introduction to Hip-Hop to Health Jr

Hip-Hop to Health Jr. (HHtoH) was initially developed and evaluated in Head Start child care centers in an urban setting. The curriculum was piloted for African-American and Latino preschool age children through Head Start programs in Chicago (Fitzgibbon et al., 2005).[1] It provides a tested and validated program that is readily modified. This program had positive outcomes in randomized trials. Specifically, children who received Hip-Hop to Health Jr. experienced a minimal rise in BMI over the two years of the study compared to a significant rise among the controls.

The primary strategies are to increase dietary fiber, reduce dietary fats, and increase physical activity. Menu planning and support is a component of this program. Hip-Hop to Health Jr. has a parent component. Parents receive weekly newsletters that reinforce the children's curriculum and assign 'homework' such as tracking families' fruit and vegetable consumption for a week**.**

This program was selected as a culturally competent and effective intervention, appropriate for the greater Rochester community. The author/developer of the Hip-Hop to Health Jr. curriculum provided training to project staff during the start-up of the initial initiative and continues to provide consultation as needed.

For the purpose of this project, a slightly modified version was developed for use in family child care settings. Family child care is typically home-based care serving relatively low numbers of children. The number of children in care is dependent upon the number of adult caregivers and the ages of the children in care. The range is a maximum of 3-6 children per one caregiver.

During the initial 14-week Hip-Hop to Health Jr. program, a different learning session was presented each week with classes covering a particular food group or other nutritional information. Lessons were accompanied by stories with healthy eating and physical activity themes. The curriculum includes a music CD with corresponding exercise activities. The home visitor served as the curriculum specialist, participating with the children, and demonstrating teaching techniques to the providers. Providers received a complete copy of the program materials so that they could continue with the lessons after the program period ended.

Over the three years of the initial (GRHCC2010) intervention, 282 family child care providers received the Hip Hop to Health curriculum from September 2007 through December 2010. A total of 1,190 children between the ages of 2-5 years participated. A 14-week program cycle included a weekly visit and lesson. Providers were enrolled in one of the 3-4 cycles that were conducted during each year of the program. All providers received instruction and curriculum materials allowing them to continue to promote healthy food choices and provide opportunities for physical activity after the program cycles ended.

[1] Fitzgibbon, M. L., Stolley, M. R., Schiffer, L, Van Horn, L., Kauferchristoffel, K., & Dyer, A. (2005). Two-year follow-up results for Hip-Hop to Health Jr.: A randomized controlled trial for overweight prevention in preschool minority children. *The Journal of Pediatrics, 146*(5), 618-625.

## Summary of Initial Outcomes

The findings from HHtoH data collected as part of the evaluation of *Greater Rochester Healthy Child Care 2010* have been previously reported (*Greater Rochester Healthy Child Care 2010 Final Report*, May 2011). Evaluation data were collected at two time points during each cycle (pre- and post-intervention) for children who participated in the HHtoH program. Children's height and weight were measured and BMI was computed to assess whether there were changes during the period in which the child received the program. Pedometers were placed on the children at pre- and post-intervention to measure activity levels, computed as steps per minute, to determine if there were changes in physical activity. These measures are summarized in the following tables.

Table 1. Height, Weight, BMI and BMI z-score at Pre and Post.

| | Hip-Hop to Health Jr. | | | |
|---|---|---|---|---|
| Measure | Pre | Post | t | p-value |
| Height (cm) | 98.6 | 100.74 | -15.6 | <0.001 |
| Weight (kg) | 16.1 | 16.6 | -12.8 | <0.001 |
| BMI | 16.6 | 16.4 | 3.2 | 0.001 |
| BMI z-score | 0.32 | 0.22 | 2.0 | 0.05 |

Table 2. Computed Steps per Minute at Pre and Post.

| | Hip-Hop to Health Jr. | | | |
|---|---|---|---|---|
| Measure | Pre | Post | t | p-value |
| Steps/minute | 16.7 | 17.9 | 2.0 | <0.05 |

Providers were asked to complete a participant evaluation survey at the completion of the initial 14-week Hip-Hop to Health Jr. cycle. Surveys were administered from one week to approximately 3 months after the final session by the home visitor. The purpose of this survey was to assess how the curriculum was received by the providers, changes they may have made in food preparation, in meals and snacks offered, and to exercise and physical activity at their sites. Questions about the curriculum materials and the providers' intentions to continue using them in the future were included.

Responses to the participant evaluation survey were received from 137 of the 282 family child care providers (49%). Most of the responses were based on a simple 3-point scale: Yes, Maybe, and No. These were collected post-program participation. Provider responses are summarized in Table 3.

Table 3. Provider Responses to Participant Evaluation Survey (n=139)

| Item | % Yes | |
|---|---|---|
| Weekly on-site lesson schedule worked well for my program | 100 | |
| Curriculum specialist related well with children | 100 | |
| Curriculum specialist related well with provider/assistants | 98 | |
| Curriculum specialist responded in timely manner to questions/concerns | 98 | |
| Hip-Hop program length (14-weeks) was appropriate | 79 | 15% - "Too short"<br>6% - "Too long" |
| Nutrition lessons were understandable to children | 85 | |
| Children learned and retained nutrition information | 88 | |
| Nutrition lessons encouraged healthier eating habits | 85 | |
| Provider has incorporated good nutrition habits into program | 94 | |
| Program changes: Switched to 1% or skim milk | 53 | |
| Switched to lower sugar cereal | 47 | |
| Bakes more and fries less | 48 | |
| Switched to whole grain breads | 44 | |
| Uses less fat (oil, butter) | 62 | |
| Serves greater variety of fruits and vegetables | 66 | |
| Physical activity lessons were understandable to children | 91 | |
| Children enjoyed exercise portion of curriculum | 96 | |
| Children choose physical activity over screen time more often | 82 | |
| Provider enjoyed participating in exercise portions | 93 | |
| Will use Hip-Hop curriculum book in future | 88 | |
| Plan to use Hip-Hop puppets in future | 96 | |
| Will continue to use Hip-Hop provided children's books | 95 | |
| Plan to use 'Go and Grow,' food pictures, felt pyramid in future | 93 | |
| Will continue to use music CDs for daily physical activity | 96 | |

Provider feedback to Hip-Hop to Health Jr. was universally positive. Several providers reported that their exercise music CDs had become worn through excessive use. Children were using the puppets during free play to "teach" each other about healthy food, exercise, and healthy habits.

Parents brought comments and observations to the attention of the child care providers and/or the home visitors. These comments included themes such as children requesting specific fruits or vegetables as snacks, children correctly identifying a food's category (protein, fat, sweet, etc.), children expressing reluctance to eating foods perceived as less healthy or "slow," and children identifying and requesting low-fat milk when accompanying parent at the grocery store.

It was noted that providers had almost unanimously stopped serving sweetened non-nutritional beverages and limited the amount of fruit juices served. Nearly all were serving significantly more fresh fruits and vegetables.

## Booster Session Program Activities

The target population for the Booster Session program was the over 200 family child care providers who received the initial Hip-Hop to Health Jr. curriculum and training (GRHCC2010). Recruitment of providers was to commence at the start of the funding period and continue until all potential participants had either been enrolled, refused to participate, or were determined to be ineligible (i.e. no longer providing care for children 2-5 years old).

Following enrollment, child care providers were to receive three Hip-Hop to Health Booster Sessions. These sessions each consisted of a lesson with the children, reviewing nutrition information in developmentally appropriate language, such as What are Go and Grow Foods and Slow Foods. In conjunction with each lesson, there was to be a hands-on group activity with puppets representing various food categories and/or using other curriculum materials to reinforce the lesson message. Each session also included twenty minutes or more of physical activity, such as dancing, using the Hip-Hop to Health Jr. CD. Booster sessions were to be scheduled for approximately 45 minutes to 1 hour, at a time agreed upon with the child care providers.

Family child care providers were to receive an incentive gift at each session, as both a thank you offering for their participation and to provide additional materials in support of the curriculum. Examples of incentives are blenders, crock pots, Fun Activities for Young Children (book), and items promoting physical activity. The incentive gifts were intended to encourage providers to continue serving healthy food and providing opportunities for physical activity.

The pool of family child care providers, prior participants in Hip-Hop to Health Jr., were located throughout the city of Rochester and the immediate suburbs previously identified as having higher proportions of overweight or obese children (Greece, Gates, and Irondequoit). The anticipated number of providers to be enrolled was 200, or about 70% of the original cohort. It was estimated that the Booster Sessions would reach approximately 1,000 children ages 2-5.

Home visitors conversant with the Child and Adult Care Food Program (CACFP) guidelines and trained to deliver the full Hip-Hop to Health Jr. curriculum were engaged to carry-out the Booster Sessions. The home visitors, also referred to as curriculum consultants, were acquainted with the providers as a result of their roles with the CACFP program. Each consultant would have a workload of approximately 100 home care providers who would be visited three times during the project year.

The outcomes and evaluation plan was developed by Children's Institute (CI) in conjunction with Rochester Childfirst Network. The evaluation plan included:

- Walk-Through inventory, completed by the home visitor, indicating the presence, visibility, and use of materials related to the program
- Pre-Booster Session Survey, completed by providers prior to the first booster visit, addressing the use of curriculum and materials, and practices regarding of nutrition and physical activity
- Stage of Change (self-report), completed by the provider prior to the first visit, gauging the provider's readiness to change habits and practices related to nutrition and physical activity with children in their care
- Stage of Change (consultant assessment), completed by the home visitor after the first visit, assessing providers' readiness to change
- Monthly "score card," a daily record completed by the provider, noting time spent on physical activity, Hip-Hop lesson "moments," and number of fruits and vegetables served daily
- Post-Booster Session Survey to be completed by providers following the final to booster visit, appraising their experience with the boosters, materials received, and any changes to nutrition or exercise practices with children in their care
- Post-Booster Walk-Through inventory, again completed by the home visitor, confirming the presence, visibility, and use of materials related to the program

It was expected that child care providers who score higher on the Stage of Change measure would be more likely to consistently incorporate Hip-Hop to Health messages and practices as part of the regular curriculum. In addition, child care providers expressing or exhibiting greater readiness to change would report plans to make additional healthy changes to their program or to maintain those healthy habits already adopted.

## Booster Session Program Outcomes

The target population for the Booster Session program was the over 200 family child care providers who received the initial Hip-Hop to Health Jr. curriculum and training (GRHCC2010). Of the original roster of 282 providers, home visitors recruited 123 for this iteration. As a result of lower-than-expected recruitment, the Booster Session program was amended to include a fourth Booster Session visit, thereby providing additional reinforcement. These sessions were carried out quarterly, with the final visits completed by May 2012.

Just prior to or during the initial Booster Session visit, the home visitors toured the child care setting, noting the presence and location of a comprehensive list of HHtoH curriculum and support materials. All child care providers had previously been given a variety of resources intended to facilitate engaging children in healthy behaviors and teaching them about nutrition. The Walk-Through inventory is essentially a checklist used by the consultants to ascertain what HHtoH materials were still available to the provider, where each item was located, if items were readily accessible to either the provider or the children, and whether or not each of the items was regularly in use.

The Walk-Through inventory was a means of objectively assessing the degree to which HHtoH had been woven into the child care providers' daily routines. For example, the presence of the curriculum manual among other materials in frequent use, like the attendance log-book, would suggest that the manual was used often enough to require its convenient placement. Conversely, if materials were packed away in remote storage areas, it could be inferred that they were seldom used. Because the overall project goals include fostering and sustaining delivery of healthy nutrition and physical activity opportunities, it was important to have a benchmark for each provider's pre-Booster Session starting point.

Most providers had a least some of the HHtoH materials originally furnished during GRHCC2010 (97%), but which materials and how accessible they were varied from provider to provider. Table 4 presents a summary of the presence, accessibility, and inferred usage of HHtoH materials prior to the initiation of Booster Sessions.

Table 4. Pre-Booster Session: Presence, Accessibility and Usage of Hip-Hop to Health Jr. Materials at Family Child Care Sites

| Resource | Not present (%) | Present (%) | Accessible (%) | In Use (%) |
|---|---|---|---|---|
| Hip-Hop Curriculum Book | 39 | 37 | 18 | 6 |
| Books: | | | | |
| Who Helps You Go and Grow, Thomas, Protein | 41 | 29 | 18 | 12 |
| Hip-Hop CDs | 17 | 9 | 11 | 63 |
| Hip-Hop to Health Jr. Hand-outs (Lesson 1 – 14) | 66 | 32 | 2 | 0 |
| Hip-Hop to Health Jr. Puppets | 0 | 11 | 28 | 61 |
| Canvas Bag for Puppets and other materials | 30 | 0 | 0 | 70 |
| Food Nutrition Basic Classifying Card | 60 | 28 | 0 | 12 |
| Pyramid felt food | 28 | 56 | 0 | 16 |
| Root Viewer | 72 | 20 | 0 | 8 |
| Food Group Bingo | 50 | 50 | 0 | 0 |
| Additional books selected for children[2] | 24 | 0 | 76 | 0 |
| Height measuring tools | 66 | 34 | 0 | 0 |
| Be a Healthy Hero to Your Kids brochures | 77 | 0 | 9 | 14 |
| Early Childhood Development & Nutrition Wheel | 83 | 17 | 0 | 0 |

The pre-Booster Session provider survey was given to child care providers before or during the first booster visit. It asked providers if they had received specific materials and information that had been part of the initial GRHCC2010 intervention. The survey asked about participation in the earlier intervention and about any changes providers may have made regarding nutrition and physical activity with children in their care and changes they may be planning for the future.

Although the initial HHtoH program sessions included providing foods for children to prepare and/or sample, music CDs that accompanied the curriculum, and a variety of tools, games, and resources, the survey responses suggested that child care providers may not have recalled all the materials received or may not have associated the materials with the lessons. For example, 89% reported receiving music CDs to use with the lessons; however the CDs were given to all child care providers who took part in the initial program. The HHtoH lessons frequently included food preparation activities, like making smoothies with the children, yet not all providers reported receiving food during the initial program. A list of materials that were part of the GHRCC2010 intervention, and the proportion of providers stating that they received the materials, is presented in Table 5.

[2] The Very Hungry Caterpillar; Raising Cows on the Koebels' Farm; Growing Vegetable Soup; Mouse TV

Table 5. Providers' Report of Materials/Items Received During Initial Hip-Hop to Health Jr. Program

| Material/Item(s) | Provider Reported Receipt (%) |
|---|---|
| Food | 65 |
| Music CDs | 89 |
| Books | 82 |
| Games | 58 |
| Toys | 48 |
| Cooking tools | 26 |
| Recipes | 60 |
| Lesson plans | 67 |

Some of the additional items providers reported receiving were flashcards, food pyramid, material to cover the ground (facilitating outside play), and advice from their home visitors.

Most of the providers reported that all of the children in their care participated at the time of the initial program (78%), with noted exceptions for children who were out of the targeted age range and/or children who were attending school at that time. Almost all (95%) of the providers themselves reported having participated in the initial program activities.

When asked about the frequency with which they offered certain foods and activities, providers responded on a 4-point Likert scale ranging from "Never" to "All the Time." Many providers had already adopted healthier habits with the children in their care after having received the initial program and prior to the start of the Booster Sessions, as shown in Table 6.

Table 6. Changes to Program Following Participation in GRHCC2010 and Pre-Booster Sessions

| | Provider Report (%)* | | | |
|---|---|---|---|---|
| Change to Program | Never | Sometimes | Mostly | All the time |
| Program serves 1% or skim milk | 2 | 6 | 15 | 66 |
| Program serves whole grain breads | 2 | 19 | 27 | 41 |
| Program serves fresh fruits and vegetables | 7 | 31 | 51 | 87 |
| Children served sweetened drinks | 58 | 29 | 1 | 1 |
| Children play active games | 1 | 4 | 33 | 50 |
| Children learn about nutrition | 1 | 19 | 34 | 33 |
| Program serves canned fruits and vegetables | 8 | 74 | 3 | 4 |
| Children choose active play over TV and video | 2 | 11 | 54 | 22 |

* will not total 100% due to missing data (skipped answers)

Finally, the pre-Booster Session provider survey asked what changes were planned for the program in the future. In this section, providers noted that many of these changes had already

occurred, such as making physical activity a daily habit (95%). These findings are presented in Table 7.

Table 7. Provider-Reported Planned Program Changes Pre-Booster Sessions

| | Provider Report (%) | | | |
|---|---|---|---|---|
| Change to Program | No plan | Maybe in a year | In next few months | Already doing |
| Use less oil and fat when preparing food | 4 | 0 | 6 | 90 |
| Make physical activity a daily habit | 0 | 0 | 5 | 95 |
| Use the Hip Hop lessons | 1 | 0 | 14 | 85 |
| Get more information about nutrition | 2 | 0 | 25 | 73 |
| Engage children in preparing food | 2 | 4 | 23 | 71 |
| Go to a farmers' market | 6 | 5 | 19 | 70 |
| Find ways to get physical activity during bad weather | 1 | 0 | 14 | 85 |

An adult learner's readiness to change, whether it is behaviors or beliefs, is often predictive of his level of success. Readiness to change encompasses an understanding of the need for change, internal motivation, and support (Ryan & Deci, 2000).[3] In recognition of this key factor, child care providers' stage of change was assessed during the pre-Booster Session period.

During the recruitment process and through work in other child care provider training programs (i.e. *Partners in Family Child Care, Children's Institute)* it is understood that not all program participants will exhibit the same level of readiness to change. Using a measure developed at Children's Institute (Peterson and Baker, 2010)[4] and tailored to this project, we assessed each child care provider's readiness to change, using the Stage of Change measures. One measure was completed by the provider and described her own appraisal of her stage of change. The other was completed by the home visitor, who was trained on how to use observations, conversations with the provider, and probing questions to determine a provider's readiness to change.

The Stage of Change measure (for both self-report and home visitor report) asks six questions focused on "…serving healthy meals and snacks…" and six questions about "…providing opportunities for physical activity…" Each question receives a ranking, scored 1-5, with 1 denoting least ready to change and 5 signifying that change has already occurred. The measure examines the domains of Intention, Awareness, Seeking information, Effect on children, Overcoming obstacles, and Social support. The respondent chooses a statement for each domain

[3] Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*, 68–78.

[4] Peterson, S.M., Baker, A.C., Weber, M. (2010). *Stage of Change Scale for Early Education and Care 2.0 Professional Manual.* Rochester, NY: Children's Institute.

that best describes her position on the continuum. For each section (Healthy Eating and Physical Activity) the provider is assigned a ranking for each domain, and a summary score (the mean of all items) representing her stage on that section.

Both the self-reported and home visitor reported scores for the child care providers' stages of change are summarized in Table 8 below.

Table 8. Child Care Providers' Stage of Change Pre-Booster Session

| | Provider Report Mean | Home Visitor Report Mean |
|---|---|---|
| Healthy Eating and Nutrition | | |
| Intention | 3.8 | 3.9 |
| Awareness | 3.8 | 4.0 |
| Seeking Information | 3.5 | 3.7 |
| Effect on Children | 4.0 | 3.9 |
| Overcoming Obstacles | 4.3 | 4.0 |
| Social Support | 4.0 | 4.0 |
| Overall Healthy Eating/Nutrition | 4.0 | 3.9 |
| | | |
| Opportunities for Physical Activity | | |
| Intention | 3.8 | 3.8 |
| Awareness | 3.7 | 3.8 |
| Seeking Information | 3.5 | 3.6 |
| Effect on Children | 4.0 | 3.9 |
| Overcoming Obstacles | 4.2 | 3.9 |
| Social Support | 4.0 | 3.8 |
| Overall Physical Activity | 3.8 | 3.8 |

The self-reported scores are almost identical to those assigned by the home visitors, suggesting that both respondents view the providers' readiness to change at the same level. The overall means indicate that, in general, providers were at least in the "preparation" stage of change or moving toward the "action" stage. In other studies, scoring at this level would correlate with greater success in making and sustaining lasting behavior changes.

Over the course of the funding period, some of the child care providers left the project prior to the last ($4^{th}$) Booster Session visit, resulting in a final N of 87 of the original 123 (71%). The number of children served was 655 children (plus an additional 106 children who were not in the target age range) at the start of the Booster Sessions and 354 (62) children when the program ended. All of the post-Booster Session outcomes will reference the 87 providers who completed the 4-session Booster program.

At the completion of the Booster Session program, the home visitors once again conducted a Walk-Through inventory of the sites, using the same checklist to note the presence and usage of

HHtoH curriculum and materials. Some of these materials had been replenished during the Booster Sessions when it was discovered that a provider no longer had all of the resources that had been distributed during the original GRHCC2010 project. Table 9 presents the findings from the final Walk-Through inventory.

Table 9. Post-Booster Session: Presence, Accessibility and Usage of Hip-Hop to Health Jr. Materials at Family Child Care Sites

| Resource | Not present (%) | Present (%) | Accessible (%) | In-Use (%) |
|---|---|---|---|---|
| Hip-Hop Curriculum Book | 36 | 0 | 22 | 42 |
| Books: | | | | |
| Who Helps You Go and Grow, Thomas, Protein | 45 | 0 | 19 | 36 |
| Hip-Hop CDs | 4 | 7 | 7 | 82 |
| Hip-Hop to Health Jr. Hand-outs (Lesson 1 – 14) | 74 | 14 | 12 | 0 |
| Hip-Hop to Health Jr. Puppets | 0 | 4 | 11 | 85 |
| Canvas Bag for Puppets and other materials | 34 | 0 | 0 | 66 |
| Food Nutrition Basic Classifying Card | 49 | 50 | 0 | 1 |
| Pyramid felt food | 34 | 61 | 0 | 5 |
| Root Viewer | 46 | 54 | 0 | 0 |
| Food Group Bingo | 45 | 55 | 0 | 0 |
| Additional books selected for children[5] | 0 | 24 | 76 | 0 |
| Height measuring tools | 49 | 51 | 0 | 0 |
| Be a Healthy Hero to Your Kids brochures | 77 | 0 | 18 | 5 |
| Early Childhood Development & Nutrition Wheel | 78 | 0 | 22 | 0 |

It is noteworthy that some of the materials that had been present or accessible prior to the Booster Sessions were less available when home visitors conducted the post-Booster Session inventory. It is unclear why this would have been the case. However, it is gratifying to observe that some of the core curriculum materials were more accessible or in use to a greater extent than was evident prior to the program.

One of the intentions of the Booster program was to reinforce the lessons from the initial intervention and to lend additional support for the providers to continue with the curriculum. With this goal in mind, the design of the booster sessions included supplying providers with materials and resources that corresponded with healthy eating or physical activity promotion. Some of these items were previously mentioned, and included replacement CDs, blenders for making smoothies and other healthy snacks, crock pots for preparing soups and healthy meals, and supplemental teaching materials.

[5] The Very Hungry Caterpillar; Raising Cows on the Koebels' Farm; Growing Vegetable Soup; Mouse TV

The child care providers completed a post-Booster Session survey that asked about whether or not they had received these materials and about their current and planned activities relating to healthy foods and physical activity. This survey was very similar to the version that was pre-program. Table 10 presents a summary of providers' report of materials received during the Booster Sessions.

Table 10. Providers' Report of Materials/Items Received During Initial Hip-Hop to Health Jr. Program

| Material/Item(s) | Provider Reported Receipt (%) |
|---|---|
| Food | 76 |
| Music CDs | 94 |
| Books | 83 |
| Games | 68 |
| Toys | 67 |
| Cooking tools | 79 |
| Recipes | 88 |
| Lesson plans | 68 |

Nearly all (90%) of the providers reported that all children participated in the Boosters. Again, children who were out of the age range or attending school were not included. All providers took part in the Booster lessons, and felt that the sessions were either just the right about or too short.

Providers' practices around serving healthy meals and snacks and providing opportunities for exercise and active play were once more assessed at the post- time point. Using the same scale and items as the pre-Booster survey, providers indicated how often they provided the following foods or activities after participating in the Booster Sessions.

Table 11. Changes to Provider Practices Following Booster Session Program

| | Provider Report (%) | | | |
|---|---|---|---|---|
| Change to Program | Never | Sometimes | Mostly | All the time |
| Program serves 1% or skim milk | 1 | 3 | 7 | 89 |
| Program serves whole grain breads | 0 | 4 | 29 | 67 |
| Program serves fresh fruits and vegetables | 0 | 3 | 19 | 78 |
| Children served sweetened drinks | 64 | 29 | 1 | 6 |
| Children play active games | 0 | 1 | 17 | 82 |
| Children learn about nutrition | 0 | 6 | 30 | 64 |
| Program serves canned fruits and vegetables | 7 | 77 | 9 | 7 |
| Children choose active play over TV and video | 0 | 9 | 40 | 51 |

The Post-Booster Session survey asked providers about future changes they planned after completing the Booster Session program. A summary of these responses can be found in Table 12.

Table 12. Planned Program Changes Following Booster Sessions: Provider Report*

| | Provider Report (%) | | | |
|---|---|---|---|---|
| Change to Program | No plan | Maybe in a year | In next few months | Already doing |
| Use less oil and fat when preparing food | 0 | 1 | 4 | 92 |
| Make physical activity a daily habit | 0 | 0 | 1 | 96 |
| Use the Hip Hop lessons | 0 | 0 | 4 | 93 |
| Get more information about nutrition | 0 | 0 | 10 | 88 |
| Engage children in preparing food | 0 | 1 | 15 | 81 |
| Go to a farmers' market | 7 | 8 | 31 | 51 |
| Find ways to get physical activity during bad weather | 0 | 0 | 7 | 89 |

* May not equal 100% due to skipped items

Before examining any correlations that may be present between providers' stage of change (readiness) and their activities and plans, it is of value to examine a summary of the daily activities that were recorded on the HHtoH Booster Score Cards. These "cards" were calendar-style sheets, with days of the week provided, and for each day, symbols representing the number of servings (fruits and vegetables) or the number of events (physical activity or Hip-Hop lessons) that were given. These were summarized by computing the daily mean for each month of participation. In that way, it is possible to present a chart showing, by month, the average number of servings of fruits and vegetables, opportunities for physical activity, and HHtoH "teaching moments" per day. Figures 1 through 4 depict these finding over the course of the program.

Figure 1. Average Number of Daily Fruit Servings by Month

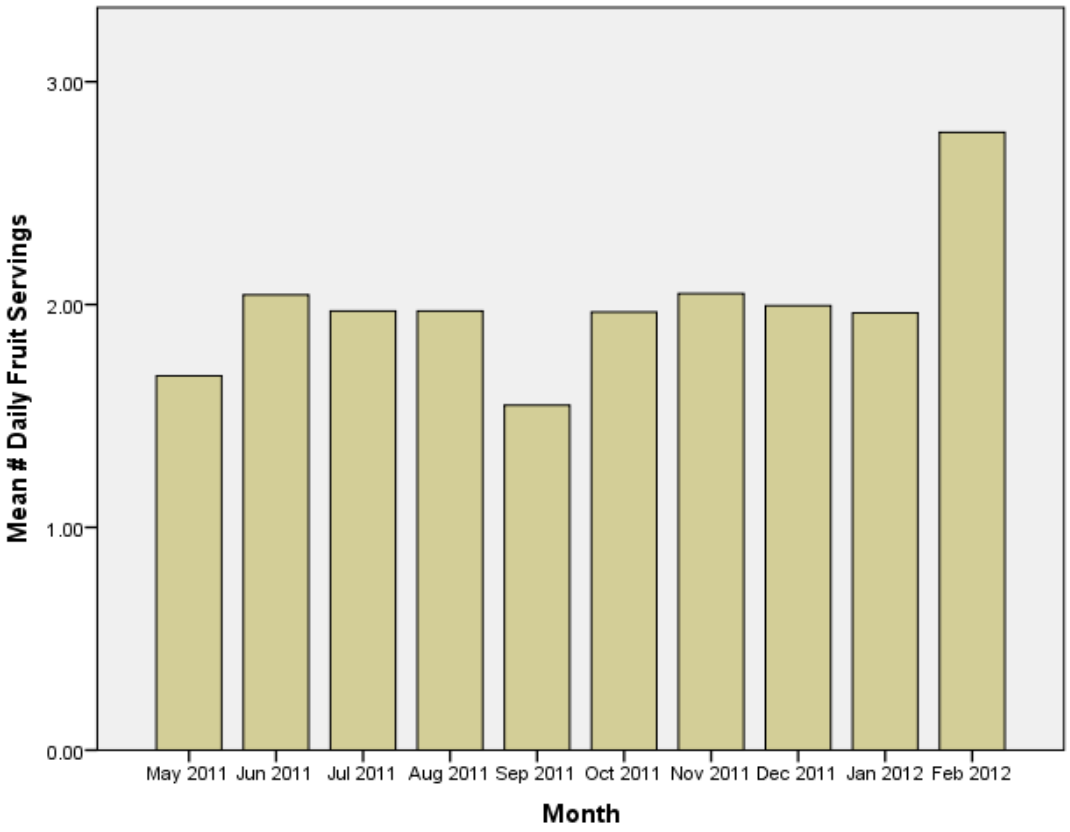


Figure 2. Average Number of Daily Vegetable Servings by Month

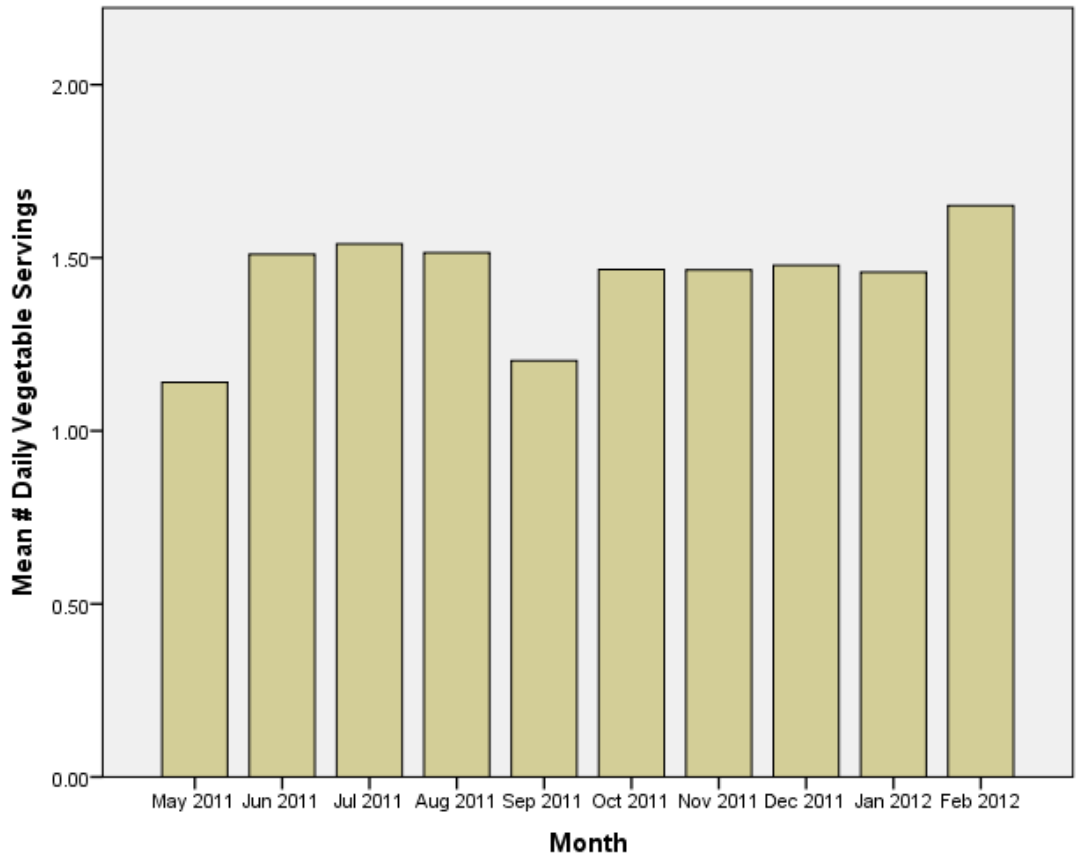


Figure 3. Average Daily Number of Physical Activity Periods

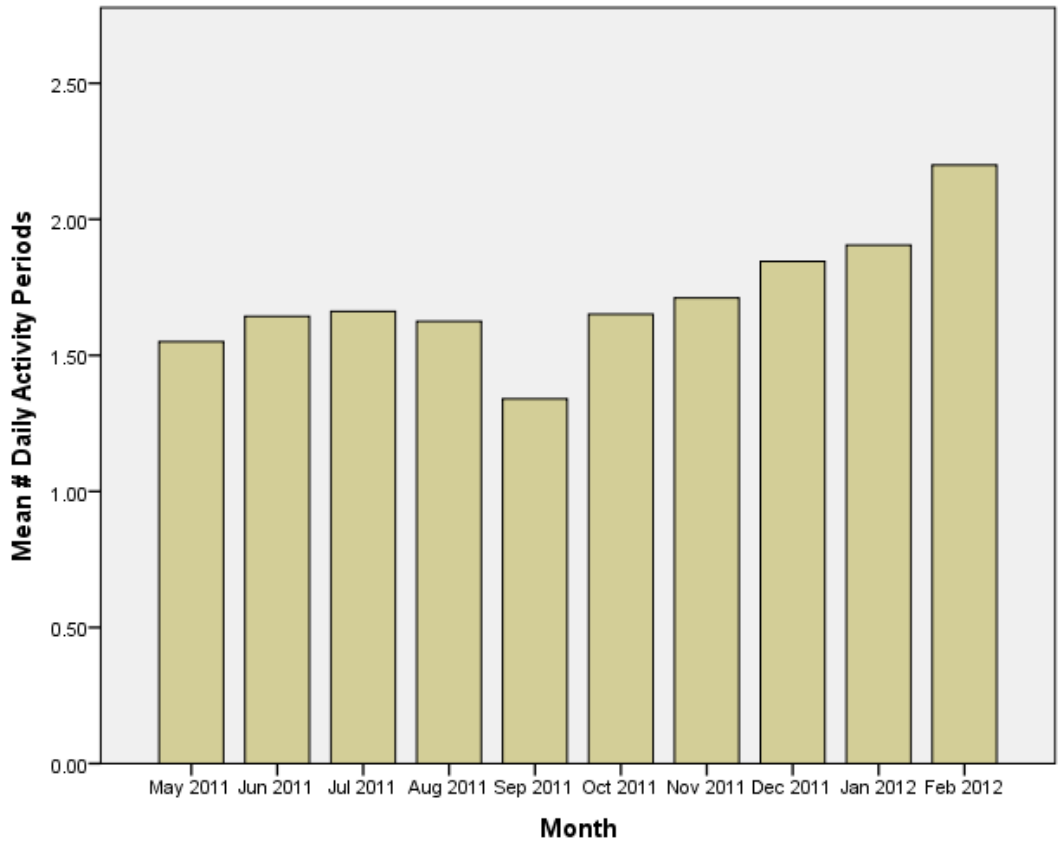
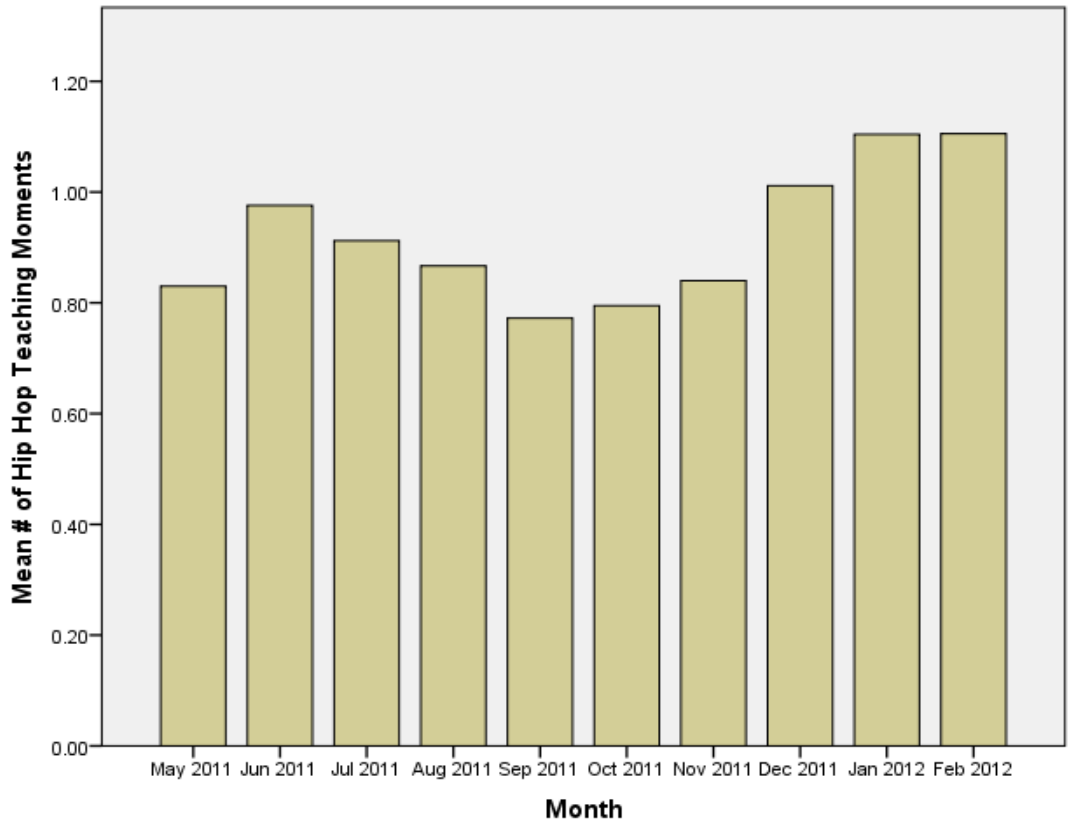


Figure 4. Average Number of Daily Hip Hop to Health Teaching Moments




There appears to be a fair degree of stability of the daily offerings of fruits and vegetables, opportunities for physical activity and teaching moments over the period of the program, with the possible exception of the final (recorded) month, where there was a tendency for a slight increase. This is likely due to the program sessions wrapping up and adding a strong final reinforcement.

It was hypothesized that child care providers who reported a greater readiness to change would be more likely to make changes to their child care practices and/or express intentions to make changes to their practices in the future. However, correlations between the post-Booster provider survey items that assessed behavior changes and the self-reported Stage of Change measures were not statistically significant, with the exception of the following.

Planning to take children to a farmers market was statistically significantly correlated with readiness to change practices regarding physical activity ($r=0.26$, $p<0.05$). Provider report of children choosing active play (over TV or video) was negatively statistically significantly correlated with both readiness to change nutrition practices ($r=-0.29$, $p<0.02$) and readiness to change physical activity practices ($r=-0.30$, $p<0.02$).

There were no statistically significant correlations between curriculum specialists' ratings of providers' readiness to change and the items on the post-Booster Session provider survey.

It was further suggested that providers' readiness to change may be predictive of completing a program such as the Hip-Hop to Health Jr. Booster Sessions, however we found no statistically significant correlations between completion of the program and any of the Stage of Change measures.

It was expected that family child care providers would be more likely to use the HHtoH curriculum materials and express greater intent to establish healthier habits with the children in their care after receiving the Booster Sessions. Based on informal feedback from providers following the initial intervention, it was felt that the Boosters would reinforce the original information and serve as a reminder, reigniting interest in nutrition and physical activity. To investigate this, comparisons were made between the proportions of child care providers who had ready access to curricular materials prior to the Booster Sessions (pre) to the proportions following the Booster Session program (post).

Table 13. Pre-to-Post-Booster Session Comparison: Presence/Accessibility of Hip-Hop to Health Jr. Materials at Family Child Care Sites

Proportion of Providers (Sites) with Materials Present and/or Accessible

| Resource | Pre (%) | Post (%) | 95% C.I. | $\chi^2$ | p-value |
|---|---|---|---|---|---|
| Hip-Hop Curriculum Book | 61 | 64 | -11.8-17.2 | 0.07 | ns |
| Hip-Hop Books | 72 | 55 | 1.5-30.4 | 4.61 | 0.03 |
| Hip-Hop CDs | 83 | 96 | 2.99-21.24 | 5.77 | 0.02 |
| Hip-Hop to Health Jr. Hand-outs | 34 | 26 | -5.8-21.5 | 1.16 | ns |
| Hip-Hop to Health Jr. Puppets | 89 | 96 | -1.6-15.0 | 2.26 | ns |
| Food Nutrition Basic Classifying Card | 40 | 51 | -3.45-26.3 | 2.07 | ns |
| Pyramid felt food | 72 | 66 | -7.6-20.4 | 0.56 | ns |
| Root Viewer | 29 | 54 | 10.7-39.6 | 11.78 | <0.01 |
| Food Group Bingo | 50 | 55 | -10.1-19.8 | 0.28 | ns |
| Additional books selected for children[6] | 76 | 100 | 15-3-32.5 | 19.0 | <0.01 |
| Be a Healthy Hero to Your Kids brochures | 23 | 23 | -12.3-13.3 | 0.03 | ns |
| Early Childhood Dev. Nutrition Wheel | 17 | 22 | -6.8-17.7 | 0.46 | ns |

There were relatively few differences in the presence and implied usage of most of the HHtoH materials and support resources. It is interesting that the proportion of sites that were reported to have the core Hip-Hop books available pre-Boosters was lower post-Boosters (72% to 55%, p=0.03). The home visitors replenished or replaced many of the materials as part of the Booster Sessions, so it is not surprising that the proportion of sites with CDs, the Root Viewer, and the additional books selected as reinforcements for lessons was higher following the program.

[6] The Very Hungry Caterpillar; Raising Cows on the Koebels' Farm; Growing Vegetable Soup; Mouse TV

While there were not many significant changes in the availability of resource materials pre- to post-, it was posited that there would be changes in the implementation of the program. This was verified by comparing the providers' reports of their program practices prior to the Booster Sessions with their self-reported practices at the completion of the program.

Table 14. Pre-to-Post-Booster Session Comparison: Provider Reported Practices with Children

Proportion of Providers Reporting "Mostly" or "All of" the Time

| Resource | Pre (%) | Post (%) | 95% C.I. | $\chi^2$ | p-value |
|---|---|---|---|---|---|
| Program serves 1% or skim milk | 81 | 96 | 4.08-23.65 | 6.56 | 0.01 |
| Program serves whole grain breads | 68 | 96 | 15.84-37.59 | 17.68 | <0.001 |
| Program serves fresh fruits and vegetables | 81 | 97 | 5.94-24.77 | 8.33 | <0.01 |
| Children served sweetened drinks | 2 | 7 | -1.7-13.9 | 1.64 | ns |
| Children play active games | 84 | 99 | 5.96-23.3 | 8.57 | <0.01 |
| Children Learn about nutrition | 78 | 94 | 5.2-26.35 | 7.36 | <0.01 |
| Program serves canned fruits and vegetables | 8 | 16 | -2.52-19.26 | 1.84 | ns |
| Children choose active play over TV and video | 76 | 91 | 3.84-26.38 | 6.14 | 0.01 |

Most of the health-promoting behaviors were reported with higher frequency following the Booster Sessions. This is consistent with the intended outcomes of the program. The provision of sweetened drinks, an undesirable practice, was reported more frequently post-Boosters, but this was not a statistically significant change. Also, there is some question about serving canned fruits and vegetables. Ideally, fresh foods will be served, however it is preferable to serve canned fruits or vegetables than not serving any at all. A change in serving canned fruits or vegetables was not an expected outcome of this project.

Table 15. Pre-to-Post-Booster Session Comparison: Planned or Completed Changes to Program Practices

Proportion of Providers Reporting "Next few months" or "Already doing"

| Change to Program | Pre (%) | Post (%) | 95% C.I. | $\chi^2$ | p-value |
|---|---|---|---|---|---|
| Use less oil and fat when preparing food | 85 | 99 | 4.72-20.82 | 7.36 | <0.01 |
| Make physical activity a daily habit | 89 | 100 | 3.55-17.43 | 6.36 | 0.01 |
| Use the Hip Hop lessons | 85 | 100 | 6.92-22.1 | 9.60 | <0.002 |
| Get more information about nutrition | 86 | 100 | 6.24-21.18 | 8.94 | <0.003 |
| Engage children in preparing food | 83 | 99 | 6.9-23.65 | 9.38 | <0.003 |
| Go to a farmers' market | 77 | 84 | -5.7-18.45 | 1.00 | ns |
| Find ways to get physical activity during bad weather | 89 | 100 | 4.22-18.38 | 7.00 | <0.01 |

Here again, a larger proportion of providers indicated changes had already been implemented or were planned for the near future following the Booster Sessions than reported planned or implemented changes pre-Boosters. The exception was the intention to "go to a farmers' market." It is possible that this reflects seasonal variation and the time surveys were administered. Most of the pre-Booster surveys were completed mid-to-late summer, 2011 and most of the post- surveys were completed at the end of winter or very early spring.

Child care providers were given the opportunity to add comments to the provider survey. While most chose not to write anything, 30 (34%) did. All of the comments received expressed positive opinions of the program. Many recommended continuing the program, adding classes, and adding activities. There were frequent mentions of how much the children enjoyed the lessons and how much they were learning. The overriding theme of provider comments was a strong endorsement for Hip-Hop to Health Jr.

## Conclusions and Future Directions

While it would be difficult to conclude from the outcome data that more highly motivated child care providers are likely to incorporate healthy behavior changes into their practices, the evaluation results do indicate that, with regard to serving healthy food choices and providing opportunities for physical activity, a substantial number of Rochester area child care providers recognize the need for and the benefits of making such changes. Twelve of the 123 providers who began in the Booster Session program scored at Stage 1 or Stage 2 (not quite ready for change) on the Stage of Change measures. Of the 87 providers who completed the full Booster Session program, 6 ranked in Stages 1 or 2 (not ready for change). Because of the extensive amount of attention given to childhood obesity, it is not surprising that the overwhelming proportion of providers have at least moved beyond the "contemplation" stage, and are preparing to change or have already made changes to their daily practices.

It is interesting to observe that, even after receiving the Booster Sessions, some providers still do not have the curriculum and/or supporting resources readily available or in use. The inventory was intended as an objective means to document provider activities, since one can infer that if materials are not visible or conveniently placed they are less likely to be in use. We know that, whenever possible, any missing Hip-Hop to Health materials were replaced, so that each of the Booster participants would have all the necessary tools. Strategies or suggestions on ways to store these items such that they remain accessible might foster continued use.

During the initial program, GRHCC2010, family child care providers expressed the challenges associated with providing healthier food choices and opportunities for physical activity given budget limitations and other constraints, such as access to grocery store produce, or proximity to safe areas for outside play. Part of the initial program was to help providers identify ways to address these challenges. Because these are the same obstacles facing parents, school food programs, and other agencies that provide services to children, there have been community-level campaigns to eliminate or reduce some of the key barriers.

Even with the dual benefits of the GRHCC2010 program and community-wide efforts, the participating family child care providers demonstrated changes in both current habits and intentions for future practices at the completion of the Booster Session program. Given the relatively low-cost of the Booster Sessions and the notable changes providers made and will continue to make to their programs, it is recommended that similar "boosters" be considered for interventions intended to modify existing practices. Even among relatively motivated child care providers, behavior change appears to require adequate resources, training, time, and reinforcement. Recognizing and responding to this may serve to inform future interventions such that periodic boosters can be woven into the design and supported by effective program evaluation.