

## Summary of Evaluation Findings

### Impact of *EatSleepPlay™* Pilot Programs on the Health Knowledge, Attitudes and Behaviors of Families, Childcare Providers, Head Start Staff and Children

Evaluations Conducted by the Michael Cohen Group, Dynamic Research  
and Hunter College CUNY School of Public Health

#### ABSTRACT

A set of four research studies evaluating the efficacy of the Children's Museum of Manhattan (CMOM)'s early childhood obesity prevention curriculum and program model for use with low-income children, families and adults who work with young children shows significant statistical behavioral changes in food selection and observational and reported increases in exercise and appropriate amounts of sleep. The evidence suggests the success of the program is rooted in four core areas: working with young children at an age when habits are formed; working with families; using a pedagogy that employs cognitive and affective learning techniques; and connecting family activities to community-based programs, such as Head Start. In addition, the research suggests that CMOM and its partners have created a program model of complementary components that can guide future policy, research and community-based initiatives.

#### BACKGROUND

In partnership with the National Institutes of Health (NIH), the Children's Museum of Manhattan (CMOM) adapted the NIH's *We Can!* curriculum (which was designed to target children ages 8-13) for children as young as 18 months and up to five years of age. Based on CMOM's tested early childhood arts and literacy program model, the curriculum has been transformed into a series of 11 lessons featuring interactive education activities that utilize art-making, storytelling, music, and movement to teach young children and their adult caregivers about the importance of making healthy choices in the areas of nutrition, physical activity and, based on the latest medical research, sleep. CMOM's early childhood obesity prevention curriculum is the foundation for its comprehensive national *EatSleepPlay™* health initiative.

From 2009 through 2011, the efficacy of CMOM's curriculum was evaluated with a set of complementary audiences including parent-child engagement programs with low-income families in the south Bronx and New Orleans; a professional development program offered in collaboration with the City University of New York for Home-based child care providers working with low income families; and a comprehensive training and leadership development program for Head Start center staff (includes administrators, food service workers, social service staff and educators) and families, implemented the "360°" program in partnership with the Administration for Children's Services and the United Way of New York City. *(For more details on these pilot programs, please refer to the Pilot Programs Overview section at the end of this document)*

As of November 2011, four research reports evaluating these pilot programs and the impact of the programs on each audience have been completed by independent evaluators. The Michael Cohen Group (MCG) completed evaluations of two programs in the south Bronx, one pilot in New Orleans, and one pilot test of the professional development program for home-based care providers. Dynamic Research has released research findings on the first year of the training program for families and Head Start staff. In addition, the curriculum were reviewed by experts from the NIH prior to the start of these pilot programs and based on the research results, is currently under review for national dissemination. CMOM is proud to be a *Let's Move! Museum*.

## SUMMARY OF RESEARCH RESULTS

The pilot evaluations were conducted to determine the impact of CMOM's curriculum, trainings and methodology on participants' health knowledge, attitudes and behaviors. Evaluation findings to date show that across multiple settings and with varying audiences, participants made clear changes to their purchasing preferences and food habits; show positive shifts in attitudinal and behavioral changes about food, physical activity and sleep; and the importance of working with children at a very early age. The evaluations have shown:

- An increase in healthy snacking and consumption of fruits and vegetables
- Purchasing switch from whole to low fat milk
- Participants increased preference for water over soda and juice
- Increased awareness that frozen fruits and vegetables are as healthy option as fresh produce
- Understanding importance of portion size
- Families engaged in the pilot demonstrated changed behaviors related to the addition of movement in their lives and awareness of the importance of sleep.
- Families are unaware, *in all economic brackets*, about the importance of sleep in their child's lives; how long children need to sleep; and the connection between lack of sleep and eating habits/obesity.

The findings suggest that CMOM's methodology is successful because it uses unthreatening and ongoing arts- and literacy-based programming to translate complex health concepts for the target audience. Observational reports and research results indicate that the curriculum lessons and health messages have permeated the day-to-day culture and have helped shift the conversation and norms in many of these settings, opening the lines of communication among and between adults and children around health issues and creating a safe and motivating environment for these discussions to take place and evolve. Thus, despite traditional economic and emotional barriers that surround food and nutrition habits, the research underscores the adaptability, flexibility and cultural relevance of the curriculum in a range of high need childcare settings and home environments. **Taken together, the findings suggest that the program is helping to move the needle in important ways and is effective in bridging the distance between information and behavioral and attitudinal changes among program participants.**

## EFFICACY OF CMOM PROGRAM MODEL

The findings indicate that the key ingredients to the efficacy of the model can be attributed to:

1. The importance of addressing health issues and rooting programs in **the context of the community and family unit** so that at home experiences are complemented by school-based efforts.
2. The **integration of medical research and arts- and literacy-based interactive teaching methodologies** in a unified curriculum and program model results in powerful and engaging cognitive and affective learning experiences and dynamic behavior change for participants.
3. The **formative early childhood years** provide a unique window of opportunity when food habits and preferences are being formed and when adult caregivers devote significant time and attention to their children.
4. The **flexibility and adaptability of CMOM's curriculum** and a **holistic 360°training approach** that is tailored to a variety of early childcare and educational settings and formats.

## RESEARCH IMPLICATIONS AND APPLICATIONS

The findings indicate that in order for future programs to be successful in shifting behaviors and attitudes and to turn the tide of childhood obesity, efforts must begin when children are young, with the involvement and buy-in of parents, educators and caregivers, and the programs must be deeply rooted in and embraced by the community. The next phase of research and program adaptation is the replication of CMOM's early childhood health model inside of public housing through a local partnership with the New York City Housing Authority. The public housing initiative will test the concept of coordinating work among Head Start, childcare providers, families, work with a University School of Public Health and the mapping of community resources in public housing. CMOM intends to disseminate research and pilot results to policymakers and a broad network of stakeholders working to improve early childhood efforts at the local and national level - including the Institute of Medicine, American Academy of Pediatrics, National Association for the Education of Young Children, Partnership for a Healthier America, *Let's*

*Move!*, National Institutes of Health and Association of Children's Museums - to share the lessons learned across museum, scientific, policy, social service, health and early childhood communities.

## **EVALUATION FINDINGS**

The formal evaluation findings of each program have suggested that the core concepts of CMOM's curriculum were learned effectively and the curriculum and programs had an impact on participants' health and eating habits in small but significant ways. Full copies of the research studies are available upon request.

### **IMPACT ON NUTRITION AND HEALTH KNOWLEDGE**

#### **Head Start Staff and Families**

- 90% of Head Start educators reported "great" to "moderate" improvement of their knowledge and ability to teach children about a variety of nutrition, health and wellness topics.
- 99% of Head Start educators reported an increase in Head Start children's nutrition knowledge and healthy eating habits after participating in the programs.
- 90% of Head Start families reported that they were learning and reading more about nutrition, healthy eating and trying healthier foods after participating in the trainings.

#### **Home-based Childcare Providers**

- Participants in the professional development program for home-based childcare providers on average answered specific content questions on health and nutrition correctly 76% of the time indicating that they were engaged by the training model and learned most core nutritional concepts through the activities presented.
- More than 85% of the home-based childcare providers who participated in the professional development trainings completed their homework assignments and indicated that the CMOM designed activities were an excellent way for them to bring health messages to the families they served. One provider commented that "doing the homework with the children helped me remember the lesson better and also helped me teach the children about eating fruits and vegetables."

#### **Families in South Bronx**

- There was an increase in the number of caregivers in the Bronx pilots reporting that they were more aware that nutritional habits and food preferences are formed at very young ages and that children's food preferences are not unchangeable.
- Caregivers in the Bronx pilots became aware of proper portion sizes for proteins and starch (increasing portion sizes for fruits, vegetables and whole grains) and typically responded with surprise and interest.
- Most caregivers in the Bronx Pilots were not initially aware of the nutritional difference between fresh, frozen and canned, fruits and vegetables and were interested in learning that frozen is acceptable and preferable over canned.

### **CHANGES IN ATTITUDE/BEHAVIOR AMONG ADULTS**

#### **Head Start Staff and Families**

- 80% of Head Start staffs reported that they were checking food labels more, drinking more water and less sugary drinks and reading about nutrition and healthy living.
- Among Head Start families, more than 75% of the parents reported an increase in the conversations around healthy eating and exercise at home.
- More than 90% of Head Start parents reported that their families were drinking more water and less sugary drinks and 95% reported that they were avoiding fast-food restaurants.

- After participating in the pilot, all eight Head Start centers reported that they has increased their efforts to improve the meals served to Head Start children and families by changing vendors as needed and increasing their purchases of healthy foods, decreasing their reliance on canned goods (especially canned fruits), preparing more foods from scratch, using whole grains and increasing the number of food order per month to have ample fresh produce on hand.

### **Families in South Bronx and New Orleans**

- 66% of caregivers in the Bronx pilot indicated that they wanted to "walk or run more," and "watch less TV" after participating the program and 33% of participants stated that they wanted to make changes to their community so that engaging in physical activities outdoors would be safer for their families.
- Caregivers in the Bronx reported a 36% increase in buying low-fat milk and a 17% reduction in the purchase of whole milk, and caregivers in New Orleans reporting a 43% increase in buying low-fat milk and a 53% decrease in the purchase of whole milk indicating that the curriculum is effectively conveying the message that skim-milk is the healthier option.
- There was a 140% increase in the purchase of yogurt for a snack among families in New Orleans and there was and a modest decrease in the purchase of white bread and modest increase in purchase of wheat bread among participants in the Bronx pilots.
- There was a 160% shift in the number of caregivers from the Bronx pilot who became concerned about greasy, fried food, "junk" food and sweets.
- Caregivers' in the Bronx pilots agreement with traditional beliefs about using food, and particularly *more food*, as a way to expressive love or assure wellbeing decreased after participating in the program.
- Caregivers' in the Bronx pilots agreement with the statements about the social influence of television, fast food and "American diets" (mac n' cheese, pizza, "Happy Meals," etc) on their children's eating habits diminished after participating with their children in the program.
- Caregivers in the Bronx showed a decrease in agreement with statements such as "all juices are good for children" and "fast food restaurants are convenient and we use them at least once a week."

### CHANGES IN BEHAVIOR AMONG CHILDREN

#### **Head Start Staff and Families**

- Head Start educators reported that 80-99% of the children they worked with showed a greater motivation to eat healthier foods, were more willing to try new foods, increased their physical activity and talked more about nutrition and health topics.
- 56% of Head Start educators stated that after participating in the pilot program that they had increased the amount of physical activity that the children and their classrooms participated in each day.

#### **Families in South Bronx and New Orleans**

- In the Bronx, there was a 22% increase in caregivers who reported their children enjoy fruit as snacks and 60% decrease in those that reported children enjoy chips. In New Orleans there was an 83% decrease in the number of caregivers reporting that their children preferred chips and cookies over healthy snacks and a 43% increase in the consumption of yogurt.
- Children in the Bronx pilots preference for water over soda beverages increased, preference for skim milk increased, and there was also a decrease in children's preferences for juice, and soda after participating in the program.

#### **Home-based Childcare Providers**

- After participating in a homework assignment that taught about the importance of healthy bones, a child care provider who participated in CMOM's professional development training noted that the children in her

care began to ask for milk over juice so "they could have strong bones."

- Several participants in the professional development program for at-home-based childcare providers also noted that after engaging in a healthy portions activity they were able to encourage the children in their care to fill up half their plates with fruits and vegetables.

### IMPACT OF CMOM METHODOLOGY

Nearly all participants across the four pilot programs spoke of the curriculum and activities with enthusiasm with near universal approval of the CMOM pedagogy to teach complex health topics. Additionally,

- Nearly 100% of adult participants reported a new level of comfort discussing health issues that would positively influence the knowledge and behaviors of the children in their care.
- Caregivers in both the Bronx and New Orleans pilots stated that they and their children either "liked," "really liked" or "loved" the programs.
- 99% of the participants in the professional development pilot for at-home-based child care providers responded "very favorably" when asked to rate the quality of the experience and the usefulness of the information.
- The home-based child care providers also reported that they were "eager" to integrate the health promoting curriculum from the professional development trainings and activities into their own classrooms and childcare settings.
- In the Head Start training program, 100% of teachers, and nearly 100% of the kitchen staff, social service workers and parents reported that the trainings were enjoyable and presented health concepts in a way they could understand.
- Head Start participants also noted that they were more likely to encourage each other to engage in healthier habits after participating in the programs and that healthy eating has become the new "water cooler talk" at each center.

### PILOT PROGRAM OVERVIEWS

#### *Parent-child Engagement Program Pilot with Families in South Bronx*

Since 2005, CMOM has operated an effective, comprehensive arts and literacy-based program at **East Side House Settlement (ESHS) in the Bronx**, that helps prepare young children from low income families for lifelong learning and academic success. The pilot program at ESHS featured CMOM's early childhood obesity prevention curriculum's 11 lessons in a **90-minute parent-child engagement program format**. **Forty-five families** participated in the **spring 2010** pilot and approximately **57 families** participated in the **spring 2011** pilot. The evaluation plan for this pilot included pre-pilot focus groups, as well as pre- and post-pilot questionnaires in both English and Spanish. **Fifty-one individuals participated in pre-program assessments and 37 individuals participated in post-program assessments**. Participants represented a very diverse, **largely Latino, Spanish speaking group** with roots in different parts of Mexico, Puerto Rico, Dominican Republic, Tibet, Africa and different regions of the U.S. The families who participated attended one of three separate Head Start Childcare centers within the public housing complexes and generally lived in the adjoining public housing.

#### *Parent-Child Engagement Program Pilot with Families in New Orleans*

In **spring 2011**, CMOM initiated pilot testing of the curriculum with low income families at the **Royal Castle Child Development Center (RCCDC) New Orleans** through a collaboration with longstanding partner the **Louisiana Children's Museum (LCM)**. The pilot programs in New Orleans have been staggered with the pilots in the Bronx so that CMOM could use the findings from the early programs to inform subsequent iterations of the curriculum and program design. The pilot program and evaluations at RCCDC mirrored the program at ESHS and featured the 11 lessons in a **90-minute parent-child engagement program format**, pre-pilot focus groups, and pre- and post-pilot

questionnaires. Approximately **43 families participated in the pilot and pre-program assessments** and **16 completed post-program assessments**. Participants were **predominantly African-American** (80.5% of the pilot group) and English speaking.

#### Professional Development Program for Home-based Care Providers with City University of New York

Since 2007, CMOM has worked with the **City University of New York's Early Childhood Professional Development Institute** to run a comprehensive professional development program to equip **home-based child care providers** with an understanding of how core early childhood skills in literacy, math and science can be taught to young children (ages 2-5). In 2010, with a grant from the Institute of Museum and Library Services, CMOM expanded this professional development program to teach the providers important early childhood health concepts found in its early childhood obesity prevention curriculum. The **fall 2010** pilot test of this new program consisted of **three 3-hour professional development workshops for providers and one 90-minute provider/child class**. **Forty-one individuals** participated in the program as well as pre- and post-program assessments. Participants were **predominately Latino (with some African American participants)** and more than half of participants choosing to respond to the evaluation questions in Spanish. The evaluation method for consisted of a post-workshop questionnaire, which was distributed at the end of each session with questions related to the content of the particular session, as well as the participant experience in the workshop.

#### Pilot Trainings for Head Start Staff and Families

In 2010, CMOM was selected to serve as a lead partner of the **Healthy Eating for a Healthy Start** pilot program which is being overseen by the Administration for Children's Services (ACS) and supported by the United Way of New York City. CMOM adapted its curriculum to create a flexible and integrated **professional development model to provide a series of 4 trainings and technical assistance for the entire staff (including administrators, food service workers, social service staff and educators) and parents at eight Head Start Centers in Brooklyn and Manhattan**. **CMOM conducted 32 trainings for 839 individuals (76% program administrators and staff, and 24% parents and children) of predominantly African American and Latino heritage participated**. Evaluation consisted of pre-training assessments, pre- and post- workshop questionnaires (in English and Spanish) designed to track participants' retention of new information, and informal participant feedback surveys.

#### **EatSleepPlay : Building Health Every Day Exhibition Evaluation**

In addition to evaluations of CMOM's curriculum and pilot programs, in the winter of 2013, a multimodal evaluation study of the *EatSleepPlay™: Building Health Every Day* exhibit was conducted by Hunter College CUNY School of Public Health to identify and assess how children (age 4-8) and adult visitors experience the exhibit, what they are learning from their experience, and to recommend ways to enhance children and families' learning of healthy habits within the exhibit. The evaluation study was conducted by 26 researchers including undergraduate, master's and doctoral students and faculty, and included a seven-hour pilot, data collection over a span of two weekend days. Data was captured through 87 interviews with children, 65 surveys with parents, physical monitors on 35 child visitors and over 100 children observed in the exhibit, as well as four hours of video analysis of family engagement in the exhibit.

The efficacy of our curriculum is equaled by the impact of the exhibit as evidenced by the positive results of the study:

- Over three-quarters (78%) of parents rated the exhibit's ability to teach their children about health habits as good or excellent while 94% rated the exhibit's ability to teach the parents themselves as good or excellent.
- Almost 97% of parents surveyed rated their overall experience as good or excellent. At the same time, the majority (75%) thought that their child had "a lot of fun."

***For more information about the CMOM EatSleepPlay™ initiative, please contact Leslie Bushara at [lbushara@cmom.org](mailto:lbushara@cmom.org).***