Martin et al., J Child Adolesc Behav 2014, 2:1
DOI: 10.4172/2375-4494.1000122

Journal of Child & Adolescent Behavior

Research Article Open Access

# The Maine Nutrition and Physical Activity Self Assessment for Childcare (NAP SACC) Experience

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## Abstract

**Background:** More than half of all children in the U.S. aged 3 to 6 years are enrolled in childcare centers. In Maine, there are over 2,000 licensed centers. Maine received funds from the federal Department of Health and Human Services' Communities Putting Prevention to Work to promote the adoption of Nutrition and Physical Activity Self Assessment for Child Care (NAP SACC), an evidenced-based program for the childcare setting. Consultant training was provided using the states' health program delivery network - the Healthy Maine Partnership (HMPs). Each HMP NAP SACC consultant was then required to recruit two or more childcare centers to implement NAP SACC.

**Methods:** The purpose of this study was to summarize the process and outcome findings of the roll-out and adoption of NAP SACC in Maine, and to put forth recommendations for improvement. Means of program evaluation included telephone interviews with NAP SACC consultants (N=17), childcare directors (N=29); an on-site observation of a subset of the centers (n=6), and one quantitative measure: the self-assessment (pre- and post), which is a NAP SACC tool used at the childcare center level.

**Results:** These data sources provided much corroborative evidence suggesting that the NAP SACC program has been successfully adopted in Maine. Nutrition policies and offerings have improved, especially with regard to purchasing healthier options. Physical activity policies and offerings improved to a lessor degree, though grant money provided to childcare centers via CPPW has helped many sites purchase playground equipment, and was ranked as a key aspect of the program

**Conclusions:** The multi-faceted evaluation methods revealed numerous strengths and opportunities for program improvement in the delivery of NAP SACC across this rural state; findings which can help to direct and improve further adoption of NAP SACC.

**Keywords:** NAP SACC; HMP; IOM; CPPW

## Introduction

Obesity adversely affects adults and children of all ages in the U.S. Nationally; the obesity epidemic is evident among children as young as 2 years old, with the national average reaching 16.6% of children ages 2-5 in the obese categories [1]. Bio-markers of metabolic syndrome including blood pressure, waist circumference, and BMI are evident in pre-pubescent children, even insulin resistance among those as young as 5 years old [2-4].

From national surveys we can estimate the potential impact that childcare settings may have combating obesity. Fourteen percent of 0-4 year olds were primarily cared for by a nonrelative in a home-based environment, such as a family childcare provider, nanny, babysitter, or au pair. Twenty-four percent of that same age group was primarily cared for in a center-based arrangement (childcare, nursery school, preschool, or Head Start). In 2007, about 55 percent of children ages 3–6, not yet in kindergarten, were enrolled in center-based care [5]. Recently, the respected Institute of Medicine (IOM) issued Goals, Recommendations, and Potential Actions in its Early Childhood Obesity Prevention Policies Paper [6]. The report states, among other things, that child care regulatory agencies should require early childhood educators to provide infants, toddlers, and preschool children with opportunities to be physically active throughout the day and; should provide responsive feeding – responding to the child's hunger and satiety cues, encouraging children to eat but not forcing it, and offering new foods and food combinations.

The Nutrition and Physical Activity Self-assessment Child Care (NAP SACC) is an evidence-based program well-aligned with the IOM Paper. NAP SACC was created in 2002 by a team of child obesity researchers at UNC Chapel Hill in association with colleagues in the Nutrition Services branch at the North Carolina Division of Public Health. The NAP SACC program consists of a self-assessment instrument, continuing education workshops, collaborative action planning (and an action plan document), technical assistance materials, and an extensive resource manual with copy-ready materials on CD-Rom [7]. The program and its component parts were developed to help early care and education programs set goals and make improvements to their nutrition and physical activity policies and practices [7]. The intervention was piloted in 2003 and through a pre- and post-analysis of the self-assessment data, was found to be successful [8]. The program

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**Received** November 04, 2013; **Accepted** January 04, 2014; **Published** January 11, 2014

**Citation:** Martin SL, Martin M, Cook R, Knaus R, O'Rourke K (2014) The Maine Nutrition and Physical Activity Self Assessment for Childcare (NAP SACC) Experience. J Child Adolesc Behav 2: 122. doi:10.4172/2375-4494.1000122

is continually updated to encourage the adoption of "best practices," such as those laid out by the IOM.

Communities Putting Prevention to Work (CPPW) was created by United States Department of Health and Human Services to tackle obesity and tobacco use; it provided funding to states and communities throughout the nation [9]. Healthy Maine Partnerships (HMPs) were coalitions established by the Maine Center for Disease Control and Prevention (Maine CDC) - in January 2001 to comprise the statewide public health infrastructure (i.e., county health departments). With funds from the CPPW, all 28 HMPs were invited to participate in NAP SACC intervention, with the condition that they could dedicate a qualified staff member to the project. The Maine CDC also awarded two subcontracts: one for an independent evaluation team and the other for training of the NAP SACC consultants and oversight and administrative responsibilities for the implementation (here forward: training and administration team).

Throughout the state, the program used the materials and followed the steps laid out by its designers with a unique dissemination plan described in the methods. Based on the independent evaluation of the project, the purpose of this study was to summarize the process and outcome findings of the roll-out and adoption of NAP SACC in Maine, and to put forth recommendations for improvement.

## Methods

The NAP SACC roll-out in Maine was carried out by many peoples in several roles with different affiliations. Table 1 describes these roles and responsibilities. This study was conducted primarily by the independent evaluation team which was led by a senior evaluator who trained two university students as research assistants. The team conducted telephone interviews and on-site observations to validate the fidelity of program implementation. As a vulnerable population, children were not interviewed and their identities were kept anonymous. Because of the apparent absence of harm or perceived harm to humans, institutional review board exemption was granted by the University of Southern Maine.

The training and administrative team was tasked with training NAP SACC consultants from the HMPs and providing technical assistance to these consultants. The consultants were tasked with providing five workshops to each of the childcare centers that they recruited. And, in the end, the team provided oversight of the proper roll-out of NAP SACC across the state.

### Participants

*NAP SACC Consultants:* Staff of the Maine CDC's CPPW team invited all 28 HMP coalitions to take part in the NAP SACC intervention by committing at least one person to become a NAP SACC consultant. To become a consultant this individual was required to attend a day-long training conducted by the training and administrative team. Each consultant was charged with recruiting 2 or more childcare centers for participation. Sixty – one percent of the invited coalitions agreed to participate (n=17).

### The childcare center directors

The consultants recruited within their HMP district across the state and most were able to enlist directors from two childcare centers as recommended by CPPW (one consultant recruited 5 centers and a few recruited just one). The total number of childcare center directors successfully recruited was 29 each representing a unique center. Each childcare center director was required to implement a NAP SACC Self-Assessment tool and create an Action Plan.

### Implementation

The project ran throughout the year 2011. The 17 HMP staff members serving as NAP SACC consultants attended a full-day training conducted by the training and administrative team, who received their training qualifications through the NAP SACC originators at the University of North Carolina at Chapel Hill. Following the training, the consultants recruited local childcare center directors from local sites and then engaged the center directors. First, the consultants delivered the NAP SACC program materials and asked the center directors to work with his/her staff to complete the baseline self-assessment. Once the self-assessment was done, the consultant offered her guidance to the center director to complete an Action Plan. Guidance for action planning was also available from the training and administration team at any time. As incentive for compliance, $500 was awarded to the center once their action plan was complete. This award money had to be spent on items that would improve nutrition or physical activity practices at the center (e.g., kitchen items, playground equipment).

During the first couple of months of implementation, the consultants were asked to deliver the five program-provided NAP SACC PowerPoint "workshops" to childcare center staff. The workshops were designed to get staff on board with the program. Six-months later, the self-assessment was completed again by the center director with assistance, if requested, from the consultant.

| | **Roles and Responsibility** |
|---|---|
| Maine CDC | Responsible for funding NAP SACC in Maine including two sub-contracts; and for reporting of CPPW spending and program progress to the federal government |
| Evaluation Team | Senior evaluator was responsible for designing and carrying out an evaluation plan for NAP SACC; and two university research assistants trained (by senior evaluator and university professor [author] to collect, enter, analyze data, and write reports. |
| Training and Administrative Team | The training role was limited to the two individuals with the qualifications to serve as NAP SACC trainers; they also held monthly phone conferences to provide technical assistance to the NAP SACC consultants. The administration aspect of the team was responsible for documentation and communication among the various "teams." |
| NAP SACC Consultants | These individuals were trained staff members of HMP coalitions. They recruited childcare center directors to participate in NAP SACC and served as their technical advisor for implementing NAP SACC. |
| Childcare Center Directors | These individuals were responsible for the implementation of NAP SACC at the single center level. They worked with the Consultants and provided access to their staff so that the consultants could carry out workshops assist the staff as well as the director of the center. |

Notes: Maine CDC=sub-component of Maine Department of Health and Human Services
CPPW=Communities Putting Prevention to Work sponsored by the United States Department of Health and Human Services
HMP=Healthy Maine Partnership coalition (~ county health department)

**Table 1:** Roles and Responsibilities for the Maine NAP SACC roll-out.

### Data sources

The NAP SACC self-assessment tool was used for quantitative measures, pre and post intervention. Items on the tool include nutrition and physical activity policies or practices that are related to childhood obesity (e.g, fruit juice consumption) [7]. The difference in scores (pre to post) from this tool was our primary outcome measure used to answer the question: Did the NAP SACC intervention improve the centers' physical activity and nutrition environment? The self –assessment tool has proved to be an accurate and stable measure of the childcare environment [10]. Structured interviews for both the consultants and the center directors were created by the lead evaluator, and pilot tested with university students and the training and administrative team. The interviews were designed to answer several process questions about the fidelity of the implementation, such as "what was challenging about implementing the program at your center?" An on-site observation protocol was developed by the lead evaluator, who then trained the research assistants in its use. The observations were used to confirm whether improvements had been made to the physical activity and nutrition environments at the center level. For example, observers would seek out NAP SACC inspired child play outdoors and visit the kitchen to identify improvements in the quality of the foods that were served.

The lead evaluator conducted the structured qualitative interviews by telephone with NAP SACC consultants (n=17), and childcare center directors (n=29). The lead evaluator, with facilitation by the training and administration team, collected the self-assessment (pre and post) data, and one of the research assistants entered the data in Microsoft Excel. The evaluation team together conducted the first two on-site observations, and then the research assistants each collected two more. These observations provided data concerning implementation fidelity from a subset of sites (n=6; 35% of the sample).

### Data analyses

As done previously, the pre and post self-assessment measures were compared [8]. Mean scores (pre and post) and standard deviations were calculated in Excel. For the observations and interviews, the qualitative data was analyzed collaboratively by the evaluation team to increase concurrent validity. More specifically, the lead evaluator ascertained common themes from the consultant and center director interviews and drafted the results which were then shared with the research assistants and then with the intervention team for comment. Based on consensus, a summary report was produced by the lead evaluator for the Maine CDC.

## Results

### Process evaluation

**Recruiting process:** From the interviews with NAP SACC Consultants, evaluators learned that the consultants valued a chance to engage in direct service beyond their typical job duties. For others, it provided access to childcare centers that they previously did not have. The main barrier to recruitment was the propensity of home-based, versus center-based care providers that cover most of Maine's geography.

The NAP SACC Consultants found it more difficult to work with Head Start programs than independent centers largely because of the layers of regulations. More than 10 Head Start sites were approached during the recruiting stage, 2 participated. The on-site observers also found corroborating evidence that the Head Start locations were harder to work with because of the layers of rules/policies they already have to follow – it was hard to superimpose NAP SACC on top of the existing policies, according to informal comments from the directors during the observation. The consultants also saw the need to widen the recruitment sample to work in home-based sites given the prevalence of that setting in Maine.

**NAP SACC intervention materials:** Consultants reported that those who used NAP SACC materials available on CD-ROM know of its value, but many seemed unaware of the resources available therein. As with the consultants, about three-quarters of the center directors were aware of the CD-ROM and impressed with it, but other directors were not aware of it. According to the childcare center directors, the workshops provided by the NAP SACC Consultants were generally well received, though some suggested that they needed to be more culturally relevant and less repetitive. They also suggested the 'Notes' pages need to be revised substantially if they are to match the accompanying slides. On a positive note, the workshops were reported to be a good opportunity for Continuing Education Units.

**Self-assessment tool:** Consultants reported satisfaction with the self-assessment tool, especially for setting a baseline to help the centers know where improvements in policy or environment could be made, with funds available to do so. Conversely, center directors reported some dissatisfaction with the self-assessment instrument because they did not feel it was well tailored to the site (e.g., some have no food service; some serve special needs children). A couple of the center directors were seemingly unaware of self-assessments; though according to their consultants, that would not be possible.

**Opportunities and barriers to implementation:** The consultant data concurred with the on -site observations that center directors were on board with NAP SACC activities and readily adopted the role of program champion, yet childcare center staff had yet to adopt and utilize the program to its fullest. Center directors, as well as NAP SACC Consultants reported a lot of repetition with the preexisting "5-2-1-0" program [11]. Center directors reported that they would like the chance to network with other centers to learn innovative ways of adopting new policies and practices to improve their environment. They rated NAP SACC Consultants and the grant money as the best components of the program. All consultants reported they would continue to use NAP SACC if it were up to them.

### Outcome evaluation

Regarding the pre and post self-assessment data, childcare centers showed improvements in both the nutrition and physical activity arenas as it relates to policy and environmental issue at their disposal (Table 2).

From the center directors' viewpoint, NAP SACC helped them increase their physical activity offerings and improve the quality of food offered. The on-site observations conducted by the Evaluation Team noted that nutrition was influenced more than physical activity. Many centers had switched to lower-fat milk, served more whole grains, and updated policies to encourage parents to bring in healthy treats for special occasions. In terms of physical activity, the grant money was most often used for environmental improvements such as the purchasing of playground equipment. Full-time centers with food service improved their meals and snacks programs, while centers lacking food service increased their physical activity offerings.

## Discussion

A champion for program implementation has been shown to be an

| | Pre-Assessment Mean (SD) | Post-Assessment Mean (SD) |
|---|---|---|
| **TOTAL NUTRITION (Q1-Q37)** | 2.88 (1.11) | 3.31 (0.93) |
| **TOTAL PHYSICAL ACTIVITY (Q38-Q54)** | 3.00 (1.09) | 3.44 (0.80) |
| Nutrition: Fruits and Vegetables (Q1-Q5) | 2.93 (1.08) | 3.15 (0.96) |
| Nutrition: Meats, Fats and Grains (Q6-Q11) | 3.06 (1.09) | 3.37 (0.95) |
| Nutrition: Beverages (Q12-Q17) | 3.12 (1.03) | 3.42 (0.87) |
| Nutrition: Menus and Variety (Q18-Q20) | 2.42 (1.16) | 2.79 (0.99) |
| Nutrition: Feeding Practices (Q21-Q24) | 3.28 (0.96) | 3.48 (0.88) |
| Nutrition: Foods Offered Outside of Regular Meals and Snacks (Q25-Q27) | 2.47 (1.02) | 3.20 (0.97) |
| Nutrition: Supporting Healthy Eating (Q28-Q33) | 2.91 (1.05) | 3.44 (0.83) |
| Nutrition: Nutrition Education for Staff, Children, and Parents (Q34-Q36) | 2.41 (1.24) | 3.27 (0.88) |
| Nutrition: Nutrition Policy (Q37) | 2.24 (n/a) | 3.61 n/a |
| Physical Activity: Active Play and Inactive Time (Q38-Q43) | 3.30 (0.86) | 3.46 (0.79) |
| Physical Activity: Play Environment (Q44-Q48) | 3.25 (0.78) | 3.53 (0.68) |
| Physical Activity: Supporting Physical Activity (Q49-Q50) | 2.82 (1.13) | 3.47 (0.82) |
| Physical Activity: Physical Activity Education for Staff, Children, and Parents (Q51-Q53) | 2.39 (1.32) | 3.27 (0.95) |
| Physical Activity: Physical Activity Policy (Q54) | 2.12 (n/a) | 3.38 (n/a) |

**Table 2:** NAP SACC Pre and Post Self-Assessment.

important component to programming [12,13]. Because NAP SACC consultants identified and trained "champions" in the beginning, they were able to achieve moderate success with implementation in a short time. As with the pilot study in North Carolina, we found that self-assessment scores improved from pre to post measures for nutrition and physical activity when child care centers implemented NAP SACC activities [8]. Our analyses further divided the sub-categories of nutrition and physical activity, and each improved; though it may be noteworthy that these positive findings were not replicated in another study of NAP SACC in the childcare setting [14].

Overall, notable improvements were observed in the areas of nutrition and physical activity. Changes such as improved policies regarding nutrition and the purchasing of playground equipment were regarded as positive improvements and will contribute to better health outcomes beyond program implementation.

Those who participated in the NAP SACC trainings benefited from them. The consultants were trained to present the NAP SACC materials with fidelity. While cultural relativity is always important, there is research showing that effective implementation of programming should adhere to the previously determined guidelines to achieve the best outcomes [15]; yet allowing for some adaptation to maximize benefits [16].

NAP SACC utilized direct services such as nutrition and physical activity education, which was a refreshing change for the consultants. Operating from the usual model of influence often denies state agencies valuable access to vulnerable populations such as children. NAP SACC consultant's appreciated the rare and beneficial access to the child care centers, fostering true partnerships; oftentimes, their work is far removed from direct service.

Electronic dissemination of materials such as web portals and packaged CD ROMs have been shown to enhance delivery of health programming for professionals, such as child care providers. Many of the Center Directors found this to be true which resulted in enhanced environmental changes such as the purchasing of new playground equipment, related to increases in physical activity among children [17]. Additionally, policies regarding meals, snacks and special occasions were also adjusted to promote more healthful eating. Due to the large percentage of children in center – based care, it appeared to be an effective setting to facilitate positive changes regarding childhood obesity and even metabolic syndrome.

## Potential opportunities for improvement

The NAP SACC participants reported that consistency and congruence of materials would make learning how to implement programming easier. They suggested that supplemental materials be adjusted to more properly align with the presentation slides how as it would facilitate better understanding and eventual adoption of the program.

Access to vulnerable populations such as children attending Head Start is for good reason often difficult for program delivery. There are many layers of policy and regulation that are observed to protect the children and to insure a safe and healthy environment. This proved to be a barrier for NAP SACC implementation. Parental involvement and education of the NAP SACC program may help with full implementation

The seriousness and reality of the obesity epidemic has sparked a flurry of much needed prevention programming. As a result there was some repetition and overlap between NAP SACC and other programs. One such example is the interaction between the nationally recognized, state supported "5-2-1-0 Let's Go!" program and NAP SACC.

Adoption of new programming often takes more than one full cycle of implementation before all who are responsible for it is delivery can get fully on board. This was certainly true of the staff at the childcare centers. Not all staff personnel were trained or able to effectively implement due to other requirements in their workload and attrition.

## Conclusion/Recommendations

It will be useful to assure that consistency and congruence of materials can be improved for NAP SACC trainers to produce the best results. Revisions to the training materials that reduce unnecessary repetition might be useful to make program adoption more feasible. Attention should be given to historical error such as the potential for repetition by other programs.

Collaborating with Head Start to infuse NAP SACC materials and curricula is a vital component of creating a cohesive program contributing to the mitigation of childhood obesity. In the future it will be beneficial to become more aware of the policies that need to be adhered to in order to reach this population.

The data sources provided much corroborative evidence suggesting that the NAP SACC program has been at least moderately successfully

adopted in Maine. Nutrition and physical activity policies and offerings at center based childcare facilities have improved, especially in the nutrition arena. Physical activity has been harder to improve, though grant money provided to childcare centers via CPPW has helped many sites purchase playground equipment, and was ranked as a key aspect of the program - as were consultants.

We would recommend:

1. Resources should be made readily available and obvious for consultants and center directors.
2. Trainings should be offered more frequently and regionally, as staff tends to turn over.
3. Workshop materials should be reviewed and edited as needed for Maine clientele.
4. A web-portal should be created for consultants, and another forum created for centers to network.
5. Create or provide a "parent training" for centers to use.
6. Inclusion of home based childcare centers.
7. Opportunities for networking with other daycare centers regarding nutrition education and physical activity.

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