Preventing Childhood Obesity: Maternal-Child Life Course Approach.

Evidence Review of Select Interventions.

A report to the

Child Health and Development Institute of Connecticut

Prepared by:

UCONN HEALTH
CENTER FOR PUBLIC HEALTH AND HEALTH POLICY

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Introduction

The Child Health and Development Institute of Connecticut (CHDI) released the September 2014 report, "*Preventing Childhood Obesity: Maternal-Child Life Course Approach*."[1] As a follow up to that report, this report describes the evidence-base for select existing programs that address the maternal-child life course obesity cycle.

The *Preventing Childhood Obesity* report described the maternal-child life course obesity cycle. The cycle links a child's future obesity risk with the mother's weight before pregnancy and her weight gain during pregnancy. The obesity risk for the child is also linked with infant feeding practices, weight gain during infancy, and eating habits as a toddler and preschooler. If poor dietary habits and sedentary behaviors persist in early childhood, they can follow the child through adolescence to adulthood. The mother-child cycle is likely to then repeat when second generation females become pregnant and pass obesity onto the next generation.

The report suggested the following approach to break this cycle:

- "Improving nutrition, physical activity and body weight outcomes among women before becoming pregnant for the first time as well as during pregnancy and the postpartum period, and
- [Achieving] proper nutrition, physical activity and weight outcomes during the first five years of life and beyond."

  Related efforts should attend to the multiple systems and contexts--social, institutional, community, cultural and individual contexts--that influence the ability of individuals to follow a healthy lifestyle.

The Recommendations section identified 12 actions "to support women of reproductive age during the phases of prepregnancy, pregnancy and mothering of infants and toddlers." Eight of the actions came from the research findings and four originated from the 2011 Institute of Medicine (IOM) Report on Early Childhood Obesity Prevention Policies (Table 1). Because the impact is known to be greatest in the early years, the report further suggested focusing on the youngest children ages birth to three. To advance efforts for reducing the risk of early childhood obesity in Connecticut, the following action step was recommended:

> "*Promote and support the adoption and dissemination at scale of evidence-based programs targeting early childhood obesity prevention to meet the need statewide, based on an analysis of current programs in Connecticut and effective national models*."

[1] Pérez-Escamilla, R., Meyers, J. Preventing Childhood Obesity: Maternal-Child Life Course Approach. Farmington, CT: Child Health and Development Institute of Connecticut, 2014.

This report serves as preliminary research for this action step. Research conducted focused primarily on select initiatives described in the *Preventing Childhood Obesity* report, as well as one additional program identified during the course of the project. A description of the analytic approach and a summary of findings is presented here along with recommendations.

Table 1. Action Steps to Break the Maternal-Child Life Course Obesity Cycle

Actions linked to research findings	***2011 IOM Report on Early Childhood Obesity Prevention Policies***
1) Provide women with the knowledge, skills and environments that will allow them to avoid being overweight or obese before becoming pregnant… 2) Dietary interventions during pregnancy… based on a well-balanced diet, counseling and self-monitoring. 3) Support women's efforts at losing excessive weight retention during the postpartum period. 4) Provide for screening and offering behavioral counseling for quitting cigarette smoking among women of reproductive age. 5) Strongly support evidence-based breastfeeding programs and policies related to maternity leave, nursing breaks at work and marketing of infant formula. 6) Parents, health care and child care providers need to be made aware of the importance of maternal dietary choices starting in pregnancy and in infancy with recommended techniques to expose infants and young children… to low salt and low added sugar diets rich in fruits and vegetables. 7) Develop culturally tailored parenting programs that cover recommended infant and toddler feeding behaviors and parental feeding styles that protect young infants and toddlers against the subsequent development of obesity. 8) Establish health food preferences in toddlers and preschoolers by repeatedly exposing children to "new" healthy foods alone or in combination with other foods already accepted in an environment where caregivers and peers are also consuming healthy foods.	1) Health providers should assess, monitor and track growth beginning at birth. 2) Promote physical activity and reduce sedentary activity for children in child care and community settings. 3) Ensure access to affordable healthy food in all neighborhoods. 4) Promote age appropriate sleep durations.

Approach

The evidence review was designed with consideration to the future goal of a searchable database with enough detail to enable policymakers to identify programs with the most promise.

Rating the evidence. Definitions of evidence-based programs vary significantly. In the most strict sense (e.g., Community Preventive Services Task Force, the U.S. Department of Agriculture Nutrition Evidence Library, and Cochrane Collaboration), evidence-based programs

are rigorously evaluated, requiring study designs and execution consistent with reducing bias and establishing a causal effect, documentation of desired outcomes and effect size, and replication of results. Such assessments are often limited to randomized controlled trials and consistent desired outcomes must be found across multiple studies. This strict approach to defining evidence would rule out many public health and social interventions because of the feasibility and resource constraints faced to conduct the most rigorous, well-controlled evaluations.

For this project, the evidence ratings take a less restrictive approach. The approach is based on the best practice categories and criteria used by the Association of Maternal & Child Health Programs (AMCHP).[2] The AMCHP classifies programs into three categories, Emerging Practice, Promising Practice or Best Practice as shown in Table 2 below. The criteria for Emerging Practice is especially helpful because it recognizes programs taking a novel approach and rooted in current theoretical foundations, guidelines or effective models so long as a quality improvement process and evaluation plan are in place. The Promising Practice category captures those programs that meet the Emerging Practice criteria and have strong evaluation data demonstrating program effectiveness. Best Practices, which are less common, meet the Emerging and Promising criteria plus have shown replicability of results in many settings, have been peer reviewed and the positive results are linked to practice.

Table 2. Association of Maternal & Child Health Programs Categories and Criteria

Emerging Practice	Promising Practice	Best Practice
• Uses a novel approach or incorporates theoretical foundations • Based on guidelines, effective models • Incorporates continual quality improvement • Evaluation plan in place	• Strong evaluation data presented, which demonstrates effectiveness	• Program has been peer reviewed • Replicable in many settings • Positive results linked to practice

From: http://www.amchp.org/programsandtopics/BestPractices/Pages/BestPracticeTerms.aspx

Intervention Selection. The programs included in this report were selected from 13 known Connecticut-based and national interventions identified in the previous report. This list was narrowed to the six programs that focused on pregnant mothers or infants and toddlers (0-3) and their families. In the hopes of identifying additional initiatives in Connecticut and nationally, a post was sent out on the list serve of the Society for Nutrition Education and Behavior. This effort led to identification of one additional program, NEEDs for Tots. A request was sent to CHDI childhood obesity workgroup participants asking them to forward an email to encourage

[2] Best Practice Categories and Criteria. Association of Maternal & Child Health Programs. Retrieved February 5, 2015 from http://www.amchp.org/programsandtopics/BestPractices/Pages/BestPracticeTerms.aspx

their colleagues to share if they knew of programs. From this request we learned about the CT 10 Step Collaborative and EASTCONN Early Head Start program efforts. However, these programs shared only program-related information and not the level of detail necessary for the evidence review.

Discussions were also held with staff from the Connecticut Department of Public Health (DPH) breastfeeding program and WIC program, and at the statewide Early Head Start Meeting and Sharing, which included representatives from at least 8 of 16 Early Head Start programs located throughout the state. In the discussions, participants described a wide range of activities and resources used to address nutrition and physical activity during pregnancy and early childhood. There also appeared to be significant heterogeneity in strategies used across Early Head Start programs. Additional time would be needed to research the evidence-base and effectiveness of efforts coordinated through these programs. Therefore, activities through Early Head Start and DPH, including WIC, are not included in the evidence review.

Identifying Evidence. The evidence for seven interventions was evaluated using a combination of information submitted by contact person(s) administering the intervention, reviews of the research literature and evaluation reports, and supplemental internet searches. Program submission forms used for the evidence review were received from contact persons for four programs: The Early Childhood Obesity Prevention Program (ECHO), NEEDs for Tots, Steps to Growing Up Healthy, and the Hispanic Health Council's Breastfeeding Heritage and Pride. This form is located in the Appendix. For these programs, a search of the scientific literature and the internet were conducted to identify evaluations, white papers and related intervention descriptions. Reviews for another three programs—the UNICEF/WHO Baby-Friendly Hospital Initiative, Secrets of Baby Behavior, and Nutrition and Physical Self-Assessment for Child Care—Baby (Baby NAP SACC), were evaluated without a program submission form. The Baby-Friendly Hospital Initiative review relied on the research literature and supplemental internet searches. The Secrets of Baby Behavior incorporated the Fit WIC Baby Behavior Study[3] and supplemental internet searches. The Baby NAP SACC included information obtained from the research literature and through correspondence with the project lead.

[3] Heinig M. J., Bañuelos J, Goldbronn J, Kampp J. (2009). Fit WIC Baby Behavior Study "Helping you understand your baby." California WIC Program Final Report. UC DAVIS Human Lactation Center. Retrieved February 5, 2015 from http://www.nal.usda.gov/wicworks/Sharing_Center/spg/CA_report2006.pdf

Table 3. Use of Program Submission Form for Evidence Review	
Program Submission Form	**Without Program Submission Form**
• Steps to Growing Up Healthy • NEEDs for Tots • The Early Childhood Obesity Prevention Program • Hispanic Health Council Breastfeeding Heritage and Pride	• Baby-Friendly Hospital Initiative • Secrets of Baby Behavior • Nutrition and Physical Self-Assessment for Child Care—Baby

The program submission form was designed with the goal of obtaining adequate information to:

1) Summarize program characteristics,
2) Support database searches using criterion such as health outcomes and target population,
3) Assess the evidence-base for the program using the AMCHP criteria, and
4) Facilitate use of collected data by the Yale-Griffin Prevention Research Center PHINDER.

Submission protocols for the Yale-Griffin Prevention Research Center PHINDER (Promising Health Interventions Inventoried by a Network of Diverse Experts for Regional Application) and AMCHP were reviewed. PHINDER is intended as "a clearinghouse of promising and best practices for health promotion in various settings."[4] To assess the evidence-base of a program and evaluate it using the AMCHP criteria, the AMCHP best practice submission form was the most appropriate template. Items were cross-referenced with PHINDER to confirm that a completed submission would simultaneously provide information for use in that database. Form modifications were made to reflect the age group and intervention categories of interest. This initial assessment also afforded the opportunity to explore the effectiveness and potential sustainability of using the program submission form in the future.

Evidence Review.

For this review seven initiatives were identified as early childhood obesity prevention initiatives with a maternal-child life course approach. These interventions touch on 7 of the 12 action steps described in *Preventing Childhood Obesity*. For example:

- Baby-Friendly Hospital Initiative supports breastfeeding programs and policies related to inappropriate marketing of infant formula (Action #5).

[4] PHINDER Database | Yale-Griffin Prevention Research Center. Retrieved October 24, 2014 from http://www.yalegriffinprc.org/Community/PHINDER

- Baby-Friendly Hospital Initiative, NEEDs for Tots, Baby NAP SACC, Secrets of Baby Behavior and others further efforts to make parents, health care and child care providers aware of the importance of maternal dietary choices beginning in pregnancy and infancy and/or address techniques to orient infants and young children to recommended foods (Action #6).
- NEEDs for Tots, Secrets of Baby Behavior, the ECHO Program and Steps to Growing Up Healthy address infant and toddler feeding behaviors and parental feeding styles that protect against the later development of obesity (Action #7).
- Baby NAP SACC, NEEDs for Tots and Secrets of Baby Behavior facilitate establishing health food preferences in the early years through repeat exposure to "new healthy foods" alongside caregivers and peers consuming those foods. (Action #8)

In addition, the IOM action steps are addressed somewhat by Baby NAP SACC, Steps to Growing Up Healthy, and the ECHO Program.

Table 4 identifies an Association of Maternal & Child Health Programs' best practice category (Emerging Practice, Promising Practice, or Best Practice) for each initiative and an explanation of the category selected based on the evidence review. For each initiative, the source, target population, health focus, level of change and setting are also listed. None of the initiatives reviewed received a Best Practice designation. Three programs, the Baby-Friendly Hospital Initiative, the Breastfeeding Heritage and Pride Program, and Steps to Growing Up Healthy met the criteria for Promising Practice. The NEEDs for Tots program met the criteria for an Emerging Practice and the remaining three programs received a provisional designation as an Emerging Practice. Provisional status was given because at the time of writing the report compelling evidence was available for all but one Emerging Practice criterion.

For the interventions included in this review, toolkits or dissemination materials are available for four of them: two Promising Practices (Baby-Friendly Hospital Initiative and the Breastfeeding Heritage and Pride Program), one Emerging Practice (Needs for Tots) and one provisional-Emerging Practice (Secrets of Baby Behavior). At the time of this review, no evidence was identified that suggests NEEDs for Tots, which is geared towards healthy nutrition in the early care setting for infants and toddlers, has been implemented in Connecticut. The other three programs are fully or partially in use in Connecticut and breastfeeding or infant feeding is a focus of these programs. Notably, each of these infant feeding programs approaches the topic differently. One focuses on institutional change in the hospital setting, one delivers peer counseling prenatally through postpartum in the home and hospital setting, and one focuses on provider and maternal understanding of baby behavior to remove barriers to appropriate infant feeding.

Table 4. Evidence Review of Select Early Childhood Obesity Prevention Initiatives			
Initiative	**Best Practice Category**	**Explanation**	**Ready for Dissemination**
Baby Friendly Hospital Initiative (BFHI) **Source:** WHO/UNICEF. Baby-Friendly USA oversees process in the United States. **Population:** Perinatal Women **Focus:** Breastfeeding **Level of change:** Institutional; Individual **Setting:** Birthing hospitals	Promising Practice	At a minimum Baby-Friendly Hospital Initiative meets the Emerging Practice criteria. The BFHI is a novel approach launched by the World Health Organization and UNICEF in 1991. BFHI encourages birthing hospitals to pursue and maintain "Baby-Friendly" designation by meeting the UNICEF/WHO *Ten Steps to Successful Breastfeeding*. The *Ten Steps*, which drive the BFHI, were developed by a team of global experts and are described as evidence-based. Continual quality improvement and evaluation plans are key components of the Baby-Friendly designation process. A Promising Practice designation is given with some reservations. A causal effect between BFHI designation and breastfeeding outcomes is not well established in the research literature. There are, however, at least a few examples of well-designed international studies; but generalizability of impact from one study country or population to another, such as the United States, is questionable. At least one quasi-experimental U.S.-based study found *higher rates of initiation and exclusive breastfeeding for mothers with lower education who delivered in BFHI facilities, compared to non-BFHI facilities. However, overall differences in initiation and exclusive breastfeeding for ≥4 weeks were not found.*[5]	Yes

[5] Sherburne Hawkins S, Stern AD, Baum CF, Gillman MW. Evaluating the impact of the Baby-Friendly Hospital Initiative on breast-feeding rates: a multi-state analysis. Public Health Nutrition 18(2): 189-197.

Breastfeeding Heritage and Pride Program **Source:** Hispanic Health Council (Connecticut) **Population:** Prenatal and post-partum low-income women **Focus:** Breastfeeding **Level of change:** Individual **Setting:** Hospital, Home	Promising Practice	This Connecticut-based breastfeeding peer counseling program, developed through formative research with community members, is recognized by the Centers for Disease Control and the Institute of Medicine. A Promising Practice designation was given based on the published results from a randomized controlled trial (RCT).[6] Although peer- reviewed with positive results linked to practice, documentation of the success of this approach in other settings was not submitted. Documented success in other settings is needed for the Best Practice designation.	Yes
Steps to Growing Up Healthy **Source:** CT Children's Medical Center/UCONN Center for Health, Intervention and Prevention (CHIP) **Population:** Older toddlers (24-36 months) and their mothers **Focus:** Healthy weight, Physical activity, Nutrition **Level of change:** Individual **Setting:** Health care	Promising Practice	*Steps to Growing Up Healthy* meets the Emerging Practice criteria and likely meets the Promising Practice criteria. Only an abstract for a submitted manuscript was provided for review. The evidence appears fairly strong, showing a decreased rate of rise in BMI percentile in young children. The comparison group used is a historical control group of mother/child dyads from the same clinic matched based on similar age and sex. *Steps* is a novel approach integrating brief motivational counseling within standard clinic visits. A toolkit and training is offered to clinicians. AAP recommendations were used to form the behavioral targets and the core behavior change techniques used rely on the behavioral weight loss literature (e.g., Diabetes Prevention Program, Look AHEAD).[7]	Not ready for dissemination at this time.

[6] Chapman DJ, Damio G, Young S, Pérez-Escamilla R. Effectiveness of breastfeeding peer counseling in a low-income, predominantly Latina population: a randomized controlled trial. Arch Pediatr Adolesc Med. 2004; 158(9): 897-902.

[7] M. M. Cloutier, MD (email communication, January 14 2015)

NEEDs for Tots **Source:** Pennsylvania State University NEEDs Center (Nutrition Education Engineering & Designs) **Population:** Older toddlers (24-36 months) and families of newborns, infants and toddlers **Focus:** Healthy weight, Nutrition **Level of change:** Individual **Setting:** Early Care & Education	Emerging Practice	*NEEDs for Tots* (NFT), "a colorful literacy-sensitive curriculum for preschoolers and parents/caregivers based on the Satter Division of Responsibility in Feeding"[8] meets the Emerging Practice criteria. NFT has a strong theoretical foundation and links to the current evidence-base. Formative and process evaluations are a significant part of curriculum development, validation and delivery. Early childhood education provider satisfaction with the materials and related trainings were high. Outcome evaluation is underway and impact evaluation is planned. If positive outcomes on learning and/or behaviors are measured, this practice would be considered a Promising Practice.	Yes
The Early Childhood Obesity Prevention Program (ECHO) **Source:** CT Children's Medical Center/UCONN CHIP with Hartford Childhood Wellness Alliance **Population:** Newborns to young toddlers (0-23 months) and their mothers **Focus:** Healthy weight, Physical activity, Nutrition,	Provisional Emerging Practice	The ECHO Program is a novel multi-level intervention that builds on an existing home visiting program in Connecticut, the Nurturing Families Network. ECHO focuses on the mother as the agent of change for the newborn infant while incorporating the family, neighborhood and community for support. "The study builds upon an existing home visiting program for newborns, utilizes Brighter Futures Family (BFF) Centers to promote healthy cooking and shopping, to reduce sugar sweetened beverage/juice consumption and to increase physical activity, and is linked to a program in grocery/corner stores that promotes quality food choices including greater access to fresh fruits and vegetables."[9] Although a process for quality improvement and evaluation plan exist, a clear definition of how the current evidence-base is being used or modified for use in the ECHO Program	Not ready for dissemination at this time.

[8] B. Lohse, PhD (program submission form, January 9, 2015)
[9] M.M. Cloutier, MD and A. Gorin, PhD. (program submission form, December 1, 2014).

Breastfeeding, Healthy sleep habits, Infant cues **Level of change:** Multi-level **Setting:** Home, Community		is needed for full designation as an Emerging Practice.	
Secrets of Baby Behavior **Source:** U.C Davis Center for Human Lactation. CT use by WIC, UConn Health, DPH, Opportunity Knocks **Population:** Parents and providers of newborns/infants (0-23 months) **Focus:** Infant feeding and cues, Breastfeeding, Healthy weight **Level of change:** Individual, Institutional (potentially) **Setting:** Health, Social Service, or Early Care. Originally WIC.	Provisional Emerging Practice	*Secrets of Baby Behavior* (Baby Behavior) likely meets the Emerging Practice criteria but is given the "Provisional" designation because use of guidelines, protocols or preferred practice patterns is unverified. *Baby Behavior* takes a novel approach by applying traditional marketing techniques to infant feeding practices and focuses on removing barriers to appropriate infant feeding, rather than increasing motivation. Quality improvement and an evaluation plan were a clear component of the initial Fit WIC Baby Behavior study. Quality improvement efforts addressed participant handouts, participant workshops and staff trainings. Using cross-sectional data, the Fit WIC Baby Behavior study observed a positive association between the intervention and positive infant feeding behaviors in the postpartum period as measured by a larger increase in distribution of the exclusive breastfeeding package compared to non-intervention sites (6% vs. 1%). Fewer infants' weight-for-age exceeded the 95th percentile. The quality of the data from this study may not be strong enough to qualify this program as a "Promising Practice." Confirmations on the effectiveness or quality improvement work for replication efforts by the California WIC Program and Baby Behavior initiatives in Connecticut were not successfully obtained.	Yes
Nutrition and Physical Self-Assessment for Child Care—Baby (Baby NAP SACC) **Source:** Duke University and	Provisional Emerging Practice	Baby NAP SACC likely meets the Emerging Practice criteria but is given the "Provisional" designation because additional information on quality improvements efforts is needed for full designation as an Emerging Practice. Baby NAP SACC is a novel approach that addresses the nutrition and physical activity environment within child care centers serving infants and toddlers. Like its predecessor, NAP	Not ready for dissemination at this time.

the University of North Carolina at Chapel Hill **Population:** Infants/young toddlers (1-23 months), their child care providers, and potentially families **Focus:** Healthy weight, Physical activity, Nutrition, Breastfeeding **Level of change:** Institutional **Setting:** Early Care/Education		SACC, the Baby NAP SACC includes a self-assessment instrument of nutrition and physical activity questions based on eight policy and practice intervention areas likely to promote a healthy weight. The self-assessment is designed to spark intervention at centers by highlighting the best practice response. Technical assistance is also provided to choose focus areas for improvement and train staff on feeding and physical activity strategies for infants and toddlers. A pilot study RCT in 2 licensed centers showed greater improvements in Environment and Policy Assessment and Observation (EPAO) scores at intervention centers. [10] Another RCT is in progress which includes child-level outcomes (i.e., child dietary intake, physical activity, and two adiposity measures: weight-for-length and skinfold thickness). [11]	

[10] Benjamin Neelon SE, Taveras EM, Østbye T, Gillman MW. Preventing Obesity in Infants and Toddlers in Child Care: Results from a Pilot Randomized Controlled Trial. Matern Child Health J. (2014) 18: 1246-1257.

[11] Baby NAP SACC Intervention Study (BABY NAP SACC). ClinicalTrials.gov *A service of the U.S. National Institutes of Health*. Retrieved December 19, 2014, from https://clinicaltrials.gov/ct2/show/NCT018906811

Future Directions

The research conducted for this report identified the evidence-base for seven interventions that take a maternal-child life course approach to preventing childhood obesity, with a focus on the first three years of life. Through this work, three Promising Practices, one Emerging Practice and three provisional Emerging Practices were identified. In addition, the research process undertaken for this project lent clarity to how policy makers, advocates and others in Connecticut can move forward in expanding on this evidence-review and scaling up the most promising interventions in a way that best maximizes efforts to prevent early childhood obesity.

Connecticut efforts should focus on:

1. Conducting a needs assessment,
2. Establishing a refined evidence review process and completing additional reviews,
3. Increasing the evidence-base for new and existing interventions, and
4. Considering program fidelity and adaptation when implementing.

Conduct a needs assessment. The needs assessment should incorporate stakeholder interviews and facilitated discussions held throughout the state. As a first step, discussions should include programs and entities reaching women during pregnancy through postpartum, as well as programs providing health, social or educational services to children from birth to age three.

Reason. During this evaluation project, it became clear that research is needed to discover Connecticut-based ongoing and historical efforts to prevent early childhood obesity. This information is essential not only for identifying potential interventions to evaluate, but especially for deciding how to enhance efforts in the state moving forward. A needs assessment can inform us how Connecticut is meeting the Action Steps in Table 1. It can identify gaps in reach or scope, where systems-level changes can be made, and potential opportunities for advancing collaborations across different programs. In the absence of a needs assessment, the benefit of identifying an evidence-based program is limited because it cannot be brought to scale in Connecticut without knowing the extent to which it is being or has already been implemented. For example, the Baby-Friendly Hospital Initiative was designated as a Promising Practice ready for dissemination. Before making recommendations, however, there is a rich history of Baby-Friendly work in the state that needs to be weighed.

Refine evidence review process and future reviews. Additional interventions should be identified and reviewed. Prior to such review, it may be beneficial to revisit the best practice criteria for Emerging Practice and to simplify the project submission form prior to reviewing additional interventions. Submission and interview processes might also be informed by parallel efforts such as SAMHSA's National Registry of Evidence-based Programs.[12]

[12] SAMHSA's National Registry of Evidence-Based Programs & Practices. Reviews & Submissions. Retrieved February 5, 2015, from http://www.nrepp.samhsa.gov/Reviews.aspx

Reason. This report served as a start to identifying evidence-based interventions for early childhood obesity prevention. There is a distinct need to identify additional interventions that cover the breadth of potential actions described in *Preventing Childhood Obesity*. For example, none of the initiatives evaluated address women's efforts at losing excessive weight retention during the postpartum period.

Lessons learned from this review can translate to future ones. The process used here adapted best practice criteria and categories from the Association of Maternal & Child Health Programs (AMCHP). Conducting reviews for the seven initiatives in this report required a significant amount of time by the reviewer and for some program contacts. For the project submission form, the level of detail provided in initial responses to open-ended questions and supplemental documentation varied substantially. In some instances, the level of detail offered by participating programs was not adequate to justify a given AMCHP criterion being met. This was often the case even after clarifications or further documentation had been requested. It may be possible to reduce some of these issues by creating a more formal interview process with a simplified submission form. Notably, not all programs or intervention contacts will be willing or able to submit the level of detail needed for an evidence review.

Increase the evidence-base. Funding should be leveraged and allocated to increase evaluation and quality improvement efforts for existing initiatives. The approach should be two-fold. First, programs should be offered to improve evaluation plans and integrate quality improvement processes in pre-Emerging and Emerging practices. Second, funding should be directed towards high-quality evaluations of Emerging and Promising practices.

Reason. Based on the evidence review conducted and conversations with staff from the Department of Public Health and Early Head Start, there is a distinct need for enhancing the evaluation methods used by existing programs. In many cases, minimal or no evaluation occurs for staff trainings, parent workshops or consultations, or other related activities. A targeted approach could be made to improve evaluation efforts in these or other programs. Notably, some distinct opportunities already exist to do this. For example, the WIC Program has improved data collection and tracking, while at the federal level Early Head Start is moving towards five-year program plans. Collaborations could be established and funding pursued to enhance evaluation.

Consider program fidelity and adaptation. When evidence-based interventions are rolled out for use or adapted, program fidelity or integrity should be considered. As interventions are applied, quality measurement and assessment procedures should be in place to ensure implementation protocols are followed. Adaptations, if made, would benefit from input from the program developer and should be based on a comprehensive understanding of the underlying program theory and the intent of the program components.

Reason. It is commonplace for practitioners in the field to borrow segments of an evidence-based curriculum or otherwise, sometimes unintentionally, deviate from the tested intervention design. Such changes or adaptations are generally untested and may produce different results than the tested intervention.

Conclusion

Preventing Childhood Obesity put forth the scientific evidence for a comprehensive maternal-child life course approach that could help reverse the rising rates of obesity in the earliest years of life. This report adds to that work by rating the evidence-base for seven existing interventions using the Association for Maternal & Child Health Programs best practice criteria. Although the interventions reviewed did not reach the highest levels of evidence for effectiveness, they each have a solid evidence-informed foundation with a quality improvement process and evaluation plan in place. Several of the interventions also have evaluation efforts underway that may improve upon the level of evidence within the next few years. These studies should be followed and the evidence for additional interventions should also be reviewed. Findings from this project suggest that Connecticut would benefit from a needs assessment identifying the ongoing and historical efforts for preventing obesity in the earliest years of life and supporting efforts to increase the evidence-base for new and existing interventions. As interventions are rolled out, program fidelity should be monitored.

Appendix

Dear:

Thank you for sending information about your program. Would you be willing to fill out the Project Submission Form? Completed forms are requested by December 1, 2014.

The additional level of detail requested sets the stage for understanding what types of programs already exist and how they work. It also provides an opportunity to show the evidence-base for your program. Findings will be used to promote and support the adoption and dissemination at scale of evidence-based programs targeting early childhood obesity prevention with a maternal-child life course approach.

To confirm whether you will submit the ***Project Submission Form*** or if you have any questions about this initiative, please contact Erin Havens via email: havens@uchc.edu or phone: 860-617-8097.

Please note there are two parts to the *Project Submission Form*. You are invited to complete Part One alone or with Part Two.

- **Part One** identifies the focus of your program and how it works. It will take about 15-20 minutes to complete.
- **Part Two** identifies theoretical rationales, evaluation results, the evidence-base and cost for the program. Programs meeting the Association for Maternal and Child Health Programs criteria, shown in the table below, will be designated as Emerging, Promising or Best practices***. Please submit this section if you think your program meets <u>any</u> of the criteria***. It is okay if you are unable to provide answers for some of the items.

Association of Maternal and Child Health Programs Categories and Criteria		
Emerging	**Promising**	**Best**
• Evaluation plan in place • Incorporates continual quality improvement • Based on guidelines, effective models • Incorporates theoretical foundations, or uses a novel approach	• Strong evaluation data presented, which demonstrates effectiveness	• Program has been peer reviewed • Replicable in many settings • Positive results linked to practice
From: http://www.amchp.org/programsandtopics/BestPractices/Pages/BestPracticeTerms.aspx		

PLEASE RETURN TO: HAVENS@UCHC.EDU BY DECEMBER 1, 2014.

Obesity Prevention Programs for Early Childhood (birth to 36 months) Program Submission Form (adapted from AMCHP[13])

PART ONE: IDENTIFYING PROGRAMS

1. Please fill in the table below, identifying the practice (program name) and website, if applicable:

Name of practice (program name)	
Duration of program (start-end date or ongoing)	
Website (if applicable)	
Submitted by (contact name)	
Organization	
Street address	
City, State, ZIP	
Email	
Phone	

2. Please provide a description/abstract of the practice you are submitting in 350 words or less which address the following: 1.) Project goals/key objectives 2.) Activities undertaken to develop the practice 3.) How was project/practice success measured?

3. Whose health is the intervention targeted to improve? *Check all that apply.*

☐Women of reproductive age, who are not pregnant
☐Women (pregnancy through postpartum)
☐Newborns (Birth to 1 month)
☐Infant/young toddlers (1-23 months)
☐Older toddlers (24-36 months)
☐Families of newborns/infants/toddlers

4. What is the primary issue focus(es) for your best practice? *Check all that apply.*

☐Healthy weight/obesity prevention
☐Physical activity
☐Nutrition
☐Breastfeeding
☐Healthy sleep habits
☐Other (please specify):

[13] Association for Maternal Child Health Programs

5. What type of intervention approach is used? ***Check all that apply.***

☐Direct education of target population ☐Provider training*
☐Web-based education ☐Social marketing
☐Other (please specify):

*If provider training, list provider types:

6. What level(s) of change does the intervention target? ***Check all that apply.***

☐Individual ☐Institutional ☐Community ☐Multi-level

7. Where is the intervention delivered? ***Check all that apply.***

☐Home
☐Neighborhood
☐Faith-based
☐Worksite
☐Health care setting
☐Social service setting
☐Early child care and education setting
☐Other (please specify):

8. Who receives the intervention delivered? ***Check all that apply.***

☐**Newborn/infant/toddler (direct)**

Indirectly through:
☐Social service providers of
☐Healthcare providers
☐Family member(s) of
☐Early child care and education providers of

☐**Pregnant or postpartum women (direct)**

Indirectly through:
☐Social service providers of
☐Healthcare providers of

☐**Other** (please specify):

9. Please provide information about the location of the practice - i.e., is the practice state-wide or in one area of the state/community? What is the approximate sample size?

10. Who delivers the intervention? If applicable, how are they trained?

11. How long does it take to deliver the intervention? What is the necessary "dose" for the intervention to be effective?

12. What products/resources resulted from your practice (e.g., standard curricula, website, published article, agency report, brochures, online toolkit, etc)? ***Provide links to resources as relevant.***

13. If materials or curricula were created, are they available for use by others? What, if any cost is associated with external use of the materials or curricula? Please indicate if not applicable.

14. Did this practice involve collaboration? ☐Yes ☐No If yes, who were your partners?

15. Please indicate if you are completing Part Two of this form. ☐Yes ☐No

IF YES, PLEASE CONTINUE ON NEXT PAGE.

PART TWO: IDENTIFYING THE EVIDENCE-BASE.

Part Two is designed to identify programs at the three levels of evidence used by the Association for Maternal and Child Health Programs. Many programs may not be ready to provide all the information requested. Please answer as best you can.

16. Does this initiative have an evaluation plan in place? ☐Yes ☐No

17. What is the theoretical foundation (e.g., Social Change Theory) for your practice? List any theories used, and explain how they were applied. If multiple theories were used, explain how they fit together to form the basis of your practice. Provide citations and/or websites as relevant.

18. Did you base your practice on existing tools (guidelines, protocols, models or standards such as Bright Futures guidelines)? ☐Yes ☐No If so, please list which ones and how they were used in the practice. Provide citations/websites as relevant.

19. If yes to #17 or 18, how did you adapt these tools to your practice? Be specific about changes to the model that were made, portions that were not used, and why adaptations were made.

20. Has an expert/peer review process determined your practice to have significant evidence of effectiveness (e.g., journal, conference presentations, CDC Best Practice, AMCHP Best Practice, etc)? ☐Yes ☐No As relevant, list commendations or evidence reviews with citations/weblinks.

21. Describe your evaluation process in 350 words or less, including short term and long term outcomes that were measured. Explain the methods of evaluation such as whether you used a control group, how people were selected to participate in the practice, and the potential biases of this process. If available, include a copy or link to a copy of the evaluation.

22. What type of outcomes did you measure? Check all that apply.

☐Individual knowledge ☐Individual attitude ☐Individual behavior ☐Weight-related
☐Environmental ☐Policy ☐Other (please describe):

23. What were the results of your practice? Be specific, including both short-term and long term outcomes. If available, please provide data (e.g., through use of control group, etc) demonstrating that outcomes were achieved by your practice and not due to outside factors.

23. Has your practice been replicated (e.g., in other settings and/or with other populations)? If yes, please note where and by whom.

24. What is/was your process of quality improvement? Indicate if not applicable.

25. Please provide a calculation of cost per client for the intervention. ***Indicate if not available.***

THANK YOU FOR COMPLETING THE PROJECT SUBMISSION FORM!