

**Date:** April 6, 2018

**Study Title:** Clearing the Path to Hispanic Children's Health

**Principal Investigator:**

**Margarita Teran-Garcia MD, PhD, FTOS**

Research Assistant Professor Hispanic Health Programs  
Extension Specialist Hispanic Health Programs

University of Illinois Urbana-Champaign

2005 Christopher Hall

904 W. Nevada St.

Urbana, IL 61801

Phone: 217-244-2025

Email: [teranmd@illinois.edu](mailto:teranmd@illinois.edu)

## **PROJECT NARRATIVE    Clearing the Path to Hispanic Children's Health with a Community-Based Extension Curriculum and University Experiential Learning Course**

“*Abriendo Caminos*” could be translated as “Clearing the Path” and the implementation of this culturally sensitive, community-based extension curriculum (workshop) in 5 different locations across the country (California, Illinois, Iowa, Puerto Rico, and Texas) will help to train the next generation of professionals in Extension and communities to deliver programs that meet the needs of Hispanic families. The integration of Hispanic college students in program implementation via a University Experiential Learning Course (independent study with a structured curriculum) will further strengthen the program as well as increase recruitment and retention of Hispanic students, increasing the capacity of Hispanic communities to meet their own needs in the future.

**This integrated project will address knowledge gaps and barriers for successful implementation of childhood obesity prevention programs in Hispanics across the country.** This proposal targets 6-18 year-old children from Mexican and Puerto Rican-heritage families, which represent 74% of the US Hispanic population (Pew Hispanic Center, 2010). The proposed curriculum integrates socio-cultural and socio-ecological theory with elements of the health belief model to focus on behavior change through multiple levels of influence: individual, interpersonal, and community, with proven results (Hammons, Wiley et al. 2013).

Our multi-function integrated project proposes to (a) **Tailor an existing and successful community-based program to leverage effectiveness in promoting healthy nutrition and life-style behaviors among low income, low literacy Hispanic-heritage families** and (b) **Train existing professionals (in Extension and community agencies) and future professionals (Hispanic university students) to meet the specific needs of this population.** We aim to *adapt, implement and evaluate* the *Abriendo Caminos* community workshop-based curriculum across the country.

**Our central hypothesis** is that participation in a 6-week community-based program will significantly increase: (a) healthy dietary behavior patterns and basic knowledge of nutrition; (b) physical activity levels; and (c) the organization of collective/shared family mealtimes. Consequently, excessive weight gain or weight rate among participant children will be slower compared to non-participants. This project is based on the *Abriendo Caminos* pilot study that demonstrated an increase in healthy eating behaviors by building on elements of a traditional diet (Hammons, Wiley et al. 2013), and preliminary data (presented at conferences and under review) indicate improvements in family-meal quality and increased physical activity.

The *Abriendo Caminos* program was developed using best-practice principles for working with Hispanics, including: i) focus on the whole family at the site of intervention; ii) optimizing existing family strengths, building on everyday practices such as shared mealtimes, and iii) emphasis on low literacy, with accessible materials and focus on oral presentations and cultural relevance including emphasis on healthy traditional foods such as cactus (*nopales*), amaranth and legumes (beans). The **immediate beneficiaries** of our obesity prevention intervention will be children 6 to 18 year-old from Hispanic-heritage families.

**This integrated project will address knowledge gaps about successful implementation of childhood obesity prevention programs in Hispanics, improve outreach to this population, and seek improvements in recruiting, educating, and retaining Hispanic students in higher education.**

Our research, education and extension objectives are interdependent and mutually enriching.

**Research** objectives are to: 1) Identify prevailing factors influencing effective interventions on Hispanic children's unhealthy weight gain; 2) Adapt (culturally/regionally) and implement the proven *Abriendo Caminos* curricula to prevent childhood overweight/obesity (prevent excessive weight gain or weight rate); 3) Refine and expand our evidence-based nutrition curriculum (e.g. expanding focus on consumption of culturally relevant, affordable, and healthy foods such as legumes/dry beans).

**Extension** objectives are to: 1) Refine and develop low-cost and readily implementable curriculum that will be made freely available across the country for use by Extension and community educators, 2) Train Extension professionals, lay community members, agency staff, and college-students as facilitators to deliver the curriculum and Extension staff to serve in a train-the-trainer capacity in the future (supporting sustainability); and 3) Test the implementation of alternative culturally-appropriate instructional methodologies with implications for other Extension programming.

### CURRENT SITUATION/SIGNIFICANCE.

The high prevalence of early onset obesity is of great concern from a public health perspective (**Table 1**), in part because of the strong persistence of childhood obesity into adulthood and given relation of childhood obesity to adult metabolic complications and other clinical comorbidities.

Obesity has many health, social, psychological, and economic consequences including a shorter life expectancy than previous generations and increased healthcare costs accounting for 6.7 to 10.7% of total U.S. annual medical expenditures and up to \$147 billion dollars (Trogdon, Finkelstein et al. 2012). Because up to 70% of obese adolescents grow up to become obese adults (Whitaker, Wright et al. 1997, Freedman, Khan et al. 2001, Wang, Chyen et al. 2008), there are high costs to health and to the country. Still, recent data suggest that there is a window of opportunity to effectively impact the weight status of a child during childhood (Danielsson, Kowalski et al. 2012).

AGE group:	2-19 y (all)			6-11 y (target population)			12-19 y (target population)		
	ALL	NHW	Hispanic	ALL	NHW	Hispanic	ALL	NHW	Hispanic
<b>Overweight or Obese (BMI for Age <math>\geq</math>85th Percentile of the CDC Growth Charts)</b>									
All	31.8	28.5	38.9	34.2	29.4	46.2	34.5	31.2	38.1
Boys	32.0	27.8	40.7	33.2	26.5	48.7	35.1	31.5	39.6
Girls	31.6	29.2	37.0	35.2	32.7	43.6	33.8	31.0	36.5
<b>Obese (BMI for Age <math>\geq</math>95th Percentile of the CDC Growth Charts)</b>									
All	16.9	14.1	22.4	17.7	13.1	26.1	20.5	19.6	22.6
Boys	16.7	12.6	24.1	16.4	8.8	28.6	20.3	18.3	23.9
Girls	17.2	15.6	20.6	19.1	17.9	23.4	20.7	20.9	21.3

**Table 1:** Prevalence of High BMI ( $\geq$  85<sup>th</sup>tile of the CDC growth charts) for Children, 2 to 19 years, by sex and age. Contrast of all race/Hispanic origin groups (ALL) with Non-Hispanic Whites (NHW) and Hispanic origin (Hispanic) groups, US (2011-2012). Modified from: (Ogden, Carroll et al. 2014).

## ONGOING ACTIVITIES & PREVIOUS WORK

Our team has the background and expertise to develop a program tailored to addressing the high obesity weights in Hispanic children. Our proposed curriculum would be developed in Illinois and implemented here as well as at each of the 4 partner sites (California, Texas, Puerto Rico and Iowa). PDs at each site have relevant expertise and will be responsible for implementation. We have received letters of support from collaborators and faculty at other academic institutions indicating their interest in the program and curriculum. We also integrated an internal and external Advisory Board and included their roles in our management plan.

Our **DISSEMINATION** plan includes partnerships with stakeholders (LULAC), the Family Resilience Center at Illinois and professional societies to expand the reach of dissemination and insure participation from multiple disciplines. Dr. Teran-Garcia's engagement with the Obesity Society (Council member) and the American Society for Nutrition (Minority Affairs Committee) will be relevant for dissemination. Dr. Wiley's activities as an Extension Specialist and with the National Council for Family Relations (chair of the International Families section) will also aid marketing and disseminating the resulting curriculum. The purposeful selection of professional societies across multiple disciplines will encourage greater collaboration among academic institutions across the nation to address high priority **AFRI/NIFA needs in childhood obesity prevention**, including human nutrition and family science.

## PROPOSED PROJECT

We will adapt, implement and evaluate the *Abriendo Caminos* curriculum in 5 locations in partnership with Extension staff and their community partners. In addition, we will develop a curriculum template for an experiential learning course to integrate Latino/Hispanic students in community participatory research and programing in all participating locations.

Our overarching goal is to **tailor an existing and successful Extension community-based program, *Abriendo Caminos*, to further improve its effectiveness in promoting healthy nutrition and life-style behaviors among low income, low literacy Hispanic-heritage families and to formalize an associated experiential learning program for Hispanic College-level students.** Specific aims include:

**Aim 1:** Adapt the *Abriendo Caminos* curricula (culturally/regionally) across the country among Hispanic groups with different cultural histories and social realities. Tasks include:

- a) Conduct structured interviews and focus groups with community members, and
- b) Identify barriers, facilitators (promotive factors), and specific motivators to improve implementation and efficacy of community obesity prevention program among Hispanics.

**Aim 2:** Implement and evaluate the newly adapted *Abriendo Caminos* curricula. Specifically, the goal is to use the curricula to:

- a) Prevent development of overweight/obesity or maintain healthy weight in 6 to 18 year-old children from Hispanic-heritage families, and
- b) Evaluate the impact of our evidence-based nutrition and behavioral modification curriculum in weight maintenance and obesity prevention in Hispanic children and their families.

### Specific Aim 1

Adapt the *Abriendo Caminos* curricula (culturally/regionally) across the country to adjust content and delivery methods for cultural and regional differences within the larger Hispanic community. The associated **tasks** to accomplish this aim include:

- a) Conduct structured interviews followed by focus groups with Hispanic community members.
- b) Identify barriers, promotive factors, and specific motivators to improve implementation and efficacy of community obesity prevention programs.

### Introduction

The activities of Aim 1 are designed to provide information for tailoring the curriculum to meet the needs of diverse Hispanic audiences (varying, for example, by culture-of-origin and ethnic density of selected US community). We will employ methodologies that are appropriate for our target audience. We will use structured measures that are psychometrically sound for Hispanic respondents, in many cases adopting those used in the SOL study (Isasi, Carnethon et al. 2014) and those validated instruments used by other USDA-sponsored programs (de la Torre, Sadeghi et al. 2013) or the National Collaborative on Childhood Obesity Research (NCCOR) catalogue of surveillance systems and measures registry (McKinnon, Reedy et al. 2012). In the focus groups (2 to 4 groups at each site, with 8-10 participants per group), we intend to identify barriers, promotive factors, and specific motivators that could improve efficacy and implementation of the *Abriendo Caminos* program. Barriers are defined as factors that inhibit parents' ability to identify what is a healthy or unhealthy weight gain in their children, attend meetings and meet the goals of prevention programs. Promotive factors are defined as elements that foster parents' ability to provide access to nutritious food, physical activity opportunities, and shared mealtimes. Motivators are defined as factors that influence parents to participate in obesity prevention programs and implement a healthier lifestyle. We will also ask focus groups to discuss traditional culturally relevant foods -such as dried beans, amaranth, cactus (*nopales*)- whether these are available and consumed in their families and communities as well as any barriers and promotive factors that may influence consumption or preparation of these in the future.

### Experimental design

Aim 1 activities will be coordinated by each regional program director (PD) to assist in tailoring the program to meet the specific needs of target communities. At each of the participating sites, we will recruit Hispanic community members (~10 each in Illinois and California where the original *Abriendo Caminos* collaborators are working and ~20 each at the currently incorporated sites –Texas, Puerto Rico and Iowa). Based on our *Abriendo Caminos* work, the questions in the structured surveys will be administered as oral interviews, -with bilingual assistants- to accommodate potentially low levels of literacy, assure comprehension, and optimize completion rates (**Table 2** has the list of instruments used to construct the survey). Upon completion of the interviews, participants will be assembled into focus groups of about 8-10 persons each. Focus groups have been used with ethnic minority populations to better understand health behaviors (Sonneville, La Pelle et al. 2009) and with low-income ethnic minority populations in the development of obesity prevention programs (McGarvey, Collie et al. 2006). The focus group methodology is “particularly well suited for research [with] low socioeconomic status women of color because: (a) they are communitarian and multi-vocal, (b) they generally feel safer than one-on-one interviews, and (c) the conversation is controlled by the participants” (McGarvey, Collie et al. 2006).

We will use a semi-structured protocol (Sonneville, La Pelle et al. 2009) to elicit detailed information about barriers and promotive factors related to participation in health programming, engagement in health-related behaviors such as healthy eating and physical activity. Examples of some questions in the focus group protocol include: When do your children eat and who feeds them?; How do you get your children to eat? Who does the cooking in your home?; Who does the grocery shopping in your home?; In the past few months, has anyone made changes in the way they shop or cook?; Do you think you could change the way you cook, shop and eat?; What do your children eat after school? What types of snacks do they eat?; How do you motivate your child to eat healthful foods?; How many of you set or try to set limits on when or what your children should eat?; What kind of limits? How do you do it (e.g., do you use rules)? (Martinez, Rhee et al. 2014). The data obtained will contribute to adapt and culturally tailor the intervention.

**Table 2 – Instruments**

Construct
Demographics
Socioeconomic Status
Socio-cultural factors (e.g., Hispanic origin, immigration history, acculturation, acculturative stress)
Perceptions of Child Weight and Health
Intentions to Modify Health Environment
Family Health Behaviors and Access (includes food security and access to grocery stores)
Neighborhood Safety
Home Environment and Food Environment
Physical Activity environment

Implementation will be staggered, beginning in Illinois where we have developed the program and followed in California where an original team member (Hammons) will lead the effort. All focus groups will be digitally recorded and transcribed verbatim. We will check transcripts against the voice recordings to confirm accuracy of the transcripts. Following this qualitative thematic analysis approach, we will code specific research questions (barriers, promotive factors and motivators) with the goal of producing a detailed tailoring (culturally-sensitive) of our obesity prevention program. Possible limitations of this approach would include local problems in assuring simultaneous attendance of focus group participants and facilitator bias. However, we will minimize these problems by flexible scheduling and adequate training and direct supervision of participating sites.

**Expected Outcomes** of this activity include optimization of curriculum tailoring and a report that identifies and contributes to our understanding of the local barriers, promotive factors, and motivators to increase participation in our *Abriendo Caminos* workshop (**Aim 2**). Results of this activity will be shared with participating teams during the annual meeting, as explained in the management plan. Therefore, program directors (PDs) in collaborative sites will be able to participate in feedback and learning experiences, to simplify their field work in the next cycle(s). A “Lessons learned” report will be submitted for peer-review publication, with leadership of PDs at each performance site. The timeline and staggered distribution for survey and focus groups is indicated the management plan.

### Specific Aim 2

Implement and evaluate the newly adapted *Abriendo Caminos* curricula to reduce Hispanic childhood overweight/obesity prevalence, and excessive weight gain by influencing children's consumption of fruits and vegetables and sugar-sweetened beverages, their physical activity, and the organization of their family mealtimes. Specifically, the **objectives** are to:

- a) Prevent development of overweight/obesity [success is defined as prevention of excessive weight gain / maintenance of healthy weight status] in 6 to 18 year-old children from Hispanic-heritage families for up to 6 months, and
- b) Evaluate the impact of our evidence-based nutrition and behavioral modification curriculum in weight maintenance and obesity prevention in Hispanic children and their families.

### Introduction

In 2009, the Robert Wood Johnson Foundation's *Salud America* initiative called for the development of multifaceted, culturally relevant, and demonstrably effective interventions to impact childhood obesity in Hispanic families (<http://www.rwjf.org>). This was in response to the data demonstrating that Hispanics face a number of health disparities, such as heightened risk for type 2 diabetes, coronary heart disease, and obesity (National Hispanic Caucus of State Legislators). Many Hispanics live in neighborhoods with limited access to healthy foods (Larson, Story et al. 2009), and studies have consistently reported that Hispanic children's daily consumption of fruits and vegetables fall short of recommendations (Health and Human Services and USDA 2005; (Basch, Zybert et al. 1994, Cullen, Baranowski et al. 2000, Nicklas, Jahns et al. 2013).

Sugar-sweetened beverages (SSBs) are the largest contributor of added sugar and a considerable source of calories in the diets of children and adolescents in the United States (Reedy and Krebs-Smith 2010), and SSB intake has been associated with obesity and type 2 diabetes (Ebbeling, Feldman et al. 2006, Fiorito, Marini et al. 2009, Malik, Popkin et al. 2010, Ebbeling, Feldman et al. 2012, Ebbeling 2014). Consumption of SSBs may also serve to take the place of other healthier foods (Malik, Popkin et al. 2010). The consumption of sugar-sweetened beverages is disproportionately high among those with low-income (Han and Powell 2013). Hispanics may believe that culturally relevant drinks made with sugar, water and fruit (*aguas frescas*) have healthy homemade ingredients (Bogart, Cowgill et al. 2013).

Low levels of physical activity are associated with overweight and obesity (Borraccino, Lemma et al. 2009). At the national level, Mexican American youth evidence higher levels of objectively measured physical activity than youth from other groups (Byrd-Williams, Belcher et al. 2010). Nevertheless, by adulthood, Hispanics are more likely to have low levels of physical activity (Centers for Disease Control and Prevention, (Schoenborn and Adams 2010, Prevention 2011)). Parents are powerful socializing influences on children's physical activity (Pugliese and Tinsley 2007). Hispanic parents perceive more barriers to their own (Marquez and McAuley 2006) and their children's physical activity (Duke, Huhman et al. 2003), and those in lower income communities are more likely to be inactive (Lutfiyya, Nika et al. 2008). Less acculturated Hispanic immigrant children are also less physically active (Wingo et al., 2009). When compared to non-Hispanic whites, Hispanic children are less involved in organized sports (Johnston, Delva et al. 2007) or physical activities outside of school and spend more leisure time in sedentary activities (Lutfiyya, Nika et al. 2008, Singh, Yu et al. 2008). A host of potential structural barriers contribute to disparities in physical activity (Zhu and Lee 2008), as well as cultural beliefs and attitudes (Pekmezi, Dunsiger et al. 2012, Larsen, Pekmezi et al. 2013).

Shared family meals (SFM) organizational features (e.g. planning ahead, assigning roles, flexibility during transitions and stressful situations, and straightforward communication) are related to youth outcomes including reduced risk for obesity (Jacobs and Fiese 2007), quality of life (Fiese 2007), and biological health markers (Schreier and Chen 2010). Meal organization and advanced planning improves diet quality (Boutelle, Birnbaum et al. 2003) while eating “on the run” (Larson, Story et al. 2009) and outside the home (Woodruff and Hanning 2009) are associated with reduced diet quality, including increased fatty and fast food (Larson, Story et al. 2009). SFMs have rarely been subject to systematic intervention (Hammons and Fiese 2011). Two exceptions: the NEAT curriculum for parents of toddlers (Coleman, Horodyski et al. 2005), and the project EAT for teens and young adults (Larson, Fulkerson et al. 2013). Those programs successfully reduced mealtime TV and increased parental allowance of child independence during mealtimes (Coleman, Horodyski et al. 2005), and found that having more frequent shared meals in young adulthood was associated with greater intake of fruit (Larson, Fulkerson et al. 2013). However, none of these programs targeted Hispanic families. *Abriendo Caminos* is the only known intervention that targets and demonstrates improved organization of SFMs for Hispanic families (Wiley, Hammons et al. manuscript in preparation).

The *Abriendo Caminos* program was developed using best-practice principles for working with Hispanics, including: i) focus on the whole family at the site of intervention; ii) optimizing existing family strengths; iii) building on everyday practices such as shared mealtimes, and iii) emphasis on literacy and cultural relevance including a focus on healthy traditional foods such as legumes (dry beans), cactus (*nopales*). It is organized as 6 face-to-face workshop sessions, each lasting 2 hours. Each session is divided into 3 segments: healthy eating (30 minutes), physical activity (60 minutes), and family togetherness, with a focus on family mealtimes (30 minutes).

The general topics are illustrated in **Table 4**. All family members are together except for the first part of the healthy eating segment. Children are separated to provide age-tailored nutrition information. We are cognizant that culturally some teenagers might be brought by parents to participate in the program, at their will or not, and are prepared to offer alternative age-specific relevant nutrition lessons that are already offered by other programs (like 4H or RAP). Afterwards, they rejoin their parents for the hands-on aspects of the nutrition segments. Regardless of segment, the instructional strategies emphasize engaging participants in active learning (e.g. enjoyable cooking activities, folk/Zumba dancing, creating a family scrap book).

Each segment involves a mini- (5-10 minutes) lecture and social interaction and discussion throughout. The physical activity segments focused on getting all family members active together for at least 45 minutes. Homework assignments aimed to extend engagement and learning beyond the workshop and included healthy recipes for family cooking, family walking with supplied pedometers, and using family mealtime conversation cards.



**Table 4.** Overview of the *Abriendo Caminos* program (6-weeks education).

Week	Nutrition Topic	Family Mealtime Topic	Physical Activity
1	<b>Portions Plus</b> Objective: To understand why we need to change our eating habits and to learn proper portion sizes;	<b>Valuing Shared Mealtimes</b> Objective: Recognize the importance of shared mealtimes and rituals and develop realistic time expectations; start scrapbook	<b>Water Demonstration and Walking</b> Objective: To emphasize water intake and the value and ease of walking
2	<b>Fruits and Vegetables</b> Objective: Understand the benefits of consuming fruits and vegetables and learn strategies for integrating them into the diet	<b>Balancing Time during Meals</b> Objective: Reduce use of technology at the table; and increase positive communication at meals; scrapbook	<b>Introduction to Resistance Training</b> Objective: Learn the value of resistance training and simple ways to get it
3	<b>Grains &amp; Legumes</b> Objective: Understand the benefits of consuming whole grains and learn strategies for integrating them into the diet	<b>Reducing Screen Time During Meals</b> Objective: Reduce screen time and learn about TV marketing; scrapbook	<b>Cardiovascular Activity: Jogging</b> Objective: Understand the importance of CV activity and try jogging as an inexpensive example
4	<b>Salt and Sugars</b> Objective: Develop a realistic understanding of the necessity of controlling salt and sugar intake and learn strategies for doing so	<b>Reducing Sibling Conflict During Meals</b> Objective: Learn that sib conflict is “normal;” learn strategies to reduce sib conflicts, increase positive affect and show genuine concern; scrapbook	<b>Other forms of Cardiovascular Activity</b> Objective: Experience other simple and fun types of CV activity such as Zumba or salsa dancing
5	<b>Fats and Protein</b> Objective: Understand the value of lean protein and healthy fat and the necessity of monitoring fat intake	<b>Emphasizing Family Traditions</b> Objective: Understand that traditions in families of origin have meaning and value for today; scrapbook	<b>Resistance Training</b> Objective: Experience other simple methods of resistance training
6	<b>Wrap up, review and fiesta</b> Objective: Share healthy recipes, food, and fellowship	<b>Building New Family Traditions</b> Objective: Work to create new traditions that have meaning and strengthen family; share scrapbooks	<b>Combining Resistance and Cardiovascular Activity in an everyday workout</b> Objective: Learn ways to optimize time and effort to get some resistance and cardio at home

## Experimental design

Our collaborator sites, plus Illinois, represent a variety of Hispanic cultures and communities across the country. The *Abriendo Caminos* curriculum will be implemented using a random control trial design. Materials and validated outcome measures will be adapted to meet the specific needs of each site. Adaptation of program will be based on assessment of needs in each participating region and results of focus groups conducted prior to implementation (Aim 1, measurable outcome). Implementation of intervention will be staggered, beginning in Illinois where we have developed the program and then in California where an original team member will lead the effort. Whole families will be recruited for participation, targeting those with one or more children in the age range of 6 to 18 year-olds and involving as many members as possible. Data to evaluate measurable outcomes will be collected at baseline (pre-intervention), after the 6-week education program (post-intervention) and 6 months after completion of the program (maintenance). Hispanic and bilingual Extension educators, local community agency staff, and trained college-students will act as facilitators to deliver the program.

**Measures:** Basic nutrition knowledge for parents and children (i.e. portion sizes) and food consumption surveys (to evaluate weekly consumption of specific items), based on NCCOR adapted instruments will be used (McKinnon, Reedy et al. 2012). The Mealtime subscale of the Family Ritual Questionnaire (Fiese and Kline 1993) be used to assess mealtime organization. We will use the long-form of the International Physical Activity Questionnaire (IPAQ) to assess the parent and children’s physical activity levels, as it has been shown that the short form (SF) is not useful in Latin-American populations (Hallal, Gomez et al. 2010). Other measures, and sources, are presented in **Table 5**.

<b>Table 5 – Instruments to evaluate impact of intervention program (*=<i>main outcomes</i>)</b>	
<b>Construct</b>	
Demographics and Socioeconomic Status	
Socio-cultural factors (e.g.; Hispanic origin, immigration history, acculturation, acculturative stress)	
Perceptions of Child Weight and Health	
Intentions to Modify Health Environment	
Family Health Behaviors and Access (includes food security and access to grocery stores)	
Family Ritual Questionnaire	
<i>*Higher levels of family mealtime organization</i>	
Dietary Patterns for children and parents	
<i>*Increased consumption of fruits, vegetables and legumes</i>	
<i>*Reduced consumption of sugar-sweetened beverages</i>	
Home Environment and Food Environment	
Physical Activity (International Questionnaire, Long Form)	
<i>*Increased minutes of daily physical activity</i>	
<i>*Prevent excessive weight gain or maintain healthy weight in Hispanic Children 6-18 yr-old for up to 6 months</i>	

**Expected outcomes.** We expect that participation in a 6-week community-based program will result in the following:

- ✓ Increased consumption of fruits, vegetables and legumes
- ✓ Reduced consumption of sugar-sweetened beverages
- ✓ Increased minutes of daily physical activity
- ✓ Higher levels of family mealtime organization
- ✓ Prevent excessive weight gain/maintain healthy weight in Hispanic children (6 to 18 yrs)

**Dissemination.** This integrated project will result in an effective, low-cost obesity prevention intervention (available in Spanish and English) that can be disseminated by Extension professionals and community agency staff in other locations across the US, including external advisory board members' coalitions (i.e. LULAC, professional societies). Ultimately, widespread implementation of the *Abriendo Caminos* program will help improve health outcomes in difficult-to-engage stakeholders at elevated risk of poor health and will reduce the prevalence of childhood overweight and obesity in Hispanics. This sustainable multi-state intervention will also strengthen Extension and USDA connections with Hispanic population across the country.

#### **Approach.**

The **Implementation and Evaluation phase** will *execute and test the effectiveness of a community workshop-based curriculum Abriendo Caminos to prevent childhood obesity and promote healthy nutrition and life-style behaviors among low income, low literacy Hispanic-heritage families across the country.* We will recruit whole families (n=250) with one or more children in the target age range and involve as many members as possible.

Data will be collected at baseline (pre-intervention), after the 6-week education program (post-intervention) and 6 months after completion of the program (maintenance). Several mechanisms are in place to minimize attrition on the follow-up. Implementation will be staggered, as indicated before. Participating sites will conduct the program only after **Aim 1** is completed (Focus groups, survey) to tailor lessons before implementation of the *Abriendo Caminos* curriculum, as indicated in **Table 5**.

<b>Table 5. Participants in intervention (control)*.</b>								
Site	FY-2s	FY-2f	FY-3s	FY-3f	FY-4s	FY-4f	FY-5s	
IL	10(10)	20 (20)	20 (20)					50(50)
CA	10(10)	20 (20)	20 (20)					50(50)
IA				10(10)	20 (20)	20 (20)		50(50)
PR					10(10)	20 (20)	20 (20)	50(50)
TX					10(10)	20 (20)	20 (20)	50(50)
<b>Total</b>	20 (20)	40(40)	40(40)	10 (10)	40(40)	60(60)	40(40)	<b>250(250)</b>
*Note: The experimental unit is the family.								

We will *implement and evaluate* the *Abriendo Caminos* community workshop-based curriculum in five different locations (California, Illinois, Iowa, Puerto Rico, and Texas). Materials for program implementation and validated outcome measures will be regionally adapted (**Table 4**). The nutrition curriculum will be also refined and expanded to promote consumption of inexpensive and culturally-familiar foods such as dry beans (legumes) and other regional or cultural foods (cactus-*nopales*). The physical activity curriculum will promote fun activities that the entire family can enjoy including walking and folk dancing (or Zumba) and adapted to participating location. Our management plan and regular meetings with Advisory Board will contribute to minimize difficulties and challenges to achieve this aim.

This proposal implements a community-based participatory program (CBPP) approach, and integrates socio-cultural and socio-ecological theories with elements of the health belief model to focus on behavior change through multiple levels of influence: individual, interpersonal, and at community level.

#### **POTENTIAL IMPACT OF THE OVERALL PROJECT AND EXPECTED OUTCOMES.**

The proposed multi-function integrated Research, Education, and/or Extension project will result in an effective, low-cost **childhood obesity prevention intervention** (available in Spanish and English) to be disseminated by Extension professionals and community agency staff in other locations across the US. Many Extension services across the country have been under increasing pressure to reduce staff and engage in a train-the-trainer model of program delivery. We will strengthen relationships with relevant community partners as well as grow the Extension “brand” as a provider of research-based, effective, affordable, and culturally relevant materials. The proposed project aims also to train staff in the 5 participating states in effective methods for achieving these goals and provide a model that is applicable more broadly.

Ultimately, implementation of the *Abriendo Caminos* program will **Clear the Path to Hispanic Children’s Health** and improve outcomes in difficult-to-engage stakeholders at elevated risk. It will reduce the prevalence of childhood overweight and obesity and contribute to their well-being.