

Catalyzing Communities to Reduce Obesity

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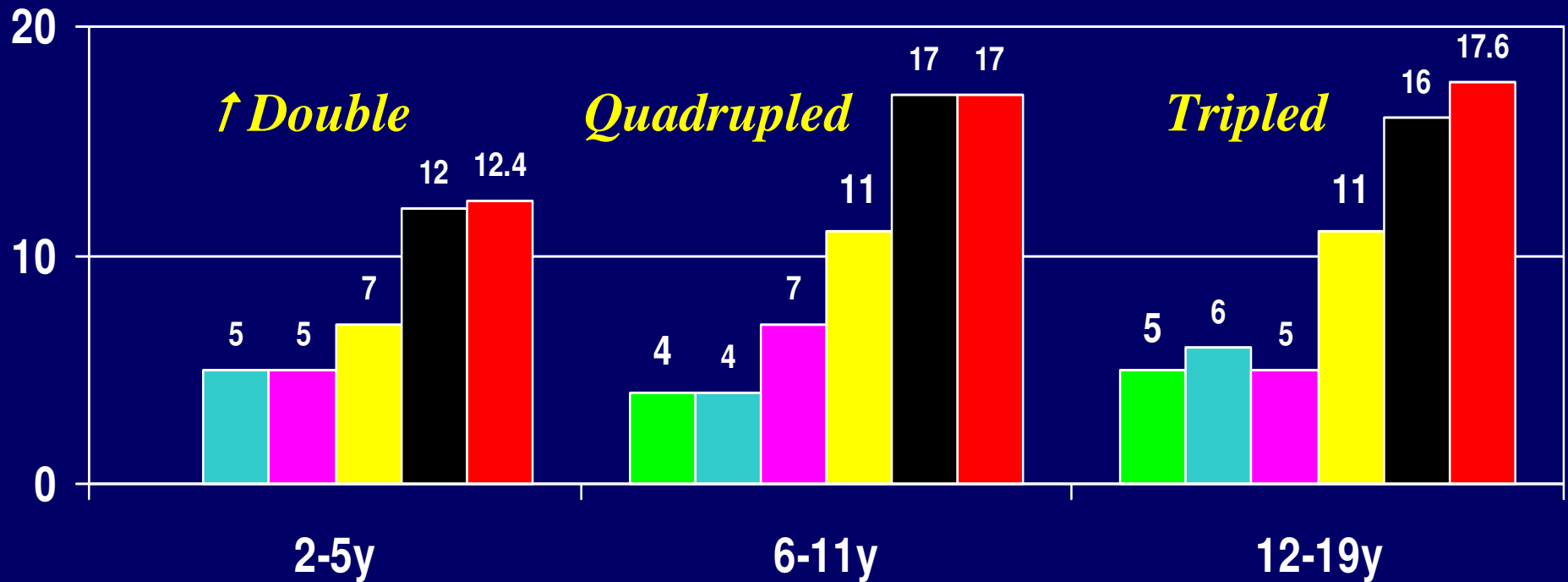
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BACKGROUND

- Proactive strategies required to prevent childhood obesity
- Individual behaviors must be addressed in the context of societal and environmental influences
- Most prevention studies target school environments
- Summer weight change recently shown to outpace expected gains with growth and development
- Community-based interventions that have a **theoretical framework** and are **mutli-level** and **participatory in nature** are needed

U.S. Childhood Obesity National Trends



■ 1963-1970 NHES ■ 1971-1974 NHANES I ■ 1976-1980 NHANES II
■ 1988-1994 NHANES III ■ 1999-2004 NHANES ■ 2003-2006 NHANES

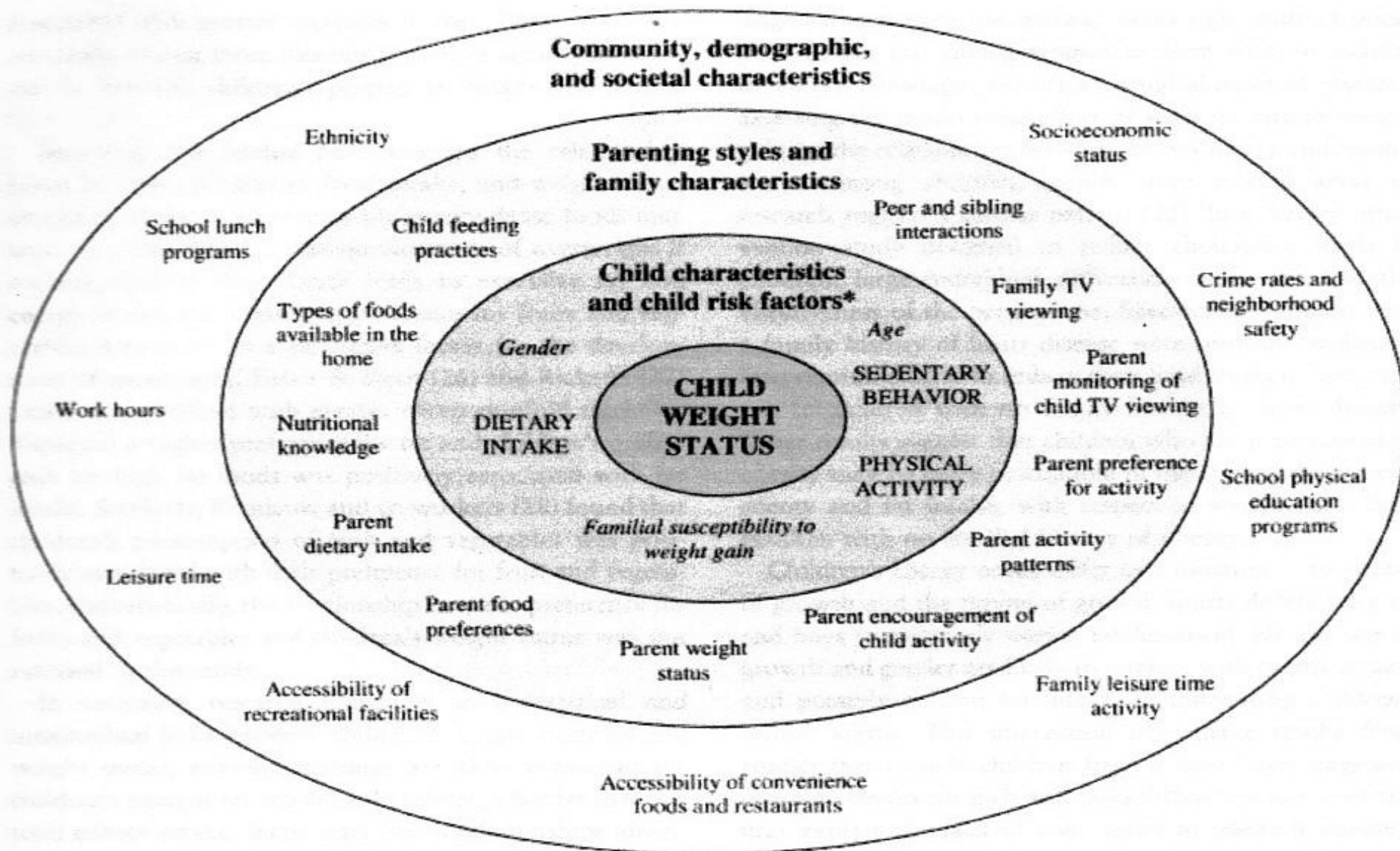


Figure 1 Ecological model of predictors of childhood overweight. *=Child risk factors (shown in upper case lettering) refer to child behaviours associated with the development of overweight. Characteristics of the child (shown in italic lettering) interact with child risk factors and contextual factors to influence the development of overweight (i.e. moderator variables). This review is organized around child risk factors and the influence of child family, and community characteristics is discussed for each child risk factor.

Ecological Systems Model

All systems that influence human behavior must contribute and change to influence future obesity rates



We are ALL part of and
responsible for the
obesigenic environment
and we must work together
to reshape it.



How do you spark social change?

- **Learn from other movements** (tobacco, recycling, seat belts, breastfeeding)
- **Call for a *Crisis***
- **Build on a sound scientific base**
- **Nurture spark plugs**
- **Recognize the importance of economics**
- **Develop coalitions and advocacy**
- **Use government strategically**
- **Employ mass communication**
- **Create environmental and policy changes**
- **Develop a clear plan**

What can we do?

Work in Communities

There's strength in numbers!



Source: Institute of Medicine, Preventing Childhood Obesity: Health in the Balance, 2005

Shape Up Somerville: Eat Smart. Play Hard.



- A community-based, participatory, environmental approach to prevent childhood obesity
- A 3 year controlled trial to study 1st – 3rd grade culturally and ethnically diverse children and their parents from 3 cities outside Boston
- **Goals:**
 - To examine the effectiveness of the model on the prevention of undesirable weight gain in children
 - Transform a community and inform social change at the national level

R06/CCR121519-01 from the Centers for Disease Control and Prevention.

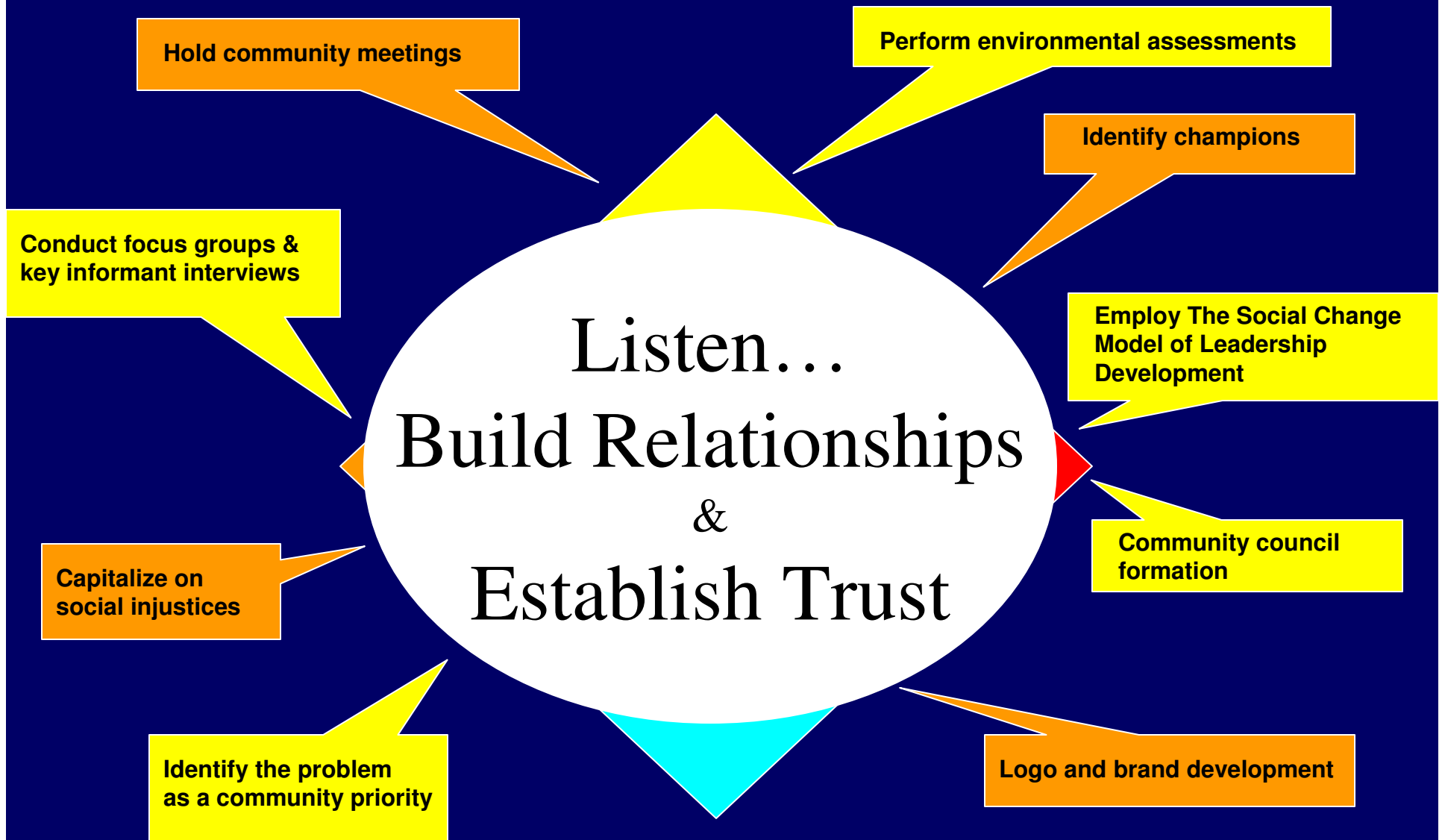
Additional support by Blue Cross Blue Shield of Massachusetts, United Way of Mass Bay, The US Potato Board, Stonyfield Farm, and Dole Foods

CBPR

- Community-based participatory research (CBPR) includes a collaborative partnership with the community in all phases of the research:
 - identifying the problem
 - designing, implementing and evaluating the intervention
 - building community capacity
 - identifying how data informs actions to improve health within the community

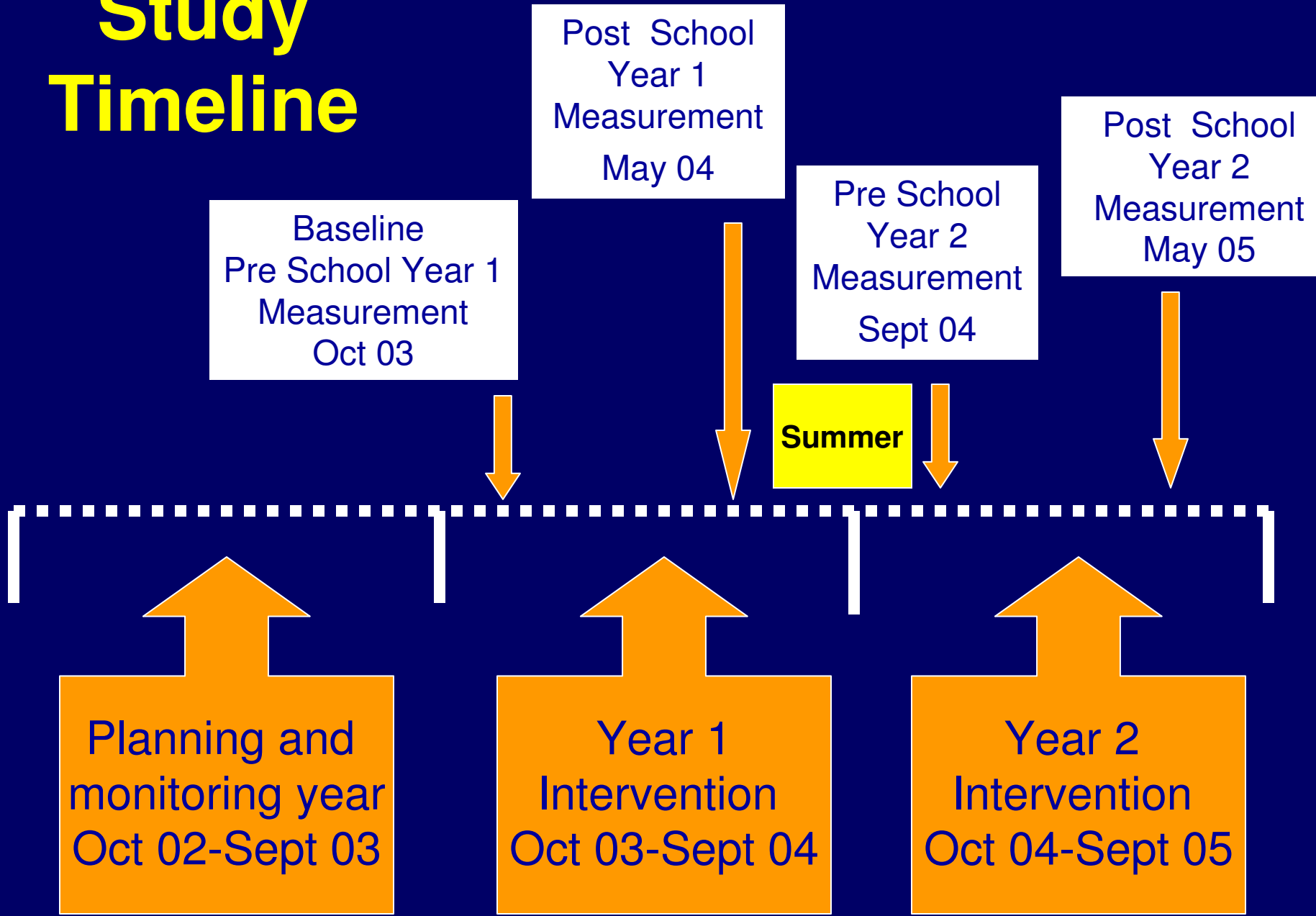
Potential to influence cultural and social norms

Community Engagement Model

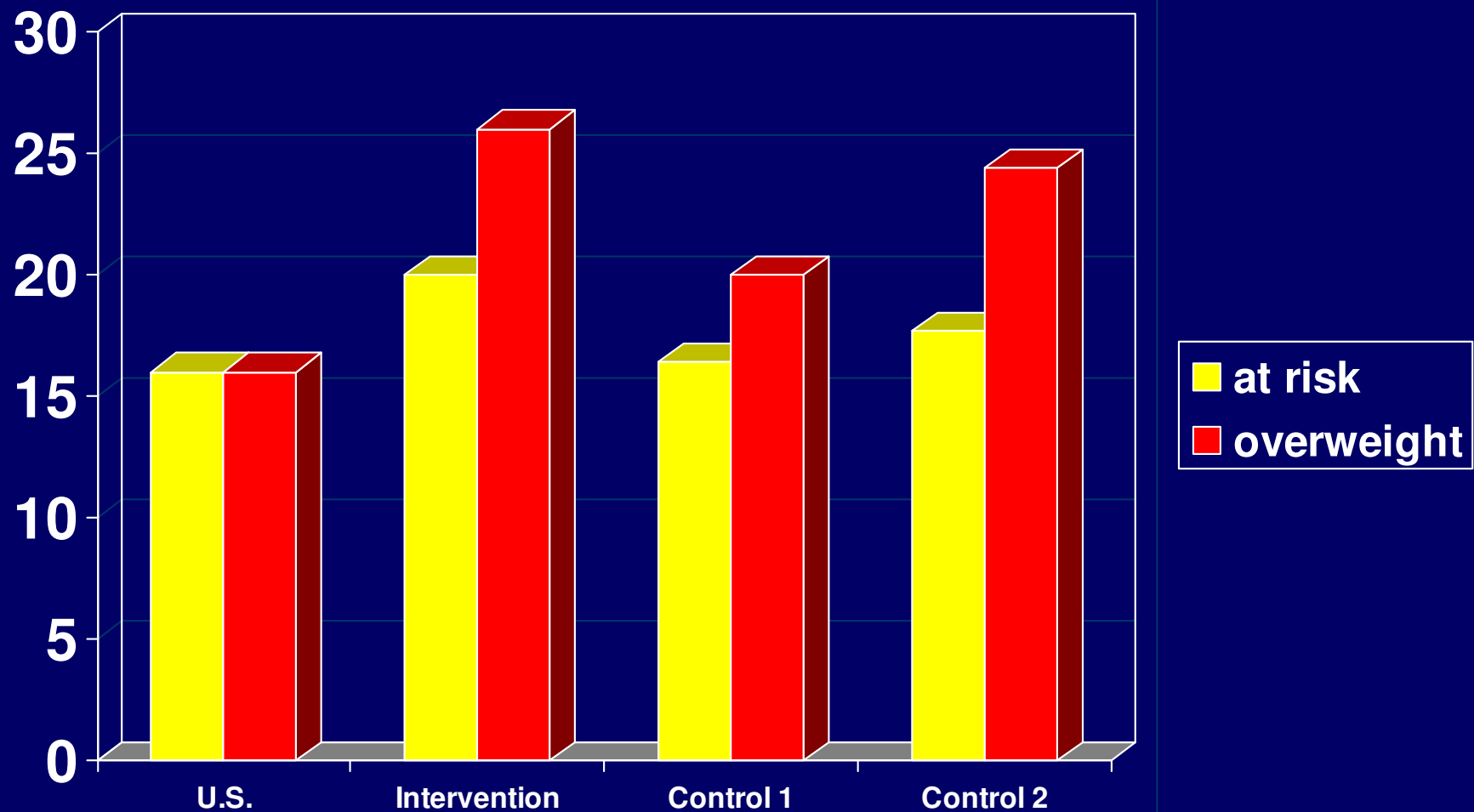


Model Adapted from National Resources Canada

Study Timeline



Baseline Overweight Prevalence



At risk: $\geq 85^{\text{th}}$ to $< 95^{\text{th}}$ percentile
Overweight: $\geq 95^{\text{th}}$ percentile
Reference: CDC 2000

Environment



Home:
Parent, Child, Family

↑ Fiber, ↓ Sugar, ↓ Fat
Appropriate Portion Sizes

Before School Program

School:
Child, teachers, administration, staff

Breakfast Coordinator (-25 kcals)

During School Environment



Physical Activity Equipment for Recess

↑ Physical Activity (- 25 kcals)

Healthier School Lunch

School:
Child, teachers, administration, staff

Social Marketing in Cafeteria
Alternative "Healthier" A La Carte Items
New Food Service Equipment

Classroom Micro Units

↑ Physical Activity (- 25 kcals) 5 days/wk (10 min)
Nutrition & Physical Activity Education 1 day/wk (30 min)

School:
Child, teachers, administration, staff

Teachers
Administrators
Food Service Staff
PE Teachers

Afternoon Environment



Home:
Parent, Child, Family

↑ Fiber, ↓ Sugar, ↓ Fat

After School Program

Community:
After school programs

Professional Development

Reinforcing Environments

Home:
Parent, Child, Family
Promotional Gifts

Community

Community: Ethnic groups

Health Care System

Community TV App

Local Government

Community: Restaurants

Media

Skills Development



A La Carte Options: Before Shape Up....



After...Improved A La Carte Options



<i>Shape-Up Snacks</i>	
Baked Chips	\$0.75
Pretzels	\$0.75
Nutrigrain Bar	\$0.75
Fruit & Oat Bites	\$0.75
Rice Cakes	\$0.60
Pudding & Jello Cups	\$0.60
Go-Gurt Yogurt	\$0.50
Choc Chip Granola Bar	\$0.50
String Cheese or Fruit	\$0.35
Teddy Grahams	\$0.35
Water & Fruit ²⁰	\$1.00



HEAT Club: After School Program



Before school : *Walking School Bus*



Support from Community Champions



Visible role models

- Mayor Joe Curtatone
- Aldermen
- School Committee Members

Growing food, knowing food

School Gardens and Nutrition Education



Shape Up Somerville : Results

- Engaged **90** teachers in 100% of 1-3 grade classrooms (N=81)
 - Participated in or conducted **100** community events and **4** parent forums
 - Trained **50** medical professionals
 - Recruited **21** restaurants
 - Reached **811** families through 9 parent newsletters, and **353** community partners through 6 community newsletters
 - Reached over **20,000** through a monthly media piece (11 months)
 - Recruited all **14** after-school programs
 - Developed community-wide policies to promote and sustain change
-

Weight status in Children by Birth Place of Mother

Baseline (Oct'03)						
	Mother Born in US		Mother NOT born in US		Between Groups	
	N	mean (sd)	N	mean (sd)	t-score	p-value
BMI	601	17.7445 (3.062)	398	18.35 (3.724)	-2.692	0.007
BMI z	599	.699 (.953)	396	.7922 (1.101)	-1.378	0.169

Two School Years with an Intervening Summer (Oct'03-May'05) in Controls								
	Mother Born in US			Mother NOT born in US			Between Groups	
	N	mean difference (sd)	p-value	N	mean difference (sd)	p-value	t-score	p-value
BMI	341	1.244 (1.43)	<.0001	184	1.512 (1.533)	<.0001	-1.998	0.046
BMI z	339	.039 (.381)	0.06	183	.075 (.343)	0.004	-1.067	0.287

These data indicate an increase in weight gain in children with immigrant mothers and underscore the urgent need to develop specific strategies to help this population

Implications / Future Directions

Comprehensive strategies with changes in multiple environments reinforced with policies that ensure healthy living are a viable and necessary direction for the future

Beyond Somerville

Replicating the intervention across the country through a RCT with 6 urban communities. The BALANCE Project

Adapting and implementing the intervention through a RCT in 8 communities in rural America (CA, MS, KY, SC) with Save the Children. The CHANGE Project

Distributing the HEAT Club after school curriculum through live and online trainings throughout the U.S. (>200 ASPs in 20 states) including a RCT

Expanding the work to target new immigrants through a new NIH grant (CBPR)

www.childreninbalance.org





Stages of Community Readiness

1
No Awareness

2
Denial/
Resistance

3
Vague
Awareness

4
Preplanning

5
Preparation

6
Initiation

7
Stabilization

8
Confirmation/
Expansion

9
High Level
of Community
Ownership

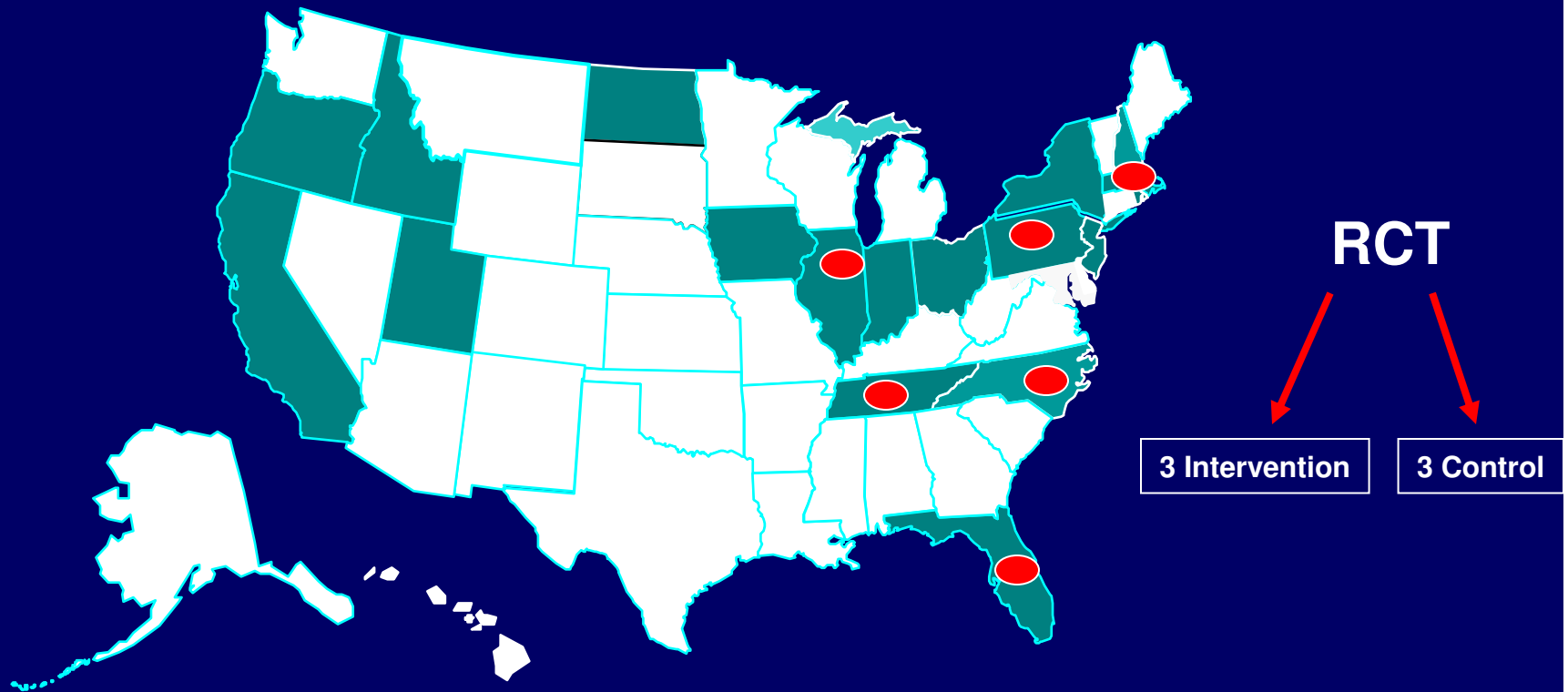
The BALANCE Project:



Goals & Objectives:

- Replicate the *Shape Up Somerville* (SUS) model in 6 under-served, urban communities in the US with similar community characteristics (i.e. size, SES) and level of community readiness
 - 3 communities will receive the intervention; 3 will serve as control communities
 - Two year study – Spring 2008-Spring 2010
 - Community and school-level environmental and policy outcomes
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Balance Study Sites



 Balance Study Applications (N=22)

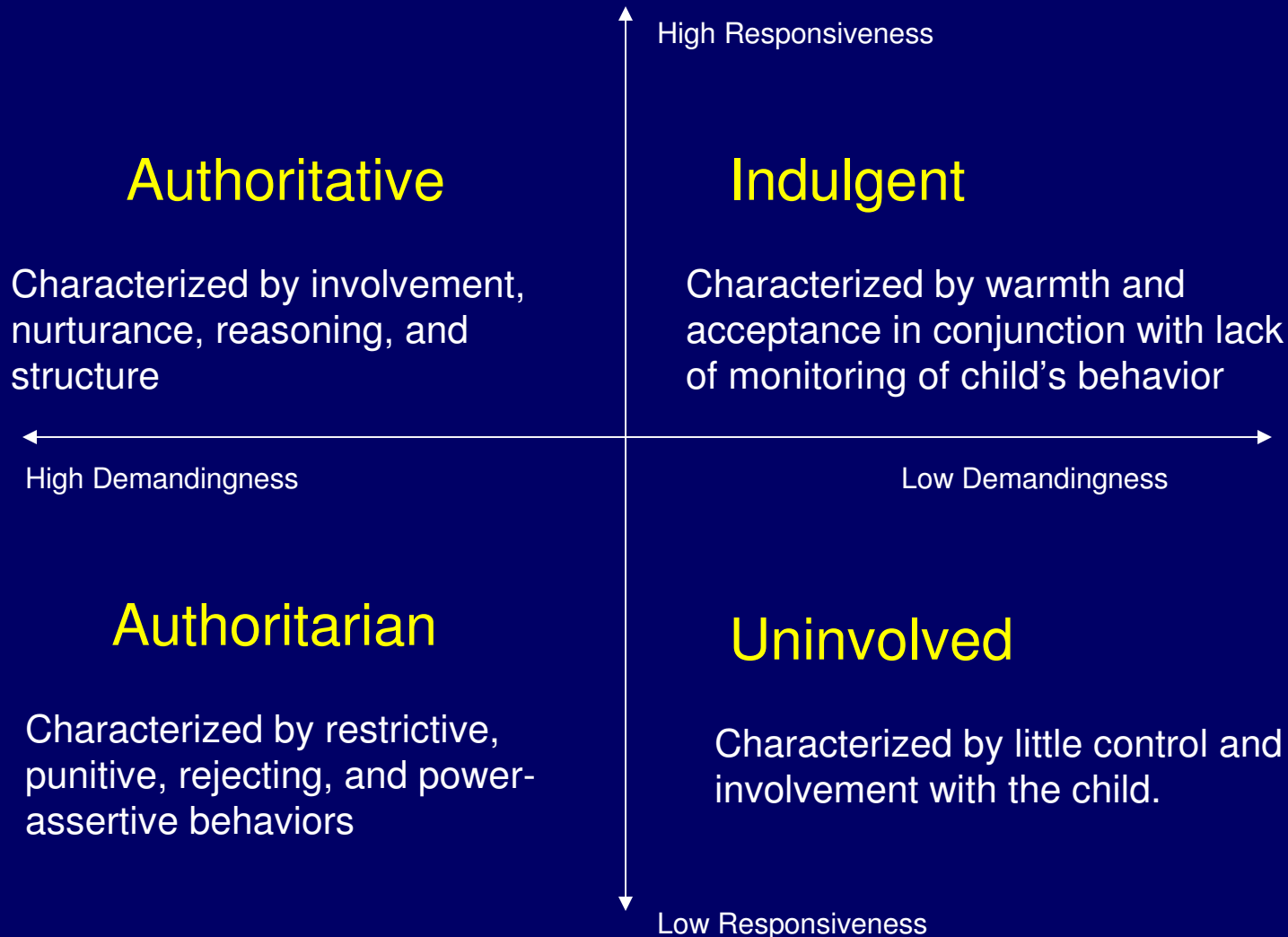
 Balance Study Sites (N=6)



Background: Rural America

- Difficult to define
- Chronic, entrenched poverty
- Declining job opportunities and population loss
- Low education and literacy
- Racism
- Less developed transportation infrastructure
- Lack of access to services and amenities
- Safety concerns
- Isolation and Stigma

Typological Approach to Parenting Styles



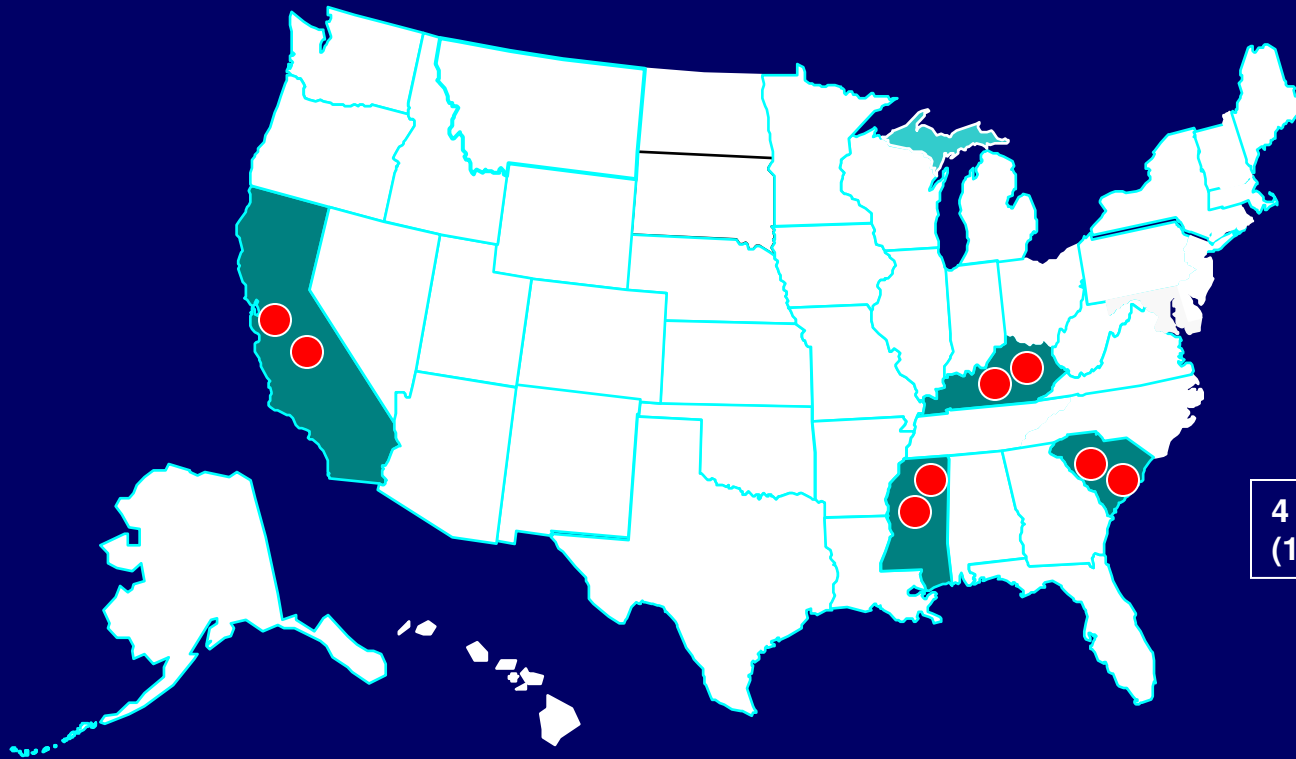
Graphic adapted from Hughes, SO.

The CHANGE Study

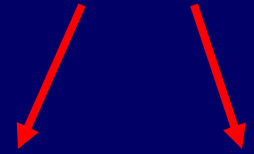
Creating Healthy, Active, and Nurturing Growing-up Environments

- *Adapt and implement* elements from the Shape Up Somerville model
- *Test* for effectiveness in a rural setting through a RCT
- Approximately 2100 1st- 6th grade children in four rural regions of the US
- Long term goal: to disseminate childhood obesity research that will empower individuals and communities to catalyze change in rural environments

CHANGE Study Sites



RCT



4 Intervention
(1 / state)

4 Control
(1 / state)

● CHANGE Study Sites (N=8)



Assessing and Preventing Obesity in New Immigrants

Goal: To create household and individual level change within a new immigrant population to alter and prevent behaviors associated with obesity and to prevent weight gain among this population.

Mother-Child dyads (N=435 dyads, 870 subjects)

- Mothers aged 20-55 years, not pregnant; Child aged 5-12
- Haitian, Latino, or Brazilian origin
- 2 year intervention
 - Lifestyle coaching sessions that address knowledge, self-efficacy, existing behaviors, behavioral skills, and intentions to act
 - Check in calls to provide motivation and schedule appointments
 - Group sessions

New Directions

Community-based interventions that have a **theoretical framework** and are **multi-level** and **participatory in nature** allow for inherent community assets and resources to be tapped and enable researchers to better pinpoint the specific needs of the community.

Advancing community-based research approaches to address childhood obesity will require:

- training of future leaders in community research methodology
 - increased funding to conduct rigorous trials
 - enhanced design, measurement, and analysis approaches
 - development of sustainability frameworks
 - economic analysis studies
 - acceptance of the study model as viable
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