Promoting Healthy Behaviors for Childhood Obesity Prevention

HFC Nutrition Panel Members
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Panel Objectives

1. Communicate rationale for proposed research for the HFC Strategic Initiative Area of Inquiry: Childhood Obesity in California.
2. Describe three research issues to promote healthy behaviors for childhood obesity prevention utilizing UC Resources.
3. Address outcomes to demonstrate success.
4. Provide opportunity for questions.
5. Continue with feedback throughout the conference!
Obesity Trends* Among U.S. Adults
(*BMI \geq 30, or about 30 lbs. overweight for 5’4” person)

Centers for Disease Control and Prevention

White non-Hispanic

(*BMI ≥30)

Centers for Disease Control and Prevention
7/27/2010
An Urgent Problem in California

• Our children, our greatest assets for California’s future continue to have unhealthy weights and are physically unfit.

• Children are at risk for and being diagnosed with diabetes and heart disease.
California’s youth obesity rates decline for some and show an increase in disparities

• A study examined trends in body mass index (BMI), 2001-2008.

• White and Asian girls and boys: obesity rates peaked in 2005; leveled off at 26% through 2008.

• Hispanic boys: showed a small decline.

• African American boys: stayed the same each year.

• African American girls: reached 22%
• American Indian girls: reached 23%

Percent of California Children in Grades 5, 7, and 9 who do not have a healthy weight by ethnic group (CDE Physical Fitness Exams 2008-2009)
Percent of California Children in Grades 5, 7, and 9 who do not meet aerobic fitness by ethnic group (CDE Physical Fitness Exams 2008-2009)
Research Question 1:

To what degree will a coordinated agriculture, nutrition and health-based program, spanning pre-school through grade 12, promote healthful eating and prevent pediatric obesity?
Research to Build On

History of School Gardens

- Originated in Europe
- Arrived in US in the 1890s
- Increase in numbers in early 20th century
- Decrease in numbers in 1950s
- Recent surge in popularity
School Gardens

• Engaging environment for use in comprehensive school health programs
• Enhanced communication among students, families and their community
• Link schools with families and communities to promote healthy lifestyle and prevent disease
• Integrating tool: Learning within the context of a meaningful whole enhances learning
Research to Build On

Select garden-enhanced education programs are effective at improving students’:

- Nutrition knowledge $^{1, 2}$
- Preferences for vegetables $^{1, 2, 3}$
- Willingness to ask family to buy vegetables $^{1}$
- Willingness to eat vegetables as a snack $^{1}$

Farm to School

• Nationwide program
• Connects schools with local farms
  – Serve healthy meals
  – Improve student nutrition
  – Provide health and nutrition education
  – Support local small farmers
What Are the Benefits?

• **Children** start the habit of eating more fresh, locally-produced food early in life, especially when their eating is supported by food and farm education activities including gardening;
• **Farmers** develop new markets with often higher returns for their goods;
• **Communities** gain understanding of the importance of local agriculture, environmental protection, and farmland conservation.
Connect Schools With Local Farms

• **School foods** are purchased directly from farmers, and incorporated into related nutrition education;

• **Experiential learning** opportunities are provided, such as farm visits, gardening and recycling programs;

• **Farmers** participate in programs to educate children about the food system, agriculture, and local foods.
Benefits for Children

• Academic Achievement
• Health and Nutrition Education
• Environmental Stewardship
• Community and Social Development
Significantly Higher Scores, Science Achievement Tests


- C.D. Klemmer, Waliczek & Zajicek. (2005). Temple, Texas study of science achievement (647 students, Gr. 3-5) “Compared conventional science delivery to science with garden-based learning”

- Smith & Motsenbocker. (2005). Inner city low income public school in Baton Rouge, LA “Used hands-on gardening activities with experimental group vs. none with control group”
Personal and Social Development

Texas Master Gardener classroom garden project showed improvement in:

- Self-esteem
- Sense of ownership and responsibility
- Family relationships
- Parental involvement

Sub-Question: 1

What are the steps necessary for translating and sustaining a successful coordinated integrated nutrition, health and agriculture program into school/district policy?
Sub-Question: 2

How can communities address the barriers to maintaining a successful coordinated integrated nutrition, health and agriculture program as part of school/district policy?
Sub-Question: 3

Can inclusion of youth as leaders improve the outcomes of a coordinated integrated nutrition, health and agriculture program in school environments?
Sub-Question: 4

What are the optimal methods for dissemination of a successful program components to education leaders?
Sub-Question: 5

Can family and community participation in agriculture-related programs (community gardens, farmers’ markets, community supported agriculture (CSA) boxes, and mobile markets) improve health outcomes of children?
Research Methods/Approach

• A comprehensive programmatic approach integrating nutrition, health and agriculture will be developed and evaluated for individual, family, school and community systems.

• The program will be built upon existing research and programs in California communities.

• The research will determine promising practices and lessons learned to inform nutrition, youth, health, and school administrative professionals and community decision makers.
Research Question 2

What community change through coalitions and collaboratives are most successful at promoting and sustaining healthier dietary and physical fitness lifestyles in children?
Socio-Ecological Framework for Childhood Obesity Prevention

1. Legislation
2. Media
3. Urban Design & Transportation Systems
4. Food Supply
5. Healthcare System
6. Community Based
7. Schools
8. Home & Family
9. The Child

Environmental Change

Individual Change: Knowledge, Skills, Motivation

Developed by: CWH
Evidence Selection:
Conducted & published in last 15 yrs
Conducted in industrialized nations
Located through PubMed database
and other cited articles

Focus of Review:
Interventions
Randomized, controlled trials
Quasi-experimental studies
Diet, physical activity or adiposity outcomes
Prioritizing the Strategies

Amount, quality & impact of studies

• Best evidence

• Evaluation opportunities
Best Evidence for Community Interventions

- Multi-level interventions
- Social marketing campaigns
- Point of decision prompts
- Food store access & in-store promotion
- Price alterations
Example of Successful Community Intervention

*Hartslag - (Heartbeat Study)*

- **Strategies**
  - Social marketing via radio and TV ads
  - Walking/biking clubs
  - Television program
- **Design:** quasi-experimental
  - Intervention region (2500 adults);
    control region (750 adults)
- **Impact**
  - ↓ BMI and waist circumference
  - ↓ blood pressure

(Source: Schuit, 2006)
Example of Successful Intervention

1% or Less Campaign

• **Design:**
  - Controlled trial, 3 cities, West Virginia
  - 3 mo campaign + 6 mo follow-up

• **Intervention:**
  - Paid ads
  - PR
  - Taste tests
  - Supermarket promotion
  - School-based education
  - Worksite and civic meeting presentations

• **Impact:**
  - 38% high fat milk drinkers switched to lower fat
  - 16% increase in milk sales
  - 2-fold increase in low-fat milk market share

(Source: Reger, 1998)
Examples of Supermarket Interventions

• **New supermarket in underserved community in UK** (Wrigley, 2002)
  - Fruit & vegetable intake increased:
    - 2.88 → 2.92 servings/d
  - Largest increase in consumers with lowest intake: 0.6 → 1.4 servings/d

• **Supermarket promotion of fruits & vegetables in US** (Curhan, 1974)
  - Larger display
  - Price reduction
  - Advertising
Examples of Promising Strategies

• Restaurant/menu labeling w/ change in offerings
• Community gardens
• Farmers’ markets
Examples of Evaluation Opportunities

- Change in offerings at convenience/corner markets
- Rearrangement of product displays
- Land use/zoning
- Changing local food systems
- Taxation of unhealthy foods
- Comprehensive food policy and regulatory approaches
- Regulation of advertising/marketing of unhealthy foods, esp. to children
- Faith-based interventions
- Improving public transportation
- Joint use agreements
Best Evidence for Worksite Interventions

- **Multiple nutrition education & promotion activities**
  - Examples: cooking demos, paycheck messaging, events/health fairs, contests, classes/workshops/videos, peer learning, self help materials, posters/brochures

- **Implementation of a comprehensive food policy**
  - Examples: meal appeal, menu labeling, point of purchase prompts, pricing, catering/meeting policy

- **Multi-level**
- **Point of decision activity prompts**
- **Walking Clubs**
Important Tips

- Social marketing and education can get a quick win whereas environmental and policy change is key to sustaining behavior change.
- Environmental and policy changes are harder and less frequently evaluated than social marketing and education.
- Policies (legislative, regulatory, funding) are key for initiating and sustaining change.
Research Methods/Approach

• Build on a growing body of research (CWH website: http://cwh.berkeley.edu/)

• Identify promising practices and principles

• Use best evidence learned from past programs, or test promising approaches
Research Methods/Approach

• Use case study methodology to examine work of community coalitions

• Develop model programs through collaboration with other community groups

• Monitor and evaluate
Sub-questions
What barriers within the community environment are faced in adopting and sustaining healthy dietary and physical fitness habits?
What strategies have been shown to be most effective in sustaining the efforts of coalitions to make changes to the built environment?
What obesity prevention strategies have the greatest likelihood of promoting healthy behaviors for children? How does this vary by community?
What motivation strategies can be employed to encourage civic engagement in creating healthier communities for children?
How can children and youth be actively engaged in improving food and activity environments?
Can changes made to the built environment be detected in children’s diet and activity levels?
How much does nutrition education enhance the effects of changes in the school and community food environment? How does delivery of educational messages vary for diverse populations?
Research Question 3

What nutrition education methods/venues are most successful in sustaining behavior change?
Research to Build On
What we know

• Poor dietary behaviors linked to death
  – Heart disease, cancer, stroke, and diabetes
  
• Nutrition education - critical element in improving dietary behaviors for obesity and disease prevention.

Heron, M. (2007)
What we know

- Nutrition education is more successful when focused on individual’s actions and content is linked to theory, research and practice.

What we know

There are many nutrition messages and nutrition curricula developed to reach youth and adults.

Behavior outcomes more effective when harmonious with cultural and behavioral characteristics of a specific population.

Hildebrand, D.A & Betts, N.M. (2009)
What we know

EFNEP and FSNEP work \(^{1-3}\) and are cost effective \(^{4,5}\)!

Every $1.00 invested in nutrition education

~ $3.63-$10.64 savings in health care costs

What we don’t know

How to maximize and sustain behavior

Nutrition-Health Literacy

Income Levels

Demographics

Cultures

University of California
Agriculture and Natural Resources
Making a Difference for California
Use formative evaluation to make messaging more specific to obesity prevention efforts.
Research Methods / Approach

Implement programs to assess and compare short and longer term skill attainment and behavior change with different delivery venues.
Compare different delivery mediums: learn at home options, use of technology, in-person groups

Compare variations on teaching approaches: learner-centered, facilitated group discussion, motivational interviewing
Research Methods / Approach

Compare different population groups

Nutrition-Health Literacy

Income levels  Ages  Ethnicities  Cultures
Sub-questions
What messages are most critical for obesity prevention?

Foods to target for reduction and increase?

Resource management for healthier food shopping?

Meal planning and cooking skills?
What nutrition education strategies are more effective in moving from increasing knowledge to changing behavior?
What are the most effective nutrition education strategies for individual, family centered or dyad focused deliveries?

Do nutrition education recipients sustain behavior change after completing a nutrition education series?

What is the optimal number of nutrition education classes (duration and dosage) for sustained behavioral change in low-income audiences?
What is the optimal teaching approach for achieving behavior change?

- Learner-centered?
- Facilitated group discussion?
- Motivational interviewing?
Does integrating cultural consistency within a nutrition program increase behavior change?

Educator Messages
Food demos
Physical activities
Parenting skills
What messages are more effective with:

young generation adults?

families with young children?
How will we know if we are succeeding?
Individual Change

Children and adults will increase their ability to:

• Identify healthy foods and plan meals
• Follow recommended Dietary Guidelines
• Identify personal barriers and motivators for making nutrition and fitness changes
Family Change

Families will take action on key health messages by involving family members in nutrition related activities:

• Planning meals
• Shopping for food
• Gardening
• Going to farmers’ markets
• Eating meals together
• Participating in physical activities as a family.
Organizational and Community Norms Change

- Schools will support children’s healthy eating and physical activity.
- Youth activities and youth leadership will support children’s healthy behaviors.
- Community programs and coalitions will support families in their efforts to lead healthier lives.
Community Systems Change

Increasing numbers of communities with active school and community networks are engaging diverse demographic groups to achieve healthy living objectives. Key to their success is regular monitoring and evaluation.
Reduced BMIs, improved fitness scores, improved academic scores and decreased prevalence of chronic disease risk factors are beginning to be documented.
**Linked to health outcomes:**

Access to new physical activity venues such as open space at schools will increase.

Community food and activity policies will be developed to sustain healthy food and activity environments.

School and preschool wellness policies will be linked to student health outcomes.
UC ANR’s Leadership Role

Campus Resources

Faculty

Extension Specialists

Workgroups

Campus Centers & Institutes
Applied Research via Learning Laboratories

County Resources

County Advisors
UC ANR’s Dedication and Commitment

Critical role in changing behaviors to promote positive outcomes for individuals, organizations, and communities.
UC ANR’s Dedication and Commitment

Collaboration with youth, families, organizations, and community leaders to provide science-based assistance for strategic policy decisions benefiting all Californians.
Questions?