Research into Action: Using Evidence to Inform I + PSE Efforts

Western MCH Nutrition Leadership Network ♦ April 5, 2018 ♦ Redondo Beach

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What do YOU see?
How much food marketing is for healthy foods?
Is it.....

- 100%
- 70%
- 10%
- 1%
How many ads does a child need to see before wanting a product?
Is it.....

- 1000
- 100
- 10
- 1

✔
What Messages do Children Hear Most Loud & Clear?

Amount of Nutrition Education kids get in school?

Amount of Food Advertisements kids see on TV?

(Sources: CDC & Story, 2004)
Playing field is not level!

Billions

$0.50
$1.00
$1.50
$2.00
$2.50
$3.00
$3.50
$4.00
$4.50

Fast food industry

US Government
FOOD is EVERYWHERE
Cheap Calories

$1 buys

1,200 calories
875 calories
250 calories
170 calories
Maximum Calories

FOR

Minimal cost

AND

Maximal appeal
More Served = More Eaten

Twenty years ago
333 calories

Today’s Burger
590 calories
What are Healthy Portion Sizes?

1-2 years old

3-5 years old

adult

(Source: Santa Clara Public Health Dept)
How can we help children and their families be more healthy?
Roadmap

1. Community Health Initiative (CHI)
   - 58 communities in 6 states
   - Prospective
   - 2006-2016

2. Healthy Communities Study (HCS)
   - 130 U.S. communities
   - Retrospective
   - 2010-2016

3. CA Healthy Kids Study (CHKS)
   - 60 communities in California
   - Retrospective
   - 2014-2017

Kaiser Permanente
NIH
National Heart, Lung, and Blood Institute
Robert Wood Johnson Foundation
Research Questions

1. How are community programs, policies & practices changing?

2. How are community efforts impacting child nutrition, physical activity and BMI?

3. What are we learning to inform future efforts?
Kaiser Permanente’s Community Health Initiative (CHI)

6 sites

NCAL

3 sites

SCAL

3 sites

Median duration: 4 years

58 sites

Community Health Initiative

Portland, OR
6 sites

Prince Georges County, MD

NCAL
6 HEAL Zone sites & 3 local partnership sites

Atlanta, GA

SCAL
6 HEAL Zone sites & 3 local partnership sites

32 Livewell Colorado sites statewide

★ Community Health Initiative sites
● Joint initiatives with other funders
CHI: Narrowing Focus

**Proposed**
- School breakfast
- Food Banks
- Cal Fresh
- Park changes
- SSB policy
- Rethink your Drink
- Garden education
- Church healthy guidelines
- Safe Routes to School
- Youth Engagement
- Healthy meetings

**Focus areas**
- Sugary Drinks
- Parks/Walking
- Schools
CHI: Evaluation Methods

Document strategies
Dose

• Youth Survey
• Fitnessgram

Interviews
Online surveys

Strategy evaluations

Photovoice
CHI: Population Dose

DOSE = REACH \times STRENGTH

Percent of people touched

Expected impact for each person touched
<table>
<thead>
<tr>
<th>Activity</th>
<th>Reach</th>
<th>Strength</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers promote walking/biking to school</td>
<td>74%</td>
<td>1.3%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Recess coaches trained and hired</td>
<td>21%</td>
<td>4.2%</td>
<td>0.9%</td>
</tr>
<tr>
<td>4th grade teachers do 30 minutes of “instant recess” in the classroom</td>
<td>38%</td>
<td>11.2%</td>
<td>4.3%</td>
</tr>
<tr>
<td>New playground equipment</td>
<td>100%</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td><strong>Total Dose</strong></td>
<td></td>
<td></td>
<td><strong>8.2%</strong></td>
</tr>
</tbody>
</table>
CHI: Finding dose-aligned population changes

1. Estimate the dose of efforts targeting the same outcome

2. Measure change in outcome

3. Look for alignment between estimated and measured impact
CHI: Alignment Between Dose Estimates & Outcomes

Population-level change in outcomes

Positive

None

Population dose of intervention

Lower

Higher

Youth - ↓ SSBs
Adult - ↓ SSBs

Youth - ↑ Healthy Food
Youth - ↑ Physical Activity

Adult - ↑ Physical Activity
Adult - ↑ Fruits & Vegetables
Adult - ↑ Healthy Food

Youth - ↑ Fruits & Vegetables
2 Healthy Communities Study: Evaluation Methods

Stratified random + purposeful sampling

130 communities
5138 children

Household survey
Windshield observation

Interviews*
Surveys
Observations
Document review

BMI & waist circ msmt

Medical record abstraction*

*10 yr retrospective

NIH National Heart, Lung, and Blood Institute
HCS: Intensity Scores

Reach (how many)
- 1-5% of children
- 21% or more

Duration (how long)
- One time
- Ongoing

Behavioral Strategy (how)
- Providing information
- Modifying access or policy change

Summed across each of 10 years for each community
HCS: Intensity scores for 130 communities over 10-years
(N=9,681 community programs/policies)
Temporal relationship: 2 years prior, 2 years duration

-1.4 BMI units
HCS: But....Equity is an Issue
# HCS: Characteristics of Community Efforts

## DOSE
**More Intense**
- **Duration** longer
- **Reach** more children
- **Strategy** more policy, systems, or environmental

## HOW
**More or Which Strategies**
- Information
- Services
- Access
- Consequences
- Policy/systems

## WHAT
**More or Which Behaviors**
- Fruit & vegetables
- Whole grains
- Sugary drinks
- Water
- Energy-dense snacks/sweets
- Fat
- Calories
- Breakfast
- Fast food
HCS: Associations of Community Efforts over Past 6 years with Dietary Outcomes

<table>
<thead>
<tr>
<th>More Intense</th>
<th>More Strategies &amp; Restricting Availability of Less Healthy</th>
<th>More Behaviors &amp; Targeting Less Healthy</th>
</tr>
</thead>
<tbody>
<tr>
<td>• ↑ lower-fat milk</td>
<td>• ↓ added sugar</td>
<td>• ↑ fruit &amp; vegetables</td>
</tr>
<tr>
<td></td>
<td>• ↓ sugary drinks</td>
<td></td>
</tr>
</tbody>
</table>
CA Healthy Kids Survey: Let Data Do the Talking

Included in Model:
- School meal quality
- School garden
- PE quality
- School wellness policy
- SSB policy
- School PA facilities
- Built environment
- Neighborhood walkability
- Food Assistance programs
- Nutrition education
- Fast Food near school

Outputs of Model:
- X
- Y
- Z

Select impactful factors

>70 community factors
3

CHKS: Evaluation Methods

- Purposeful + weighted random sampling
- Observations
- Environmental (GIS) data
- 60 Middle schools
- Interviews
- BMI (Fitness-gram)
CA Healthy Kids Study: Data Adaptive Approach

>70 variables on nutrition & physical activity CPPs

Perform PCA on each dataset* to define independent variables and regress with BMI

Combine regression estimates with weights to generate combination of variables with strongest impact

Perform targeted analysis on combination of variables to estimate size of this impact

Average impact estimates from each dataset to generate final estimate of combined impact

*Divided into 10 datasets, each with 9/10 of total communities
Lessons Learned

- **Dose concept** useful for planning higher intensity efforts that maximize reach

- **Cluster** specific behaviors **across the spectrum of prevention** (I + PSE): change social norms & systems!

- But simultaneously **target multiple behaviors** and not focus only on the positive (e.g., increasing healthy foods and beverages)

- Implementation **longer** (≥2 years) for weight change
Policy Process

1. Agenda Setting
2. Formulation
3. Implementation
4. Monitoring & Evaluation
5. Decision Making
Complicated Interplay of Factors Contributing

(Source: Monasta, 2010)
Moving Forward

- Create **stronger networks** of researchers, practitioners, residents, and decision-makers, locally and nationally
- Tell **more complete stories of what works**…and what doesn’t
- Focus on bringing effective **interventions to scale** and sustaining
- Support **stronger investments** in community-based efforts to improve **environments** to support health
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[Logos for Kaiser Permanente, NIH, and National Heart, Lung, and Blood Institute]


Ritchie LD, et al. on behalf of the Healthy Communities Study Team. Community programs and policies are related to child nutrition - the Healthy Communities Study. Pediatr Obes. 2018;(in press).


Webb KL, et al. on behalf of the Healthy Communities Study Team. Features of nutrition-related community policies and programs associated with more healthful dietary intakes among children; findings from the Healthy Communities Study. Pediatr Obes. 2018;(in press).