UC ANR Nutrition Policy Institute
Brown Bag Seminar Series

Role of Policies and Environments in Shaping Behaviors and Health Outcomes

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Thursday, February 22nd, 2018

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Role of Policies and Environments in Shaping Behaviors and Health Outcomes

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Outline

- ASU College of Health Solution
  - School of Nutrition and Health Promotion

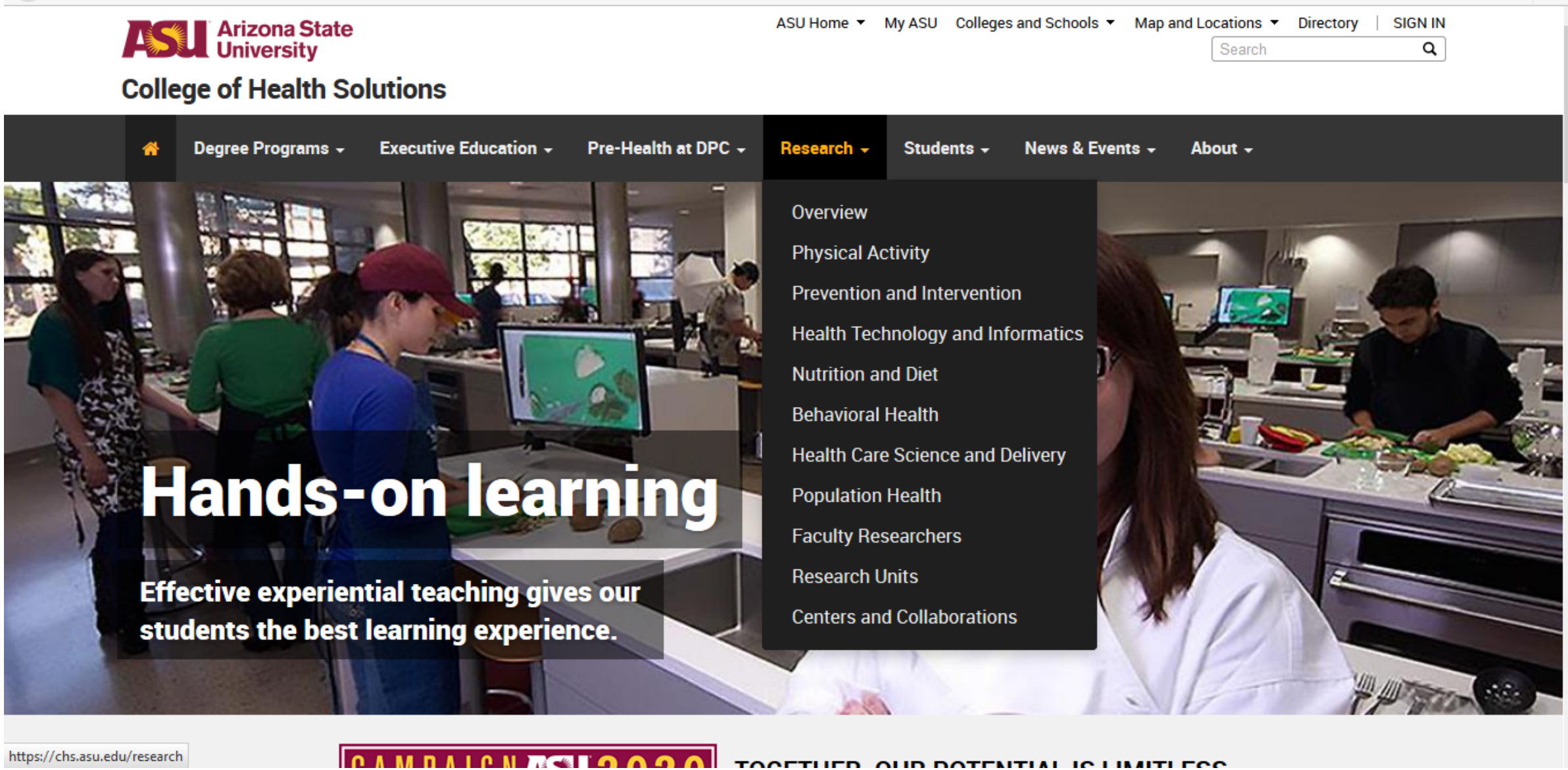
- ASU Food Policy and Environment Research Group
  - Social Ecological Model – the guiding principle

- New Jersey Child Health Study (NJCHS)
  - *Impact of Environmental Changes* on Children's BMI and Behaviors: A Panel Study
  - *Examining Obesity Declines* Among School Children

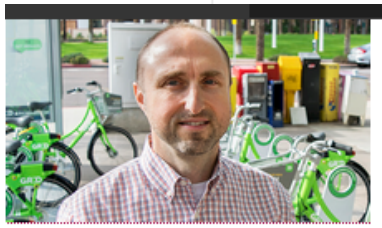
- A year on the Hill – Linking Evidence with Advocacy

- Other Policy Focused Studies (time permitting)

ASU College of Health Solution



School of Nutrition and Health Promotion



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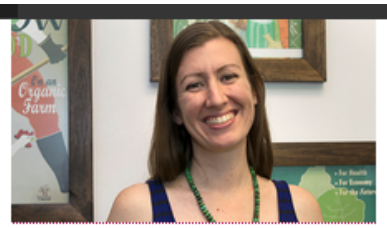

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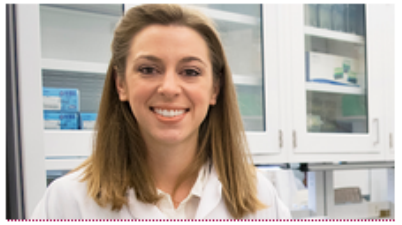
Christopher Wharton
Interim School Director and Associate Professor, School of Nutrition and Health Promotion



Corrie Whisner
Assistant Professor, School of Nutrition and Health Promotion

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School of Nutrition and Health Promotion

Nutrition Program

Undergraduate: Nutrition, Dietetics, Public Health

Graduate (MS): Nutrition, MSD, Obesity Prevention and Management

Graduate (PhD): Exercise and Nutrition Sciences

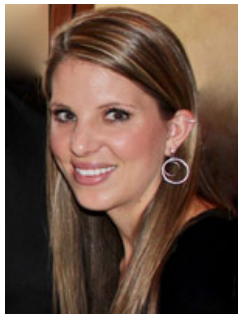
Food Policy and Environment Research Group

Our Team:

Punam Ohri-Vachaspati, Robin DeWeese, Francesco Acciai, Sarah Martinelli, Jessie Gruner, Cori Lorts, Stephanie Steeves, Adriana Verdezoto Alvarado, Rebekah Winters, Gabby Katsma, Clint Stevens, Kevin Kong



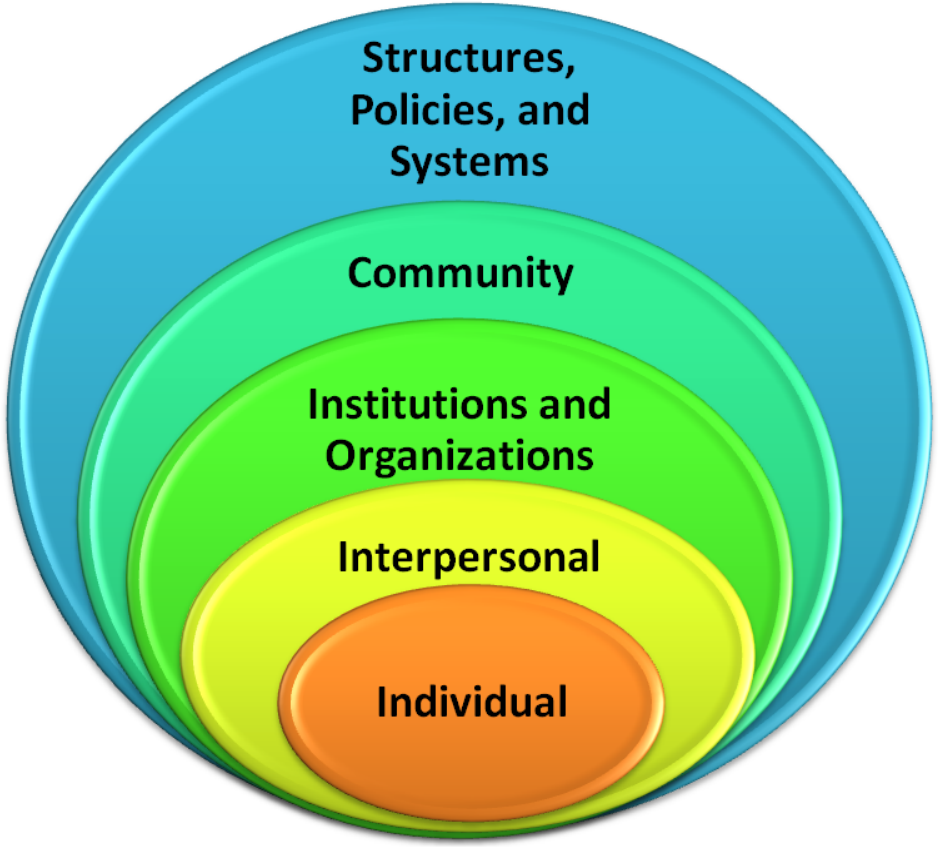








Social Ecological Model



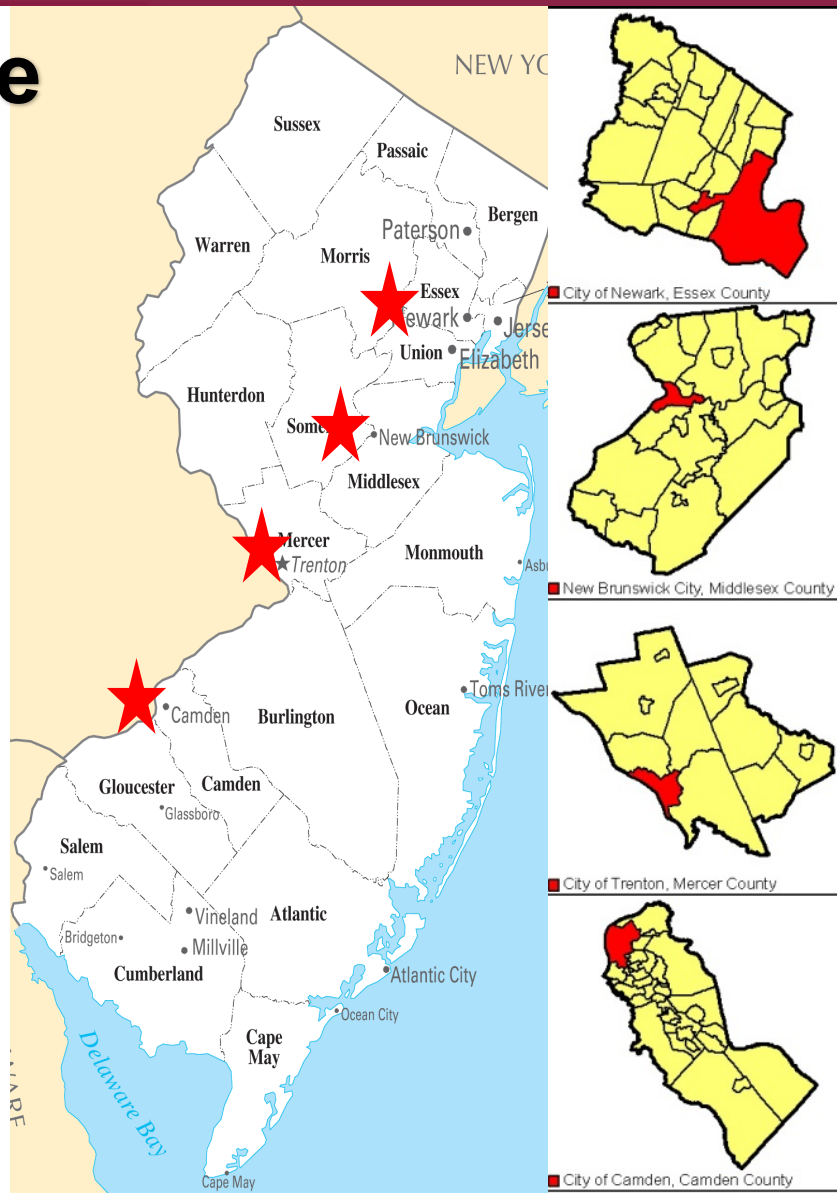
NJ Child Health Study I
2012-2018

Examine the impact of children's exposure to changes in food & PA environment on changes in children's weight status & behaviors (NICHD, R01, Ohri-Vachaspati and Yedidia (MPI) and RWJF)

Four low-income high minority cities in NJ

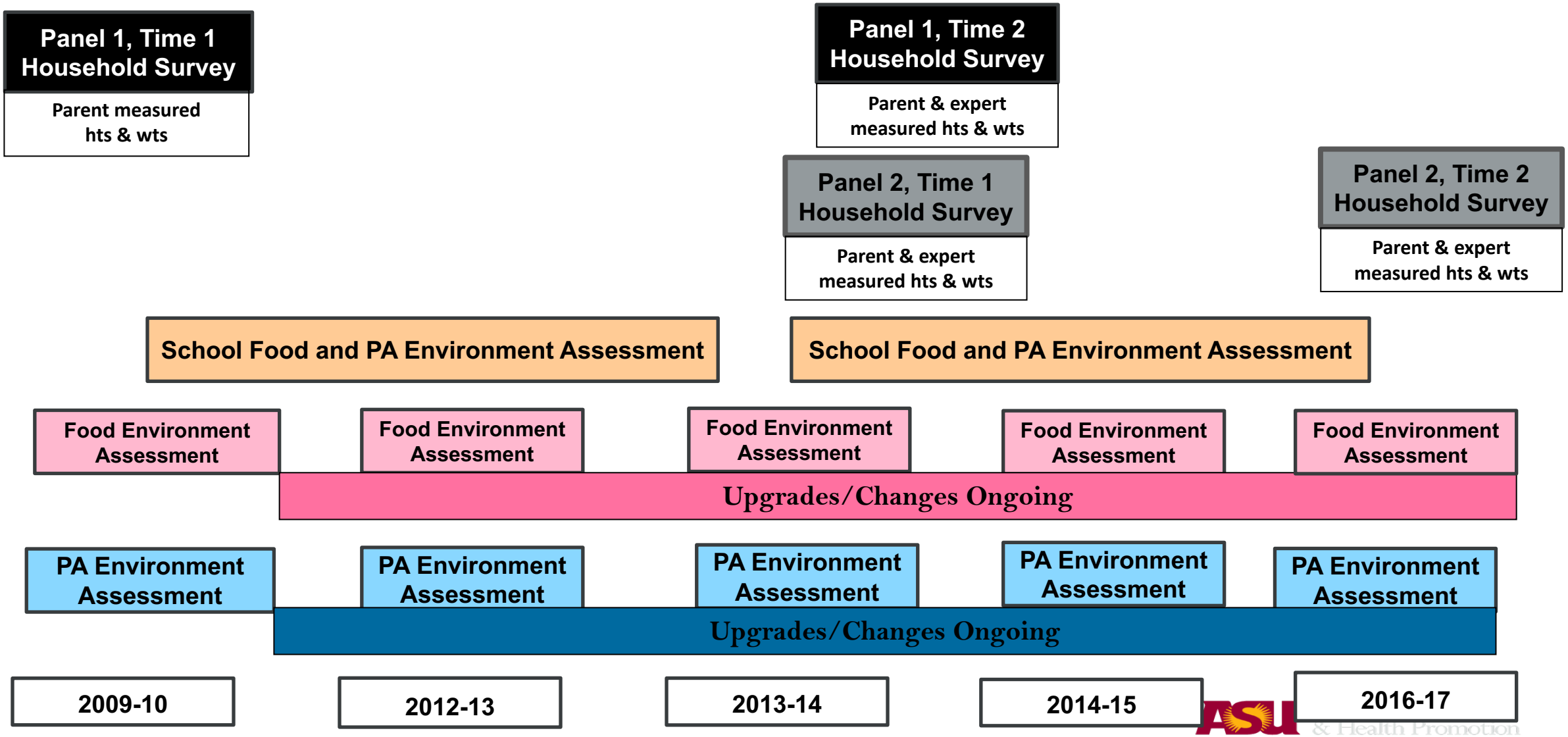
Longitudinal study tracking

- Changes in BMI-Z scores over time
- Changes in in community food and PA environments
  - Macro level (stores and parks closing, opening)
  - Micro level (small changes within stores and parks)
- Changes in school food and PA environments



NJCHS I: Longitudinal Panel Study

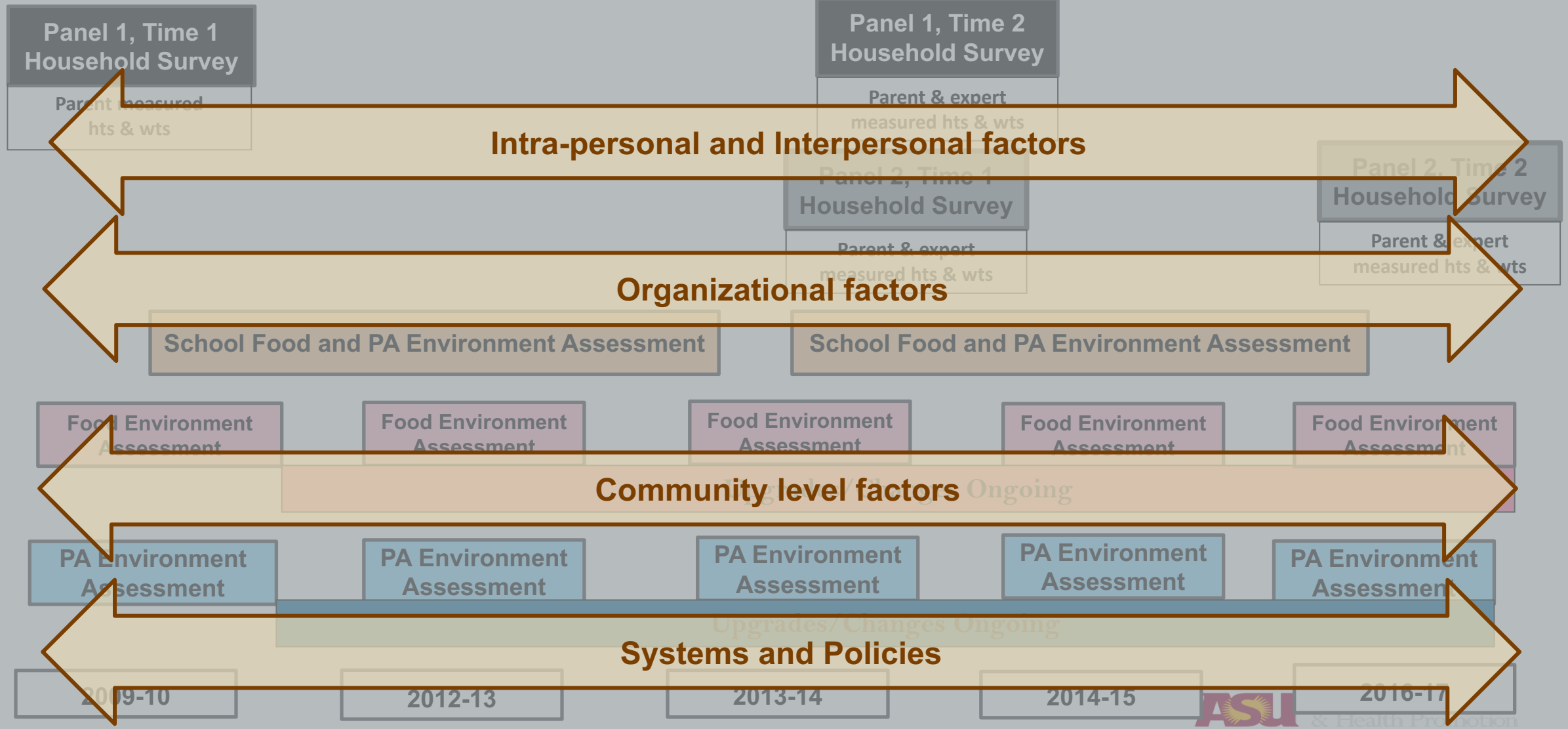
Research Design



& Health Promotion

NJCHS I: Longitudinal Panel Study

Research Design



Key Findings

Thus far……

Focus on Community

Neighborhood Food & Physical Activity Environments

Contents lists available at SciVerse ScienceDirect

Preventive Medicine

journal homepage: www.elsevier.com/locate/ypmed

A closer examination of the relationship between children's weight status and the food and physical activity environment

Punam Ohri-Vachaspati [a,*], Kristen Lloyd [b], Derek DeLia [b], David Tulloch [c], Michael J. Yedidia [b]

[a] School of Nutrition and Health Promotion, Arizona State University, 500 N 3rd Street, Phoenix, AZ 85004, USA
[b] Center for State Health Policy, Institute for Health, Health Care Policy, & Aging Research, Rutgers University, 112 Paterson Street, 5th Floor, New Brunswick, NJ 08901, USA
[c] Department of Landscape Architecture, Rutgers University, 93 Lipman Drive, New Brunswick, NJ 08901, USA

Neighborhood Food & Physical Activity Environments

Multivariate logistic regression analysis predicting child's overweight or obese status (n =702)

Key Geospatial Predictors	Adjusted OR (95% CI)
Distance to nearest (miles)	
Convenience store	0.32 (0.07-1.37)
Presence in ½ mile radius	
Convenience Store	1.47 (0.35-6.20)
Fast-Food Restaurant	1.41 (0.47-4.28)
Park (1 acre or more)	0.41 (0.21-0.81)**
Presence in ¼ mile radius	
Convenience store	1.90 (1.04-3.45)**
Number in ¼ mile radius	
Convenience store	1.11(1.00-1.22)**

Model adjusted for child and household demographics and other proximity variables significant in bivariate analysis. **p<0.05

Living within a ½ mile of a park was associated with *60% lower odds* of being overweight or obese

Living within a ¼ mile of a convenience store was associated with *twice the odds* of being overweight or obese

Having an additional convenience store in ¼ of home *increased the odds of being overweight or obese by 11%*

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Ohri-Vachaspati et al. Prev Med. 2013, 57 (3), 162-167

Neighborhood Food & Physical Activity Environments

Public Health Nutrition: page 1 of 12 doi:10.1017/S1368980014002365

The relative contribution of layers of the Social Ecological Model to childhood obesity

Punam Ohri-Vachaspati[1,*], Derek DeLia[2], Robin S DeWeese[1], Noe C Crespo[1], Michael Todd[3] and Michael J Yedidia[2]

Public Health Nutr. 2015 Aug;18(11):2055-66.

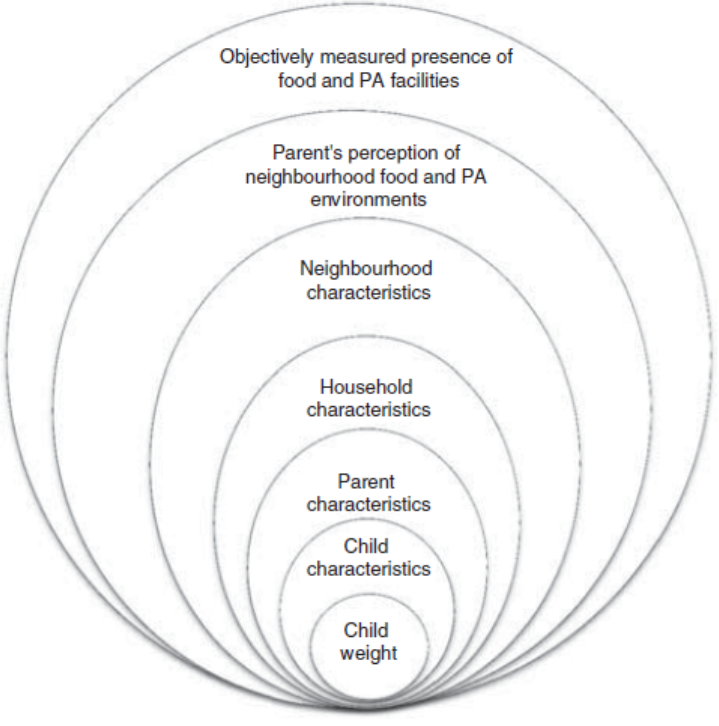

Fig. 1 Social Ecological Model showing the layers influencing a child's weight status (PA, physical activity)

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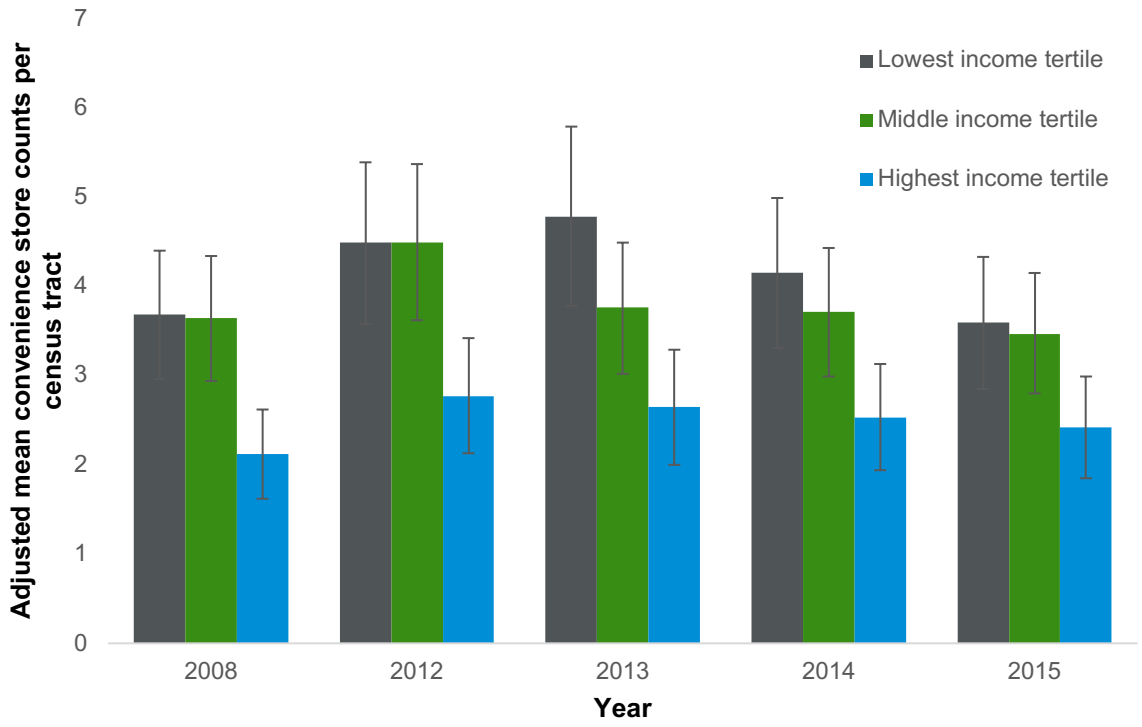
Neighborhood Food & Physical Activity Environments

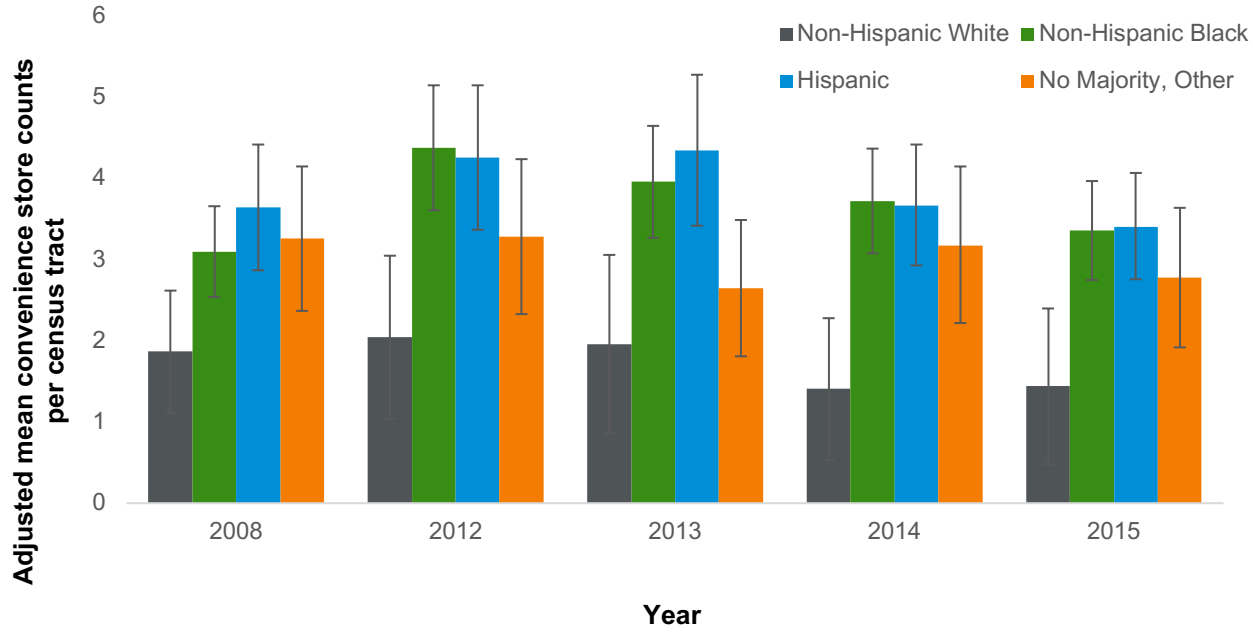
Five of the six layers of SEM examined made a significant contribution to the weight of the child – parents perception counted the most

Table 3 Logistic regression analysis of the associations between child weight status and layers of the Social Ecological Model; random sample of households living in low-income, racially diverse communities in four cities in the state of New Jersey, USA, 2009–2010 (New Jersey Childhood Obesity Study)

n 560*	Adjusted OR	95 % CI	*P* value	Joint significance†	Tjur R^2
Overall model					0·157
Geospatial variables (GIS measures)					
Presence of large park in 0·40 km (¼ mile)	0·41	0·24, 0·70	0·001	$F(6, 480) = 2·38$, $P = 0·028$	0·140
Presence of PA facility in 0·40 km (¼ mile)	0·51	0·22, 1·19	0·12		
Presence of supermarket in 0·40 km (¼ mile)	0·96	0·33, 2·77	0·94		
Presence of convenience store in 0·40 km (¼ mile)	1·52	0·74, 3·11	0·26		
Presence of limited-service restaurant in 0·40 km (¼ mile)	0·67	0·38, 1·20	0·18		
Presence of healthy food outlet in 0·40 km (¼ mile)	1·03	0·58, 1·83	0·91		
Parental perceptions of neighbourhood					
PA opportunities in neighbourhood	0·90	0·54, 1·51	0·69	$F(13, 473) = 1·77$, $P = 0·045$	0·109
Safety from traffic in neighbourhood	1·31	0·55, 3·07	0·54		
Safety from crime in neighbourhood	1·90	0·92, 3·95	0·08		
Neighbourhood pleasant for PA	0·55	0·25, 1·23	0·15		
Parks to play in neighbourhood	1·58	0·82, 3·05	0·17		
PA facilities in neighbourhood	0·66	0·40, 1·10	0·11		
Good sidewalk condition	0·70	0·29, 1·68	0·43		
Easy to get to store	0·56	0·32, 0·98	0·04		
FV available	0·99	0·78, 1·25	0·93		
FV inexpensive	0·86	0·49, 1·52	0·61		
LFF available	0·89	0·71, 1·11	0·29		
LFF inexpensive	1·38	0·80, 2·38	0·25		
Buy FV at main food store	0·39	0·22, 0·68	0·001		
Neighbourhood characteristics					
Neighbourhood income				$F(5,481) = 4·10$, Prob > $F = 0·001$	0·117
Lower (ref.)					
Middle	0·89	0·49, 1·63	0·72		

Neighborhood Food Environments Changes Over Time





Focus on Schools

Neighborhood Perceptions and Active School Commuting in Low-Income Cities

Robin S. DeWeese, MS, Michael J. Yedidia, PhD, MPH, David L. Tulloch, PhD,
Punam Ohri-Vachaspati, PhD, RD

DeWeese et al / Am J Prev Med 2013;45(4):393–400

Crime

Traffic

Shade trees, no graffiti or abandoned buildings

Pleasantness

Sidewalks

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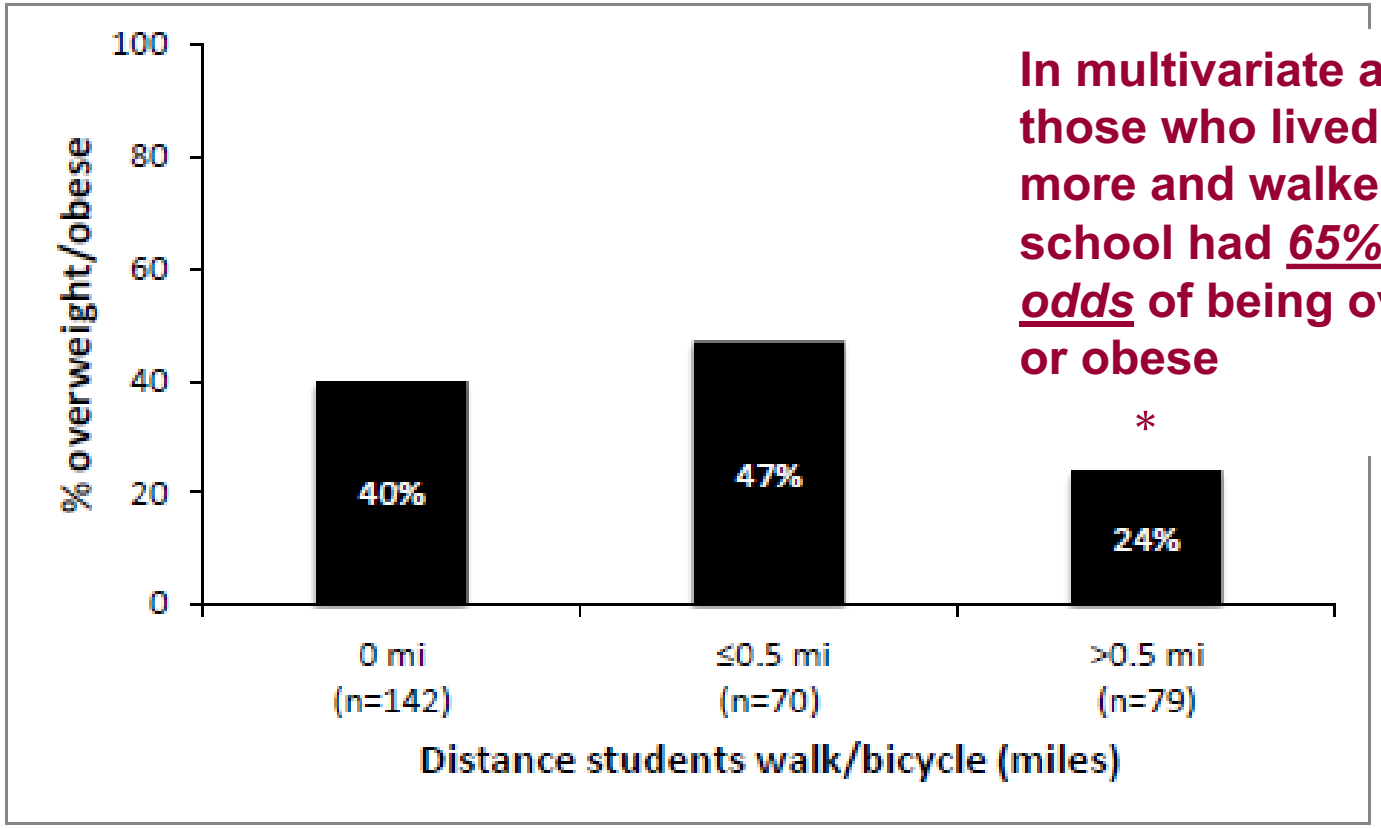
Active Transport to School and Weight Status

– *Threshold effect of distance to school*

"The Role of Distance in Examining the Association Between Active Commuting to School and Students' Weight Status"
by DeWeese R, Ohri-Vachaspati P
Journal of Physical Activity & Health
© 2014 Human Kinetics, Inc.



In multivariate analysis those who lived ½ mile or more and walked to school had *65% lower odds* of being overweight or obese

*

Differences were significant between those who did not walk and those who walked greater than half a mile

Food Environment Around Schools

CHILDHOOD OBESITY
December 2014 | Volume 10, Number 6
© Mary Ann Liebert, Inc.
DOI: 10.1089/chi.2014.0065

Associations between Food Environment around Schools and Professionally Measured Weight Status for Middle and High School Students

Xuyang Tang, MS,[1,3] Punam Ohri-Vachaspati, PhD, RD,[2] Joshua K. Abbott, PhD,[3] Rimjhim Aggarwal, PhD,[3] David L. Tulloch, PhD,[4] Kristen Lloyd, MPH,[5] and Michael J. Yedidia, PhD[5]

Having a **supermarket or a small grocery store** that sells several healthy options is associated with lower probability of being overweight or obese

Model Examining the Relationship between Proximity to Food Outlets and Students' Weight Status[a]

	All students $n=12,954$	
	Coefficient (95% CI)	p value
Presence of food outlets within 0.25 mile of schools		
BMI z-score		
Convenience stores	−0.01 (−0.14, 0.12)	0.88
Limited-service restaurants	0.07 (−0.01, 0.15)	0.75
Small grocery stores	−0.12 (−0.24, −0.01)*	0.03
Supermarkets	−0.09 (−0.19, 0.12)	0.09
Overweight or obese		
Convenience stores	0.03 (−0.02, 0.07)	0.31
Limited-service restaurants	0.03 (−0.004, 0.06)	0.08
Small grocery stores	−0.02 (−0.06, 0.02)	0.32
Supermarkets	−0.03 (−0.07, 0.004)	0.08
Count of food outlets within 0.25 mile of schools		
BMI z-score		
Convenience stores	0.01 (−0.002, 0.03)	0.10
Limited-service restaurants	0.01 (−0.002, 0.02)	0.09
Small grocery stores	−0.10 (−0.17, −0.03)**	0.01
Supermarkets	−0.08 (−0.17, 0.01)	0.08
Overweight or obese		
Convenience stores	0.002 (−0.004, 0.01)	0.61
Limited-service restaurants	0.0001 (−0.004, 0.005)	0.96
Small grocery stores	−0.004 (−0.03, 0.02)	0.78
Supermarkets	−0.05 (−0.08, −0.01)**	0.01

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Key Findings: Focus on Schools

Appetite 74 (2014) 44–47

Contents lists available at ScienceDirect

Appetite

journal homepage: www.elsevier.com/locate/appet

Research report

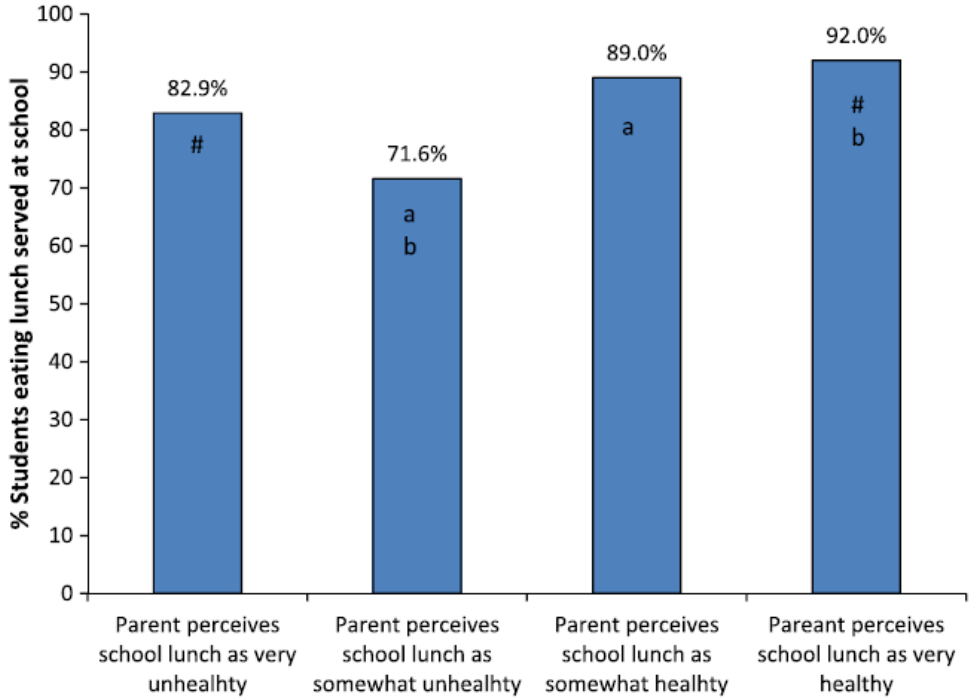
Parental perception of the nutritional quality of school meals and its association with students' school lunch participation ☆

Punam Ohri-Vachaspati

School of Nutrition and Health Promotion, Arizona State University, Phoenix, AZ 85004, United States

ARTICLE INFO

ABSTRACT

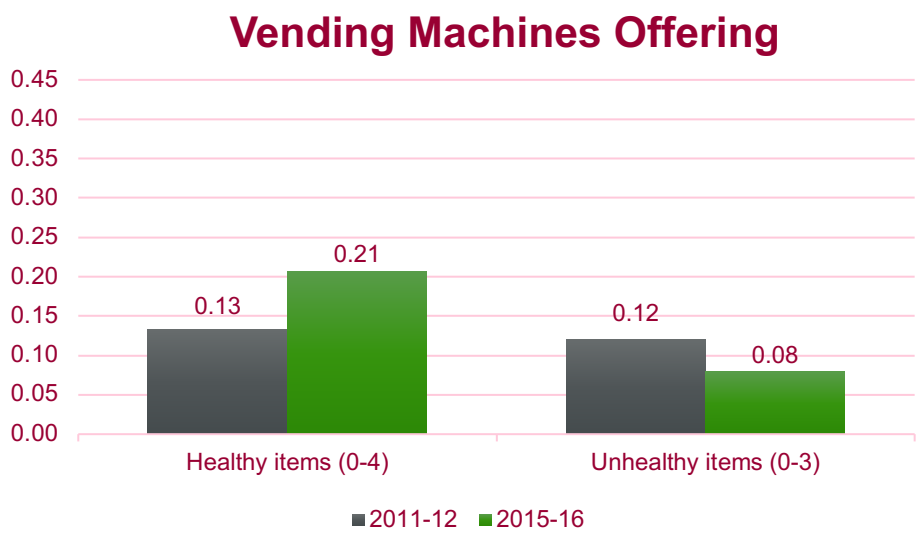


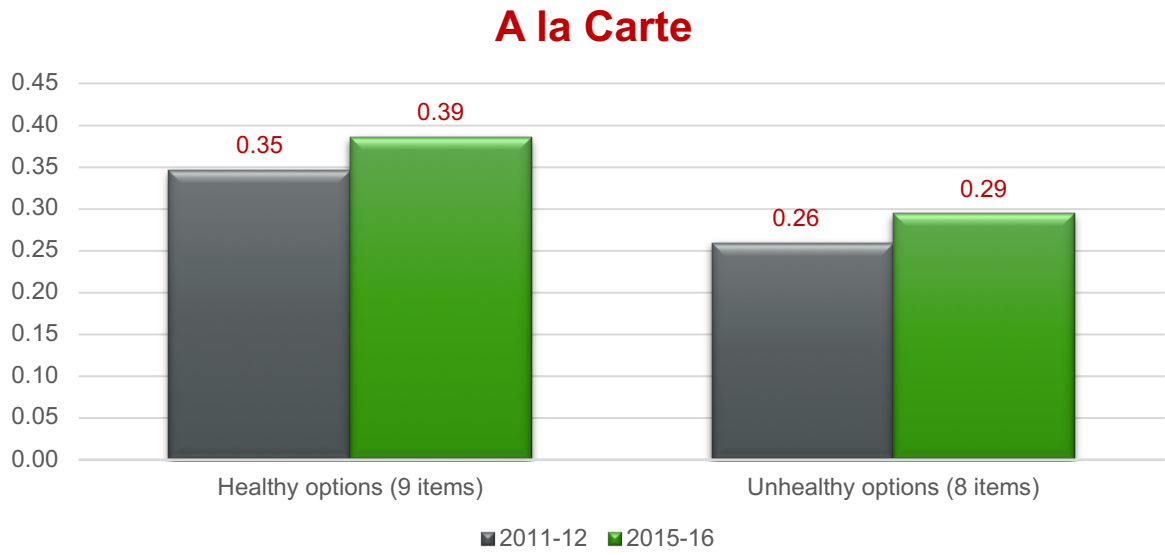
Significant differences are indicated by same letters for p<.05 and # for p <.1.

Fig. 1. Percentage of students eating lunch served at school by parents' perceptio of the healthfulness of the lunch served.

School Food & PA Environment Over Time

Measures of Food Environment	Cronbach's alpha			
	2011-12	2012-13	2014-15	2015-16
A la carte - Healthy options (9 items)	0.883	0.889	0.908	0.911
A la carte - Unhealthy options (8 items)	0.859	0.848	0.827	0.814
Vending Machines - Healthy options (4 items)	0.637	0.613	0.823	0.821
Vending Machines - Unhealthy options (3 items)	0.825	0.829	0.795	0.794





Focus on Policy

Predicted Impact of the Food and Drug Administration's Menu-Labeling Regulations on Restaurants in 4 New Jersey Cities

Jessie Gruner, PhD, RDN, Robin S. DeWeese, PhD, RDN, Cori Lorts, PhD, MPH, RDN, Michael J. Yedidia, PhD, and Punam Ohri-Vachaspati, PhD, RD

Am J Public Health. Published online ahead of print December 21, 2017: e1–e7.

TABLE 3—Total Restaurants and Proportion of Restaurants Required to Post Menu Labels by Census Tract, and Associations Between Menu-Labeling Status and Census Tract Characteristics: 4 New Jersey Cities, 2014

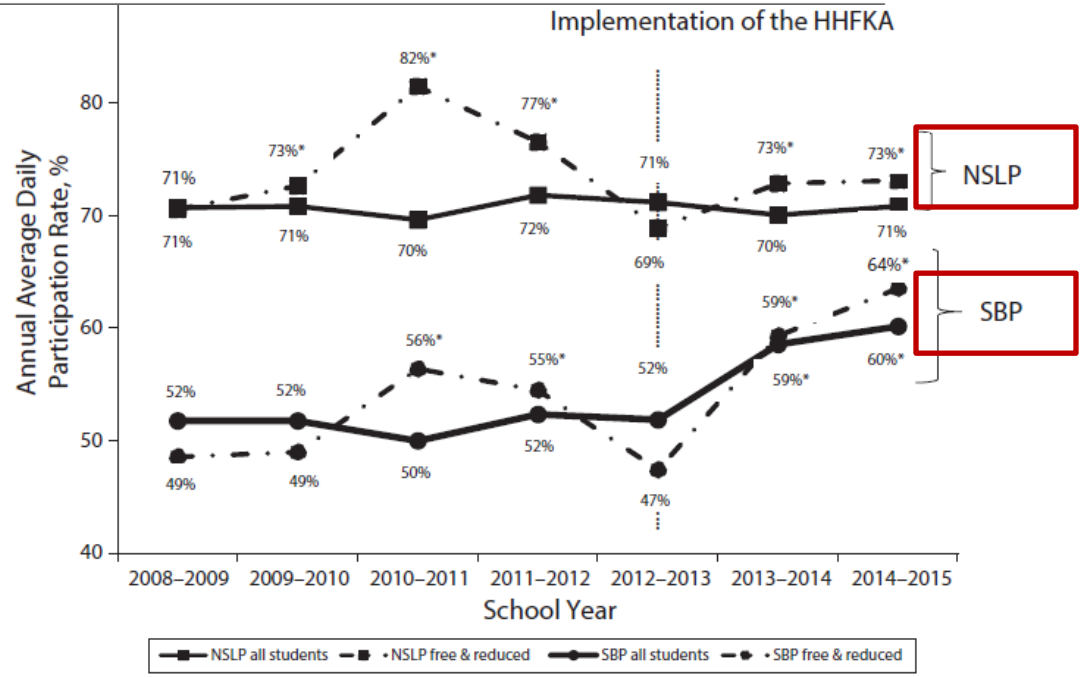
Characteristic	No. Restaurants	No. Required to Post Menu Labels (%)	OR[a] (95% CI)
Total	1753	308 (17.6)	
Income categories,[b] tertile, $			
Lower, < 36 997	506	78 (15.4)	1 (Ref)
Middle, 36 997–52 557	689	114 (16.5)	1.25 (0.90, 1.73)
Higher, > 52 557	552	114 (20.7)	1.55 (1.08, 2.23)
Race/ethnicity[c]			
Majority non-Hispanic White	339	56 (16.5)	1 (Ref)
Majority non-Hispanic Black	487	100 (20.5)	1.62 (1.08, 2.43)
Majority Hispanic	405	44 (10.9)	0.74 (0.47, 1.17)
No majority	521	108 (20.7)	1.44 (1.01, 2.07)

School of Nutrition & Health Promotion

Am J Public Health. Published online ahead of print November 21, 2017: e1–e3.

Impact of the 2010 US Healthy, Hunger-Free Kids Act on School Breakfast and Lunch Participation Rates Between 2008 and 2015

Nicole Vaudrin, MS, RD, Kristen Lloyd, MPH, Michael J. Yedidia, PhD, MPH, Michael Todd, PhD, and Punam Ohri-Vachaspati, PhD, RD



*$P < .05$ for differences between base year (2008–2009) and subsequent years.

Note. HHFKA = Healthy, Hunger-Free Kids Act. Mean participation rates presented are adjusted for clustering within schools and schools clustered within cities. Models included school level (elementary, middle, and high) as a fixed effect.

FIGURE 1—Annual Average Adjusted National School Lunch Program (NSLP) and School Breakfast Program (SBP) Daily Participation Rates: 4 New Jersey Cities, School Years 2008–2009 to 2014–2015

Nutrition Promotion

Preventive Medicine Reports 4 (2016) 256–261

Contents lists available at ScienceDirect

Preventive Medicine Reports

journal homepage: http://ees.elsevier.com/pmedr

Healthy store programs and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), but not the Supplemental Nutrition Assistance Program (SNAP), are associated with corner store healthfulness☆

Robin S. DeWeese [a,*], Michael Todd [b], Allison Karpyn [c], Michael J. Yedidia [d], Michelle Kennedy [d], Meg Bruening [a], Christopher M. Wharton [a], Punam Ohri-Vachaspati [a]

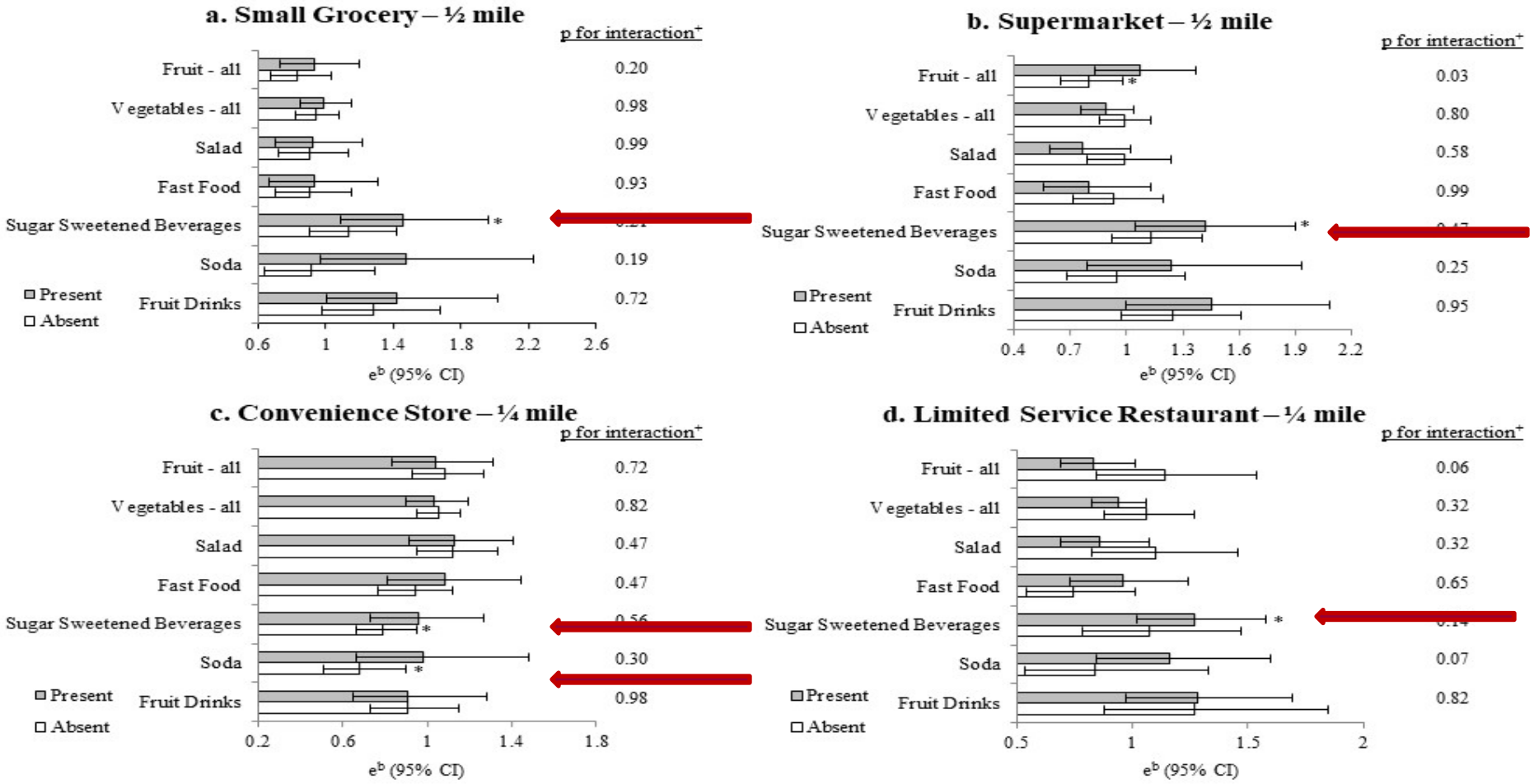
[a] Arizona State University, School of Nutrition and Health Promotion, 500 N 3rd St, Phoenix, AZ 85004-0698, USA

Table 2
Adjusted mean scores on NEMS-CS[a]-Availability and SCAT[b] instruments by store program participation in New Jersey corner stores in which product availability audits were conducted[c] in 2014.

	Marginal means (95% CI)	
	NEMS-CS[a]-availability points (n = 314)	SCAT[b] points (n = 315)
Upgraded[d]	12.8 (11.6–14.1)	3.18 (2.65–3.71)*
Non-upgraded	12.5 (12.0–13.0)	2.52 (2.32–2.73)
WIC[e] vendors	15.3 (14.4–16.1)*	4.29 (3.98–4.60)*
Non-WIC[e] vendors	11.6 (11.1–12.1)	2.01 (1.83–2.20)
SNAP[f]-only vendors	11.5 (10.8–12.2)*	1.98 (1.70–2.27)*
Non-SNAP[f]-only vendors	13.2 (12.6–13.8)	3.04 (2.80–3.28)

Food Environment Moderates Association between SNAP and Eating Behaviors

Figure 1: Stratified analysis of the association between SNAP participation and eating behaviors, based on presence or absence of a food outlet, and the significance of the interaction between SNAP participation and food outlet presence.



SNAP=Supplemental Nutrition Assistance Program. e^b = antilogarithm of regression coefficient and represents the proportional difference in frequency of food or beverage consumption with the receipt of weight loss advice vs no advice. *p<0.05 for association between SNAP participation and eating behavior, based on specific presence or absence of food outlet. +p-value from an independent model including interaction between SNAP participation and food outlet presence, fully adjusting for age, gender, race/ethnicity, education, city of residence, panel, WIC participation, and income.

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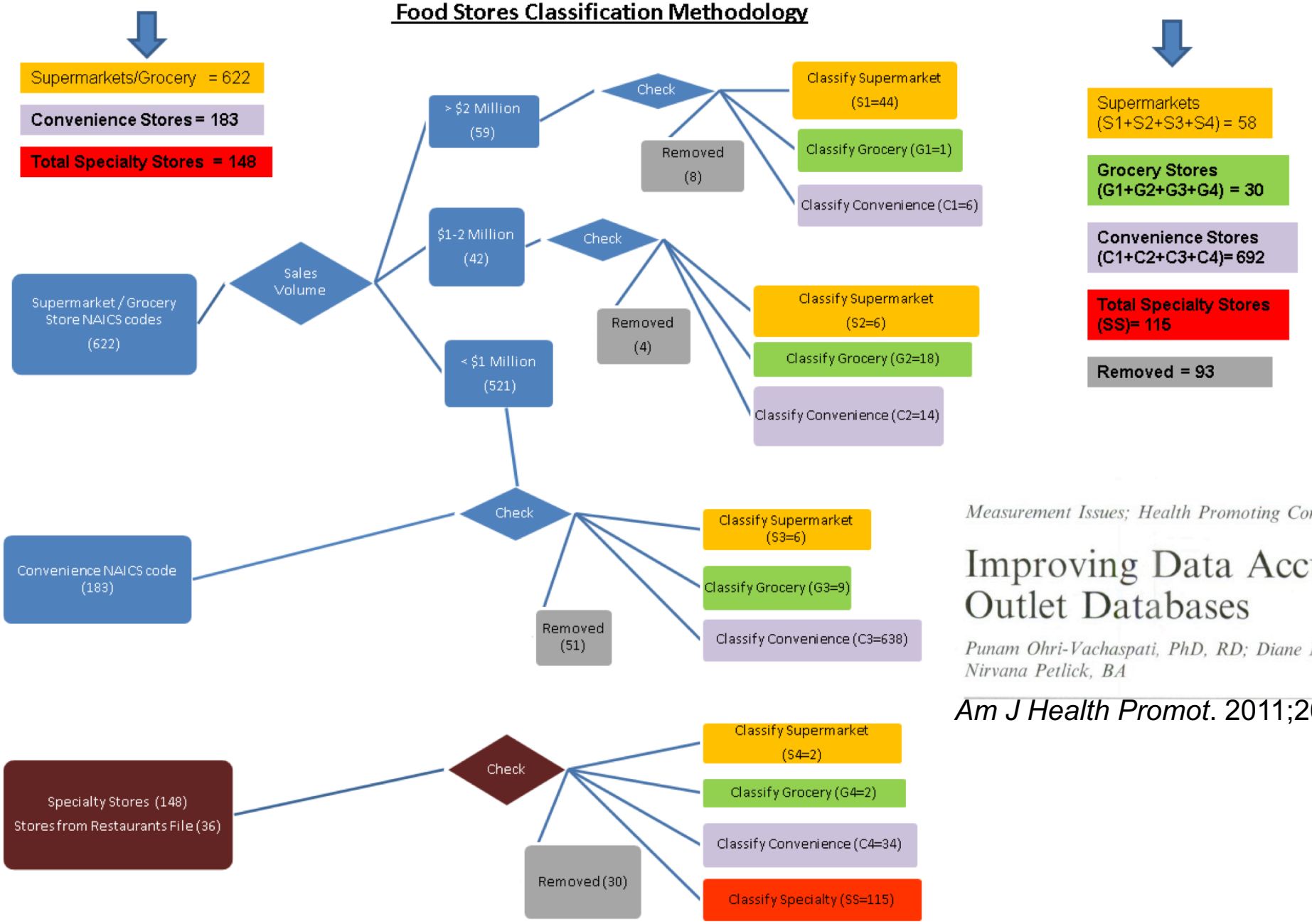
Measures and Methods

Figure 1
Food Stores Classification Methodology



Final Classification

Supermarkets (S1+S2+S3+S4) = 58

Grocery Stores (G1+G2+G3+G4) = 30

Convenience Stores (C1+C2+C3+C4)= 692

Total Specialty Stores (SS)= 115

Removed = 93

Measurement Issues; Health Promoting Community Design; Nutrition

Improving Data Accuracy of Commercial Food Outlet Databases

Punam Ohri-Vachaspati, PhD, RD; Diane Martinez, MPH; Michael J. Yedidia, PhD; Nirvana Petlick, BA

Am J Health Promot. 2011;26(2):116-122.

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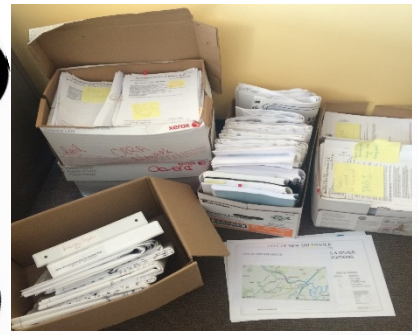
Protocol for Capturing Upgrades and Incremental Changes



PROTOCOL

INCREMENTAL CHANGES CLASSIFIED AS AMENITIES, UPGRADES, NEW OPPORTUNITIES

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Rater ID_____ Store ID_____ Date_____

Start time_____ End time_____

Notes

Research Method: Measurement Issues/Nutrition

Short-Form Audit Instrument for Assessing Corner Store Healthfulness

American Journal of Health Prom
2018, Vol. 32(1) 224-232
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DOI: 10.1177/089011711667905
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SAGE

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1. Milk: Any size unflavored skim or 1% cow's milk
2. Fresh fruit types: Must be a distinct fruit to count as a "type" (e.g., all apples count as 1 type, regardless of number of different varieties). Do ***not*** count lemons or limes.
3. Fresh vegetable types: Must be a distinct vegetable to count as a "type" (e.g., all onions count as 1 type, regardless of number of different varieties). ***Do*** count potatoes and onions.
4. Frozen vegetables: ***Cannot*** have any added ingredients such as salt, sugar, or sauces.
5. Ground meat: Any type, including beef, turkey, or chicken
6. Refrigeration: Must contain fresh fruits or vegetables, or ground meat. ***Do not*** include refrigeration for beverages only.
7. WIC signs: Signs on door, windows, near cash registers, and/or on shelves indicating that WIC vouchers are accepted.

Short-form Corner store Audit Tool (SCAT)

In-store version

Look for the presence of each of the following items.

1. Skim or 1% milk (unflavored)
   ☐ Yes ☐ No
2. 5 or more different types of fresh fruits
   ☐ Yes ☐ No
3. 5 or more different type of fresh vegetables
   ☐ Yes ☐ No
4. Frozen vegetables (any type)
   - Without sauce, salt, or sugar
   ☐ Yes ☐ No
5. Ground meat
   ☐ Yes ☐ No
6. Refrigeration containing fresh fruits, vegetables, or ground meat
   ☐ Yes ☐ No ☐ NA
7. Does the store have WIC signs?
   ☐ Yes ☐ No

Total score ☐ **Scoring**: 7 total points possible

Yes: 1 point
No: 0 points

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NJCHS II: Obesity Declines

2017-2021

Examining Obesity Declines among School Children: The Role of Changes in the Food and Physical Activity Environments.

(NHLBI, R01, Ohri-Vachaspati and Yedidia (MPI)

- **Aim 1**: Determine which changes in the food and PA environments in schools and the surrounding community are the **strongest predictors** of sustained obesity declines over time among a panel of K-12 schools.
- **Aim 2**: Identify those community- and school-level changes in food and PA environments that are **most common among schools with sustained obesity declines** as compared to other schools.
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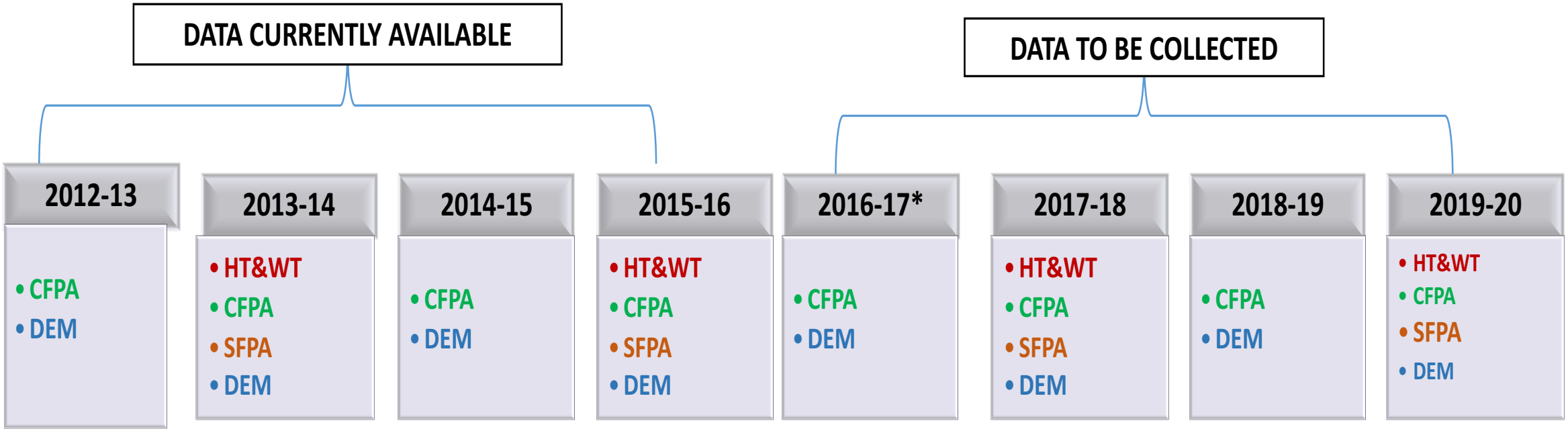
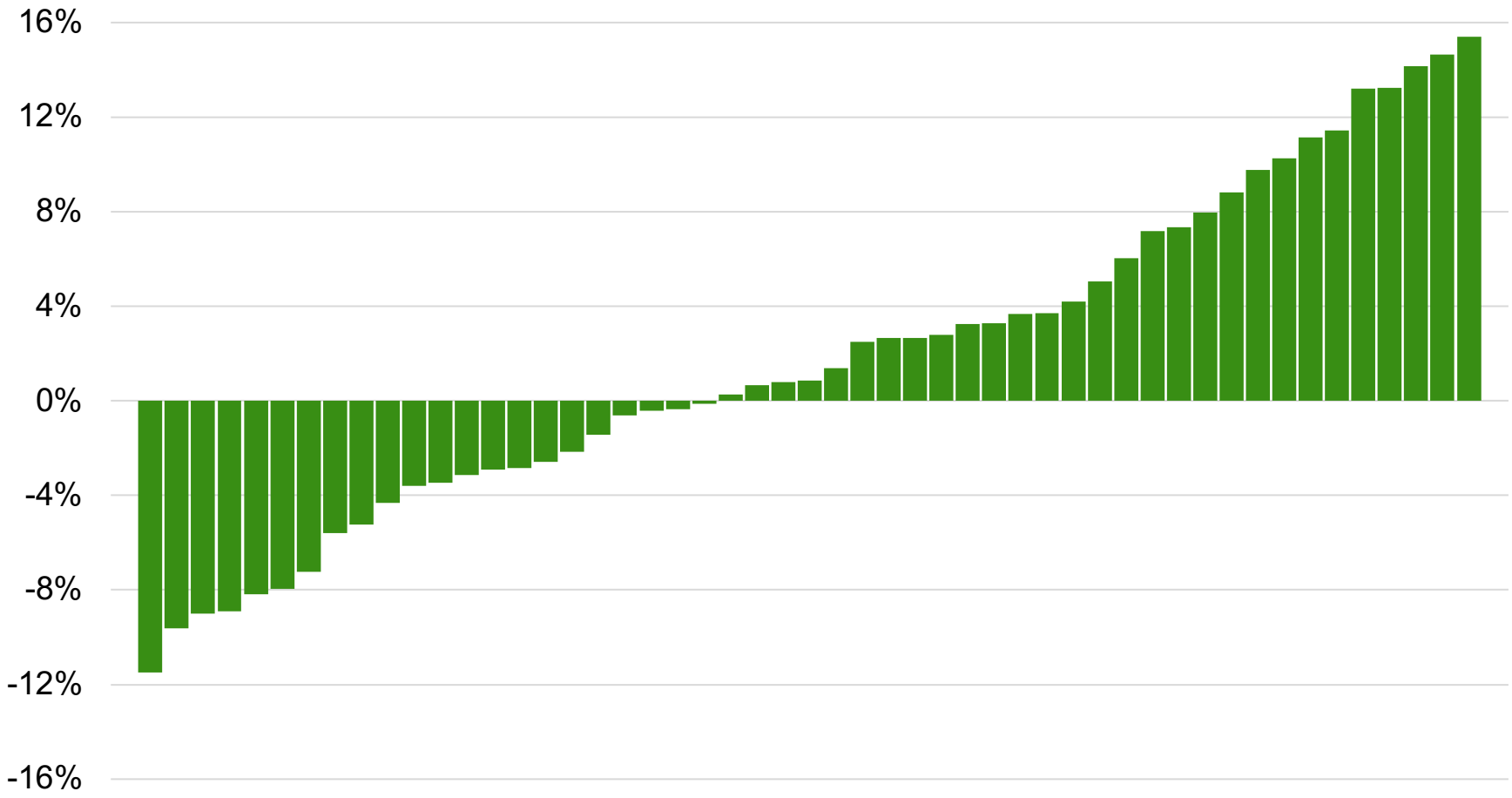
NJCHS II: Obesity Declines
Research Design



HT&WT: School nurse measured heights and weights data collected on all children using standard protocol
CFPA: Community Food and PA data to be collected using standardized protocols
SFPA: School Food and PA data collected using self-administered school nurse survey with questions adapted from previous research
DEM: Contextual variables for school level factors to be collected from the National Center for Educational Statistics and School Nurse surveys; for community level factors from the American Community Survey

Change in Overweight and Obesity Prevalence by School between 2008 and 2015



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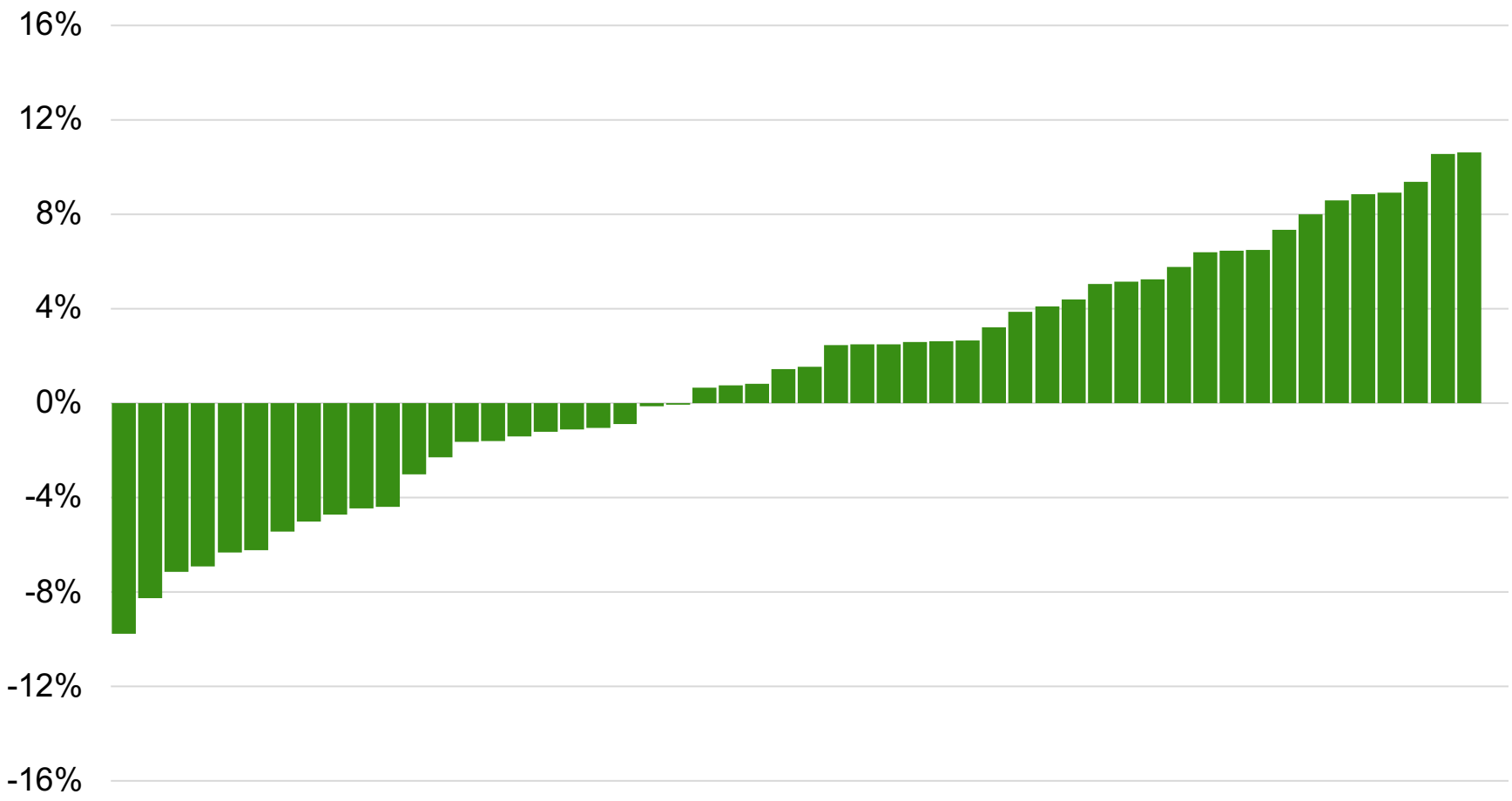
Change in Obesity Prevalence by School between 2008 and 2015



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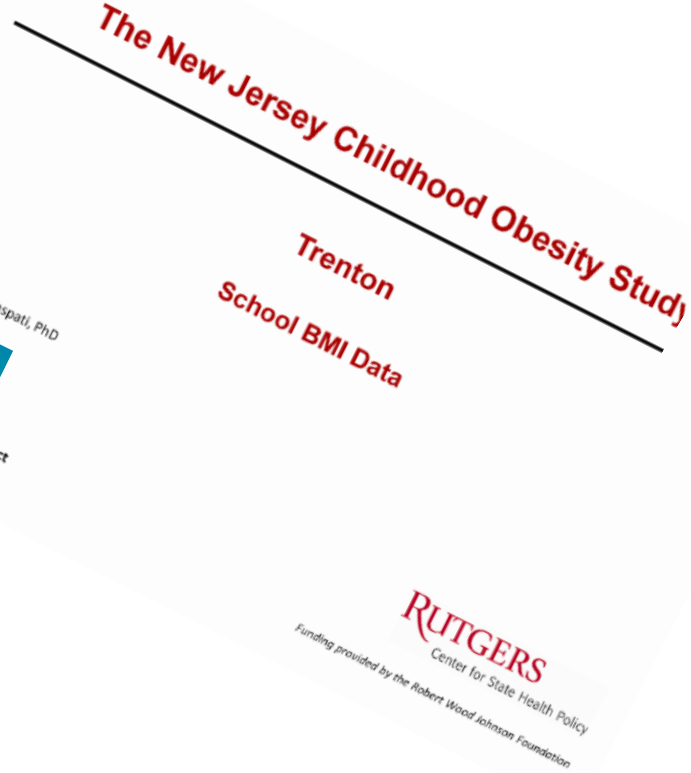
Engaging Decision makers and Stakeholders

- Data and Chart Books
- Presentations
- Research Briefs



Engaging Decision Makers and Stakeholders

Michelle Obama talks about curbing obesity during Newark visit

[http://connect.nj.com/staff/njoslstaff/index.html] By Star-Ledger Staff [http://connect.nj.com/staff/njoslstaff/posts.html]
Follow on Twitter [https://twitter.com/starledger]
on November 19, 2010 at 9:10 AM, updated November 19, 2010 at 11:33 AM

NEWARK [http://www.nj.com/newark/] — Newark may have a "rock star" mayor, but it was Michelle Obama who had of Newark students screaming in their chairs and scrambling to touch her hand Thursday, in her first visit to New Jersey nation's first lady.

Showering the students of Maple Avenue school with praise, hugs and handshakes, Obama stopped in Newark to tout a program seeking to curb childhood obesity.

A Year On the Hill

Robert Wood Johnson Foundation
Health Policy Fellows

About Apply Fellows Resources

School of Nutrition
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A Year On the Hill

SENATOR KIRSTEN GILLIBRAND (D-NY)

A Year On the Hill

SNAP BENEFITS

NUTRITION EDUCATION INTEGRATION

HEALTHY FOOD FINANCE INITIATIVE

MEDICARE FOR ALL

SKINNY REPEAL

PUBLIC OPTION

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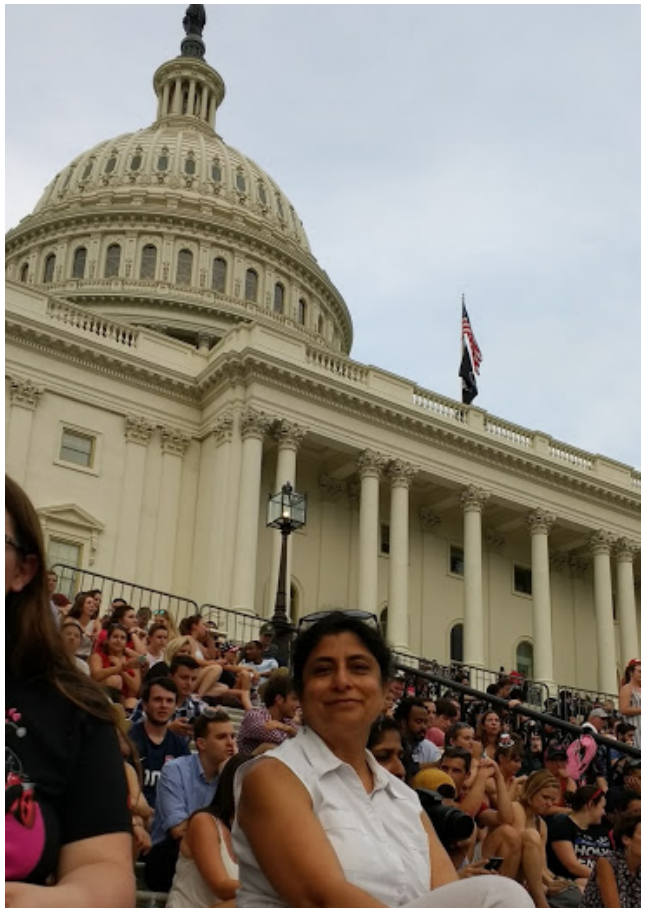
A Year On the Hill



A Year On the Hill
- Source of Evidence

Congressional Research Service
Informing the legislative debate since 1914

Center on Budget and Policy Priorities

THE HENRY J. KAISER FAMILY FOUNDATION

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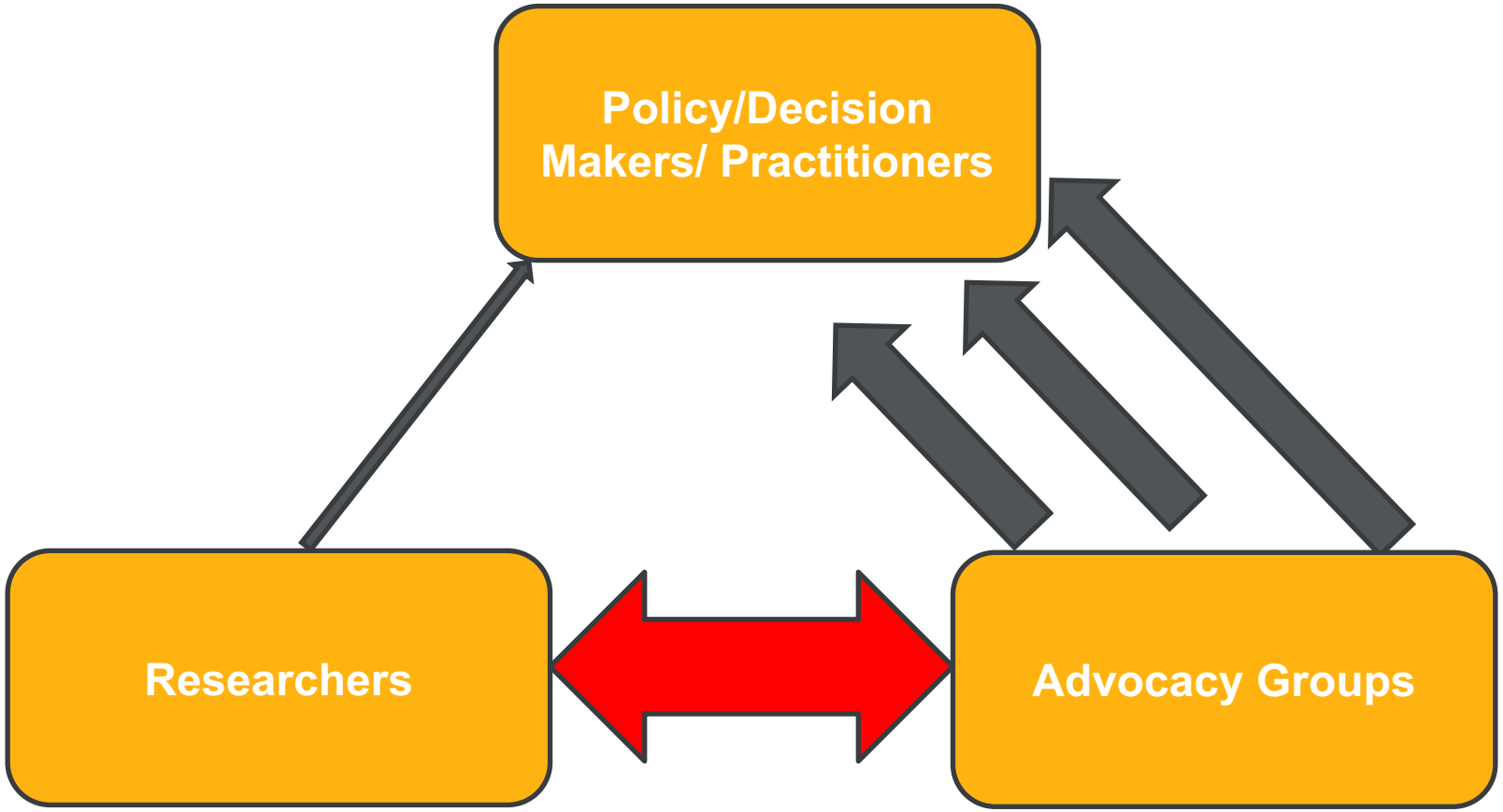
A Year On the Hill
- Role of Advocacy

The Advocacy – Research Connection

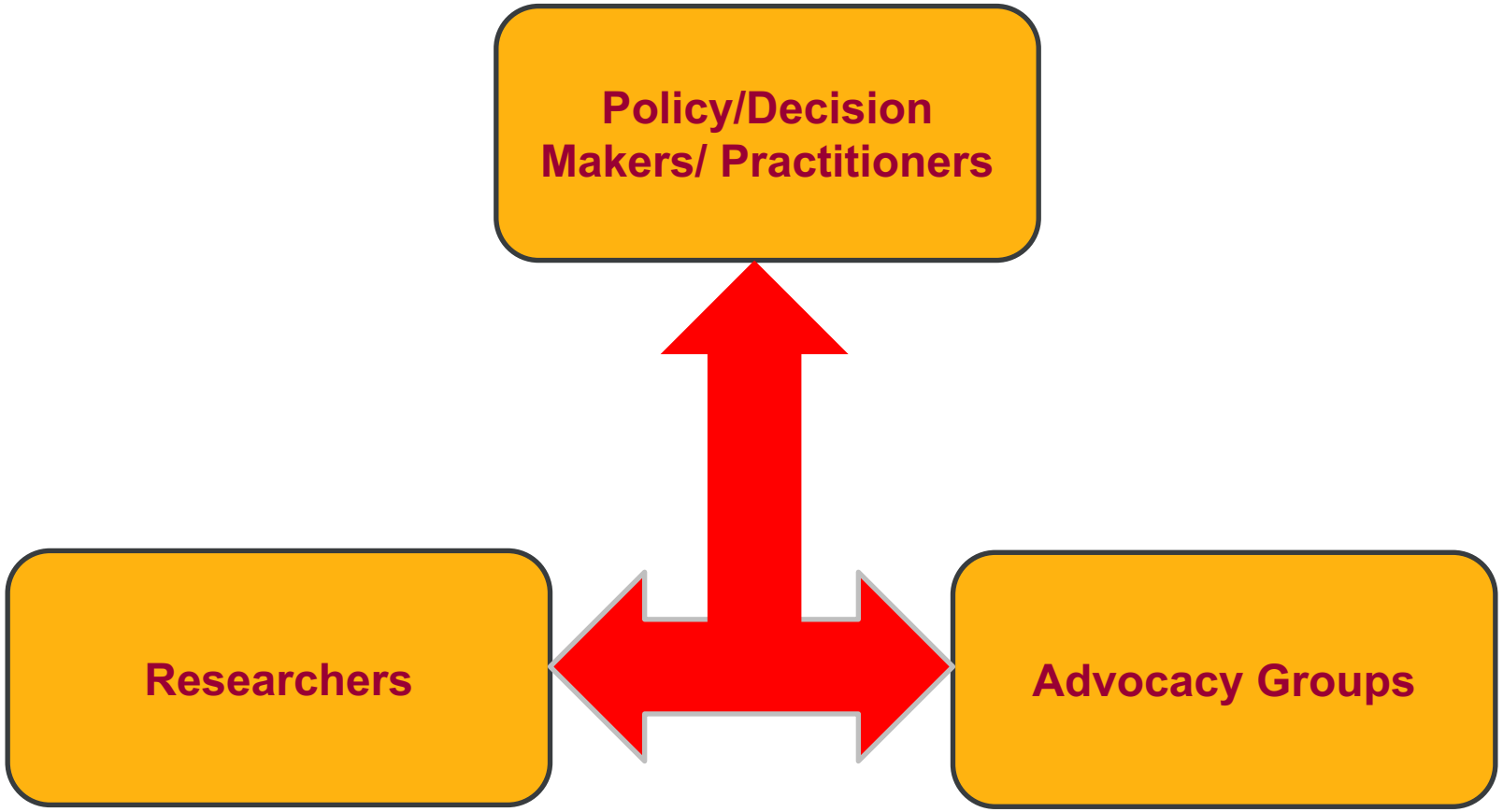


Strengthening Research – Advocacy Connection

- **Engaging faculty**
  - Building relations with advocates
  - Strategic research questions
  - Advocates as partners, not competition
  - Dissemination of research

- **Faculty Support and Incentives**
  - Tenure and promotion
  - Protected time

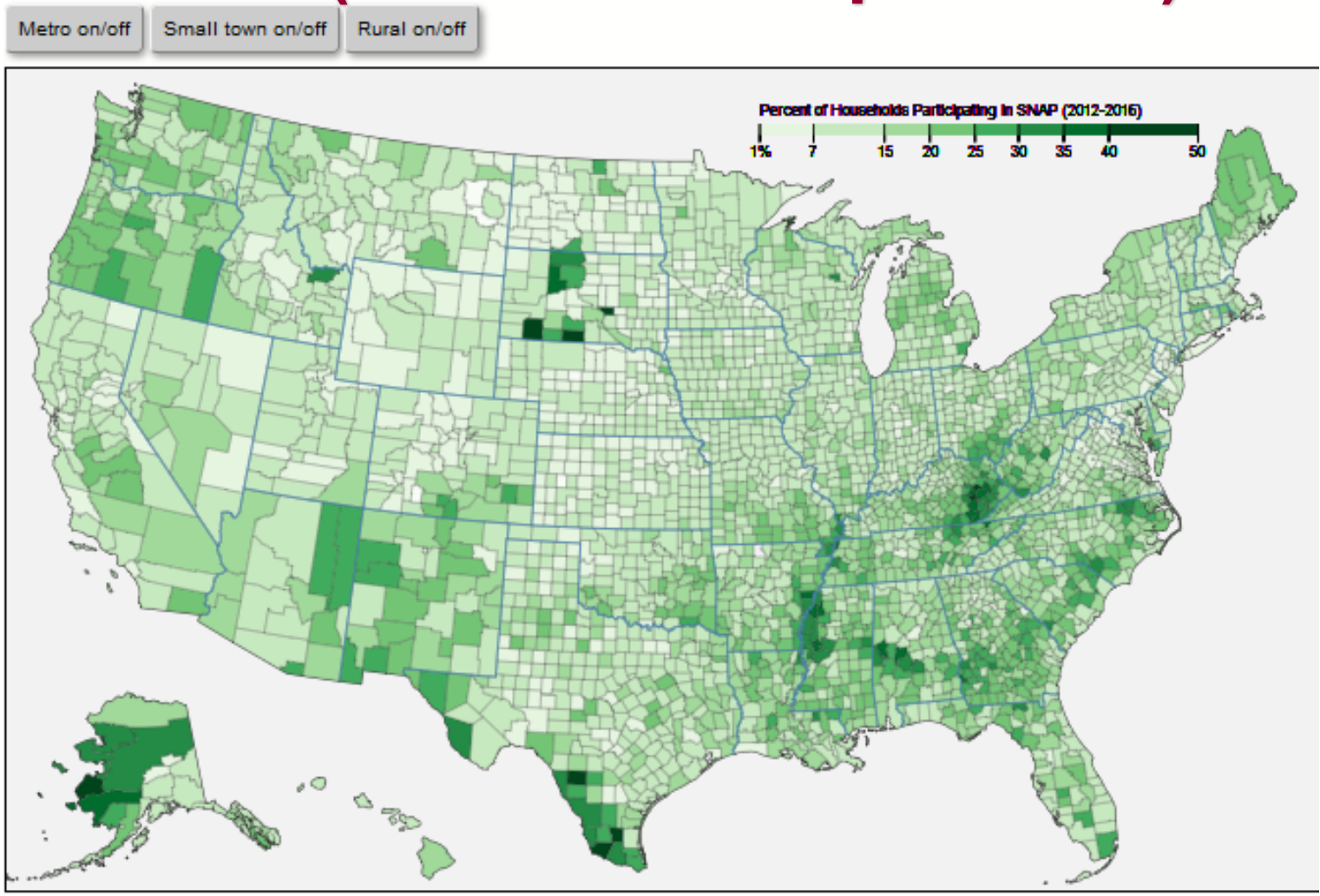
The Advocacy – Research Connection



Advocacating with Evidence

SNAP Matters in All Communities (interactive maps FRAC)

http://www.frac.org/snap-county-map/snap-counties.html



FRAC analysis in collaboration with Punam Ohri-Vachaspati, PhD, RD, Professor, Arizona State University.

Source: 5-year American Community Survey (ACS) data, 2012-2016.

Advocating with Advocacy

A Dialogue Between Advocates and Researchers

- Proposed Session at APHA
  - A systematic approach to link researchers and advocates
  - Expand the networks
  - Assessing the needs of advocacy
  - Strategic science – where to build evidence

Thank You!

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http://asufoodpolicy.org

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