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Ohio Cardiovascular and Diabetes Health Collaborative

SCHOOL OF MEDICINE
CASE WESTERN RESERVE UNIVERSITY

In partnership with:

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OHIO UNIVERSITY Heritage College of Osteopathic Medicine

Northeast Ohio MEDICAL UNIVERSITY

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MedTAPP

OHIO COLLEGES OF MEDICINE GOVERNMENT RESOURCE CENTER

Ohio Department of Medicaid

Project ECHO®

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Cardi-OH ECHO Tackling Type 2 Diabetes

Thursday, November 5, 2020

Disclosure Statements

- The following planners, speakers, moderators, and/or panelists of the CME activity have financial relationships with commercial interests to disclose:
  - Goutham Rao, MD serves on the nutrition advisory board of Group Danone North America.
  - Kathleen Dungan, MD, MPH receives consulting fees from Eli Lilly and Tolerion, institutional research fees from Eli Lilly, Novo Nordisk, and Sanofi Aventis, and presentation honoraria from Nova Biomedical, Integritas, and Uptodate.
  - Siran M. Koroukian, PhD receives grant funds for her role as a co-investigator on a study funded by Celgene.
  - Adam T. Perzynski, PhD reports being co-owner of Global Health Metrics LLC, a Cleveland-based software company and royalty agreements for book authorship with Springer Nature publishing and Taylor Francis publishing.
  - Martha Sajatovic, MD receives grant support as PI of studies with Nuromate and Otsuka, study design consulting fees from Alkermes, Otsuka, Neurocrine, and Health, and publication development royalties from Springer Press and Johns Hopkins University.
  - Christopher A. Taylor, PhD, RDN, LD, FAND reports grant funding for his role as a researcher and presenter for Abbott Nutrition and grant funding for research studies with both the National Cattleman's Beef Association and the American Dairy Association.
  - Jackson T. Wright, Jr., MD, PhD reports research support from the NIH and Ohio Department of Medicaid and consulting with NIH, AHA, and ACC.
  - These financial relationships are outside the presented work.
- All other planners, speakers, moderators, and/or panelists of the CME activity have no financial relationships with commercial interests to disclose.

Food Sources and Type 2 Diabetes

Goutham Rao, MD, FAHA

Chief Clinician Experience and Well-Being Officer, University Hospitals Health System

Jack H. Medalie Endowed Professor and Chairman

Department of Family Medicine and Community Health

Division Chief, Family Medicine, Rainbow Babies and Children's Hospital

Case Western Reserve University School of Medicine & University Hospitals Cleveland Medical Center

Adam Perzynski, PhD

Associate Professor of Medicine and Sociology

Director, Patient-Centered Media Lab, Center for Health Care Research and Policy

The MetroHealth System

Case Western Reserve University

Objectives

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1) Describe how available food sources influence risk and control of type 2 diabetes.

2) Describe how taste preferences influence body weight and control of type 2 diabetes.

3) Describe the impact of public health efforts to improve the healthfulness of the food supply.

Disparities in Obesity are Well-Known

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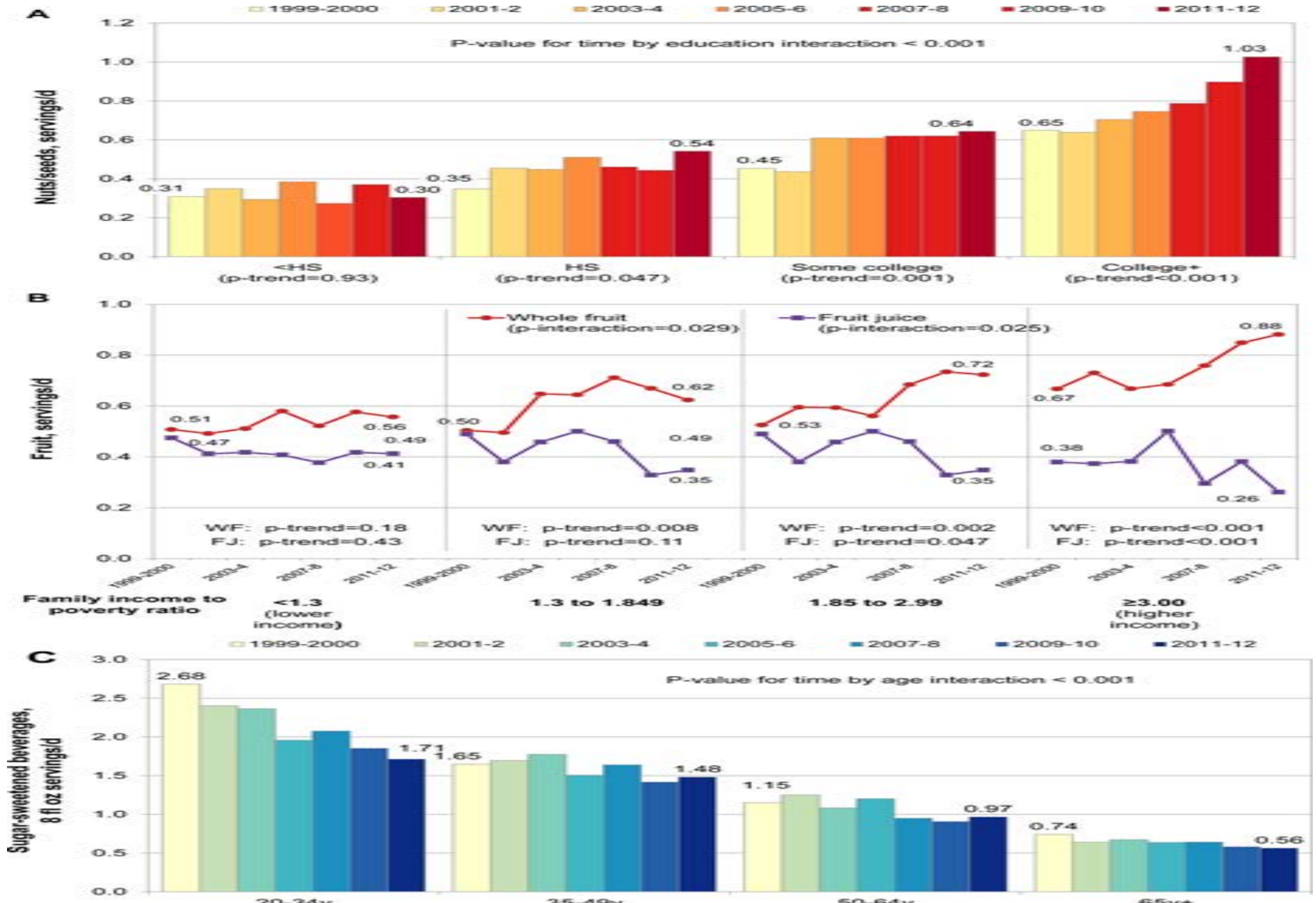
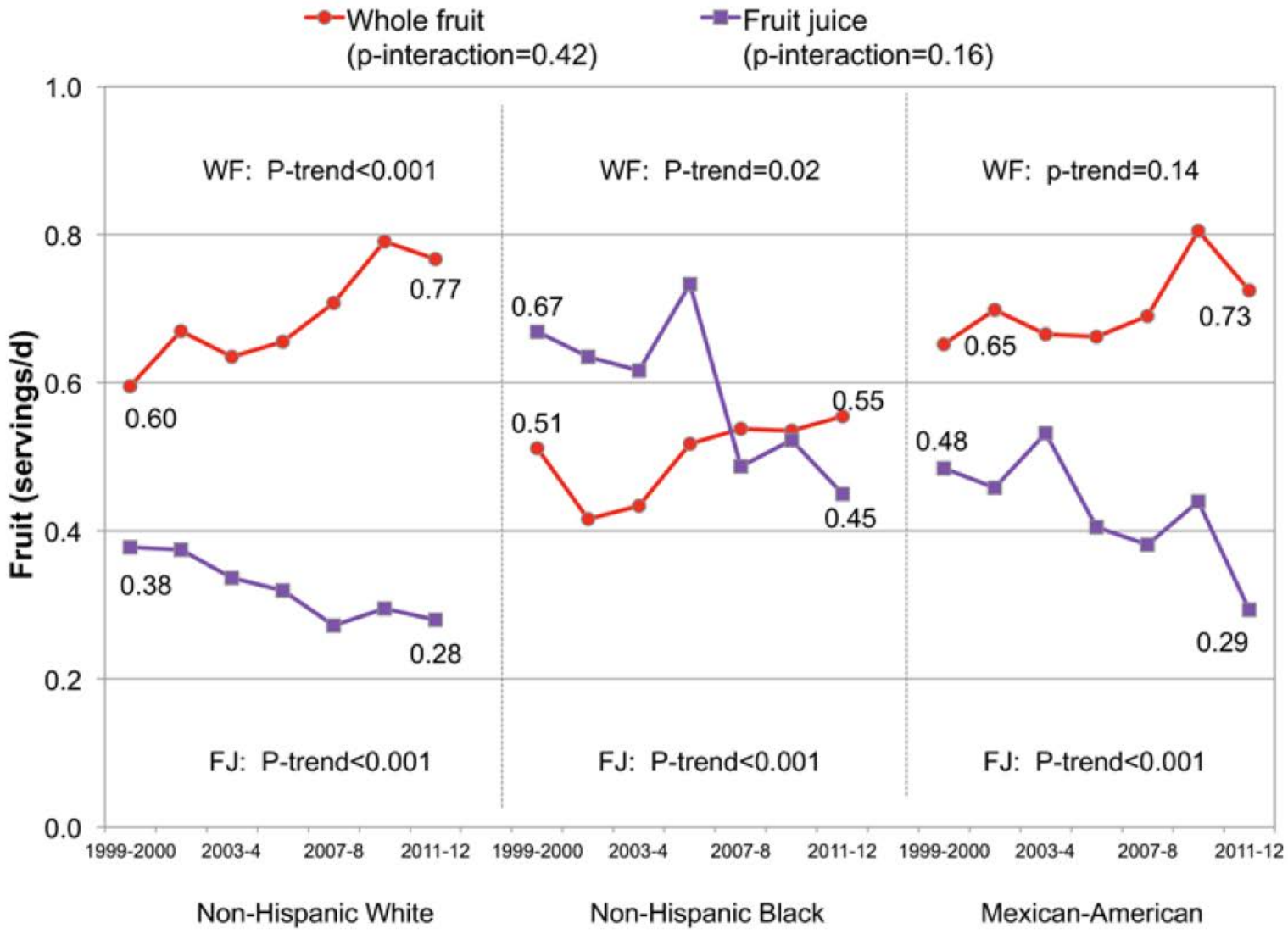
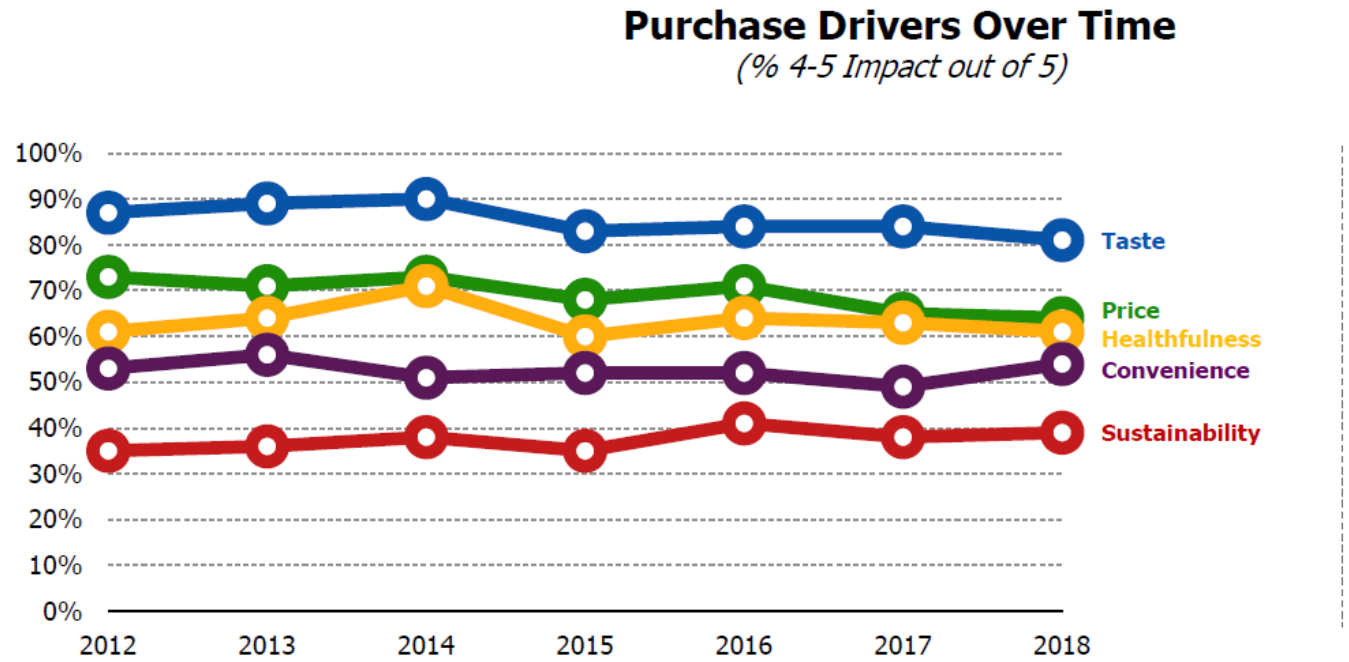
- Overall adult obesity prevalence is 42.4%
- Black – 49.6%
- Latinx – 44.8%
- Native American – 48.1%


A
1999-2000
2001-2
2003-4
2005-6
2007-8
2009-10
2011-12
Nuts/seeds, servings/d
P-value for time by education interaction < 0.001
0.31
0.30
0.35
0.54
0.45
0.64
0.65
1.03
<HS
(p-trend=0.93)
HS
(p-trend=0.047)
Some college
(p-trend=0.001)
College+
(p-trend<0.001)
B
Fruit, servings/d
Whole fruit
(p-interaction=0.029)
Fruit juice
(p-interaction=0.025)
0.51
0.47
0.56
0.49
0.41
0.50
0.62
0.49
0.35
0.53
0.72
0.35
0.67
0.88
0.38
0.26
WF: p-trend=0.18
FJ: p-trend=0.43
WF: p-trend=0.008
FJ: p-trend=0.11
WF: p-trend=0.002
FJ: p-trend=0.047
WF: p-trend<0.001
FJ: p-trend<0.001
Family income to poverty ratio
<1.3 (lower income)
1.3 to 1.849
1.85 to 2.99
≥3.00 (higher income)
C
1999-2000
2001-2
2003-4
2005-6
2007-8
2009-10
2011-12
Sugar-sweetened beverages, 8 fl oz servings/d
P-value for time by age interaction < 0.001
2.68
1.71
1.65
1.48
1.15
0.97
0.74
0.56


Whole fruit
(p-interaction=0.42)
Fruit juice
(p-interaction=0.16)
Fruit (servings/d)
1.0
0.8
0.6
0.4
0.2
0.0
WF: P-trend<0.001
WF: P-trend=0.02
WF: p-trend=0.14
0.77
0.60
0.67
0.51
0.55
0.45
0.65
0.73
0.48
0.38
0.28
0.29
FJ: P-trend<0.001
FJ: P-trend<0.001
FJ: P-trend<0.001
1999-2000
2003-4
2007-8
2011-12
Non-Hispanic White
Non-Hispanic Black
Mexican-American

Taste and Price Remain Top Drivers

Although price is a top driver, it again comes in at a lower level than was seen before 2017



FOOD DESERTS

Giving the Poor Easy Access to Healthy Food Doesn't Mean They'll Buy It

By Margot Sanger-Katz

May 8, 2015

110

In 2010, the Morrisania section of the Bronx was what is commonly called a food desert: The low-income neighborhood in New York's least-healthy county had no nearby grocery store, and few places where its residents could easily buy fresh food.

That's why it was the target of a city tax incentive program designed to bring healthy food into underserved neighborhoods. In 2011, a 17,000-square-foot supermarket opened, aided by city money that paid some 40 percent of the costs of its construction. The neighborhood welcomed the addition, and perceived access to healthy food improved. But the diets of the neighborhood's

2016

We Built it and They Did Not Come: Using Governance Theory in the Fight for Food Justice in Low-Income Communities of Color

Deborah N. Archer

Tamara Belinfanti
New York Law School, tamara.belinfanti@nyls.edu

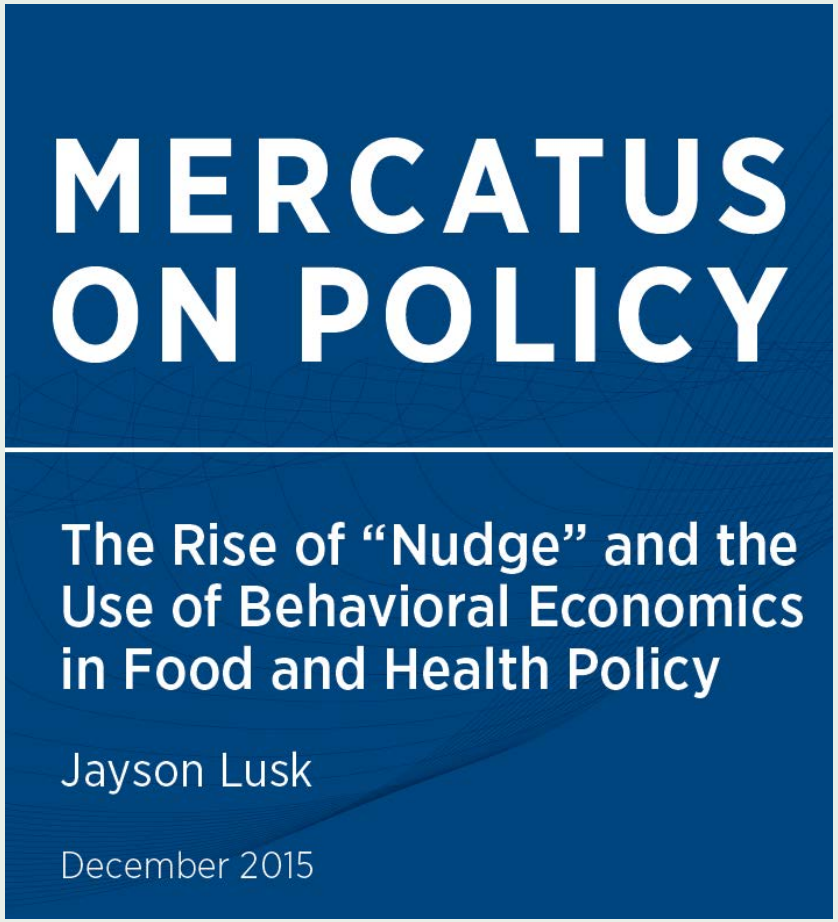
Videos

Goutham Rao, M.D.,Congressional Briefing: The State of ...

YouTube · Physicians Committee

May 6, 2014

Two potential strategies



- Redefining food justice:
- **"Food Justice** is communities exercising their right to grow, sell, and eat healthy **food**. Healthy **food** is fresh, nutritious, affordable, culturally-appropriate, and grown locally with care for the well-being of the land, workers, and animals."
- "Food justice involves refusing to purchase and consume unhealthy foods which are marketed and sold aggressively in poor communities and communities of color."

Screen and Refer Models Help Resolve Individual Challenges but Structural Challenges and Hazardous Food Environments Remain

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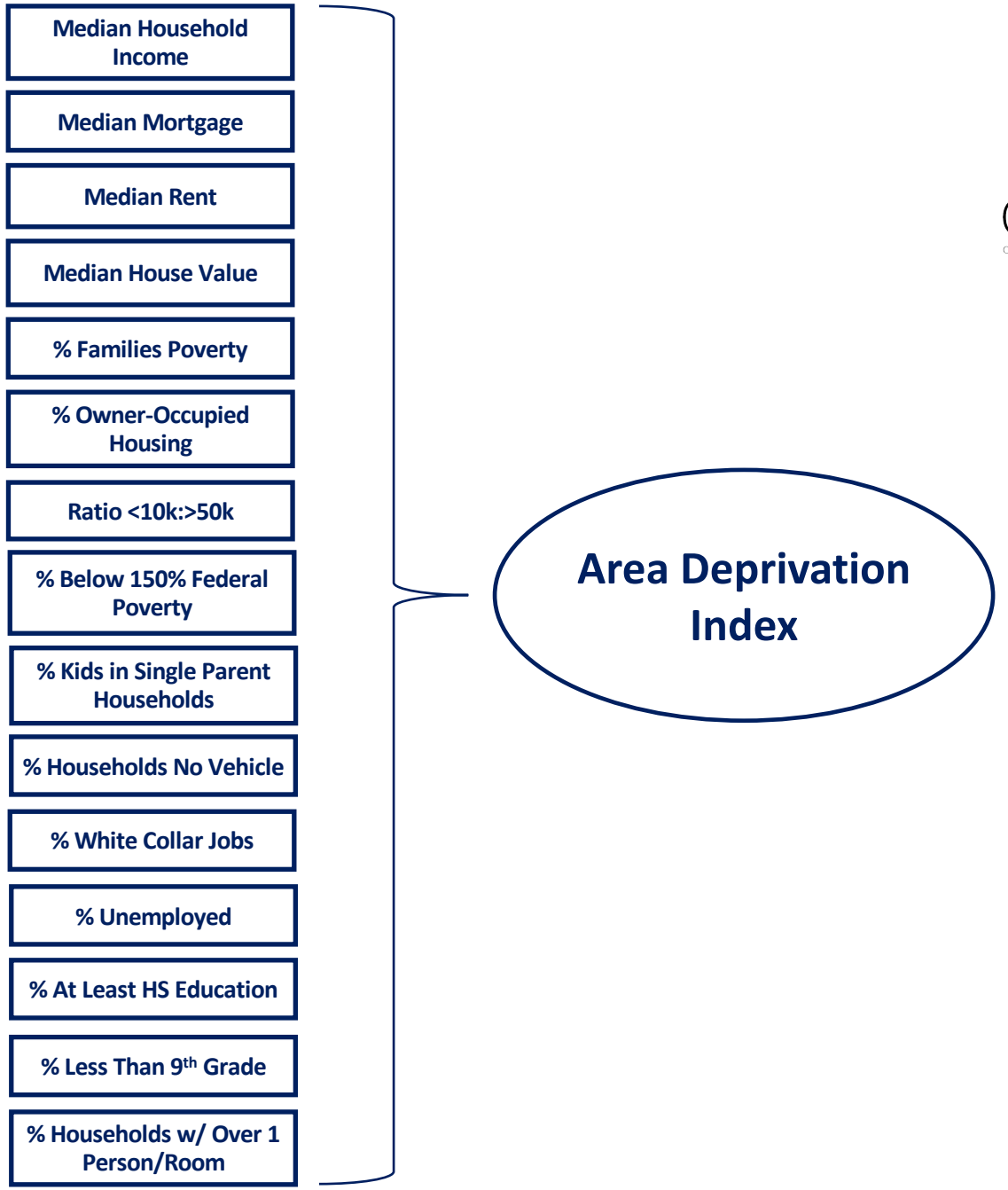
- Approaches that utilize an SBIRT-type model (screening, brief intervention, referral to treatment) have potential value.
- These approaches do not address underlying characteristics of communities that place individuals at risk and limit healthy options.



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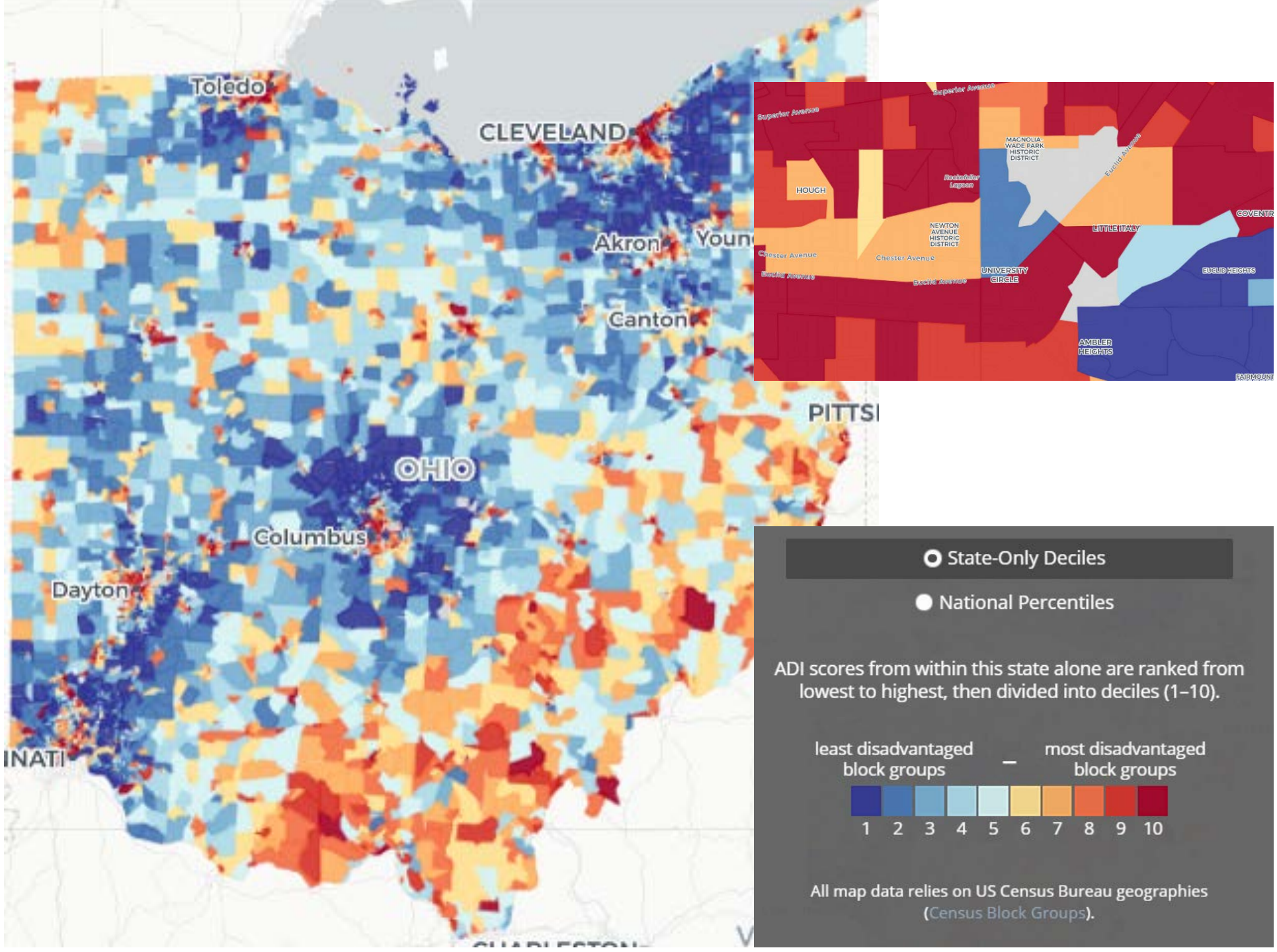
Toledo
CLEVELAND
Akron
Canton
PITTSI
OHIO
Columbus
Dayton
INATI
HOUGH
NEWTON AVENUE HISTORIC DISTRICT
MAGNOLIA WADE PARK HISTORIC DISTRICT
LITTLE ITALY
UNIVERSITY CIRCLE
EUCLID HEIGHTS
AMBLER HEIGHTS
Chester Avenue
Superior Avenue
Euclid Avenue
Rockefeller Lagoon
Euclid Avenue
Bolivar Avenue
Bolivar Avenue
State-Only Deciles
National Percentiles
ADI scores from within this state alone are ranked from lowest to highest, then divided into deciles (1–10).
least disadvantaged block groups
most disadvantaged block groups
1 2 3 4 5 6 7 8 9 10
All map data relies on US Census Bureau geographies (Census Block Groups).

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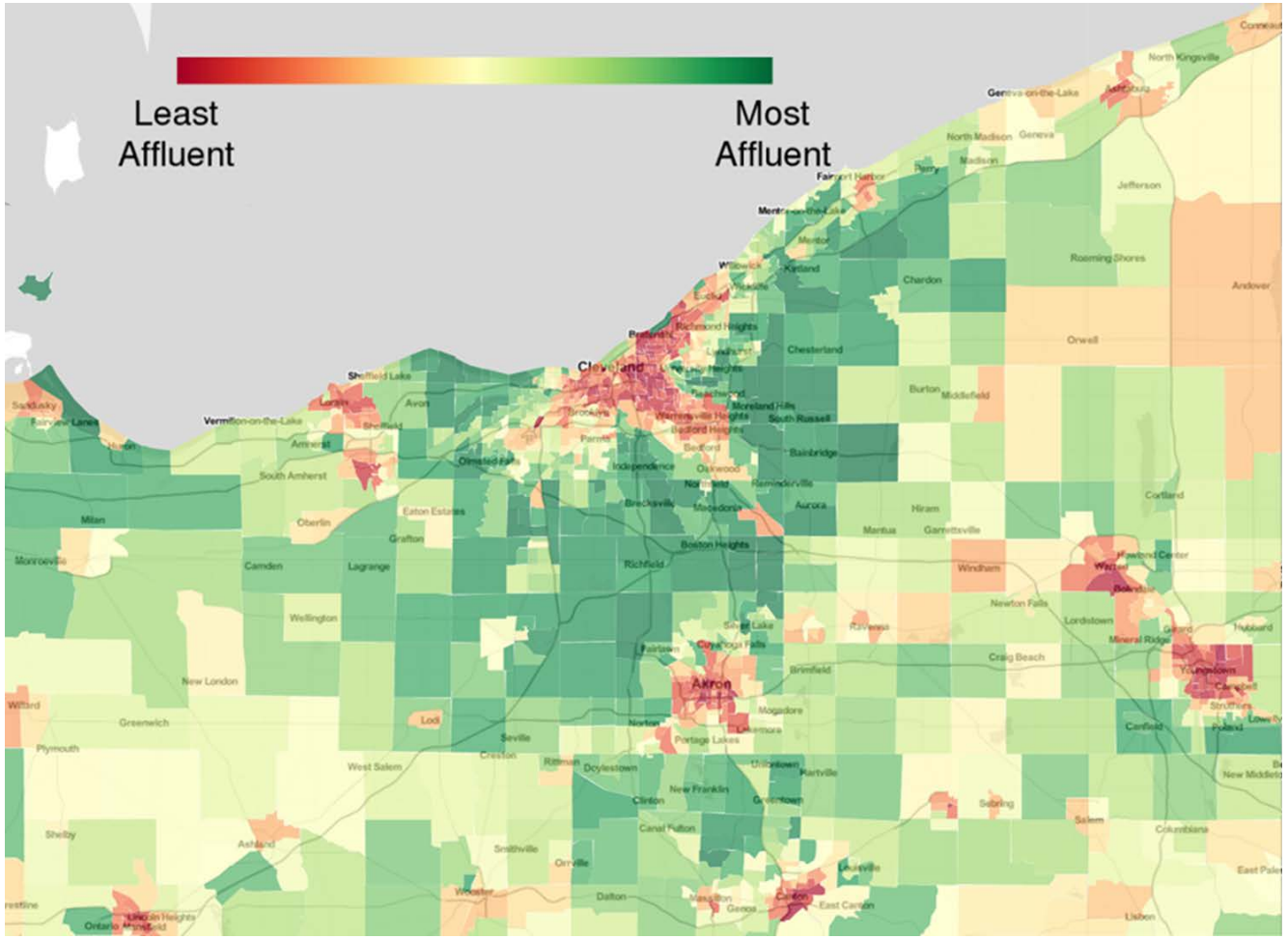
Annals of Internal Medicine

ORIGINAL RESEARCH

Accuracy of Cardiovascular Risk Prediction Varies by Neighborhood Socioeconomic Position

A Retrospective Cohort Study

Jarrod E. Dalton, PhD; Adam T. Perzynski, PhD; David A. Zidar, MD; Michael B. Rothberg, MD, MPH; Claudia J. Coulton, PhD; Alex T. Milinovich, BA; Douglas Einstadter, MD, MPH; James K. Karichu, PhD; and Neal V. Dawson, MD



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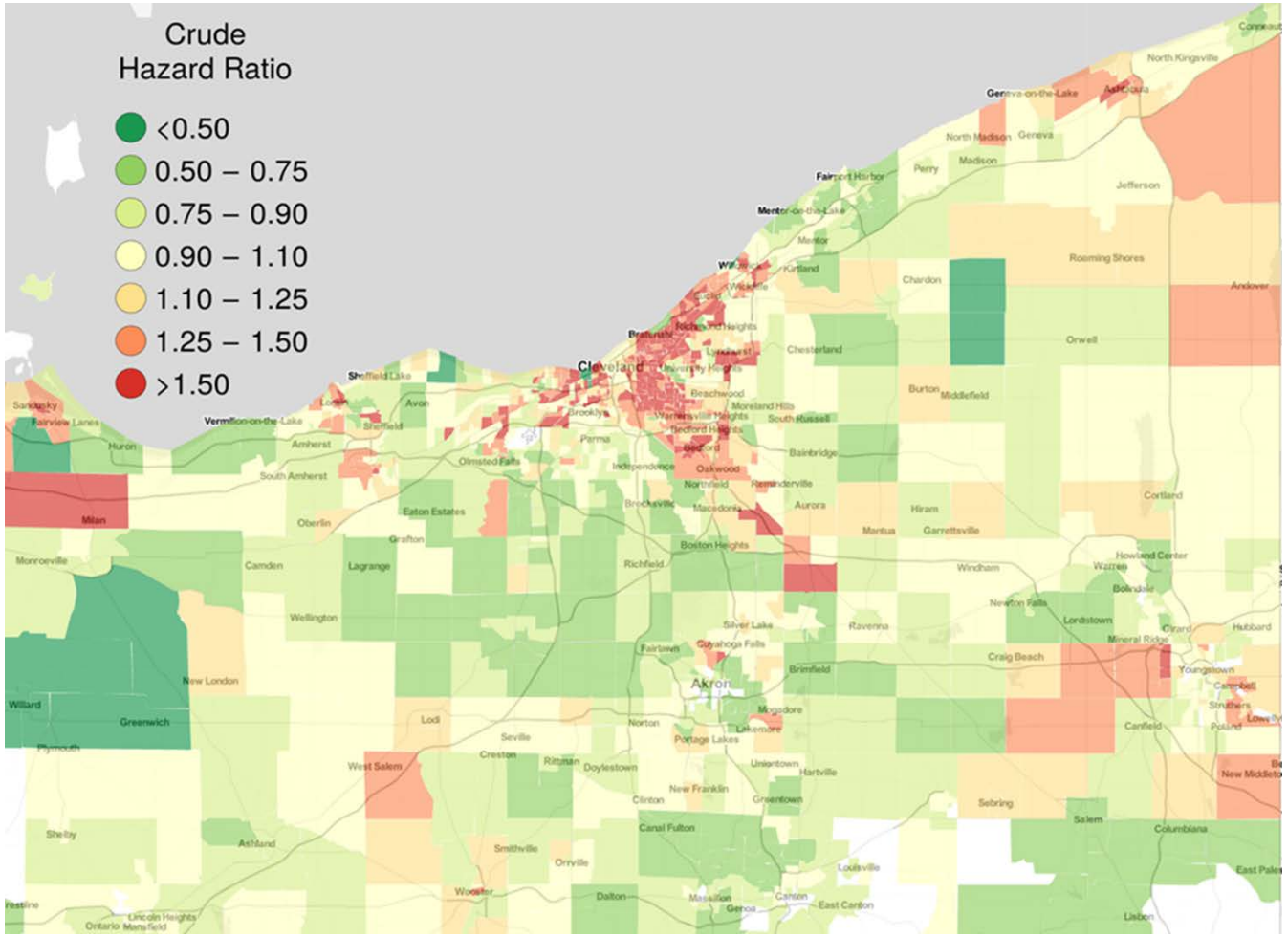

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The PCERM systematically under-predicted ASCVD event risk among low-SEP communities, and discrimination was poorer in low-SEP communities (concordance index [95% confidence interval]: 0.70 [0.67 – 0.74]) than in the most affluent communities (0.80 [0.78 – 0.81]).

Neighborhood SEP alone accounted for 32.0% of unexplained census-tract-level variation in ASCVD event rates, compared to 10.0% explained by the PCERM alone.

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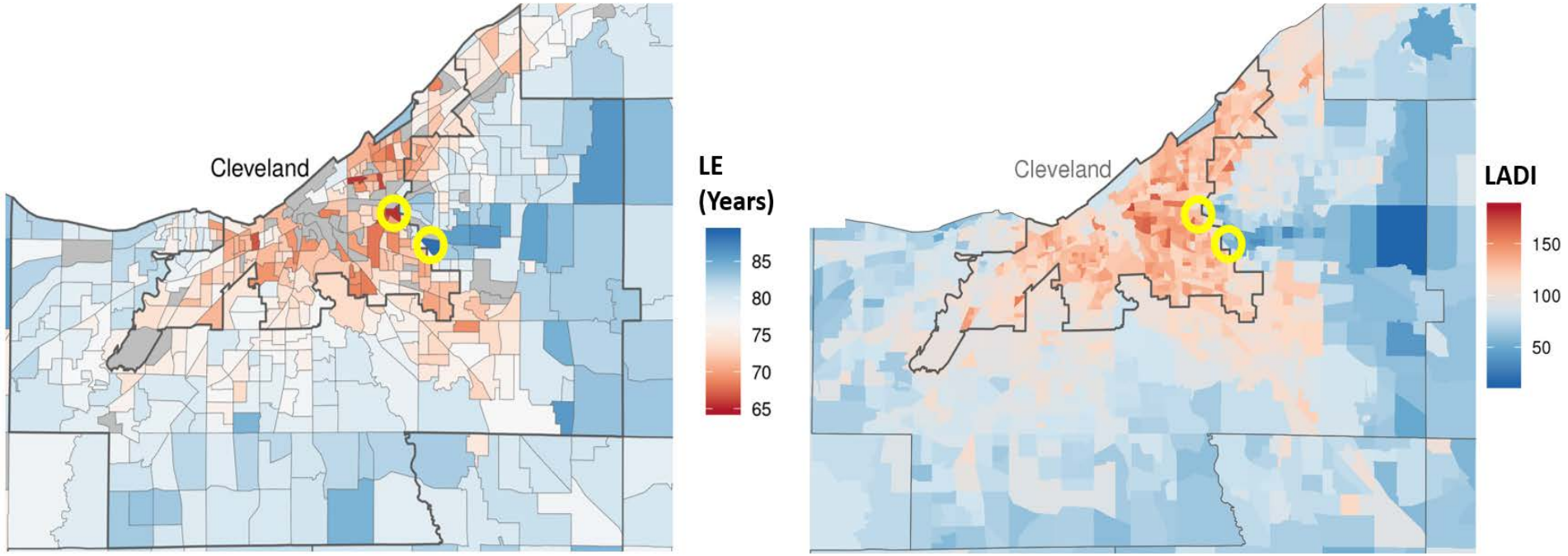

Figure 2. Census tract-level life expectancy (LE, 2010-2015) and localized area deprivation index (LADI, 2017) estimates for Cuyahoga County, Ohio. The tracts with the shortest and longest LE are circled in both panels.

Community Structures are Critically Important for Health and Food Choice

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Neighborhood Socioeconomic conditions influence:

1) Cardiovascular disease outcomes

2) Diabetes onset and management

3) Food retail environments

The Retail Food Environment Index (RFEI)

The Retail Food Environment Index is constructed by dividing the total number of fast-food restaurants and convenience stores by the total number of grocery stores (including supermarkets) and produce vendors (produce stores and farmers' markets) within a radius around an individual CHIS respondent's home (0.5 mile in urban areas, 1 mile in smaller cities and suburban areas, and 5 miles in rural areas).

$$\text{RFEI} = \frac{\text{\# Fast-Food Restaurants} + \text{\# Convenience Stores}}{\text{\# Grocery Stores} + \text{\# Produce Vendors}}$$

The average local RFEI for California adults is approximately 4.5, meaning that for each grocery store or produce vendor around Californians' homes, there are more than four fast-food restaurants and convenience stores.

Babey SH, Diamant AL, Hastert TA, Harvey S. 2008. Designed for disease: the link between local food environments and obesity and diabetes.

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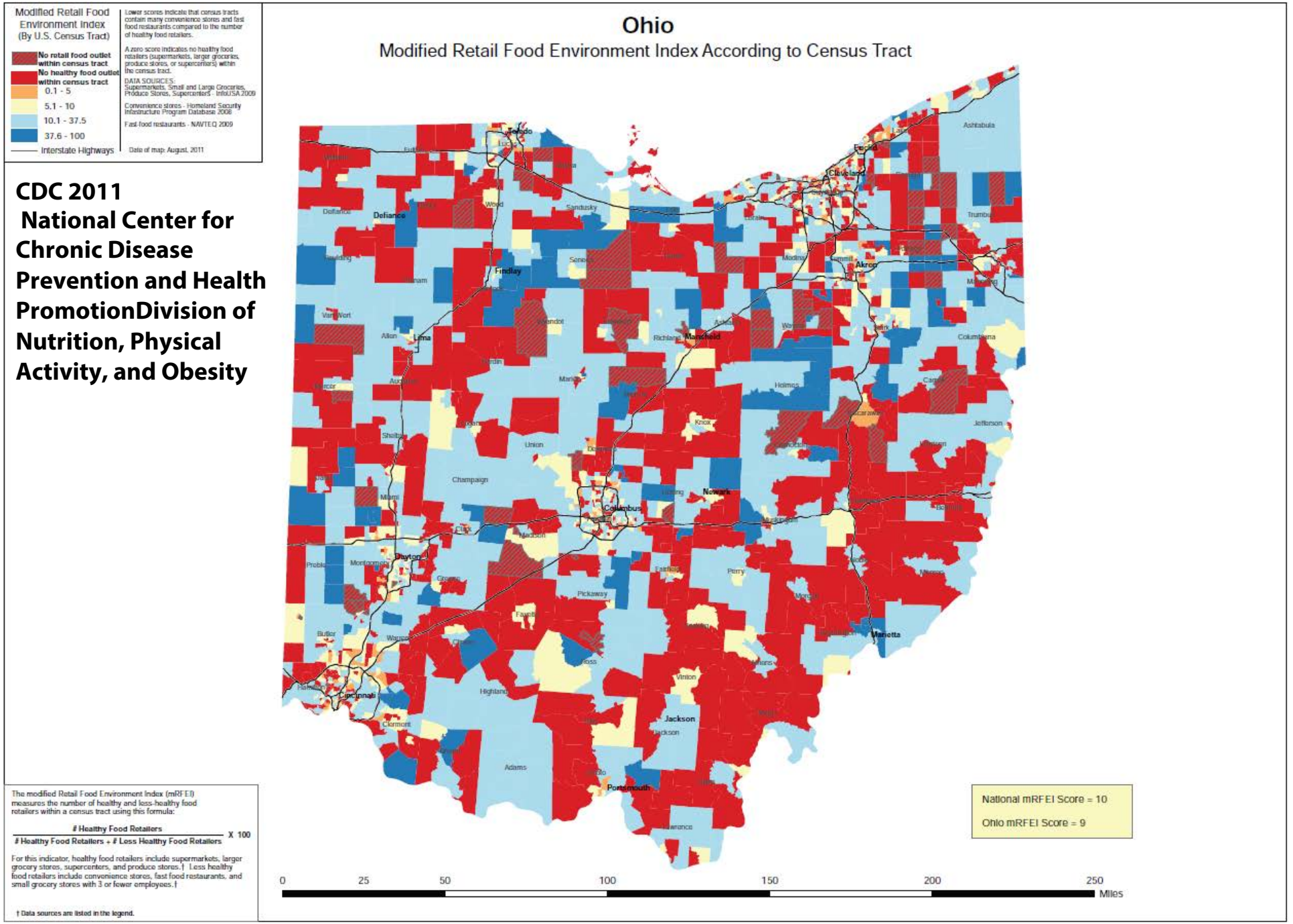

CDC 2011
National Center for Chronic Disease Prevention and Health PromotionDivision of Nutrition, Physical Activity, and Obesity

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Babey SH, Diamant AL, Hastert TA, Harvey S. 2008. Designed for disease: the link between local food environments and obesity and diabetes.

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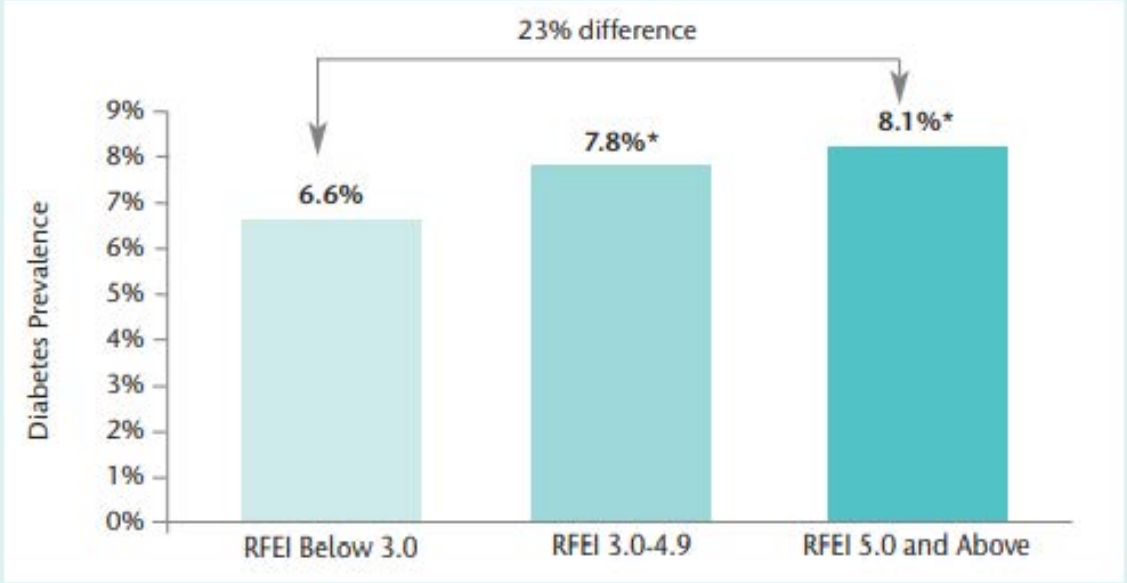
FIGURE 2

Diabetes Prevalence by Retail Food Environment Index, Adults Age 18 and Over, California, 2005



**Significantly different from "RFEI Below 3.0"; p<0.05. RFEI was calculated using buffers of 0.5 mile for respondents in urban areas, 1 mile for respondents in smaller cities and suburban areas and 5 miles for respondents in rural areas.*

Source: 2005 California Health Interview Survey and 2005 InfoUSA Business File

Fig. 1: ‘Distance’ (rural). ‘It is difficult for me to eat healthy because the stores are far. So I have to spend money on transport. The spaza shop do not sell healthy food. Even the distance to fetch water is too far’.

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Mark Spires, Peter Delobelle, David Sanders, Thandi Puoane, Using photography to explore people with diabetes’ perspectives on food environments in urban and rural South Africa, *Health Promotion International*, , daaa035, https://doi.org/10.1093/heapro/daaa035

Fig. 2: ‘Street vendor’ (urban). ‘I prefer to have a fruit and veg street vendor that makes it easy for me to buy vegetables in the street. It makes it easy for me to cook because I don’t have to go to town to get vegetables. It is also good for people like me to have veggies for my health as I am diabetic’.

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Mark Spires, Peter Delobelle, David Sanders, Thandi Puoane, Using photography to explore people with diabetes’ perspectives on food environments in urban and rural South Africa, *Health Promotion International*, , daaa035, https://doi.org/10.1093/heapro/daaa035

Babey, Susan H., Joelle Wolstein, and Allison L. Diamant. "Food environments near home and school related to consumption of soda and fast food." (2011).

- People who live in poor food environments consume more weekly servings of sweetened beverages like sodas.
- People who live in poor food environments consume more fast food.
- At the state-level, these neighborhood influences account for millions of additional unhealthy meals per week.

Differences can be Hyper-Local: Cleveland

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Freedman DA, Bell BA, Clark JK, Sharpe PA, Trapl ES, Borawski EA, Pike SN, Rouse C, Sehgal AR. Socioecological Path Analytic Model of Diet Quality among Residents in Two Urban Food Deserts. Journal of the Academy of Nutrition and Dietetics. 2019 Jul 1;119(7):1150-9.

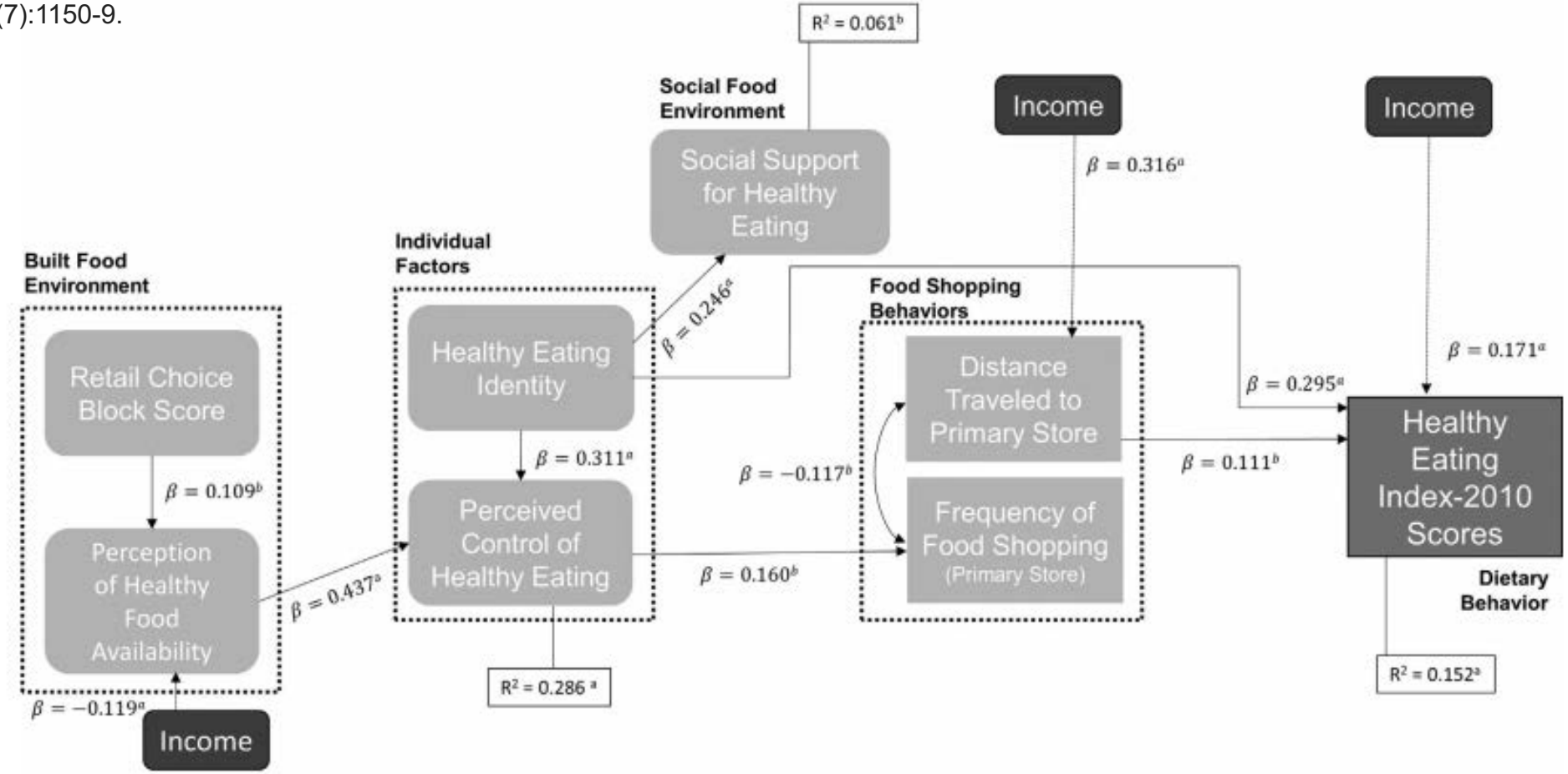

Figure 2. Socioecological influences on Healthy Eating Index-2010 scores among residents living in a food desert neighborhood in Cleveland, OH (n=240), 2015-2016. Statistically significant standardized β coefficients and R^2 values are presented. $^aP<0.05$. $^bP<0.10$.

Differences can be Hyper-Local: Columbus

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Freedman DA, Bell BA, Clark JK, Sharpe PA, Trapl ES, Borawski EA, Pike SN, Rouse C, Sehgal AR. Socioecological Path Analytic Model of Diet Quality among Residents in Two Urban Food Deserts. Journal of the Academy of Nutrition and Dietetics. 2019 Jul 1;119(7):1150-9.

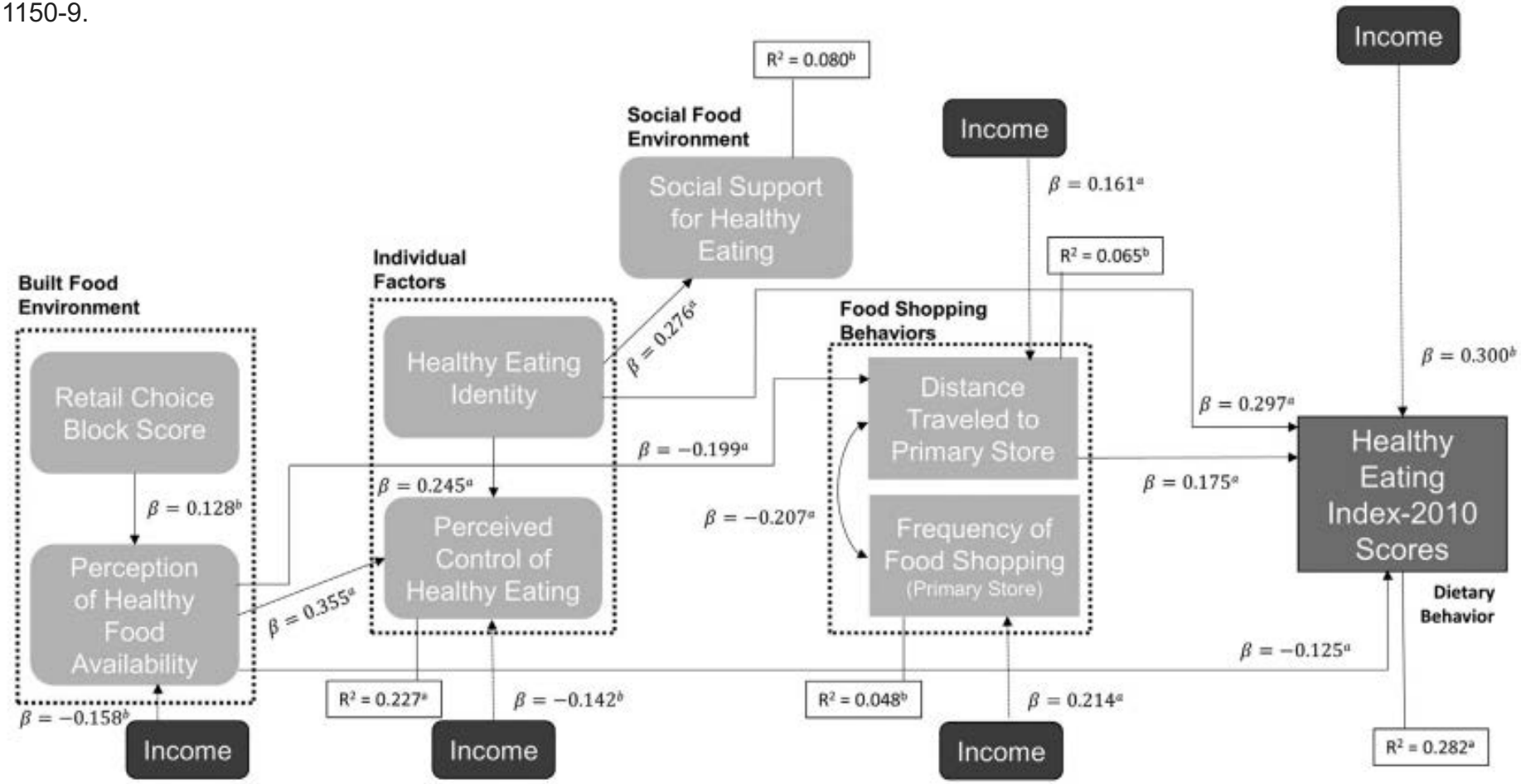

Figure 3. Socioecological influences on Healthy Eating Index-2010 scores among residents living in a food desert neighborhood in Columbus, OH (n=242), 2015-2016. Statistically significant standardized β coefficients and R^2 values are presented. [a]$P<0.05$. [b]$P<0.10$.

Improvement is possible!!

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- Efforts to improve healthy food availability and reduce cost of healthy food are generally associated with small improvements

- Partnerships between clinics, community members and with retail (e.g. farmer's markets) are generally met with a positive community response and are more likely to show improvements

- Activity-based understandings of food environments are needed (not just where people live, but where they work, learn, play and engage in other activities)

Kumanyika, S. 2017. Getting to Equity in Obesity Prevention: A New Framework. *NAM Perspectives.* Discussion Paper, National Academy of Medicine, Washington, DC. doi: 10.31478/201701c

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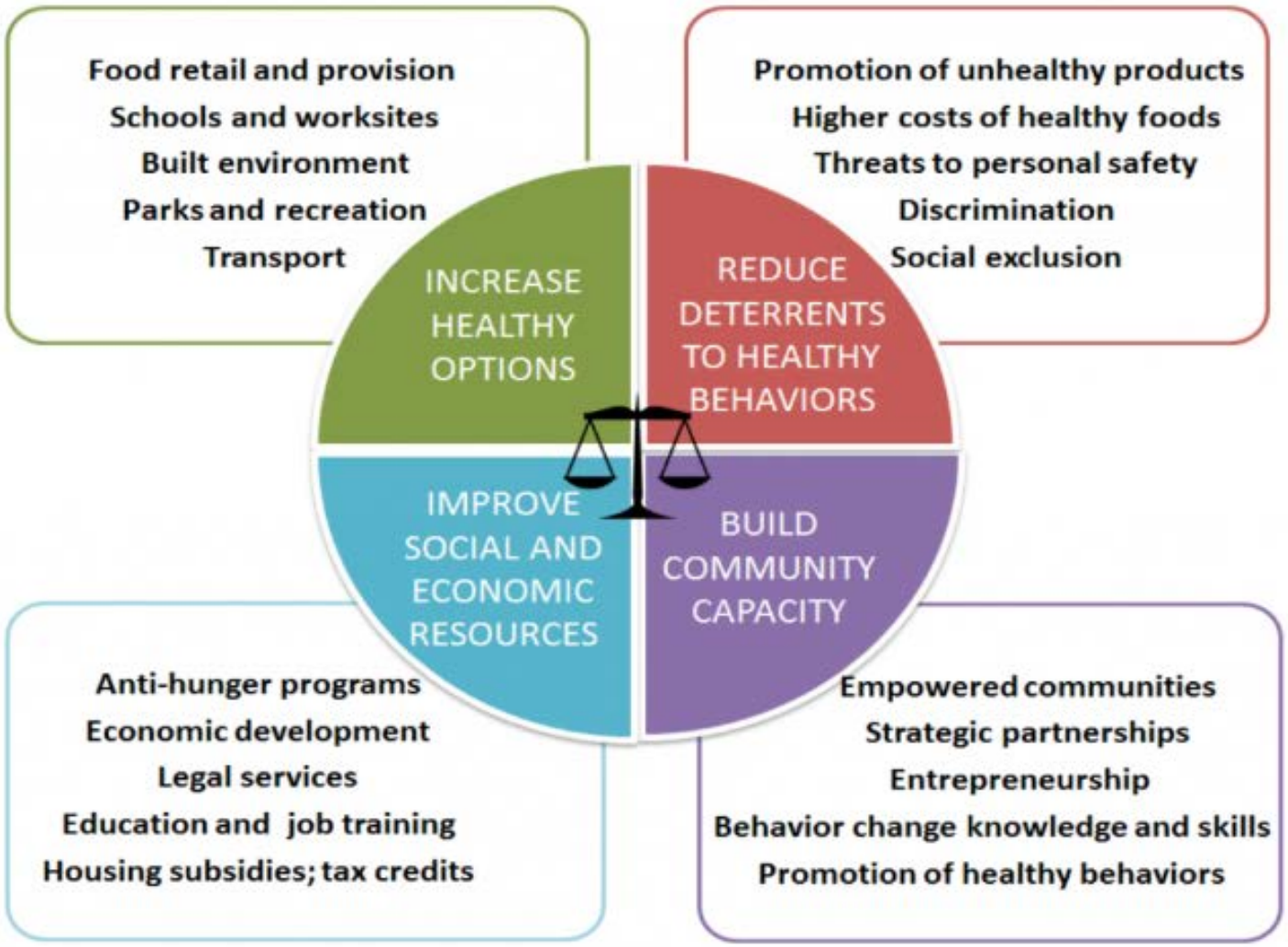

Thank you!

Questions/Discussion