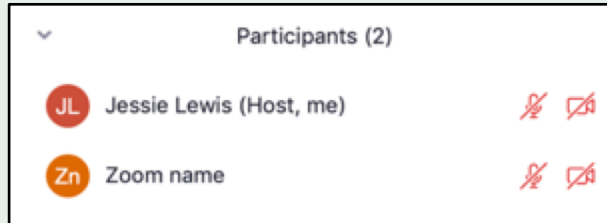# Cardi-OH ECHO Tackling Type 2 Diabetes
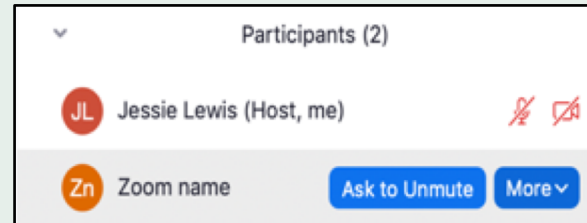
Thursday, March 11, 2021

1

Reminders

- Enter your name and practice name into the Chat to record your attendance
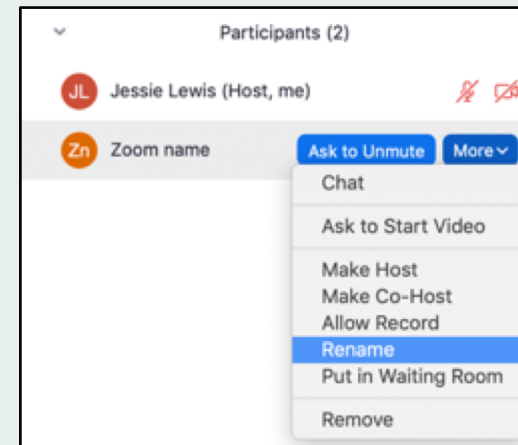- Rename yourself in the Participant List with your full name and practice name
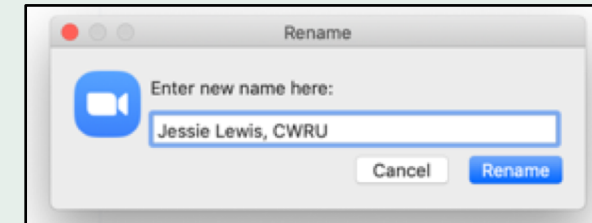
1. Hover over your name

2. Select More

3. Select Rename

4. Type name and practice

- Mute your microphone unless speaking
- Comment or ask questions in the Chat at any time

Cardi-OH ECHO Hub Team

LEAD

Goutham Rao, MD
Case Western Reserve University

FACILITATOR

Kathleen Dungan, MD, MPH
The Ohio State University

DIDACTIC PRESENTERS

Goutham Rao, MD
Case Western Reserve University

Adam Perzynski, PhD
Case Western Reserve University

CASE PRESENTER

Steven Swedlund, MD
Wright State Geriatrics

Structure of ECHO Clinics

Duration	Item
5 minutes	Announcements and introductions
25 minutes	Didactic presentation, followed by Q&A
25 minutes	Case study presentation and discussion
5 minutes	Wrap-up/Post-Clinic Survey completion

Disclosure Statements

- The following planners, speakers, moderators, and/or panelists of the CME activity have financial relationships with commercial interests to disclose:
    - 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.
    - 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.
    - 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
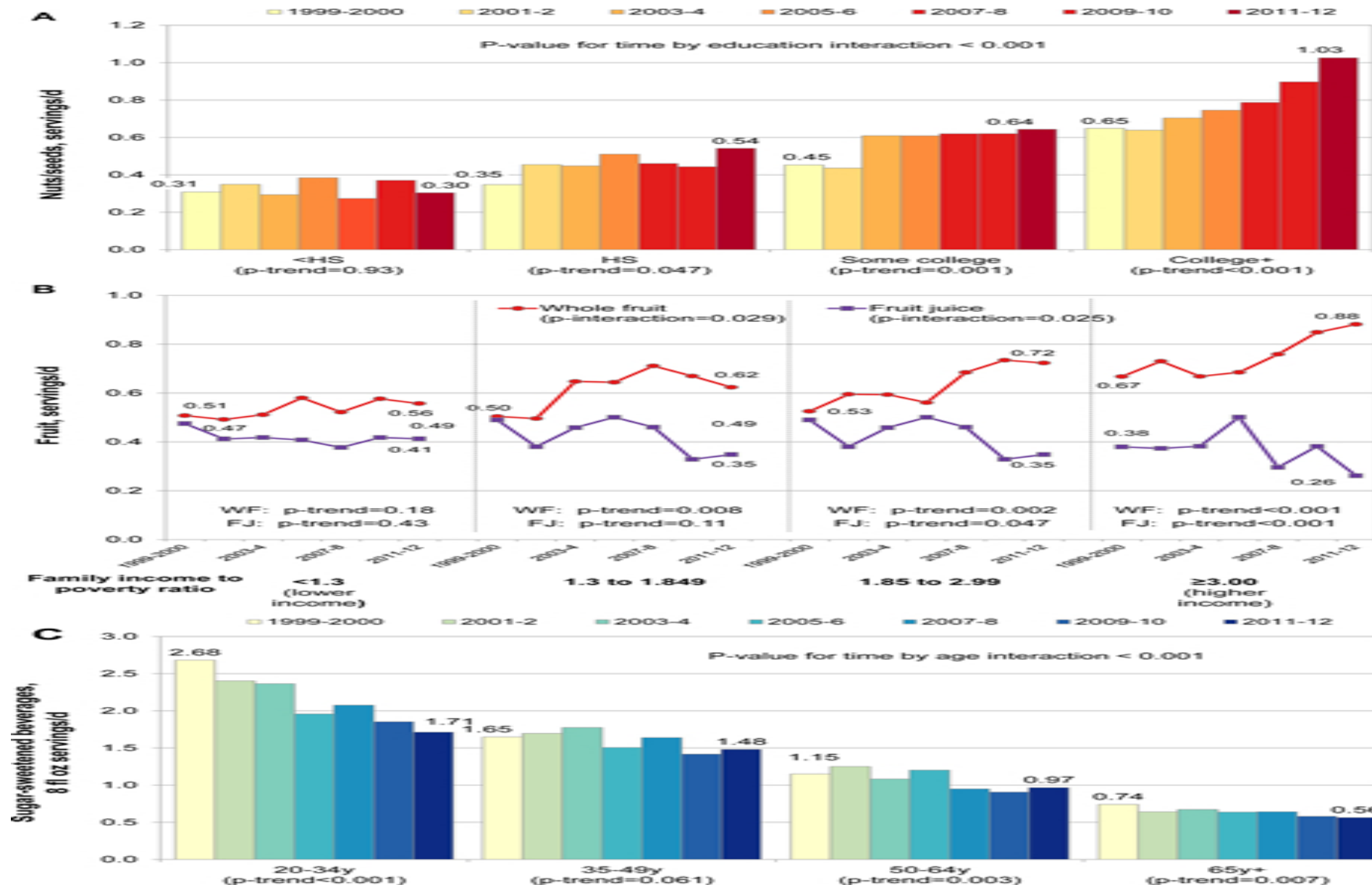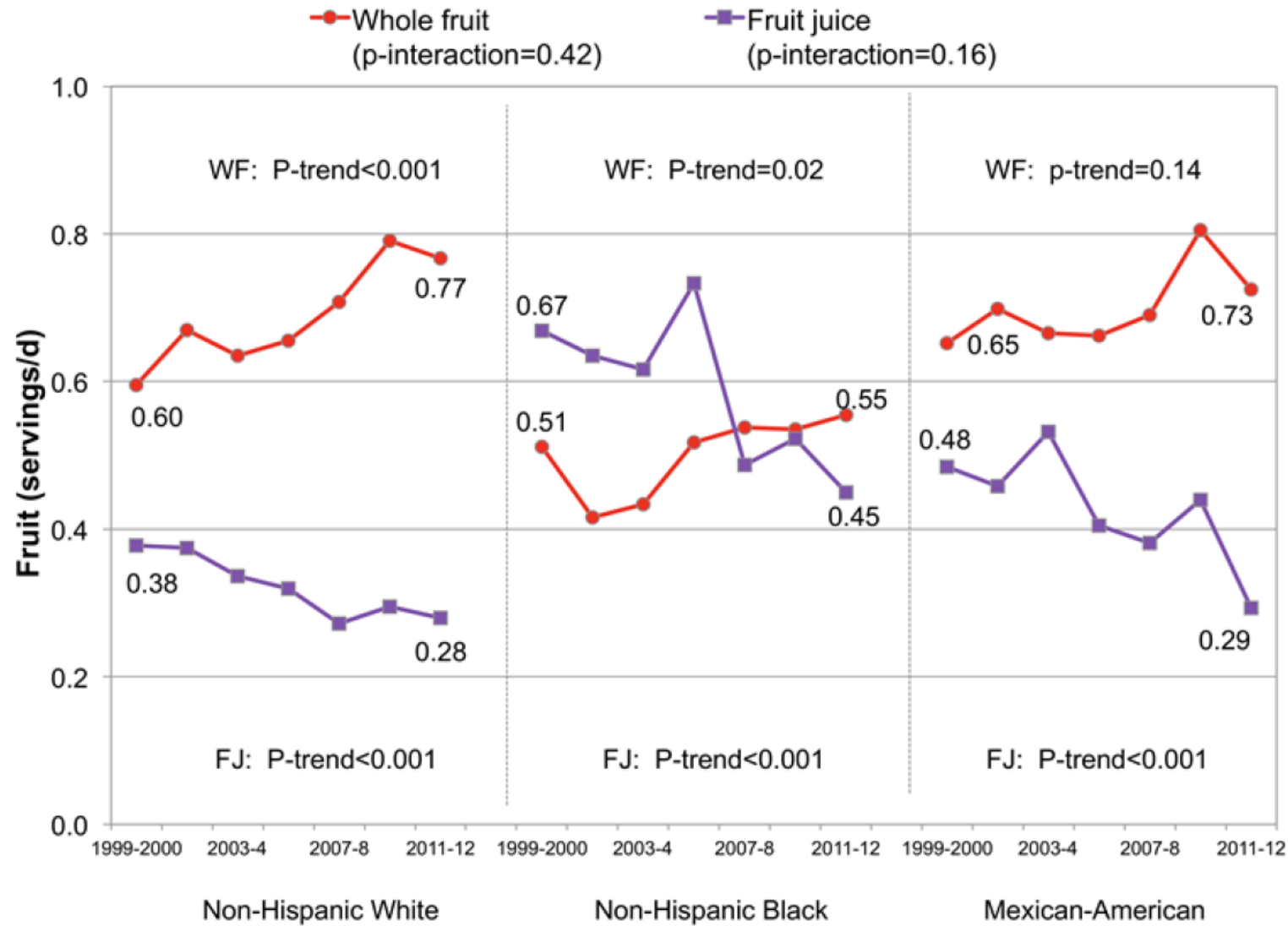
Case Western Reserve University

Objectives

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.
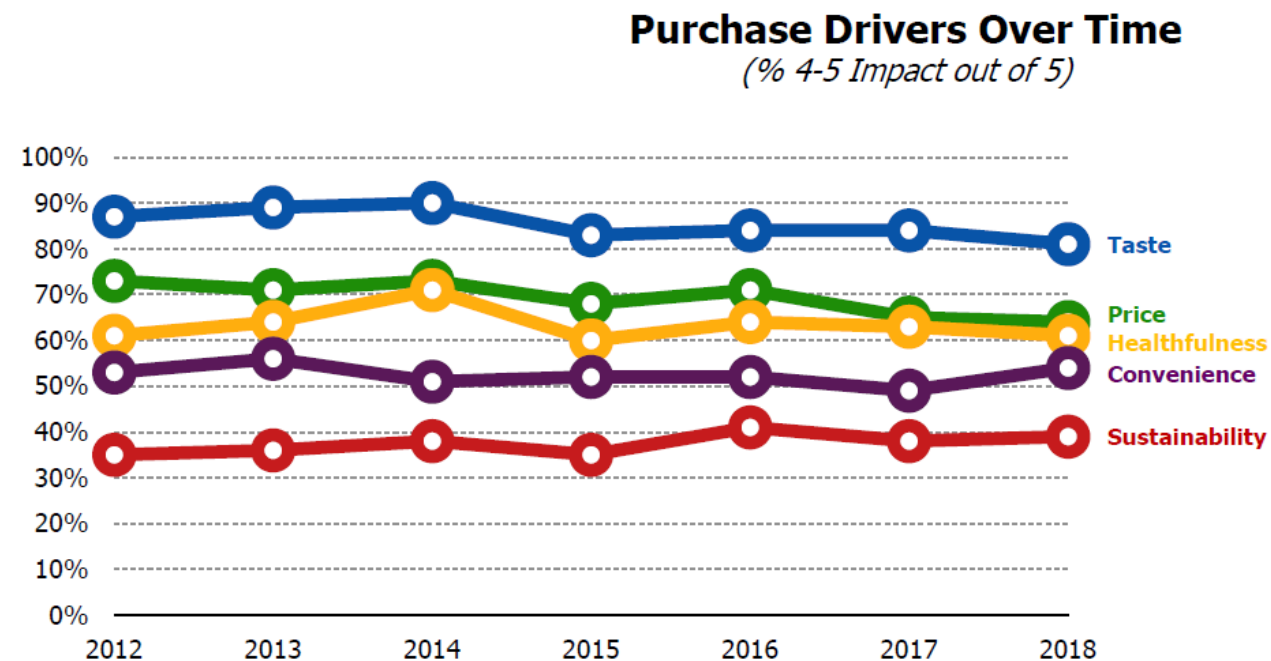
Disparities in Obesity are Well-Known

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

A

P-value for time by education interaction < 0.001

Nuts/seeds, servings/d

Legend: 1999-2000, 2001-2, 2003-4, 2005-6, 2007-8, 2009-10, 2011-12

<HS (p-trend=0.93): 0.31 ... 0.30
HS (p-trend=0.047): 0.35 ... 0.54
Some college (p-trend=0.001): 0.45 ... 0.64
College+ (p-trend<0.001): 0.65 ... 1.03

B

Fruit, servings/d

Whole fruit (p-interaction=0.029) — Fruit juice (p-interaction=0.025)

<1.3 (lower income): WF 0.51 ... 0.56; FJ 0.47 ... 0.41
WF: p-trend=0.18
FJ: p-trend=0.43

1.3 to 1.849: WF 0.50 ... 0.62; FJ ... 0.49 ... 0.35
WF: p-trend=0.008
FJ: p-trend=0.11

1.85 to 2.99: WF 0.53 ... 0.72; FJ ... 0.35
WF: p-trend=0.002
FJ: p-trend=0.047

≥3.00 (higher income): WF 0.67 ... 0.88; FJ 0.38 ... 0.26
WF: p-trend<0.001
FJ: p-trend<0.001

Family income to poverty ratio

C

Sugar-sweetened beverages, 8 fl oz servings/d

P-value for time by age interaction < 0.001

Legend: 1999-2000, 2001-2, 2003-4, 2005-6, 2007-8, 2009-10, 2011-12

20-34y (p-trend<0.001): 2.68 ... 1.71
35-49y (p-trend=0.061): 1.65 ... 1.48
50-64y (p-trend=0.003): 1.15 ... 0.97
65y+ (p-trend=0.007): 0.74 ... 0.56

9

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

Purchase Drivers Over Time
(% 4-5 Impact out of 5)

- Taste
- Price
- Healthfulness
- Convenience
- Sustainability

FOOD DESERTS

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

By **Margot Sanger-Katz**

May 8, 2015

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 residents did not.

12

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

10:05 PREVIEW

Two Potential Strategies

MERCATUS ON POLICY

The Rise of "Nudge" and the Use of Behavioral Economics in Food and Health Policy

Jayson Lusk

December 2015

- 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."

Contextual Understanding of Food and Nutrition

MOST CURRENT SDOH EFFORTS IN US HEALTHCARE ARE FOCUSED HERE!

Fundamental causes

Global economic forces

Macro socio-political environment

Political priorities and decisions

Societal values to equity and fairness

Unequal distribution of income, power and wealth

Poverty, marginalisation and discrimination

Undo

Wider environmental influences

Economic and work

Physical

Learning

Services

Social and cultural

Prevent

Individual experience

Economic and work

Physical

Learning

Services

Social and interpersonal

Mitigate

Effects

Inequalities in:

Wellbeing

Healthy life expectancy

Morbidity

Mortality

From National Health Service, Scotland   16

Screen and Refer Models Help Resolve Individual Challenges but Structural Challenges and Hazardous Food Environments Remain
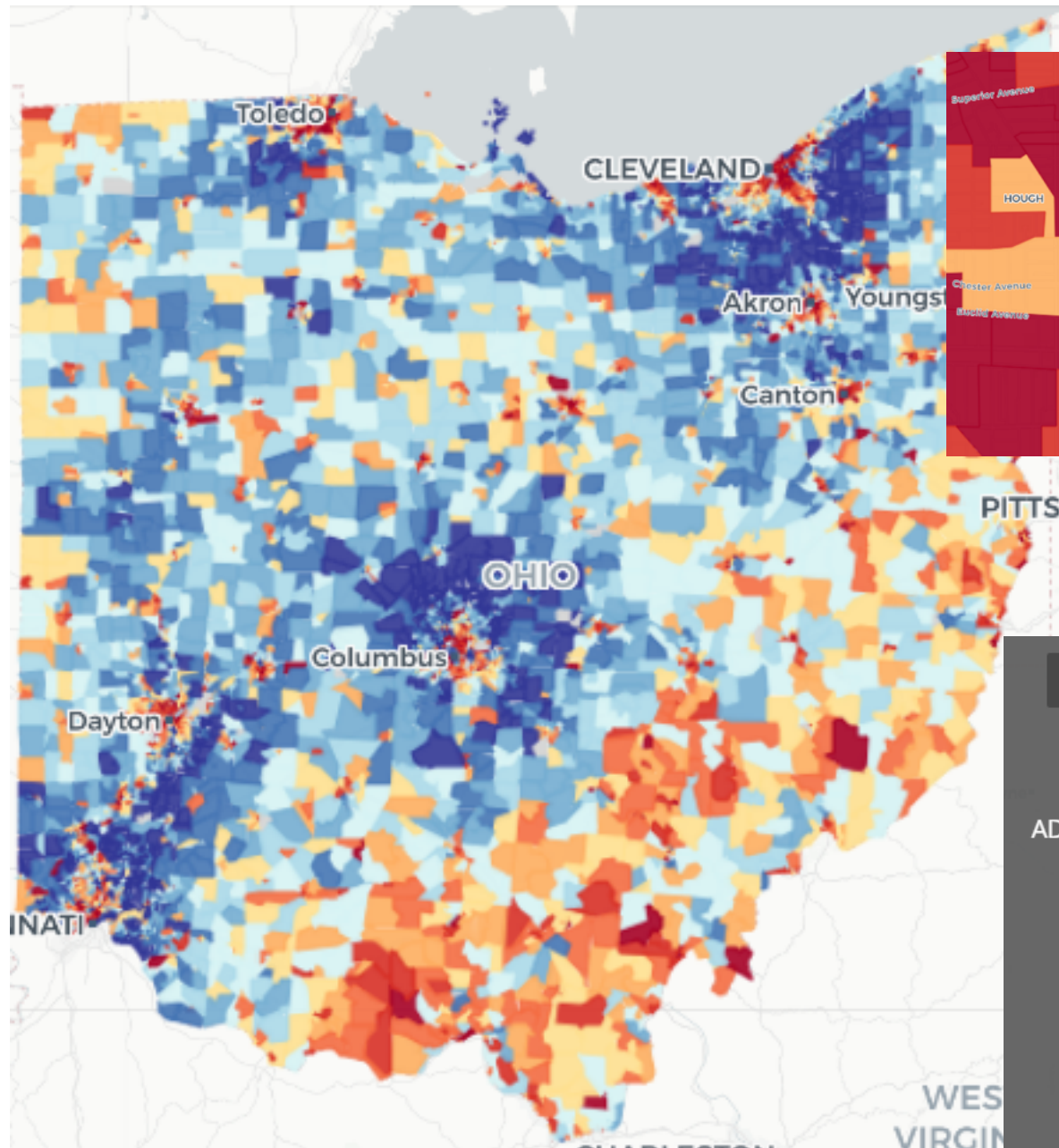
- Approaches that utilize an SBIRT-type model (screening, brief intervention, referral to treatment) have potential value

- These approaches do not address underlying characteristics of communities that place individuals at risk and limit healthy options

Median Household Income
Median Mortgage
Median Rent
Median House Value
% Families Poverty
% Owner-Occupied Housing
Ratio <10k:>50k
% Below 150% Federal Poverty
% Kids in Single Parent Households
% Households No Vehicle
% White Collar Jobs
% Unemployed
% At Least HS Education
% Less Than 9th Grade
% Households w/ Over 1 Person/Room

Area Deprivation Index
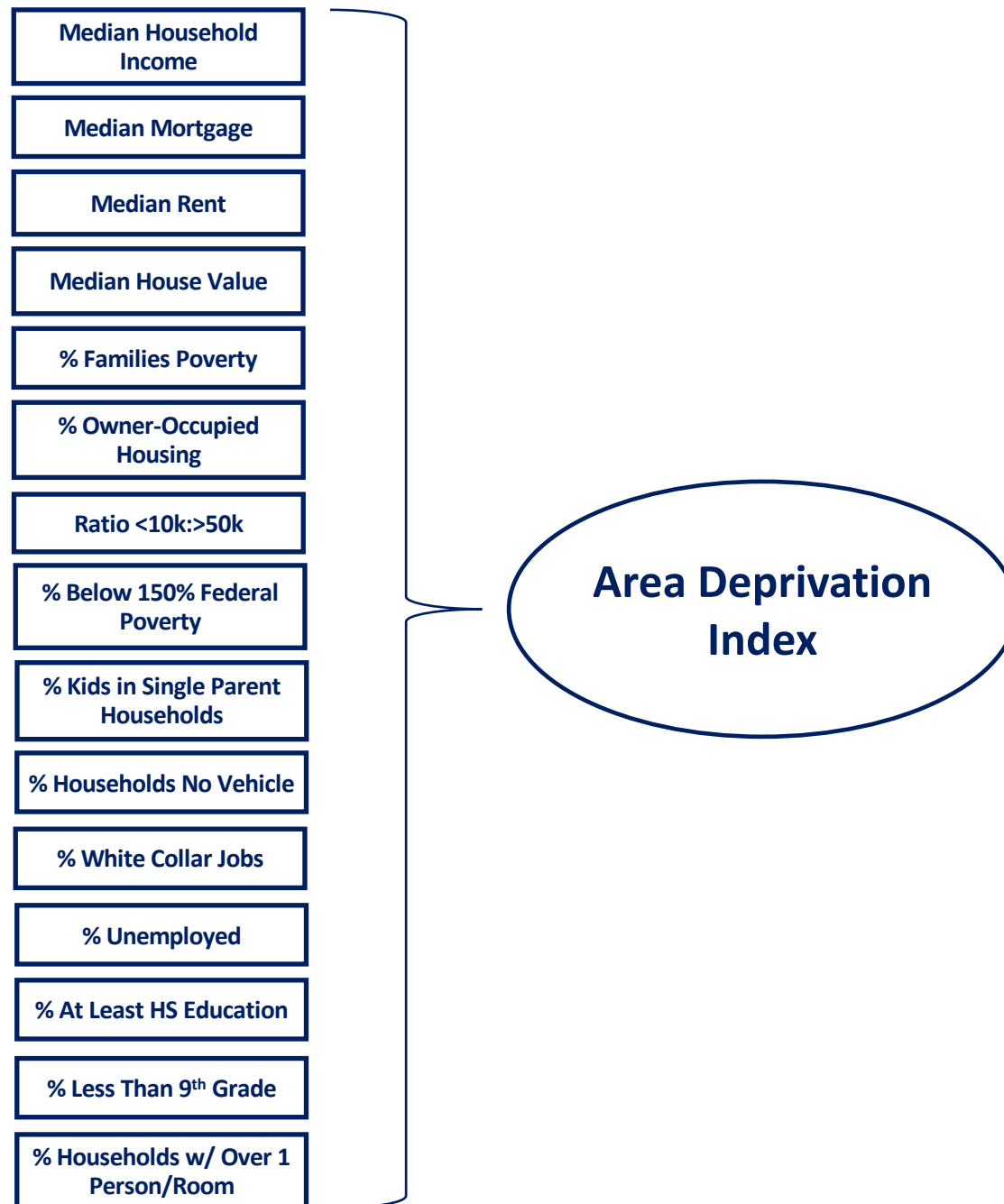
CARDI·OH
Ohio Cardiovascular and Diabetes Health Collaborative
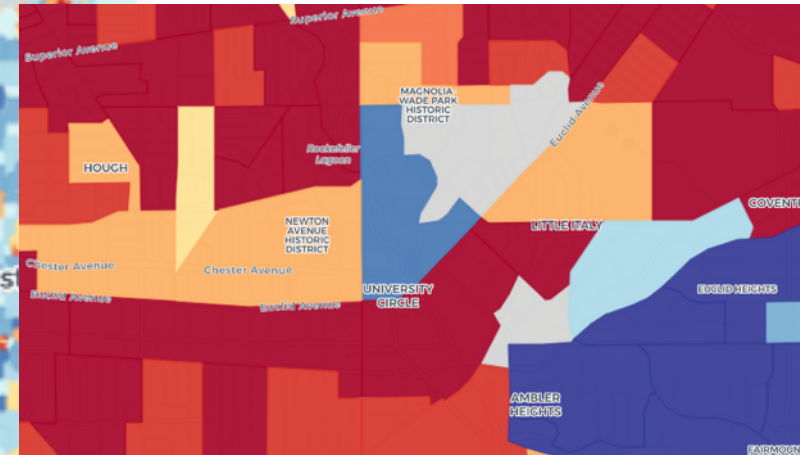
○ State-Only Deciles

● 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).

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

Least Affluent — Most Affluent

Crude Hazard Ratio

- 🟢 <0.50
- 🟢 0.50 – 0.75
- 🟡 0.75 – 0.90
- 🟡 0.90 – 1.10
- 🟠 1.10 – 1.25
- 🟠 1.25 – 1.50
- 🔴 >1.50
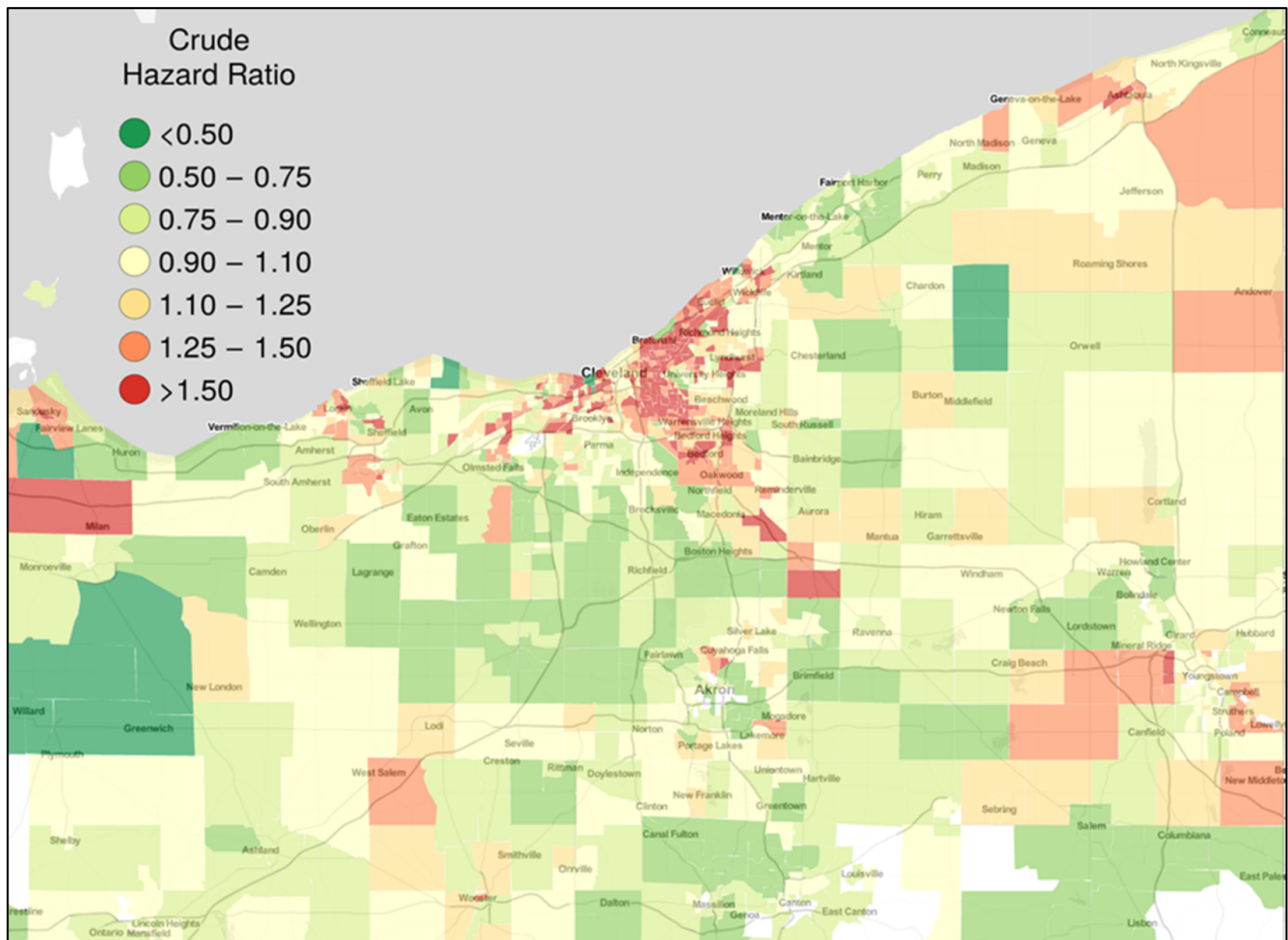
- The PCERM systematically under-predicted ASCVD event risk among low-SEP communities, and discrimination was poorer in low-SEP communities (concordance index [95% confidence interval]: 0.70 [0.67 – 0.74]) than in the most affluent communities (0.80 [0.78 – 0.81])

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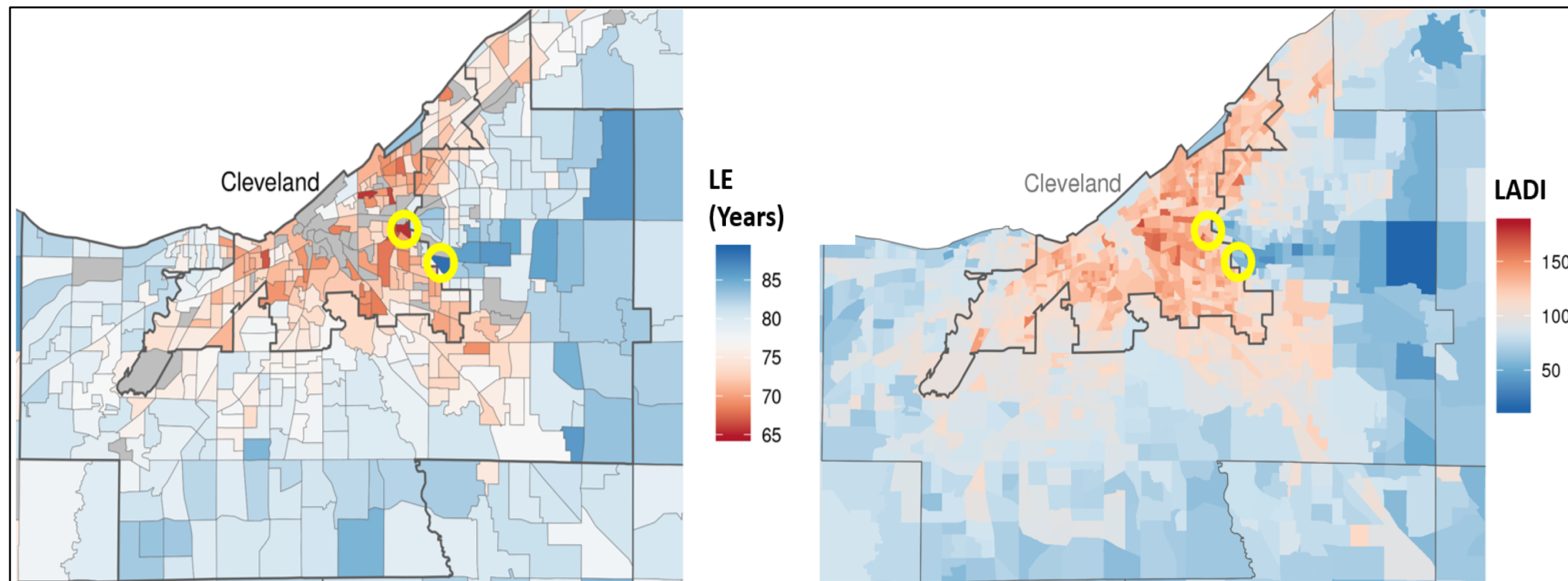
Figure 2. Census tract-level life expectancy (LE, 2010-2015) and localized area deprivation index (LADI, 2017) estimates for Cuyahoga County, Ohio. The tracts with the shortest and longest LE are circled in both panels.

Community Structures are Critically Important for Health and Food Choice

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).

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

= Fast-food restaurant or convenience store

= Grocery store or produce vendor

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.

26

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).

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

FIGURE 2

Diabetes Prevalence by Retail Food Environment Index, Adults Age 18 and Over, California, 2005
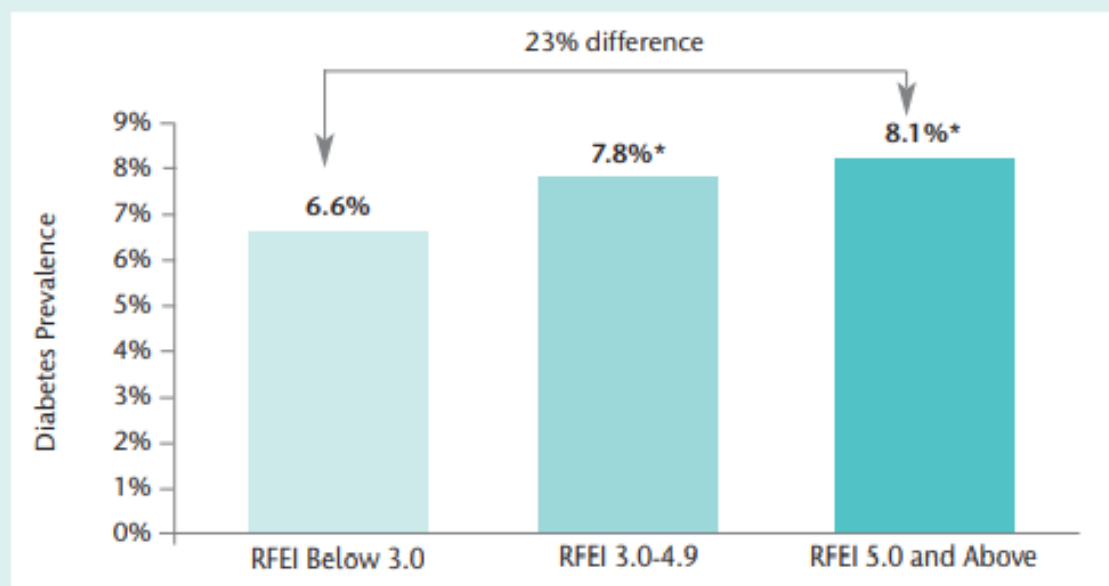
Significantly different from "RFEI Below 3.0"; p<0.05. RFEI was calculated using buffers of 0.5 mile for respondents in urban areas, 1 mile for respondents in smaller cities and suburban areas and 5 miles for respondents in rural areas.

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

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

28

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.'

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'.

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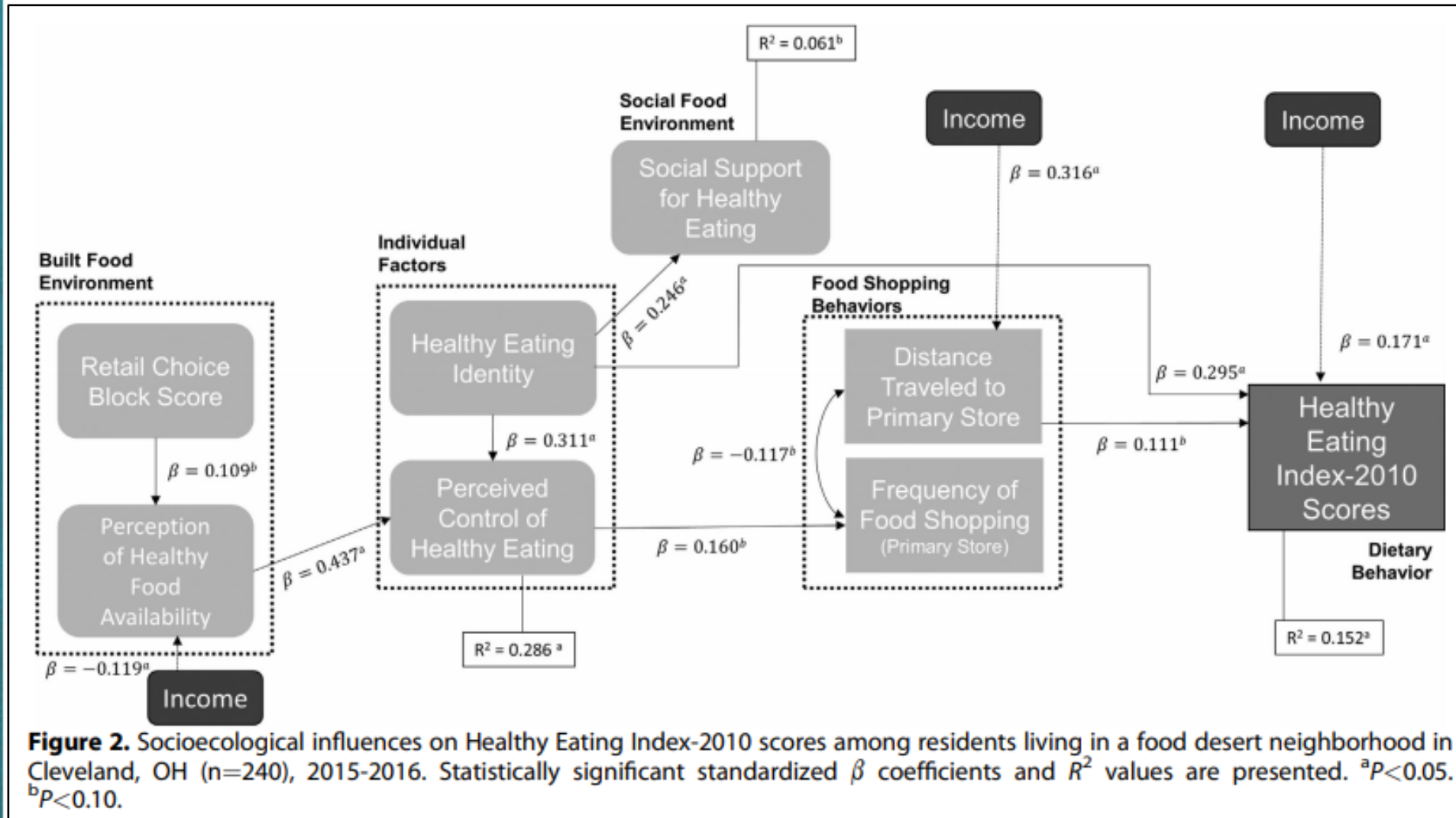
Babey, Susan H., Joelle Wolstein, and Allison L. Diamant. "Food environments near home and school related to consumption of soda and fast food." (2011).

- 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.
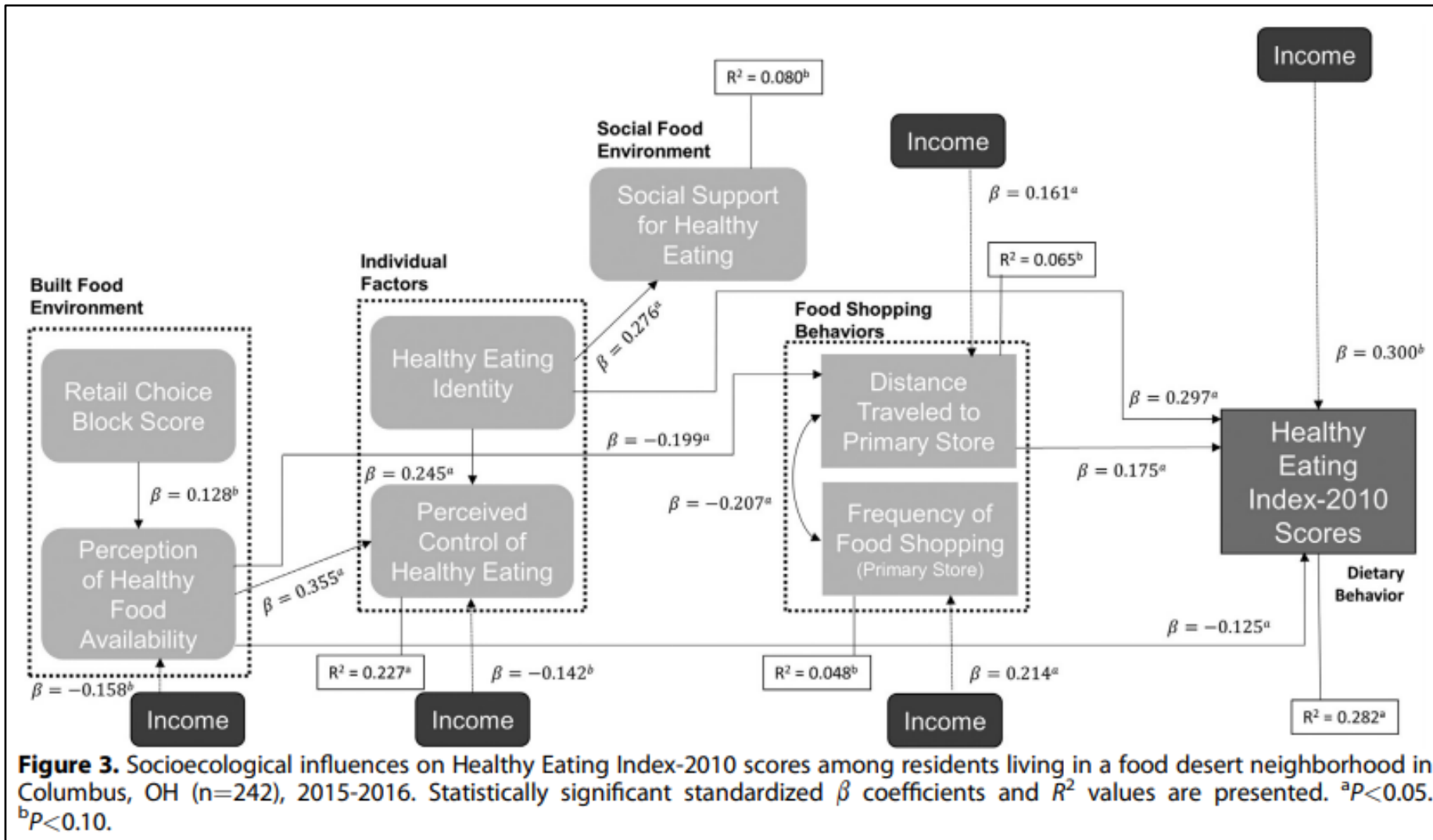
Differences can be Hyper-Local: Cleveland

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. [a]$P<0.05$. [b]$P<0.10$.
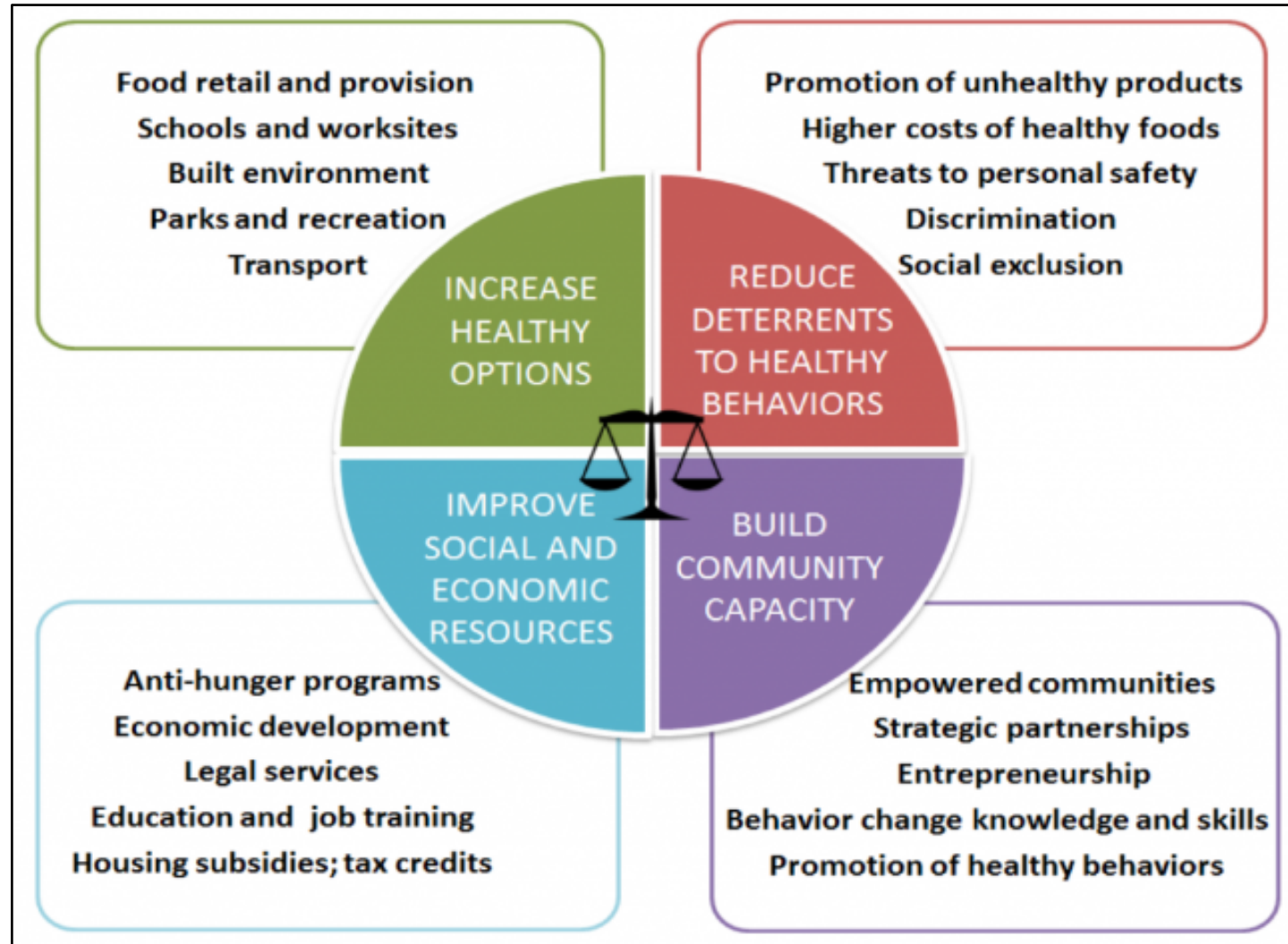
Freedman DA, Bell BA, Clark JK, Sharpe PA, Trapl ES, Borawski EA, Pike SN, Rouse C, Sehgal AR. Socioecological Path Analytic Model of Diet Quality among Residents in Two Urban Food Deserts. Journal of the Academy of Nutrition and Dietetics. 2019 Jul 1;119(7):1150-9.

Differences can be Hyper-Local: Columbus

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]$P<0.10$.

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.

Improvement is Possible!!

- 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)

Thank you!

Questions/Discussion

# The 4Ms: Interventions and Actions

What _M_atters	• Know what matters: health outcome goals and care preferences for current and future care, including end-of-life care and across care settings • Act on what matters for current and future care, including end-of-life care and across care settings
_M_obility	• Implement an individualized mobility plan • Create an environment that enables mobility and promotes function
_M_edication	• Implement a standard process for Age-Friendly medication • De-prescribe and adjust dosage and frequency to be Age-Friendly
_M_entation	• Ensure adequate nutrition and hydration, sleep, and comfort • Engage and orient to maximize independence and dignity • Identify, treat, and manage dementia, delirium, and depression

Watch Previous Cardi-OH TeleECHO Clinics

Register on Cardi-OH.org to watch all Tackling Type 2 Diabetes TeleECHO Clinics:

https://www.cardi-oh.org/user/register
https://www.cardi-oh.org/echo/diabetes-spring-2021
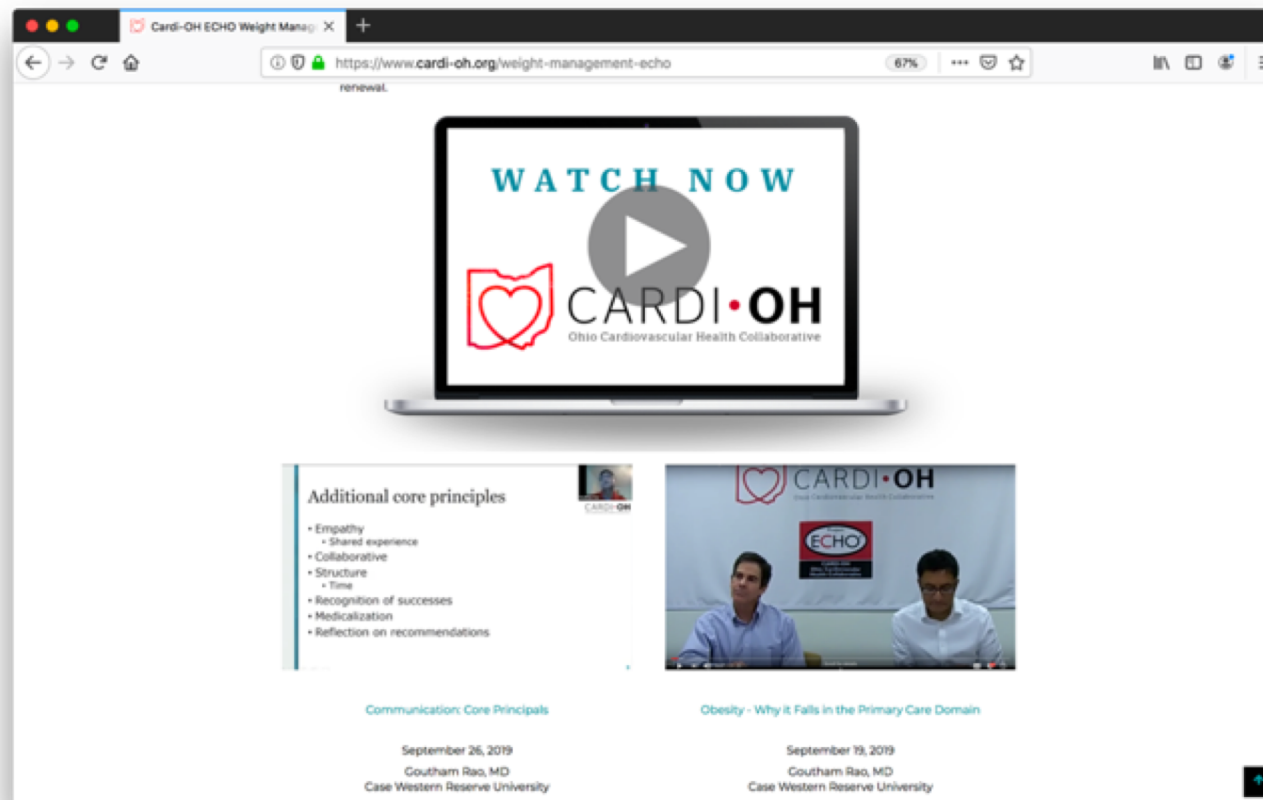
Reminders

- A Post-Clinic Survey has been emailed to you.
  Please complete this survey **by Friday at 5:00 PM**.

- *The MetroHealth System is accredited by the Ohio State Medical Association to provide continuing medical education for physicians.*

- *The MetroHealth System designates this educational activity for a maximum of 1 AMA PRA Category 1 Credit(s)TM. Physicians should only claim credit commensurate with the extent of their participation in the activity.*