



University of California
San Francisco

Strategic science: improving population health and health equity

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UCSF School of Medicine
12/9/2019



PRINCETON
UNIVERSITY

UCSF

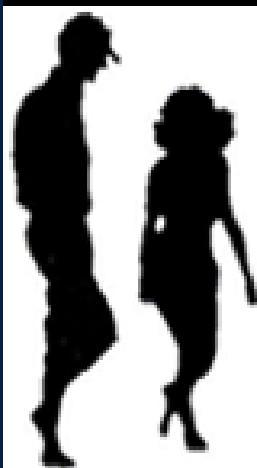
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CARDIA

Coronary Artery Risk Development in Young Adults

The NEW ENGLAND JOURNAL *of* MEDICINE

ESTABLISHED IN 1812

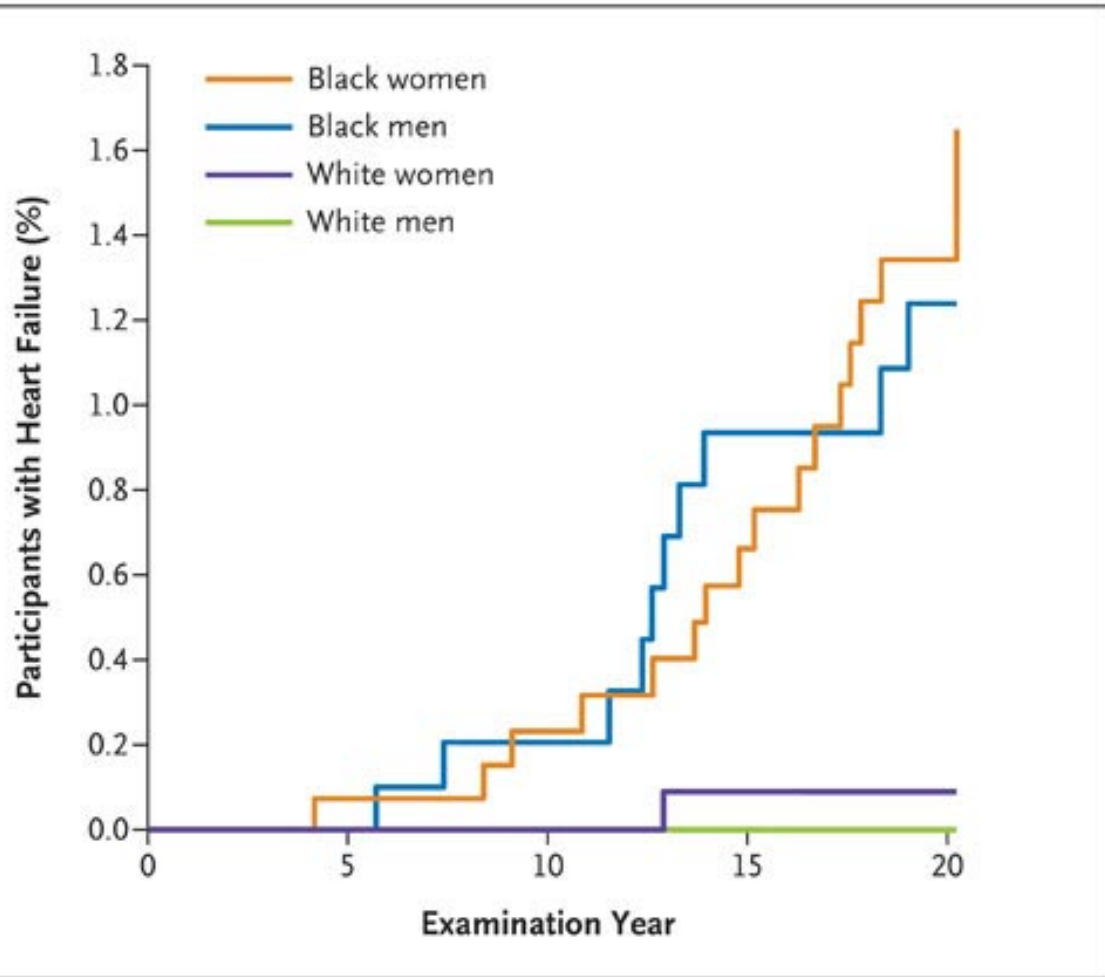
MARCH 19, 2009

VOL. 360 NO. 12

Racial Differences in Incident Heart Failure among Young Adults

Kirsten Bibbins-Domingo, Ph.D., M.D., Mark J. Pletcher, M.D., M.P.H., Feng Lin, M.S., Eric Vittinghoff, Ph.D.,
Julius M. Gardin, M.D., Alexander Arynchyn, M.D., Cora E. Lewis, M.D., O. Dale Williams, Ph.D.,
and Stephen B. Hulley, M.D., M.P.H.

New Heart Failure in the Black and White Young Adults



In our study of over 5000 young adults followed for 20 years:

- 1 in 100 black men and women develop heart failure before age 50.
- Blood pressure elevation in 20's was strongest predictor.
- Development of diabetes in 20's and 30's also important.

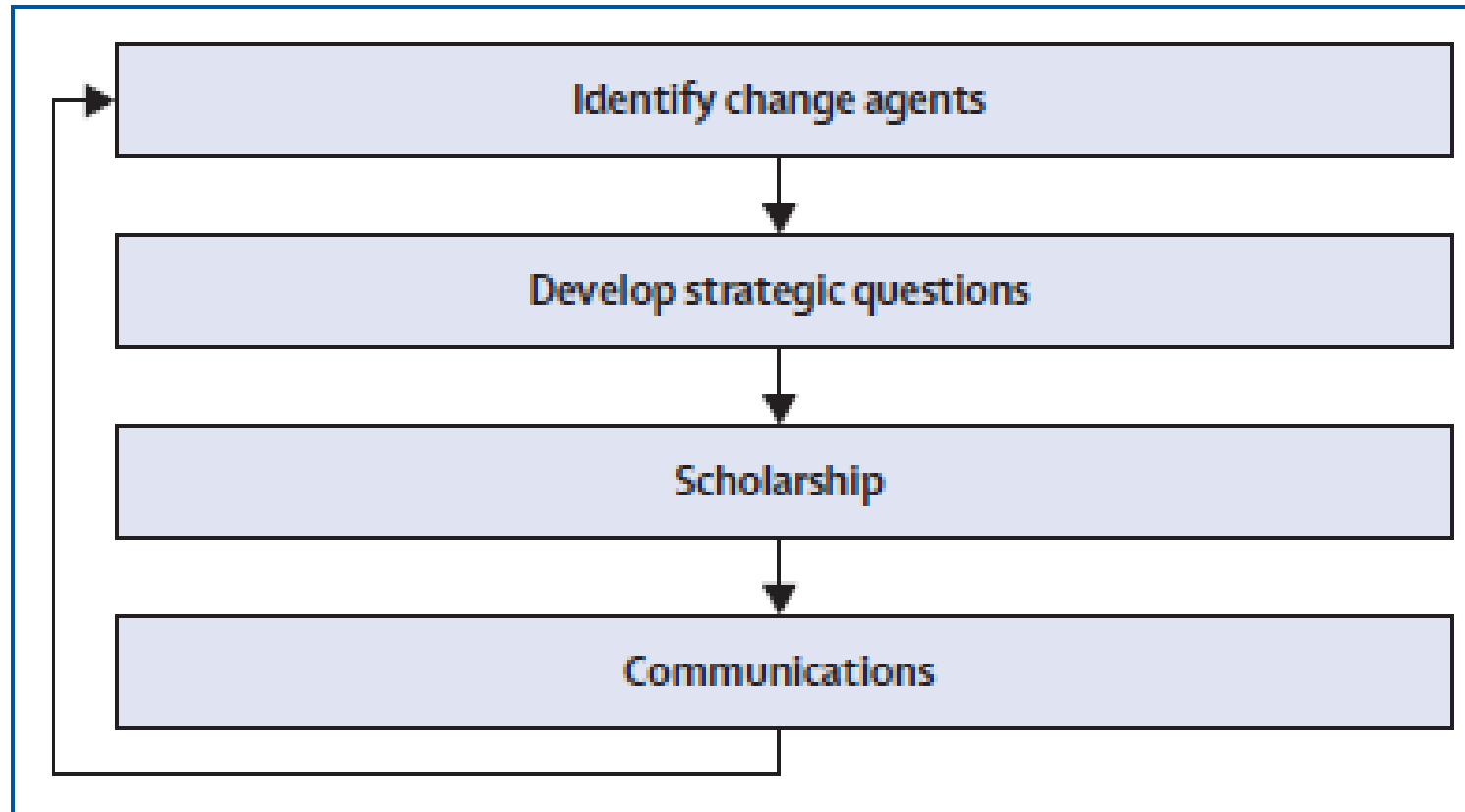


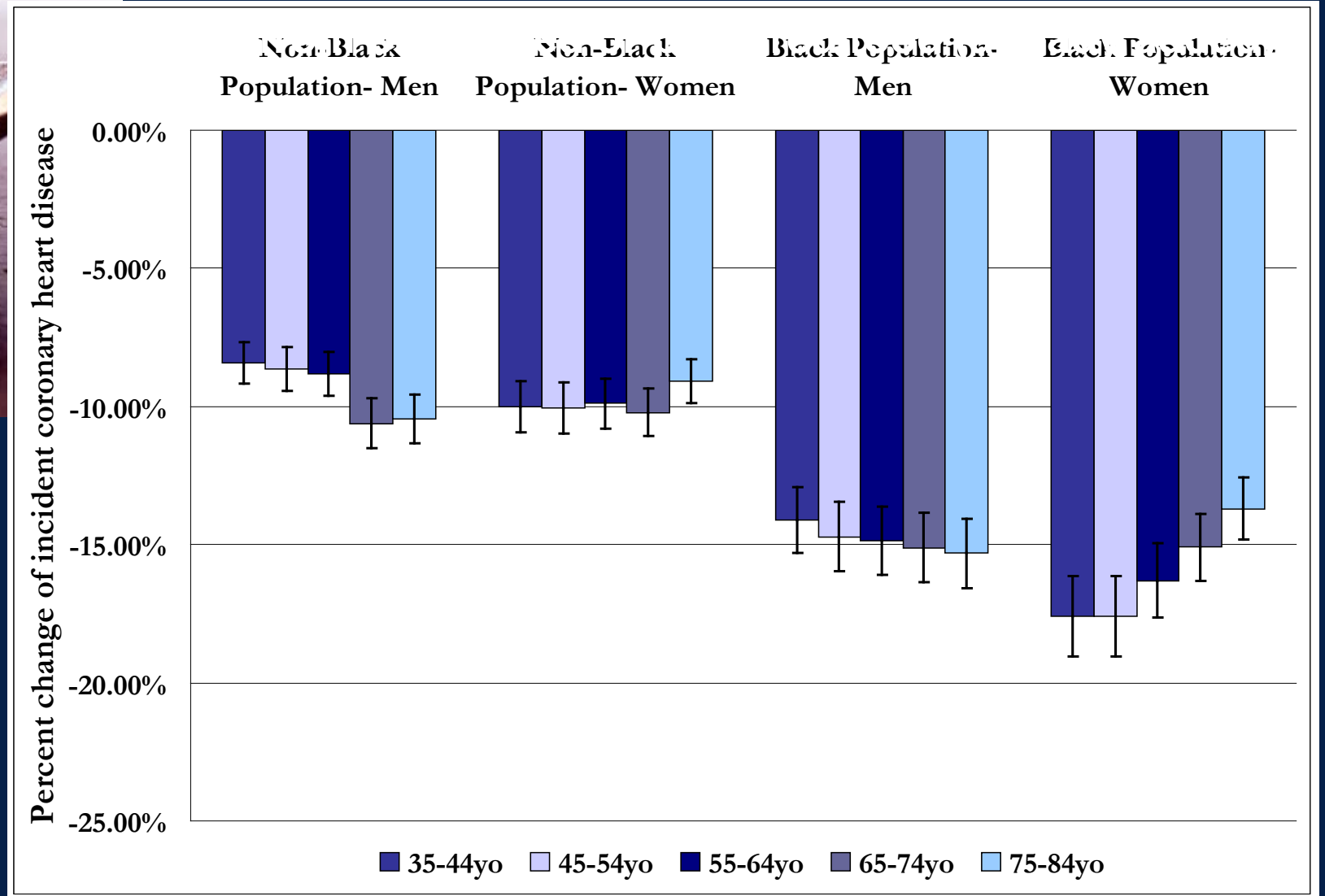
Figure: A model of strategic science designed to enhance links between science and policy

From Brownell and Roberto, Lancet 2015



Most of us are eating far too much salt

Small reductions in food supply could result in large benefits in cardiovascular disease prevented.



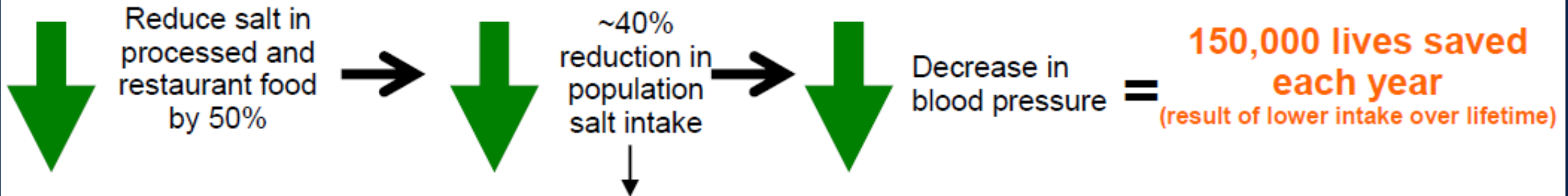
Bibbins-Domingo, K. et. al. NEJM, 2010, 362 (7):590-99.

The Washington Post

**FDA plans to limit amount of salt
allowed in processed foods for health**

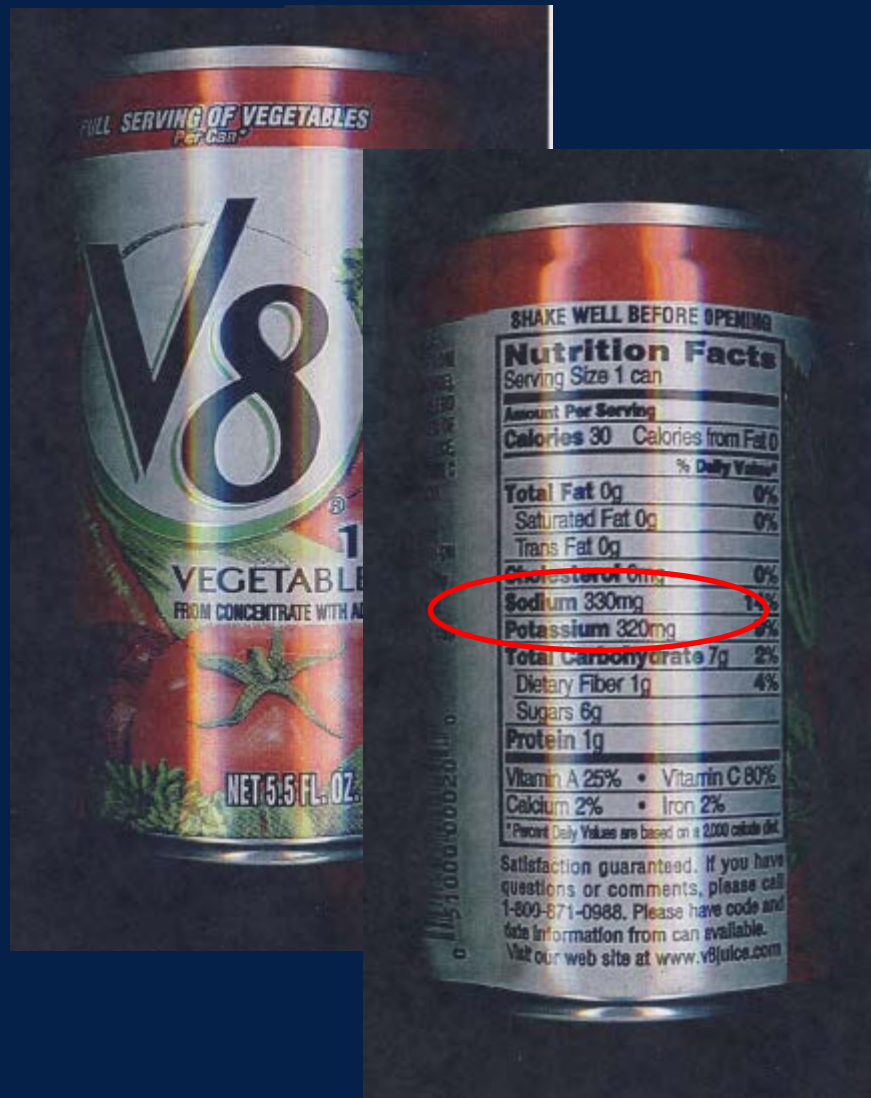
National Sodium Reduction Initiative (NSRI)

**National health organizations call for a 50% reduction in the amount of salt
in restaurant and processed food in 10 years.**

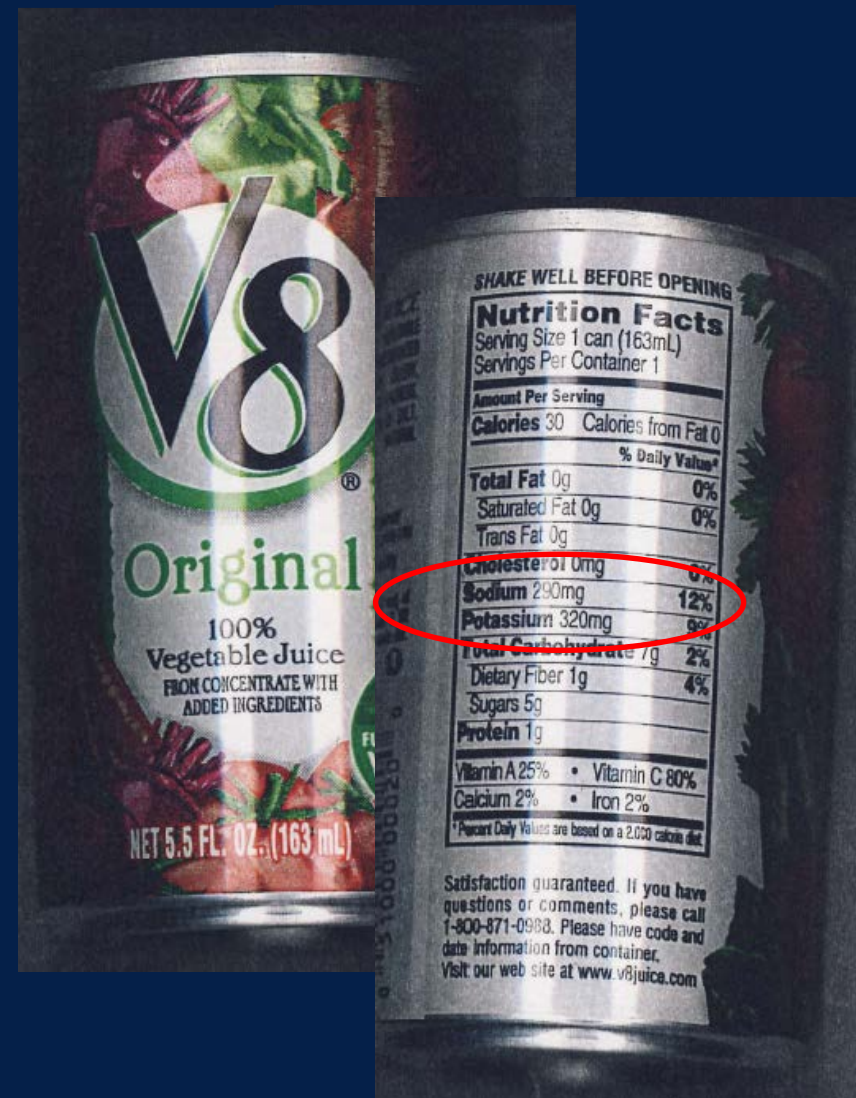


**To ensure progress toward the 40% reduction in population salt intake, we commit to an
interim goal of a 20% reduction in 5 years.**

2006



2011



New Drugs for Cholesterol Lowering: PCSK9 Inhibitors

By The Cardiology Times · December 16, 2016 · 1647 · 2

Price Chop for Evolocumab: PCSK9 Inhibitor Cost Cut by 60%

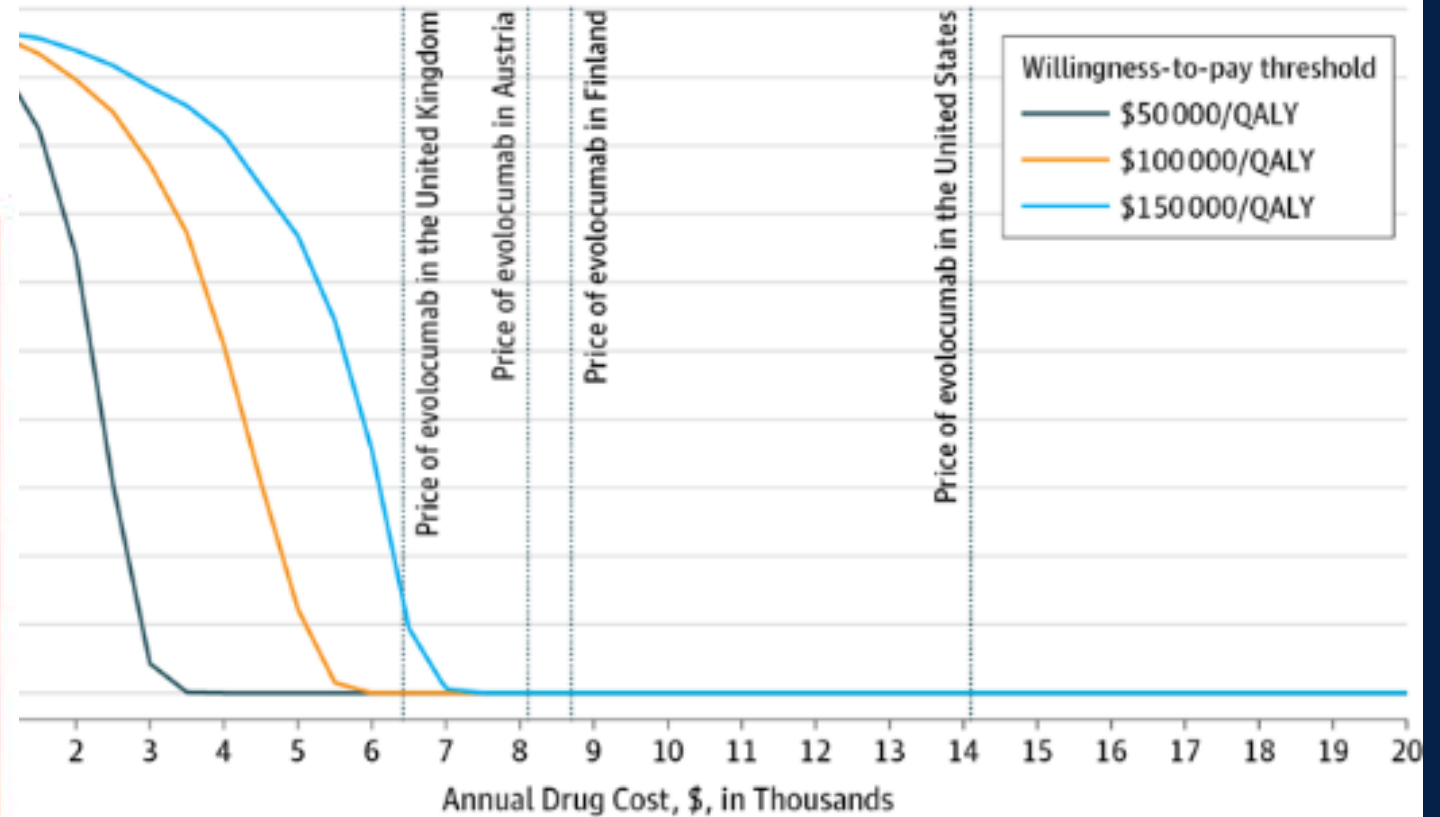
The reduction is intended to improve access for Medicare patients, a group with high monthly copays who frequently never fill their prescriptions.



By Michael O'Riordan · October 29, 2016



Highly effective cholesterol-lowering agents priced at \$14,000 per year



Kazi, et al. JAMA. 2016;316(7):743-753



17 billion dollar savings
from cardiovascular
disease avoided

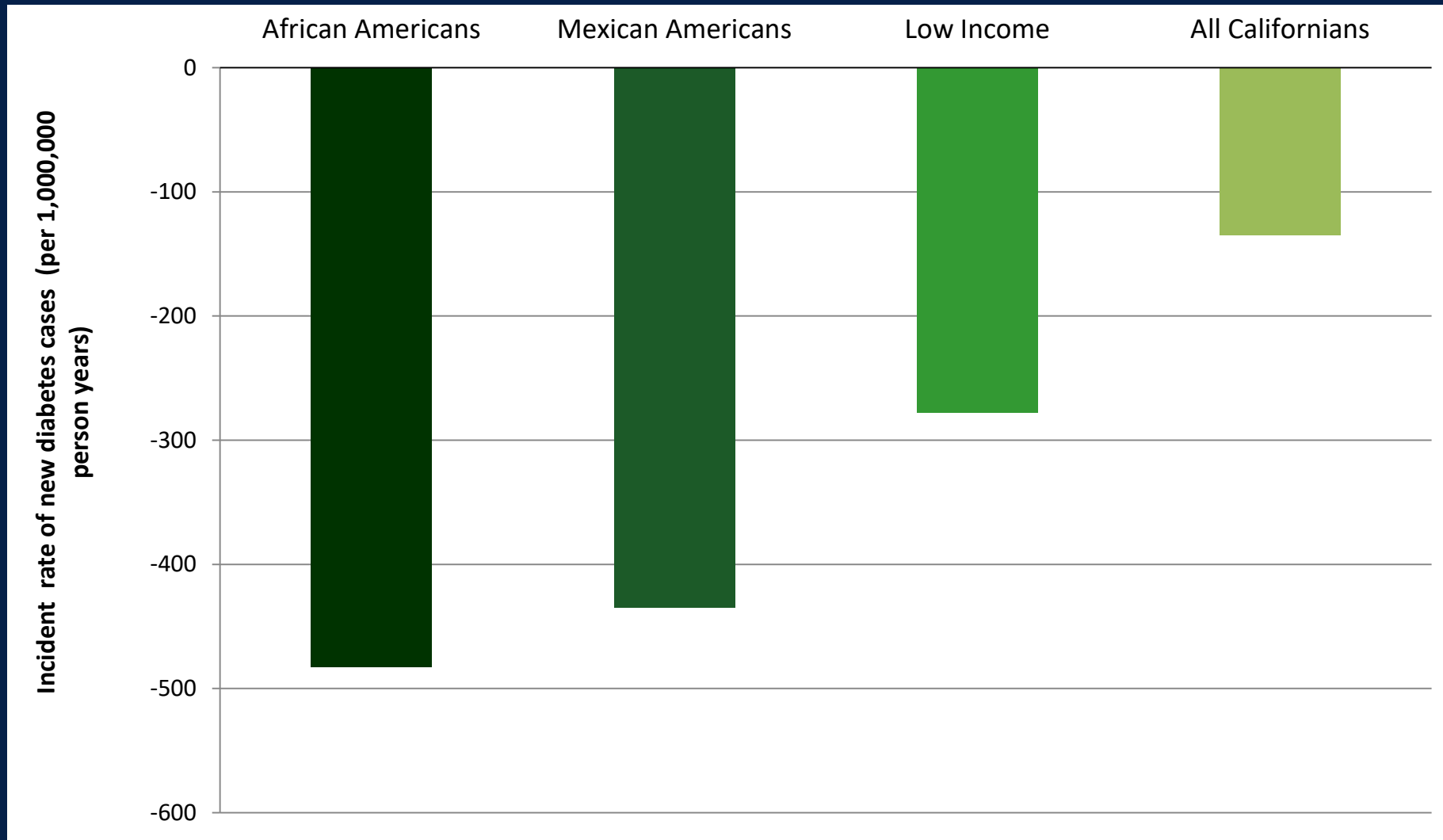
Additional 13 billion
revenue from tax

EXHIBIT 2

Projected Ten-Year Savings In Medical Costs From A Penny-Per-Ounce Tax On Sugar-Sweetened Beverages

Group	Diabetes cost savings (\$ billions)	Cardiovascular disease cost savings unrelated to diabetes (\$ billions)	Total cost savings (\$ billions)
Both sexes, ages 25–64	9.6	7.4	17.1
Men			
Ages 25–44	1.6	1.5	3.2
Ages 45–64	4.6	3.5	8.1
Women			
Ages 25–44	0.9	0.9	1.8
Ages 45–64	2.5	1.6	4.1

Isn't the soda tax a regressive tax?



Not So Sweet:

Confronting the Health Crisis from Sugar-Sweetened Beverages in California



CVP
Center for Vulnerable Populations
A Center for Population and Environmental Health Sciences

UCSF
University of California,
San Francisco
Advancing Health and Wellbeing

EXECUTIVE SUMMARY

California has led the way in the implementation of policies that increase access to healthy foods – a change in zoning laws in Fresno to allow for more farmers' markets, an improvement in the food available in Los Angeles County facilities through healthy food procurement policies, and regulation of school meals in Oakland so that they meet minimum nutrition standards. But despite these efforts, consumption of sugar-sweetened beverages (SSB) is pervasive and the health consequences are more evident than ever.¹ SSB, which include sodas, fruit punches, sports drinks, and other beverages high in sugar and corn syrup, are the largest source of added sugar in the U.S. diet today.²⁻⁴

Consumption of SSB has been on the rise. From 1977 to 2001, SSB intake increased by 155% for children and adults in the U.S.⁴ Furthermore, the National Health and Nutrition Examination Survey reports that the total daily kilocalories from SSB is much higher for adults (age 20 and above) in communities of color than their White counterparts. Specifically, African Americans (9%) and Mexican Americans (8%) consume more of their daily kilocalories from SSB than Whites (5%).⁵ SSB are ubiquitous throughout California. Over 6 million adults, more than 2 million adolescents, and 2 million children ages 2-11 drink at least one SSB or more a day.⁶ The impact of these drinks on our health is devastating, particularly for communities of color.⁷

*2 million
children ages 2-11
drink at least one
SSB or more
a day.*



ONLINE FIRST

Effectiveness of a Barber-Based Intervention for Improving Hypertension Control in Black Men

The BARBER-1 Study: A Cluster Randomized Trial

Ronald G. Victor, MD; Joseph E. Ravenell, MD, MS; Anne Freeman, MSPH; David Leonard, PhD; Deepa G. Bhat, ME; Moiz Shafiq, MD; Patricia Knowles; Joy S. Storm, BS; Emily Adhikari, BA; Kirsten Bibbins-Domingo, PhD, MD, MAS; Pamela G. Coxson, PhD; Mark J. Pletcher, MD, MPH; Peter Hannan, MStat; Robert W. Haley, MD

- 17 Dallas shops, randomized. Intervention barbers monitored BP and promoted MD follow-up x10 months
- Barbers discussed role model posters posted in barber shop (personalized peer health messaging)
- Barbers paid for BP check, referrals, patrons received free haircuts
- Larger barber study ongoing in LA; added clinical pharmacist



8.8 percentage point higher improvement in %controlled hypertension in intervention group

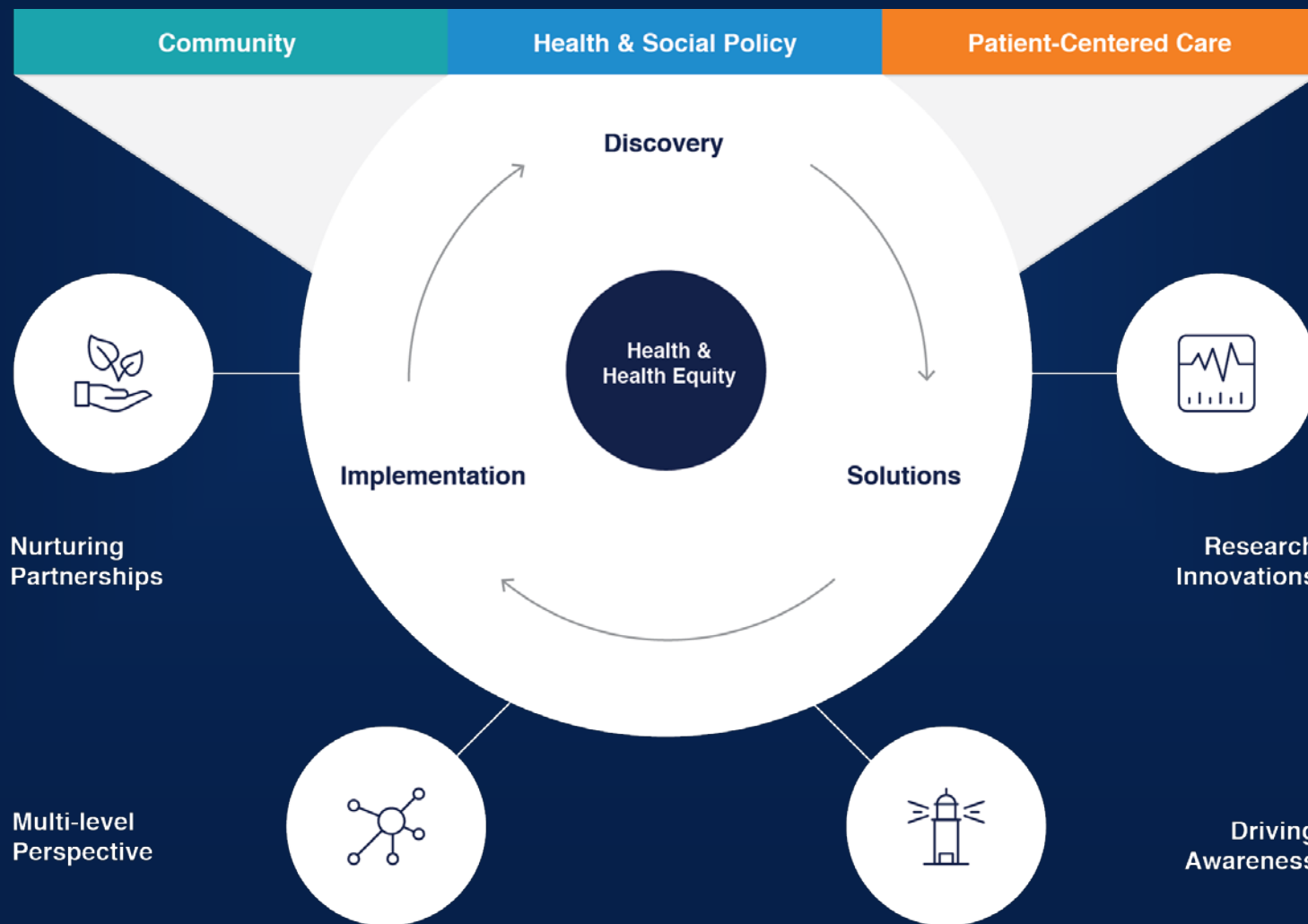
UCSF Center for Vulnerable Populations
Zuckerberg San Francisco General Hospital

UCSF Center for Vulnerable Populations



CVP CONCEPTUAL MODEL

We bring a rigorous approach to three key focus areas that address a broad range of issues affecting vulnerable populations.



HOW MANY PAPERS HAVE WE PUBLISHED?



Over 600

Core faculty publications
since joining CVP

HOW MUCH FUNDING HAVE WE RAISED?

~115 Grants

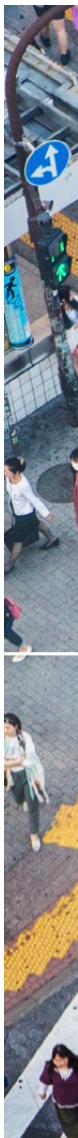
Grant and philanthropic funding to core faculty since joining CVP

\$100 Million



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Population Health and Health Equity



Public Health Model

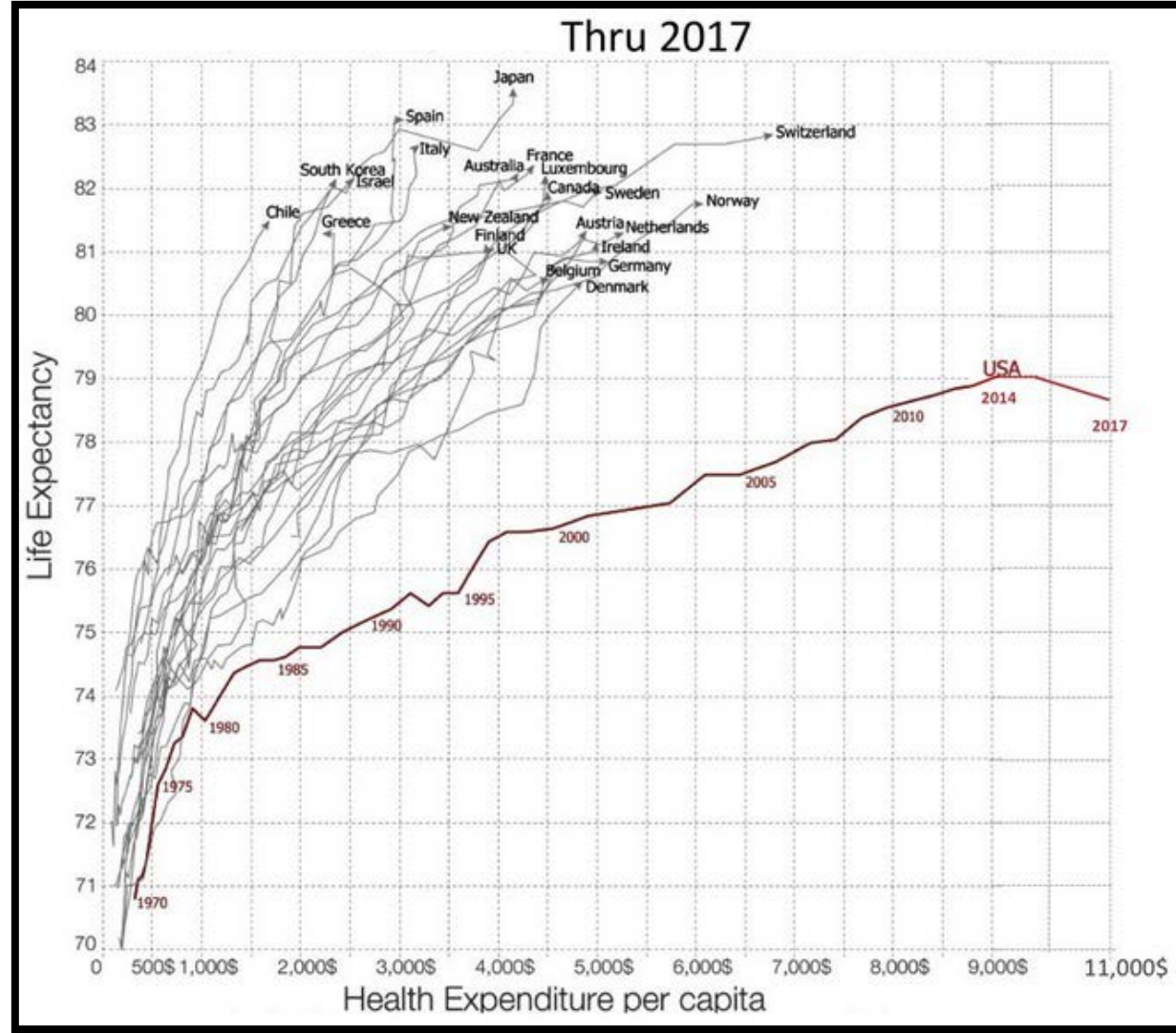
Versus

Medical Model



Why the interest in population health?

- Concern about lagging health metrics
- Awareness of the importance of social context for health
- Shifting approach to optimize health system performance
 - Triple Aim (quality care, health of populations, reduced cost)
 - Financial incentives for value-based models of care.
- Willingness to identify and test cross-sector / discipline approaches to health and prevention.





**Health equity
means that everyone has a fair and
just opportunity to be as healthy as
possible.**

Robert Wood Johnson Foundation

Fostering community

UCSF COLLOQUIUM ON POPULATION HEALTH AND HEALTH EQUITY: IMMIGRANT HEALTH

Population Health
and Health Equity



Kirsten Bibbins-Domingo, PhD, MD

October 23, 2019

#UCSFpophealth2019
#ImmigrantHealth

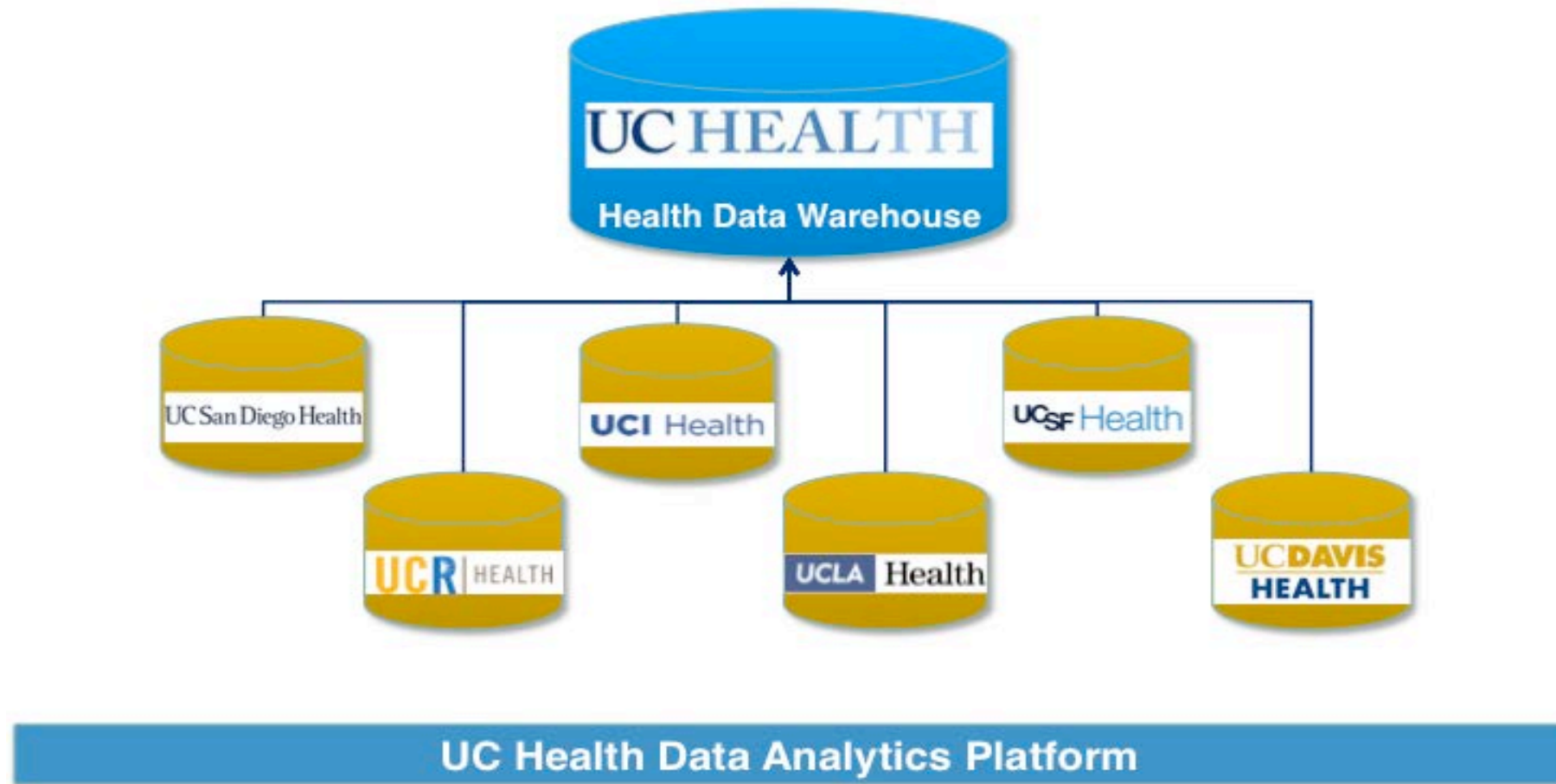
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slido.com E852
tiny.ucsf.edu/immigrant



Investing in infrastructure

Combining Healthcare Data From Across the Six University of California Medical Schools and Systems



54 Participating
cities

10 Intervention
areas

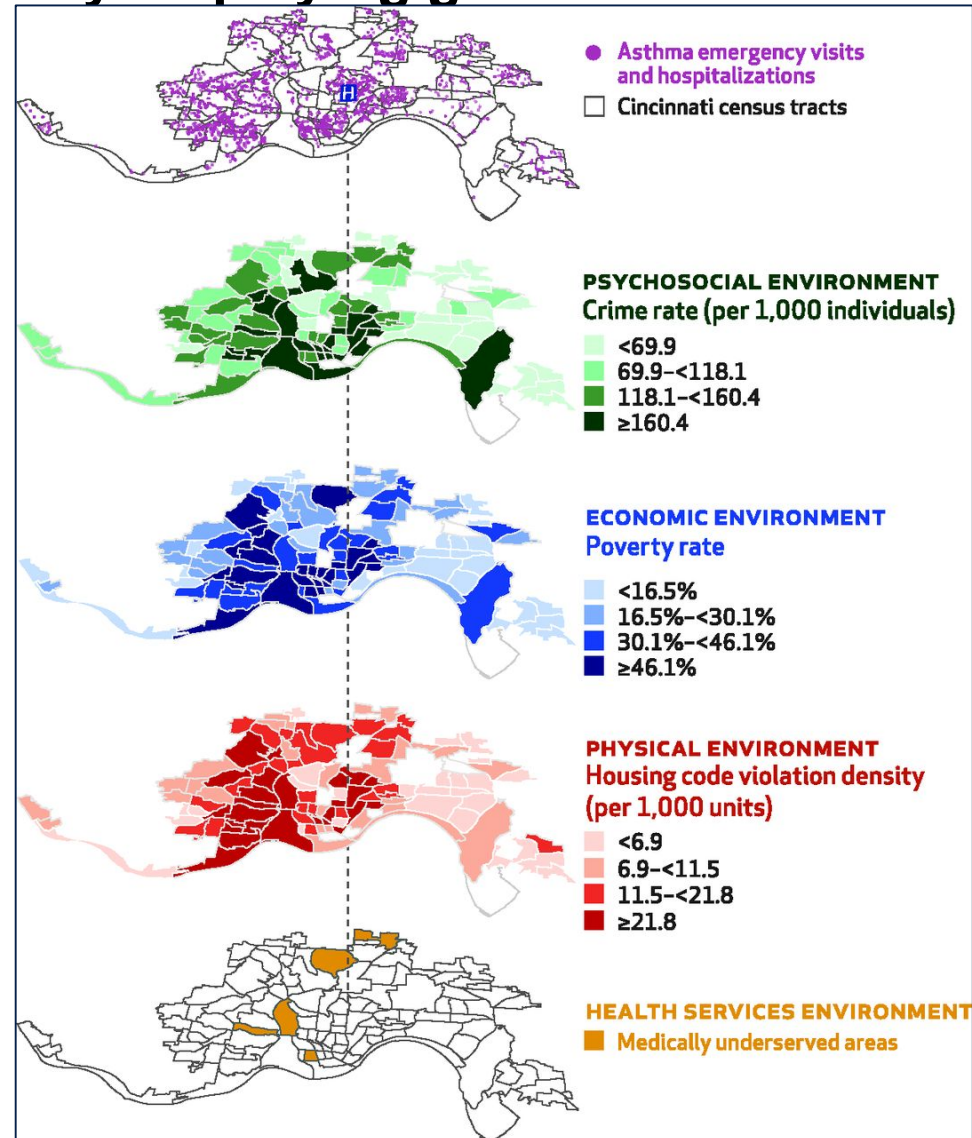
216 Million
people
covered

Partnership for Healthy Cities

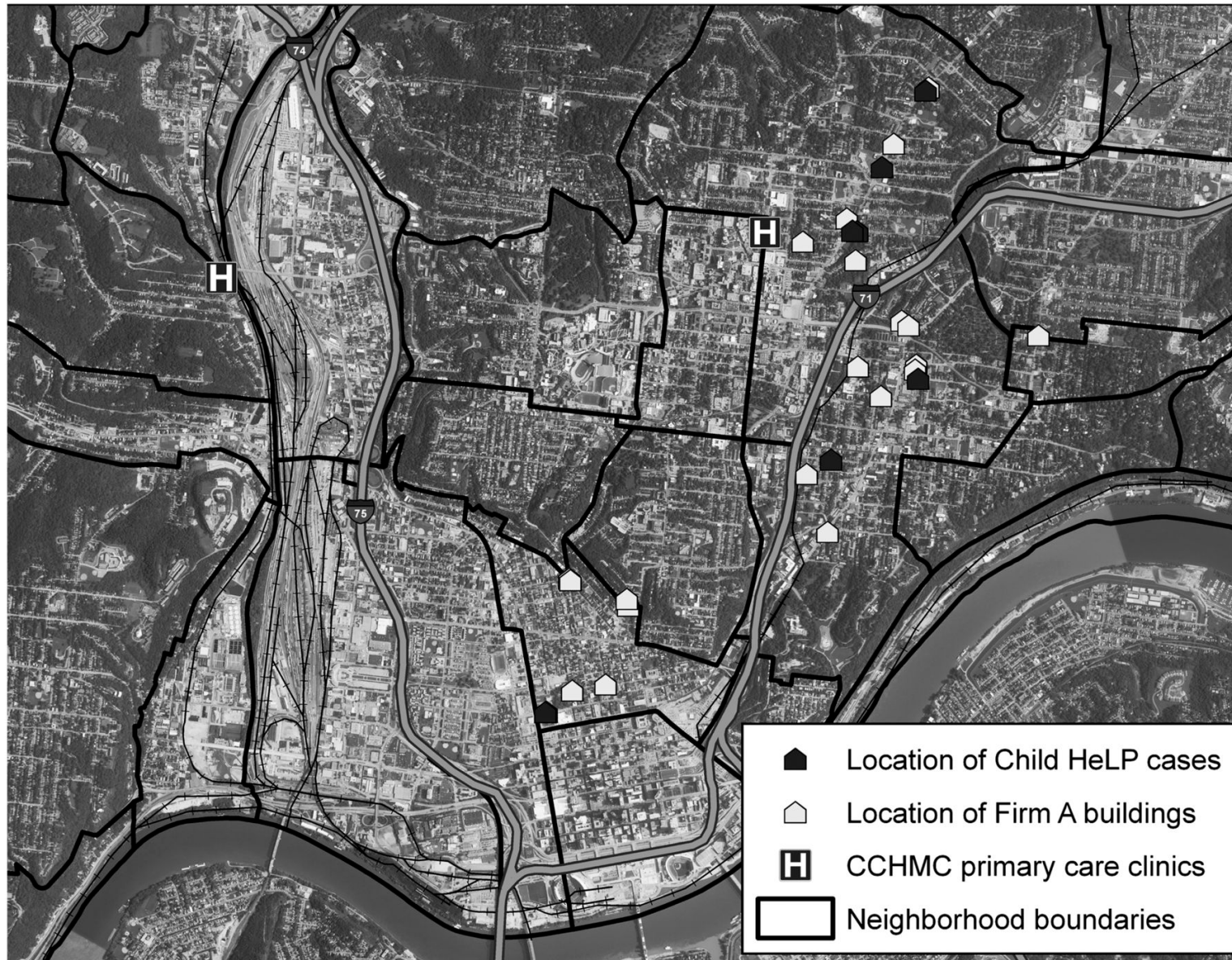
The Partnership for Healthy Cities is a prestigious global network of cities committed to saving lives by preventing noncommunicable diseases (NCDs) and injuries.



Examples of how census tract-level information can be linked to health outcomes in a staged manner by displaying geomarkers. Cincinnati Childrens

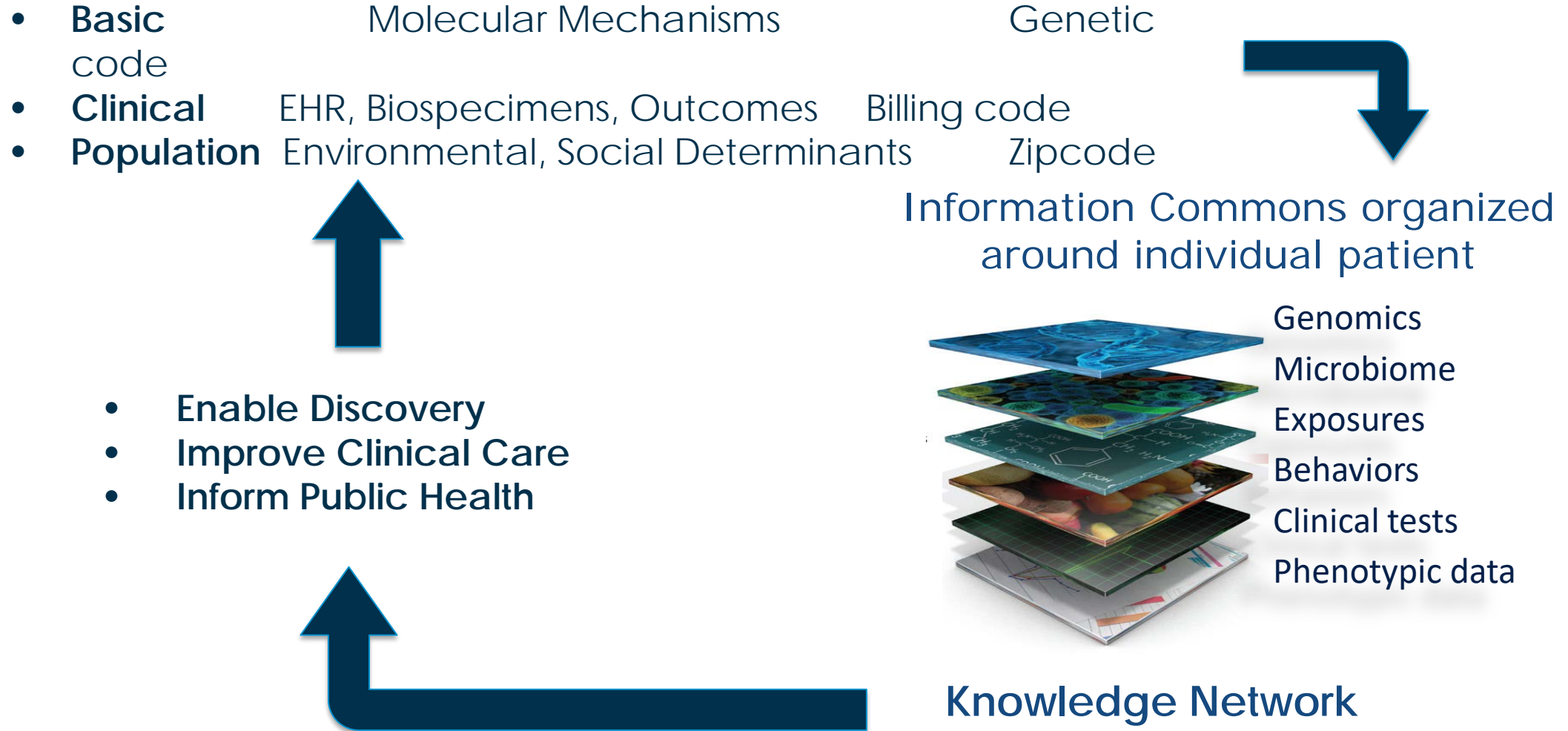


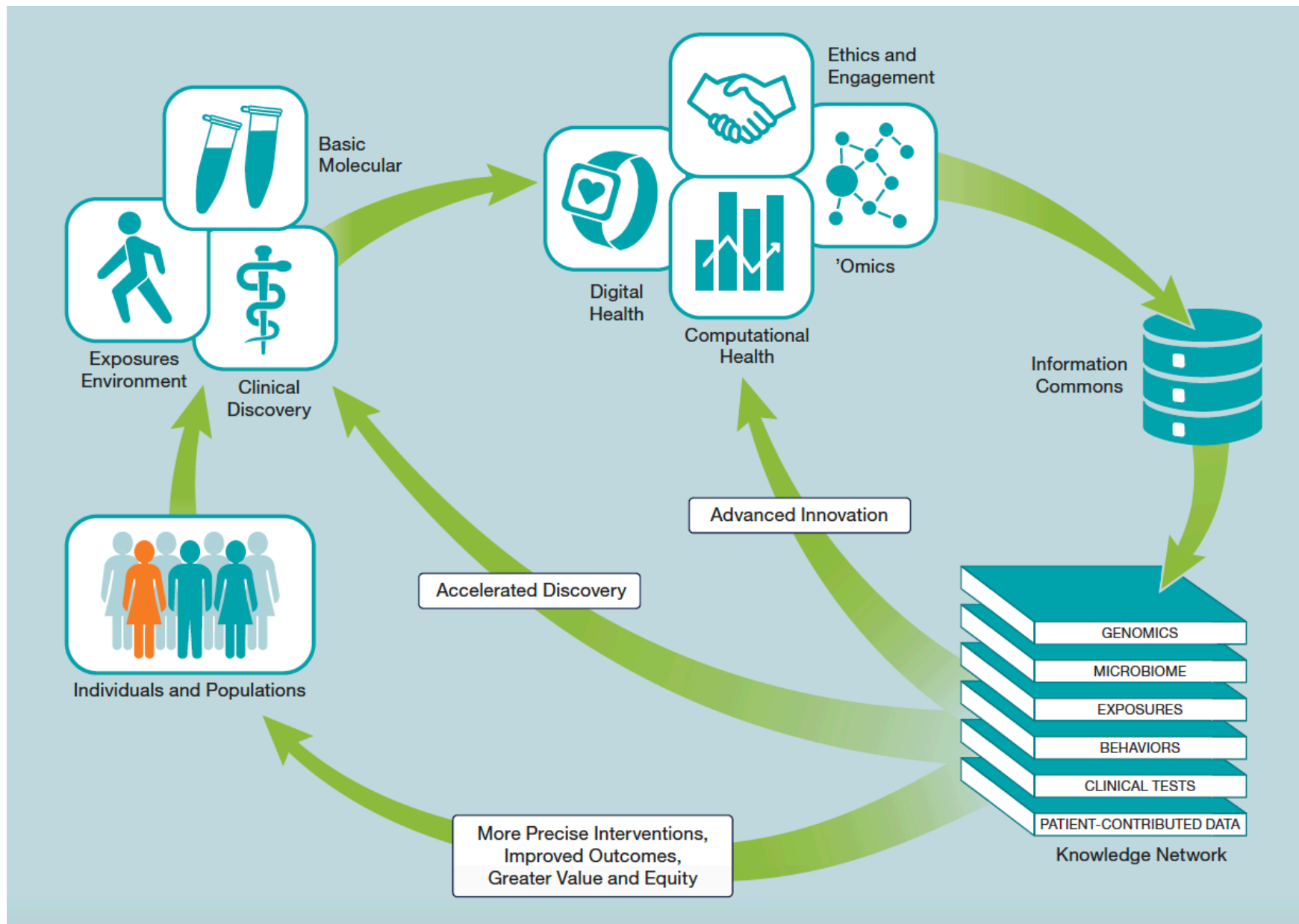
HealthAffairs



Andrew F. Beck et al. *Pediatrics* 2012;130:831-838

Building the Knowledge Network





Precision Public Health Summit – June 2016

Sponsored by the White House Office of Science & Technology Policy and the Bill & Melinda Gates Foundation – hosted by UCSF







Key Themes:

Commitment to Social Justice

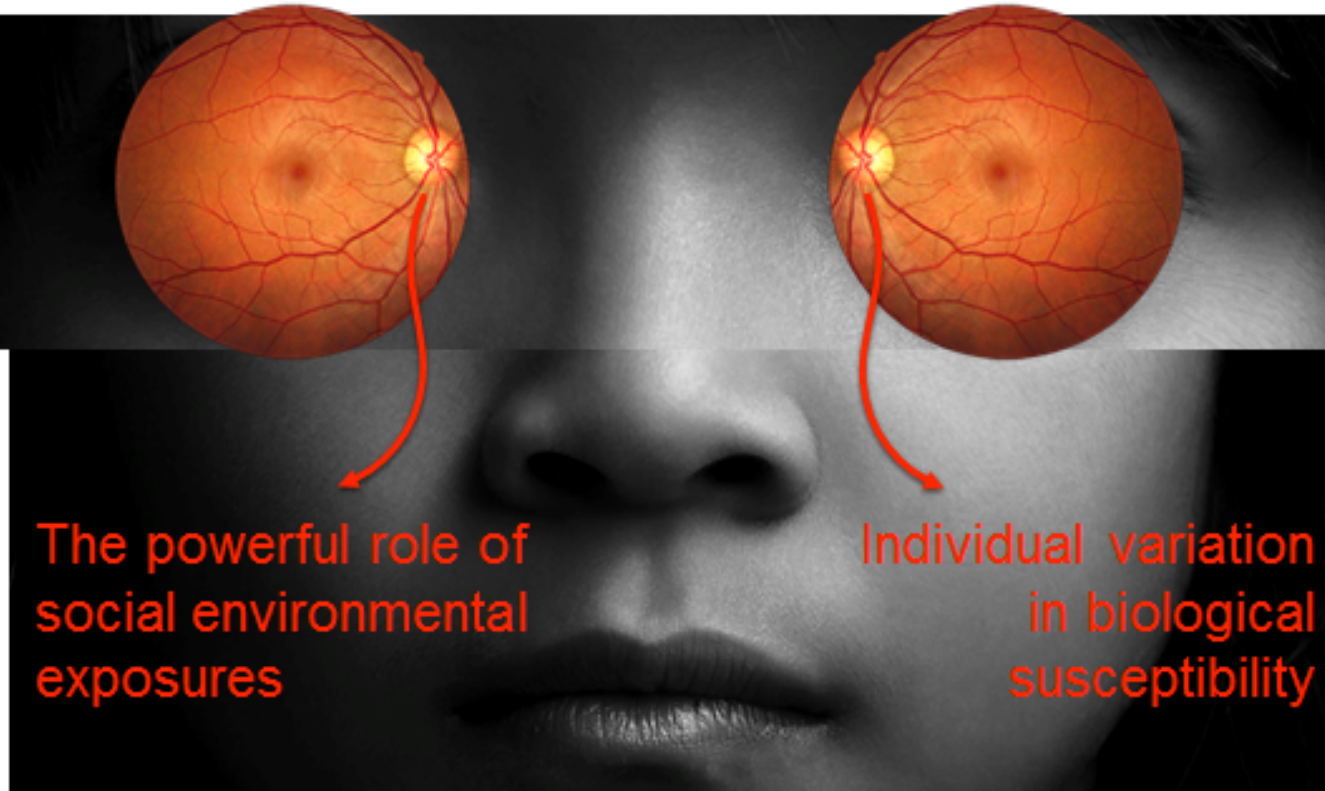
Power of Data Sharing

Importance of Community Engagement

The Binocularity of

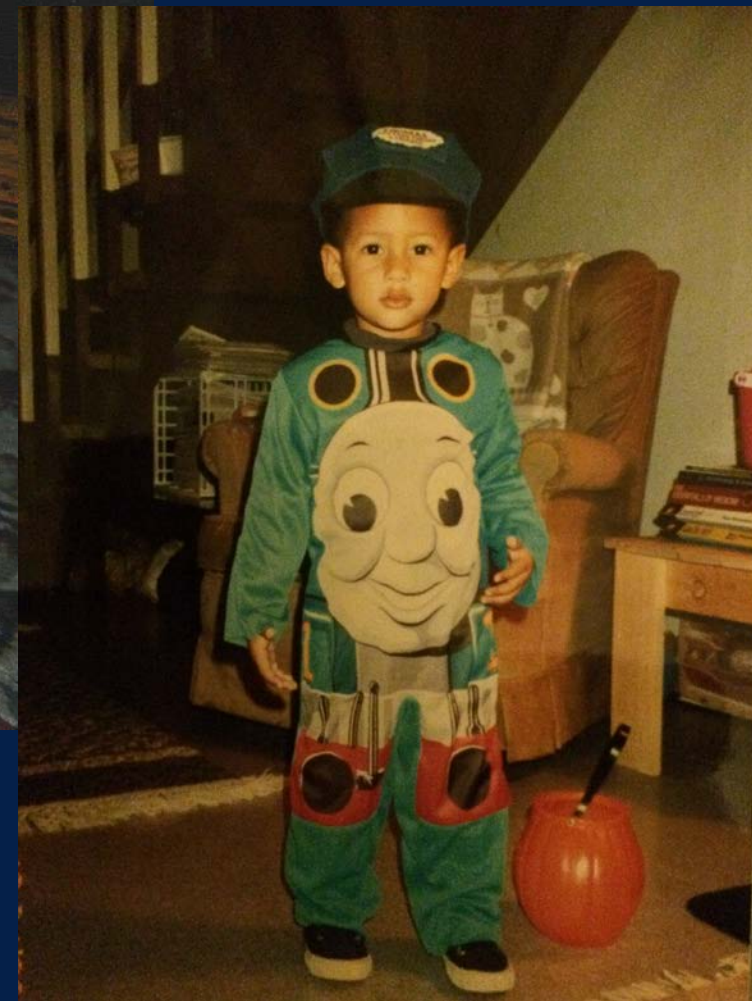
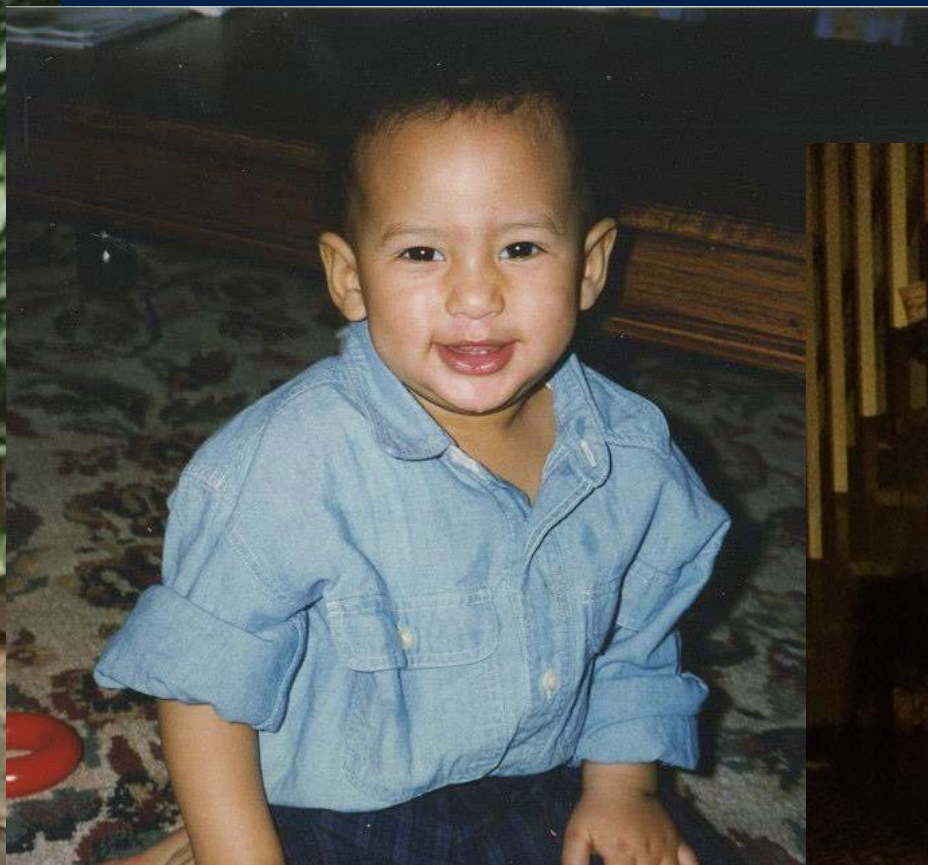
Precision Medicine

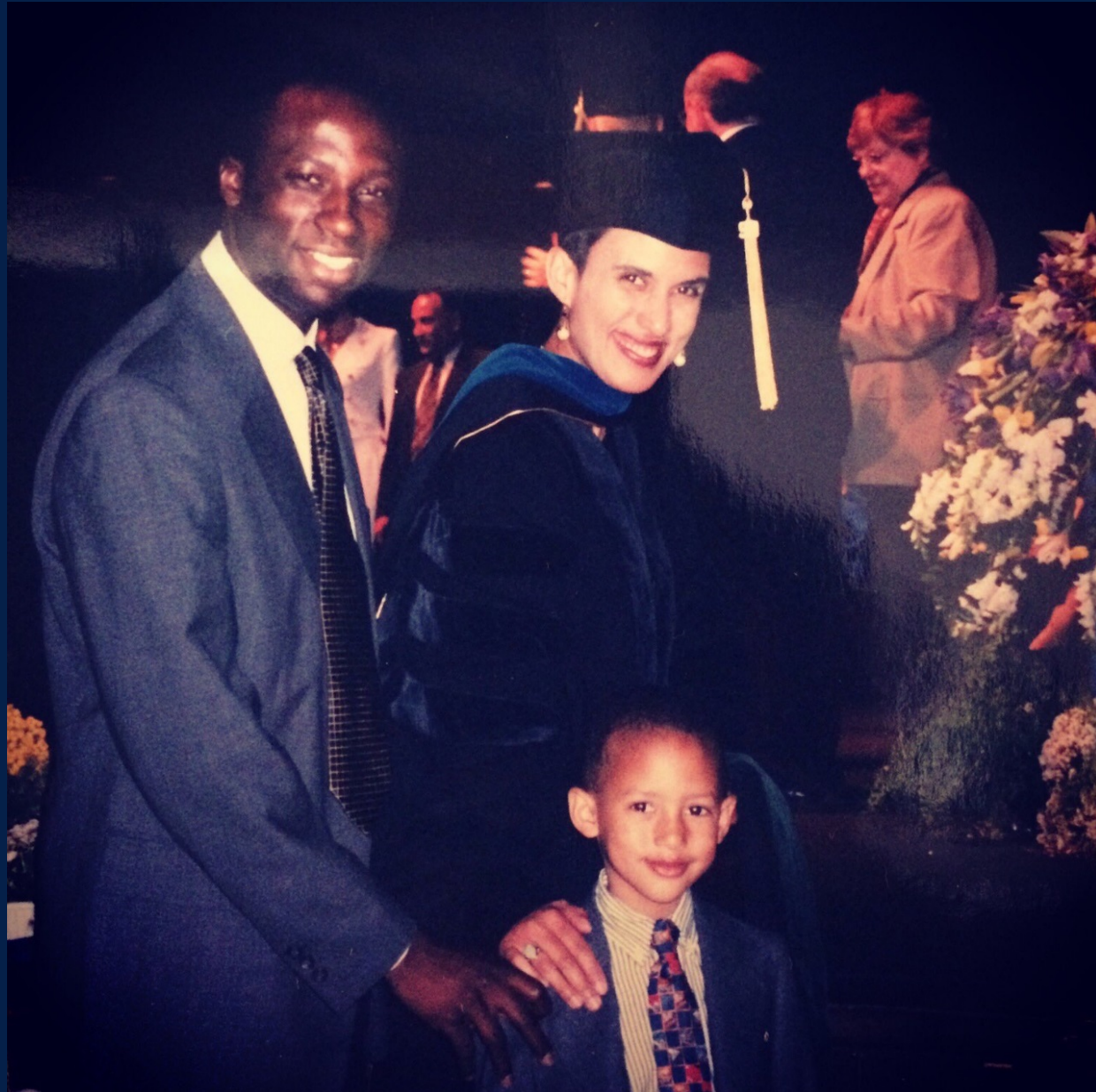
Precision Public Health



Only a true partnership of precision medicine and precision public health will allow three-dimensional insights into how we might protect and sustain the critically formative first 1000 days of life.

*From Precision Public Health Summit, June 2016
Courtesy of Dr. Tom Boyce*









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