Strategic science: improving population health and health equity

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Racial Differences in Incident Heart Failure among Young Adults

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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.
Identify change agents

Develop strategic questions

Scholarship

Communications

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.

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.

- Reduce salt in processed and restaurant food by 50%
- ~40% reduction in population salt intake
- Decrease in blood pressure

150,000 lives saved each year (result of lower intake over lifetime)

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

Isn’t the soda tax a regressive tax?

Incident rate of new diabetes cases (per 1,000,000 person years)

<table>
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<th>African Americans</th>
<th>Mexican Americans</th>
<th>Low Income</th>
<th>All Californians</th>
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<td>Incidence (per 1,000,000 person years)</td>
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Mekonnen PLOSOne 2013 Dec 11;8(12):e81723
Not So Sweet: Confronting the Health Crisis from Sugar-Sweetened Beverages in California

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. SSB, which include sodas, fruit punch, sports drinks, and other beverages high in sugar and corn syrup, are the largest source of added sugar in the U.S. diet today.  

Consumption of SSB has been on the rise. From 1977 to 2000, SSB intake increased by 150% for children and adults in the U.S. 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 (1%) and Mexican Americans (4%) consume more of their daily kilocalories from SSB than Whites (1%). 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. The impact of these drinks on our health is devastating, particularly for communities of color.
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; Meen Shafiq, MD; Patricia Knowles, Jay S. Storm, BS; Emily Adhikari, BA; Kirsten Bibbins-Domingo, PhD, MD, MAS; Pamela G. Coxson, PhD; Mark J. Fletcher, MD, MPH; Peter Hannan, MS, RM; Robert W. Haley, MD

- 17 Dallas shops, randomized.
  Intervention barbers monitored BP and promoted MD follow-up for 10 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
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
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

Kirsten Bibbins-Domingo, PhD, MD
October 23, 2019

#UCSFpophealth2019
#ImmigrantHealth

@UCSF
@UCSFMedicine

slido.com E852
tiny.ucsf.edu/immigrant
Investing in infrastructure
Combining Healthcare Data From Across the Six University of California Medical Schools and Systems

Atul Butte, MD, PhD - Director of UCSF’s Bakar Computational Health Sciences Institute, UC Chief Data Officer
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
Photographs of conditions present in households referred to Child HeLP.

Andrew F. Beck et al. Pediatrics 2012;130:831-838
Building the Knowledge Network

- Basic Molecular Mechanisms
- Clinical EHR, Biospecimens, Outcomes
- Population Environmental, Social Determinants

- Enable Discovery
- Improve Clinical Care
- Inform Public Health

Information Commons organized around individual patient

- Genomics
- Microbiome
- Exposures
- Behaviors
- Clinical tests
- Phenotypic data

Knowledge Network

UCSF – Information Commons
Key Themes:
Commitment to Social Justice
Power of Data Sharing
Importance of Community Engagement
The Binocularity of Precision Medicine and Precision Public Health

The powerful role of social environmental exposures

Individual variation in biological susceptibility

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.