

# Measuring actionable social determinants of health to improve health care access

3<sup>rd</sup> Seattle Symposium on Health Care Data Analytics

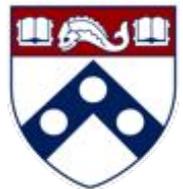
October 24, 2018

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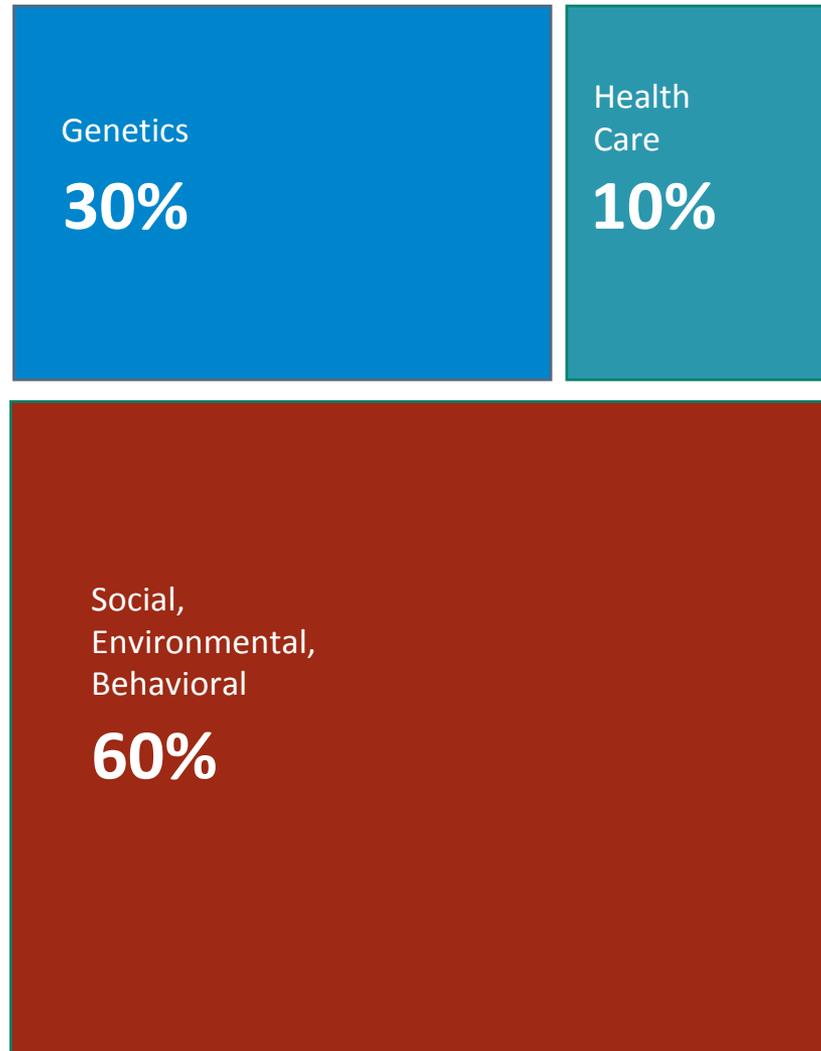
# Disclosure

- No financial conflicts
- No industry affiliations
- I am accepting donations

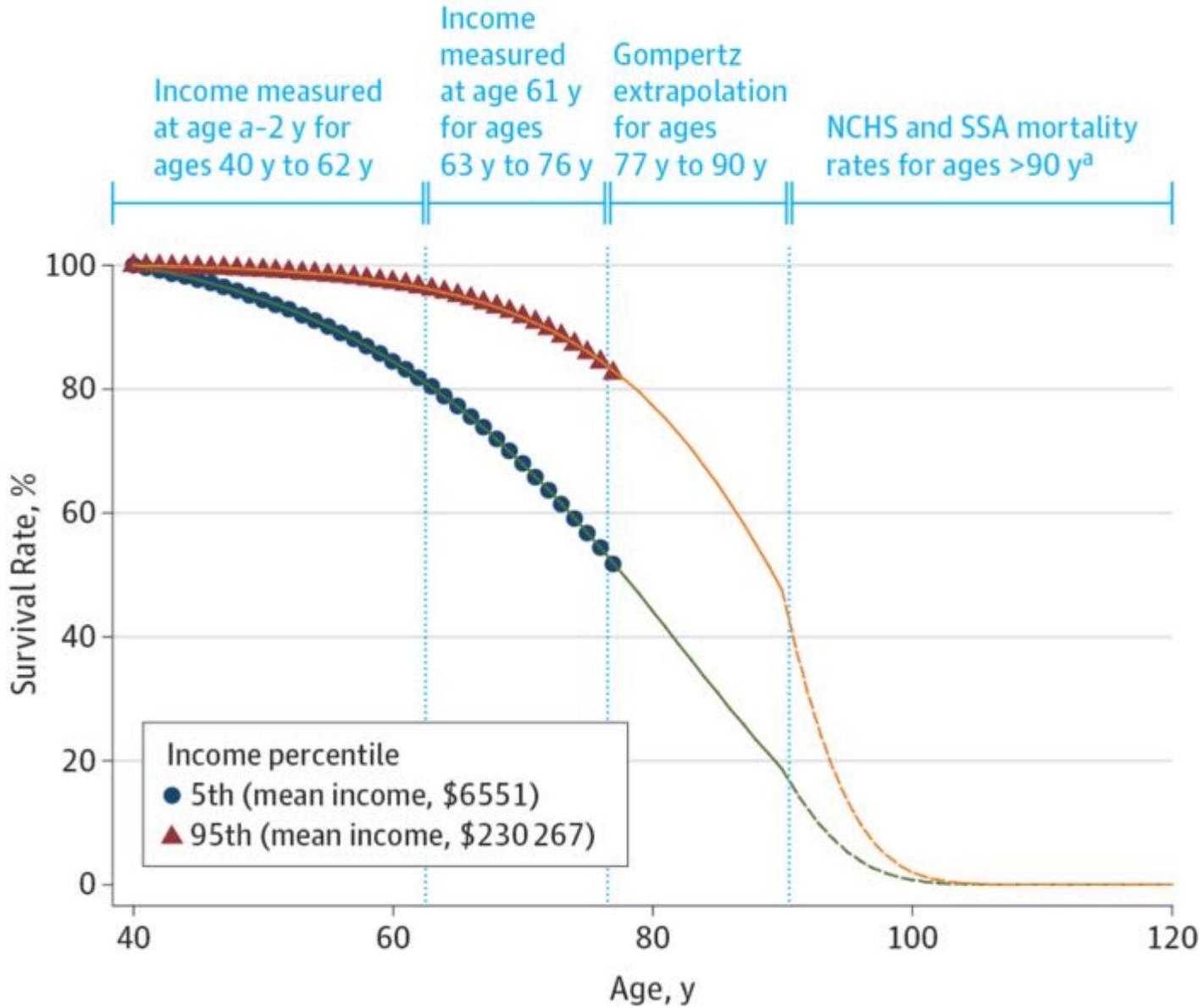


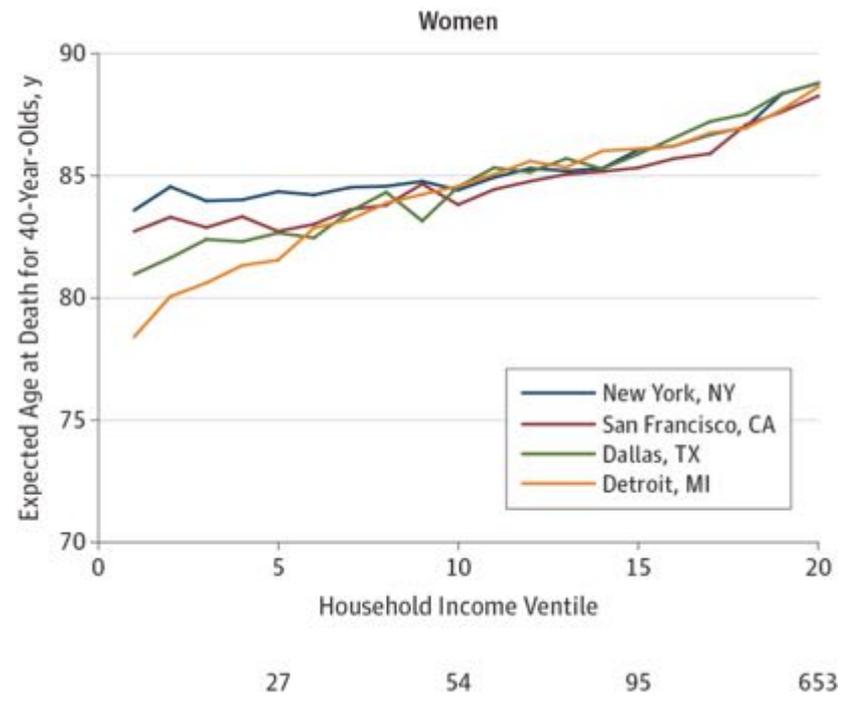
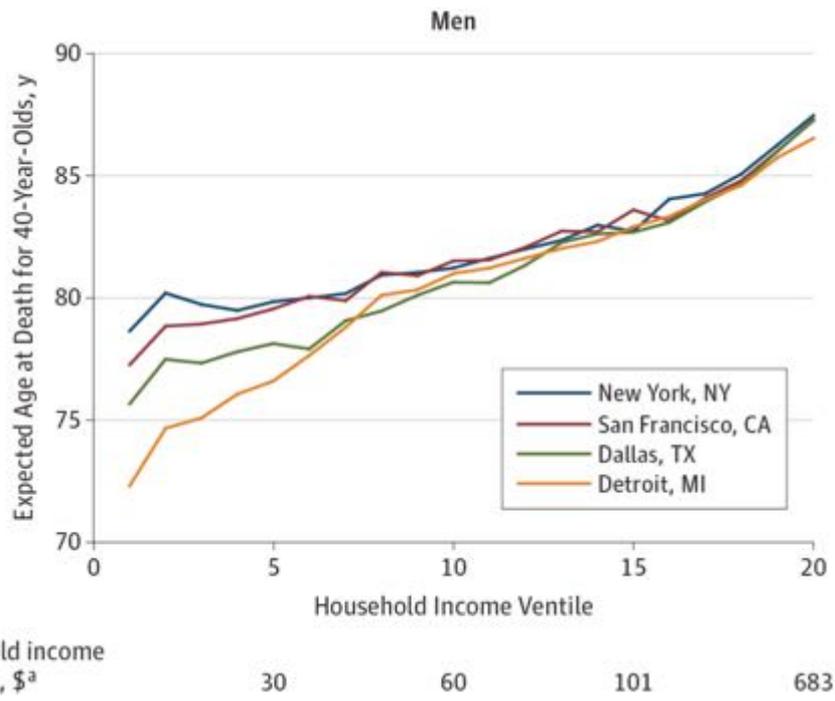
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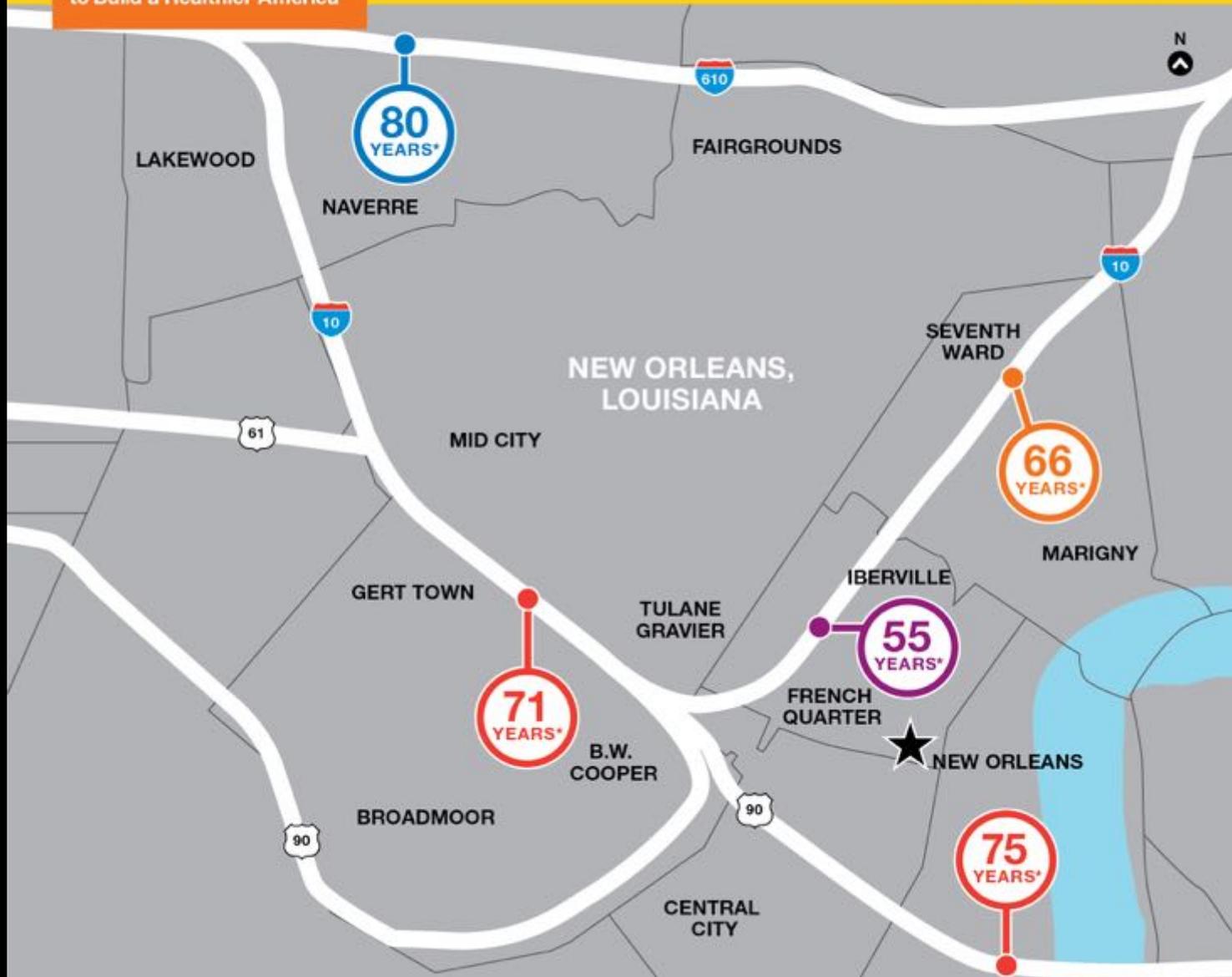




**B** Survival curves for men





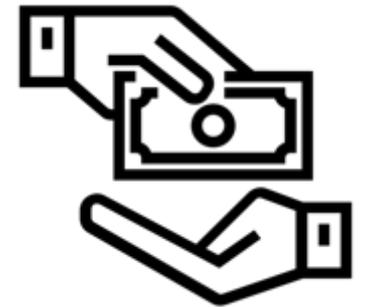


@khchaiyachati

# The changing health care landscape



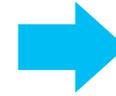
# Payment reform



Pay Providers  
Differently for Care



Providers Change  
Their Behavior



Better Outcomes



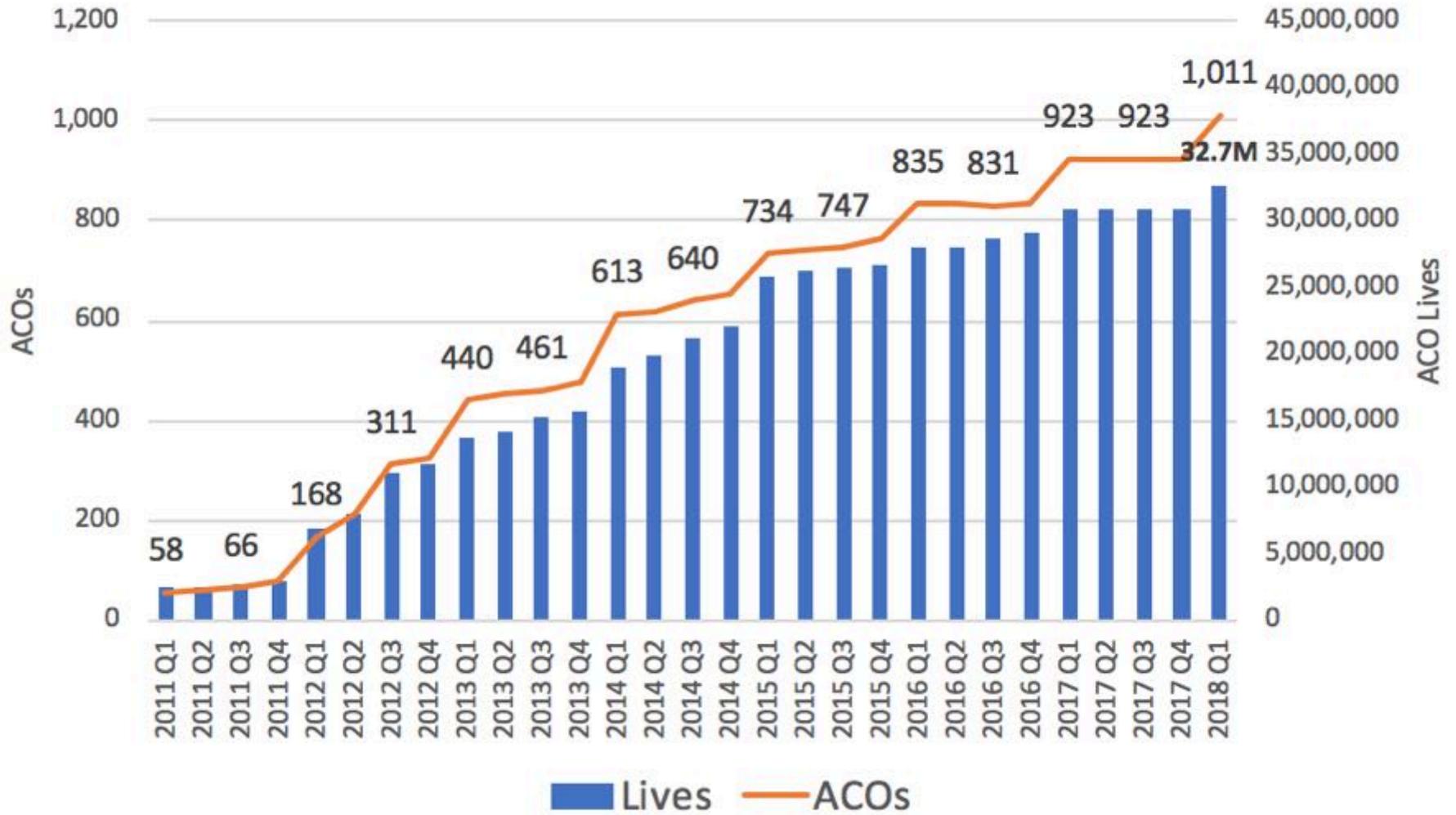
Better Experience



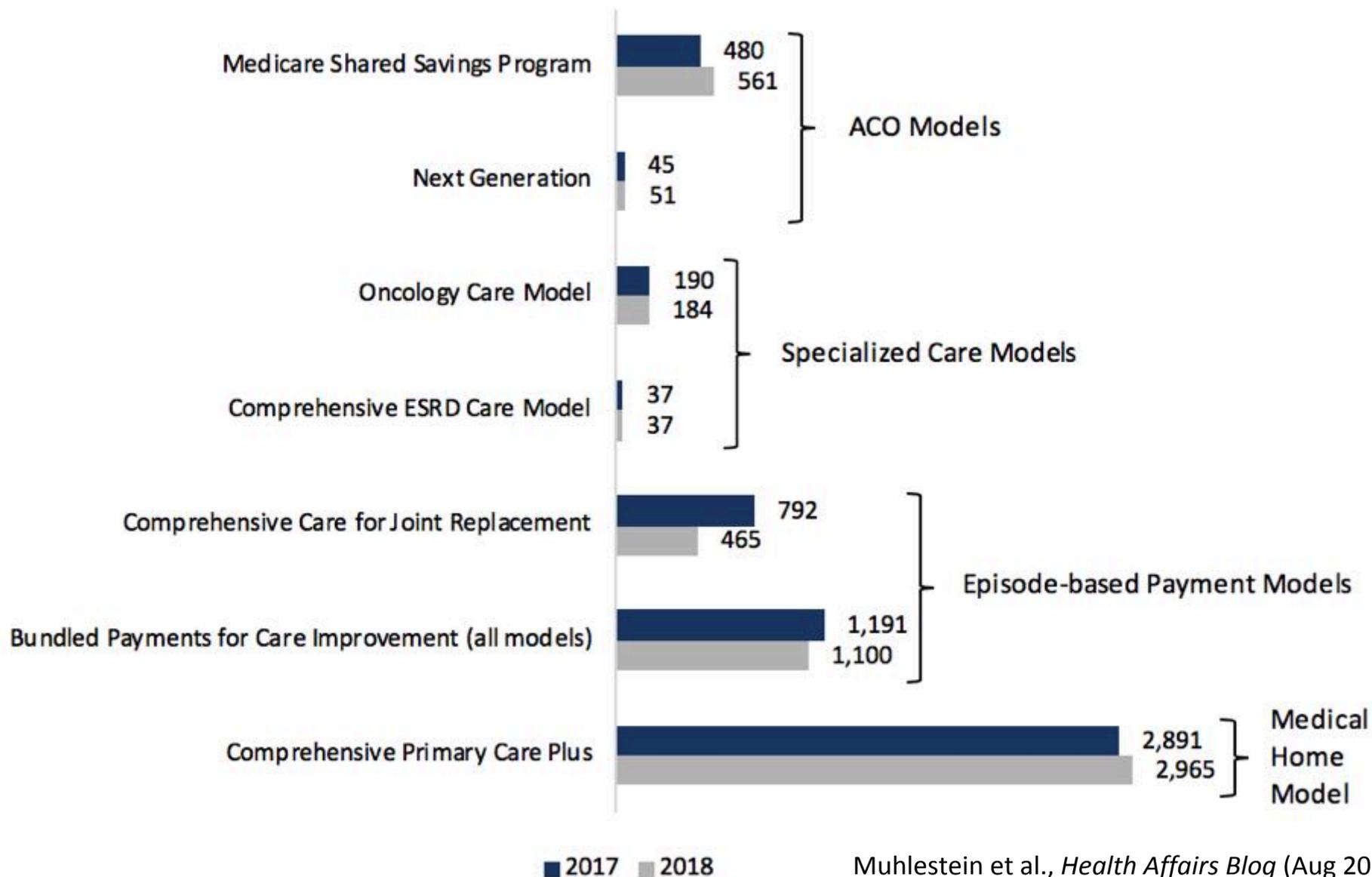
Lower Costs



## ACOs and Covered Lives over Time



# Medicare Alternative Payment Model Participants





# Financial

## imperative: Payers can't control costs without addressing social determinants

By Shelby Livingston



*Volunteers for Project Angel Food prepare medically tailored meals for the seriously ill. L.A. Care Health Plan provided a \$150,000 grant for a pilot project to prove healthy meals can reduce readmissions. (L.A. Care Health Plan)*

**T**he movement to better address the social and environmental factors that affect health has insurance companies and other payers looking beyond the hospital or clinic and stepping into the community to give patients help where it's needed.



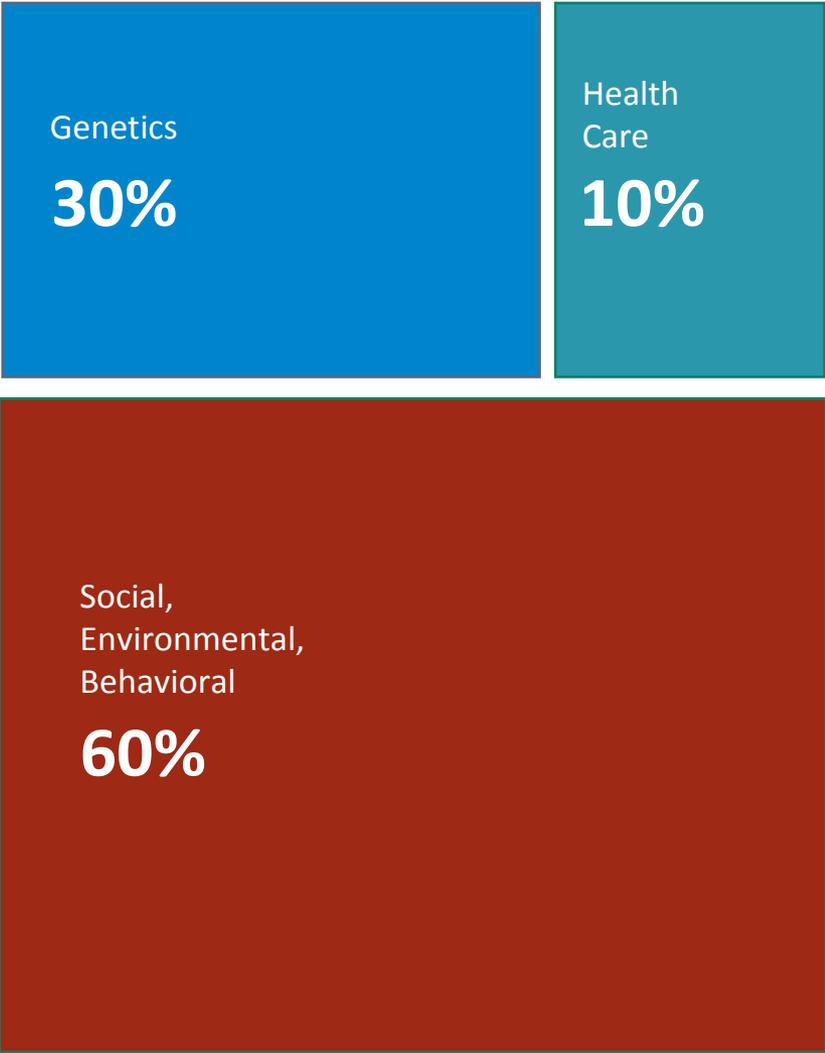
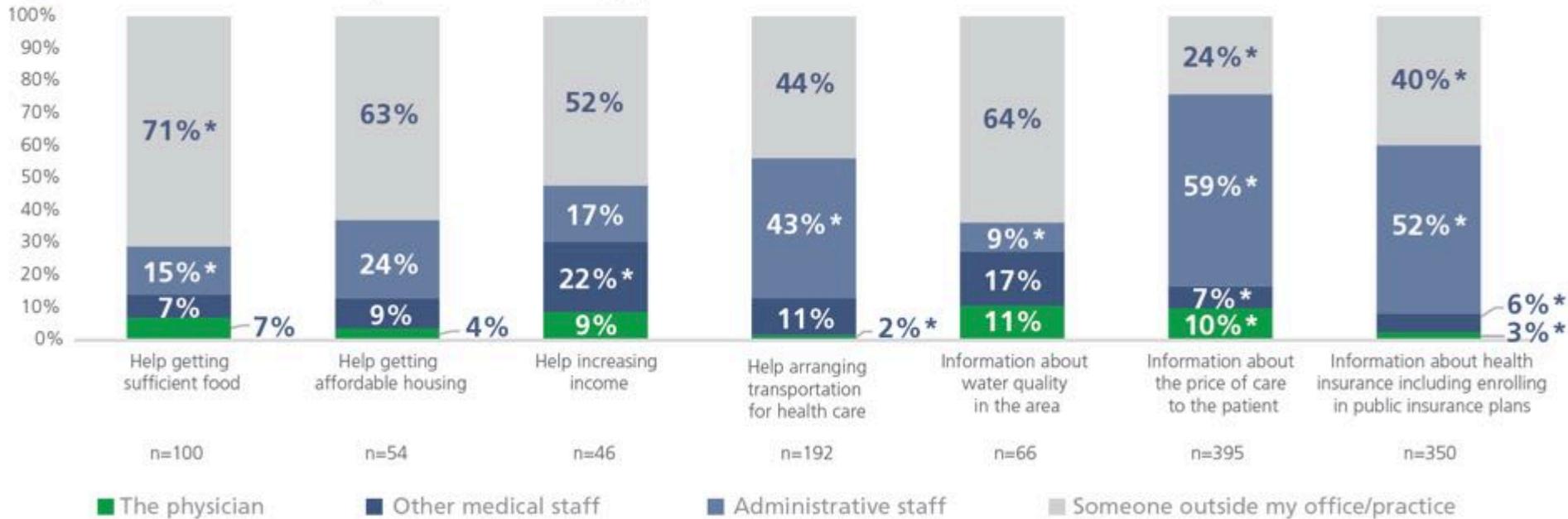


Figure 6: Individuals best positioned to help patients



\*Asterisks indicate statistically meaningful differences between the indicated percentage and the average percentage of respondents selecting that option across all questions in this question group (i.e., an asterisk indicates that the bar is significantly different from bars of the same color).

Source: Authors' analysis of Leavitt Partners survey, 2017



# Where to begin?



# Social Explorer

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# NATIONAL PROFILE OF LOCAL HEALTH DEPARTMENTS

Reports & Publications Data Requests Forces of Change ABOUT CONTACT Search

## Data Requests & Technical Documentation

- [Request Data from NACCHO \(1989 - 2016\)](#) +
- [Data Guide to Profile Study \(1990-2016\)](#) +
- [GIS Shapefiles \(2008-2016\)](#) +

# OpenDataPhilly

Datasets Organizations Topics About Resources

## Your source for open data in the Philadelphia region

OpenDataPhilly is a catalog of open data in the Philadelphia region. In addition to being the official open data repository for the City, it includes data sets from many organizations in the region.

## SCHEDULE H (Form 990) Hospitals

OMB No. 1545-0047  
**2014**  
Open to Public Inspection

Department of the Treasury Internal Revenue Service  
▶ Complete if the organization answered "Yes" to Form 990, Part IV, question 20.  
▶ Attach to Form 990.  
▶ Information about Schedule H (Form 990) and its instructions is at [www.irs.gov/form990](http://www.irs.gov/form990).

Name of the organization: \_\_\_\_\_ Employer identification number: \_\_\_\_\_

### Part I Financial Assistance and Certain Other Community Benefits at Cost

	Yes	No
1a Did the organization have a financial assistance policy during the tax year? If "No," skip to question 6a . . . . .	1a	
b If "Yes," was it a written policy? . . . . .	1b	
2 If the organization had multiple hospital facilities, indicate which of the following best describes application of the financial assistance policy to its various hospital facilities during the tax year. <input type="checkbox"/> Applied uniformly to all hospital facilities <input type="checkbox"/> Applied uniformly to most hospital facilities <input type="checkbox"/> Generally tailored to individual hospital facilities		
3 Answer the following based on the financial assistance eligibility criteria that applied to the largest number of the organization's patients during the tax year. a Did the organization use Federal Poverty Guidelines (FPG) as a factor in determining eligibility for providing free care? If "Yes," indicate which of the following was the FPG family income limit for eligibility for free care: <input type="checkbox"/> 100% <input type="checkbox"/> 150% <input type="checkbox"/> 200% <input type="checkbox"/> Other _____ %	3a	
b Did the organization use FPG as a factor in determining eligibility for providing discounted care? If "Yes," indicate which of the following was the family income limit for eligibility for discounted care: . . . . . <input type="checkbox"/> 200% <input type="checkbox"/> 250% <input type="checkbox"/> 300% <input type="checkbox"/> 350% <input type="checkbox"/> 400% <input type="checkbox"/> Other _____ %	3b	

## Browse by Topic

- Arts / Culture / History
- Basemaps
- Boundaries
- Budget / Finance
- Economy
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- Elections / Politics
- Environment
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- Health / Human Services
- Parks / Recreation
- Planning / Zoning
- Public Safety
- Real Estate / Land Records
- Transportation
- Uncategorized

## Walk Score® Professional

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### Public Health and the Built Environment

Researchers use Walk Score data to study the effects of the built environment on public health.

The following selected public health research uses Walk Score data or is related to walkability and public health. Walk Score data is used to study the links between the built environment and physical activity, the built environment and obesity, and the built environment and diabetes. Walk Score data can also be used to study the effects of food deserts, park deserts, or how access to public transit influences public health.

Submit a new paper.  
See also: [Walkability Real Estate Research on Walk Score.](#)

#### Next Steps

- [Request pricing](#)
- [Download case study](#)

#### Research and Data Services

- Data Services
- Walkability Research
- Public Health Research
- Walk Score Methodology

#### Selected Research

- "Street Smart Walk Score is a strongly significant predictor of MVPA (moderate to vigorous physical activity)"

**Video:** Using Walk Score for public health research lowers GIS costs.

# Integration into EHR

Question #	Question & Response Options (from paper version or Flowsheet)	Responses that Flag a Positive Screen
1.	<i>How do you learn best?</i> <input type="checkbox"/> Reading <input type="checkbox"/> Listening <input type="checkbox"/> Pictures	None
2.	<i>What is the highest level of school that you have finished?</i> <input type="checkbox"/> Less than a high school diploma <input type="checkbox"/> High school diploma / GED <input type="checkbox"/> More than high school	None
3.	<i>How hard is it for you to pay for the very basics like food, housing, heating, medical care, and medications?</i> <input type="checkbox"/> Not hard at all <input type="checkbox"/> Somewhat hard <input type="checkbox"/> Very hard	Somewhat hard or very hard
	<i>If you answered "Somewhat hard" or "Very hard," what is it hard to pay for?</i> Food, Utilities, Transportation, Medicine or Medical Care, Health Insurance, Clothing, Rent/Mortgage Payment, Child Care, Phone	Yes to any of these
4a.	<i>In the last month: Have you slept outside, in a shelter, or in a place not meant for sleeping?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No	Yes
4b.	<i>In the last month: Have you had concerns about the conditions and quality of your housing?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No	Yes
5.	<i>In the last 12 months, how many times have you moved from one home to another?</i>	2 or more moves flagged for follow-up
6a.	<i>In the last 12 months: (I/we) worried whether (my/our) food would run out before (I/we) got money to buy more.</i> <input type="checkbox"/> Often true <input type="checkbox"/> Sometimes true <input type="checkbox"/> Never true	Often true or sometimes true
6b.	<i>In the last 12 months: The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more.</i> <input type="checkbox"/> Often true <input type="checkbox"/> Sometimes true <input type="checkbox"/> Never true	Often true or sometimes true
6c.	<i>In the last 12 months: (I/we) couldn't afford to eat balanced meals.</i> <input type="checkbox"/> Often true <input type="checkbox"/> Sometimes true <input type="checkbox"/> Never true	Often true or sometimes true
7.	<i>In the last 12 months: Have you ever been physically or emotionally hurt or threatened by a spouse/partner or someone else you know?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No	Yes
8a.	<i>On average, how many: Days per week do you engage in moderate to strenuous exercise (like walking fast, running, jogging, dancing, swimming, biking, or other activities that cause a light or heavy sweat)? (0 – 7)</i>	Multiply days per week (8a) by number of minutes (8b); <150 flagged for follow-up
8b.	<i>On average, how many: Minutes do you exercise at this level?</i>	





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# Explore health in your city

Enter city or state



# City View for: **Children in Poverty**

**Change Metric**

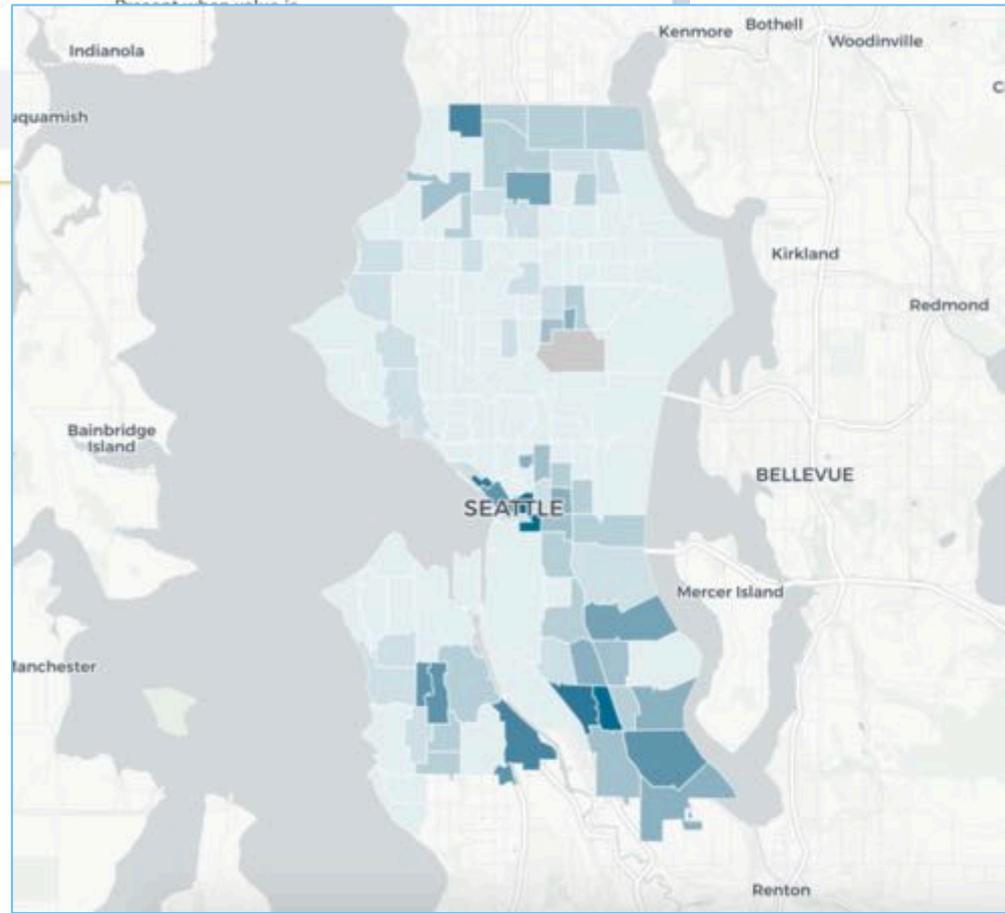
Children living in households  $\leq 100\%$  of the federal poverty level (%) **MORE ABOUT METRIC** ▾

Select minimum and maximum values for data display: ?  500-City min/max  Seattle, WA min/max

## City Value for Children in Poverty in Seattle, WA



14.1% of **Seattle's** children were in poverty, compared to an average of 23.6% across the Dashboard's 500 cities.



**NYU Langone Health**



Robert Wood Johnson Foundation

# Seattle

## Social and Economic Factors

High School Graduation +



Racial/Ethnic Diversity +



Third-Grade Reading Proficiency +



Absenteeism +



Children in Poverty +



Housing Cost, Excessive +



Income Inequality +



Neighborhood Racial/Ethnic Segregation +



Unemployment +

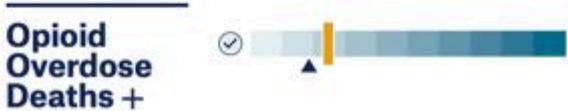
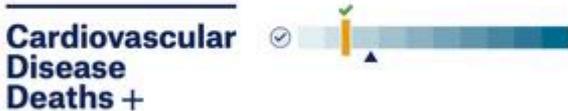


Violent Crime +



# Seattle

## Health Outcomes



# Strengthening the science

Nicole Lurie, *Health Affairs* (2002)

Little is known about the mechanisms through which nonmedical determinants, particularly those related to socioeconomic status and social conditions, affect health...

Just because a factor is related to poor health, we cannot assume that interventions that ameliorate that condition alone will lead to immediate improvement in population health...

Because populationwide [sic] interventions have far-reaching social and economic implications, it is particularly important that public policy be based on sound science.



# Transportation Case Study



Home > Providers > Hospitals > Not-for-Profit Hospitals



Lyft is an on-demand transportation company that allows people to arrange rides with Lyft-certified drivers, its main rival is Uber.

## Ascension partners with Lyft to ease patient transportation

By Dave Barkholz | December 20, 2016

Ascension has partnered with Lyft to ensure that a ride is always available for patients, the companies announced Tuesday. Ascension, the nation's largest not-for-profit hospital system, said the on-demand Lyft service provides an additional resource for the community's most vulnerable patients, in keeping with Ascension's stated mission to look out for the impoverished. Catholic-sponsored Ascension is the first major hospital company to engage Lyft, which is rolling out a non-emergency medical transportation business across the country. "Many of

**BUSINESS** 08/07/2017 03:36 pm ET | Updated Aug 30, 2017

## Lyft, Uber Increasingly Offering Medical Transportation Services

"This is one of those rare innovations where you can both improve the service and reduce cost at the same time."



By Ryan Grenoble

## Medical Providers Try Uber, Lyft For Patients With Few Transportation Options

# Hospitals Are Partnering With Uber to Get Patients to Checkups

The convenience could greatly reduce the likelihood of missed appointments.

ZHAI YUN TAN | AUG 15, 2016 | HEALTH

*The Atlantic*

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The Switch

## Uber and Lyft think they can solve one of medicine's biggest problems

By Carolyn Y. Johnson March 1 at 2:14 PM Email the author



# Transportation trial

- Will a convenient, on-demand transportation option reduce missed appointments to primary care?
- Goal: 10% absolute reduction in missed appointments among Medicaid population (baseline 49%)

	Control group	Intervention group
Sample size target*	390	390
Allocation (2d before appointment)	Called <u>ODD</u> # day (appointment reminder)	Called <u>EVEN</u> # day (appointment reminder)
Procedures	Usual travel mode (blinded)	One-time, rideshare- offer (not blinded)

# Results: Missed appointments

Intent-to-Treat\*  
(All called)

Treatment-as-provided  
(Answered phone call)\*

Subgroups\*

\*Not significant

Control group	Intervention group
36.7%	36.6%
34.8%	30.6%
Better post-hospital discharge (Odds ratio: 0.31)	



What happened?



# Transportation

Transportation is a significant barrier for low income patients to attend appointments.

## Limited options in traveling

*“If you don’t have the money [to take the bus], then you can’t get there. It [doesn’t] really cost that much because I’m not that far, but a lot of times, when you don’t have a lot, a little bit is a lot.”*

## Unreliable or undesired current transportation modes

*“There is one [transportation] agency that everybody has a problem with, and I missed two appointments messing around with them...I was not happy because I didn't get a chance to take care of my medical situation and had to find somebody else to take me to the doctor.”*



# External forces

Social and external obligations to employers and family members complicate travel logistics further.

*"My sister's very sick, and she needs a lot of care and a lot of attention. I'm the only one that's available to her a lot of the time when she needs help... so sometimes something comes up where I cannot make my appointment."*



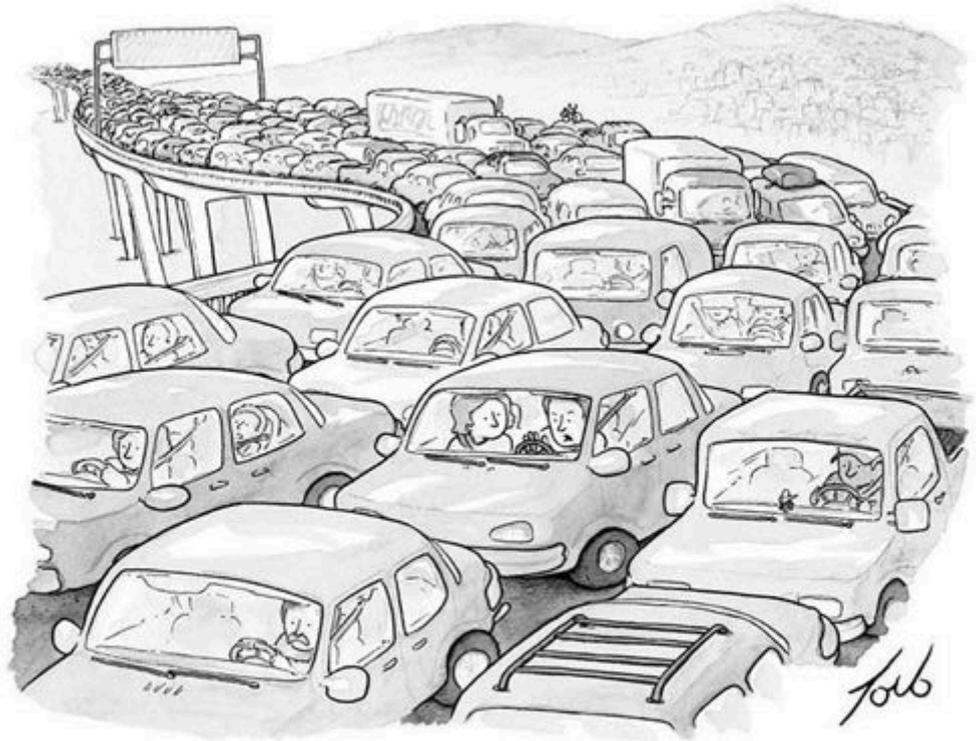
# Personal health

Personal health factors negatively impact patients' ability to get to appointments.

*"I didn't feel good, and I wanted to make my appointment, but I just didn't feel good [enough] to get there."*

*"It's not that far, but I can't make it. I'm heavy and I'm sickly."*

# The Path Forward

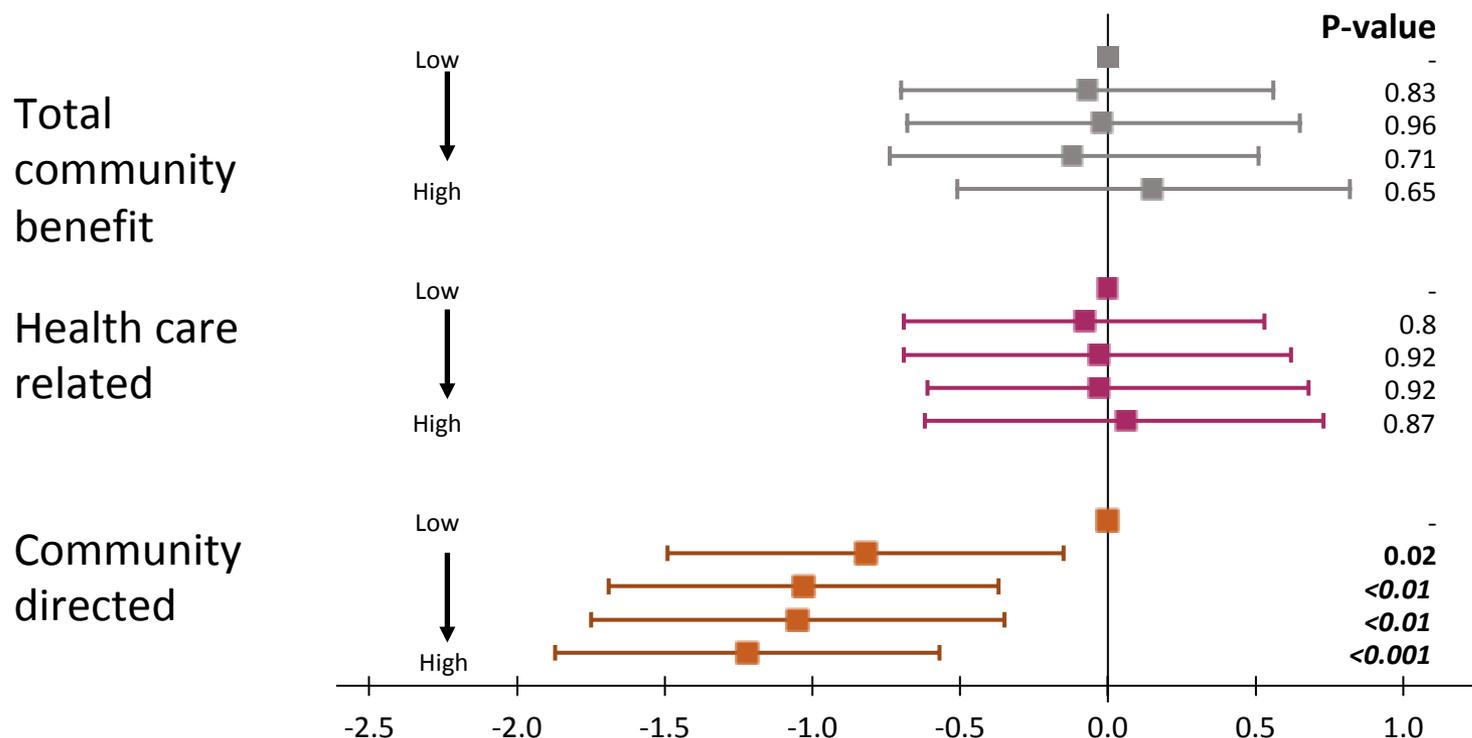


*“Why isn’t my car horn magically fixing everything?”*

The New Yorker Magazine



# Differences in 2014 Readmission Rates by Community Benefit Spending



# Effect of Community Health Worker Support on Clinical Outcomes of Low-Income Patients Across Primary Care Facilities

## A Randomized Clinical Trial

Shreya Kangovi, MD, MS; Nandita Mitra, PhD; Lindsey Norton, MSS, MLSP; Rory Harte; Xinyi Zhao, MPH; Tamala Carter, CHW; David Grande, MD, MPA; Judith A. Long, MD

- Primary outcome - similar self-rated health between two arms
- Secondary outcome:
  - ✓ Higher quality of care reported (comprehensive and supportive)
  - ✓ Fewer days spent in the hospital (69% reduction)
  - ✓ Shorter length of stay (-3.1 days)
  - ✓ Fewer hospitalizations
  - ✓ Reduced 30-day readmissions



# The Ask

- Advance statistical approaches to understand the complex interplay between (many) social needs, health care outcomes, and health
- Help shift the field towards causality and interventions
- Do not ignore the science of implementation
- Multi-stakeholder collaboration will be critical



# Questions

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