COLLABORATIVE FINANCING OF UPSTREAM INVESTMENT:

PAYING FOR SOCIAL DETERMINANTS OF HEALTH

Len M. Nichols, Ph. D.

Director, Center for Health Policy Research and Ethics, George Mason University

2019 QHN Summit

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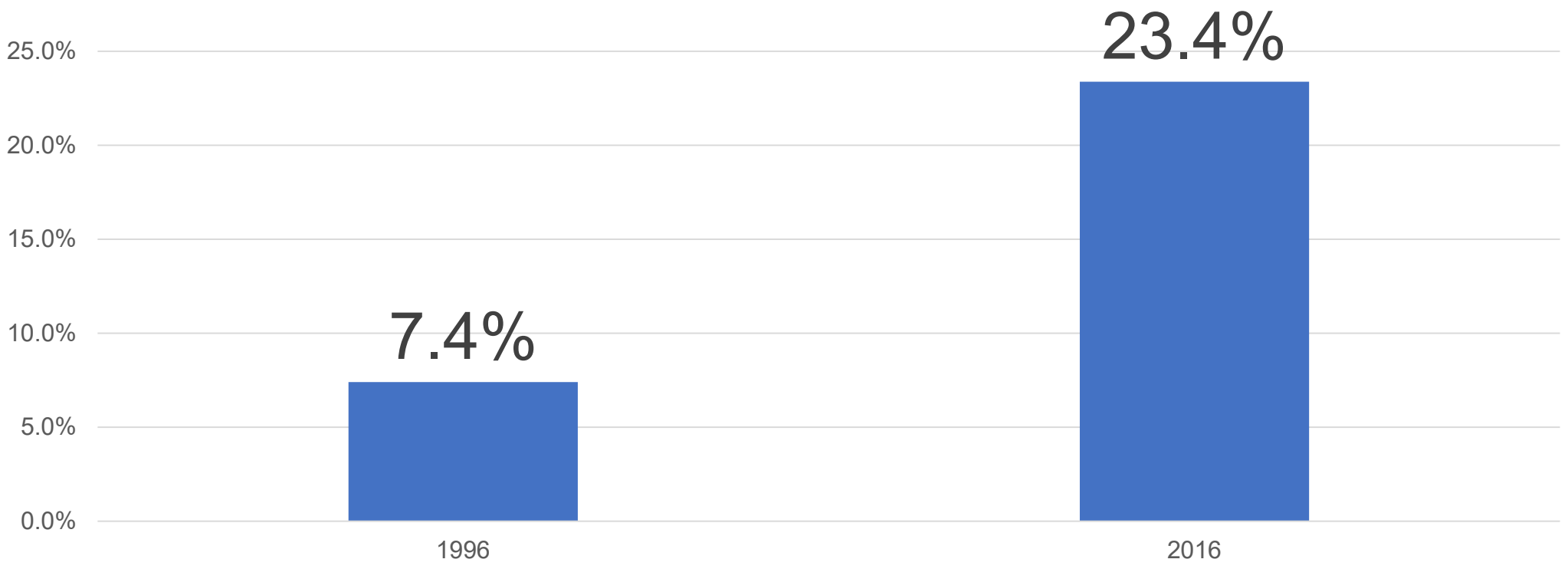
Overview

- Why the health care cost problem will not go away
- Why Investing Upstream in Social Determinants of Health Is a Key Piece of the US Puzzle
- A New Way of Thinking About Upstream Financing
- Challenges, Next Steps and Questions?

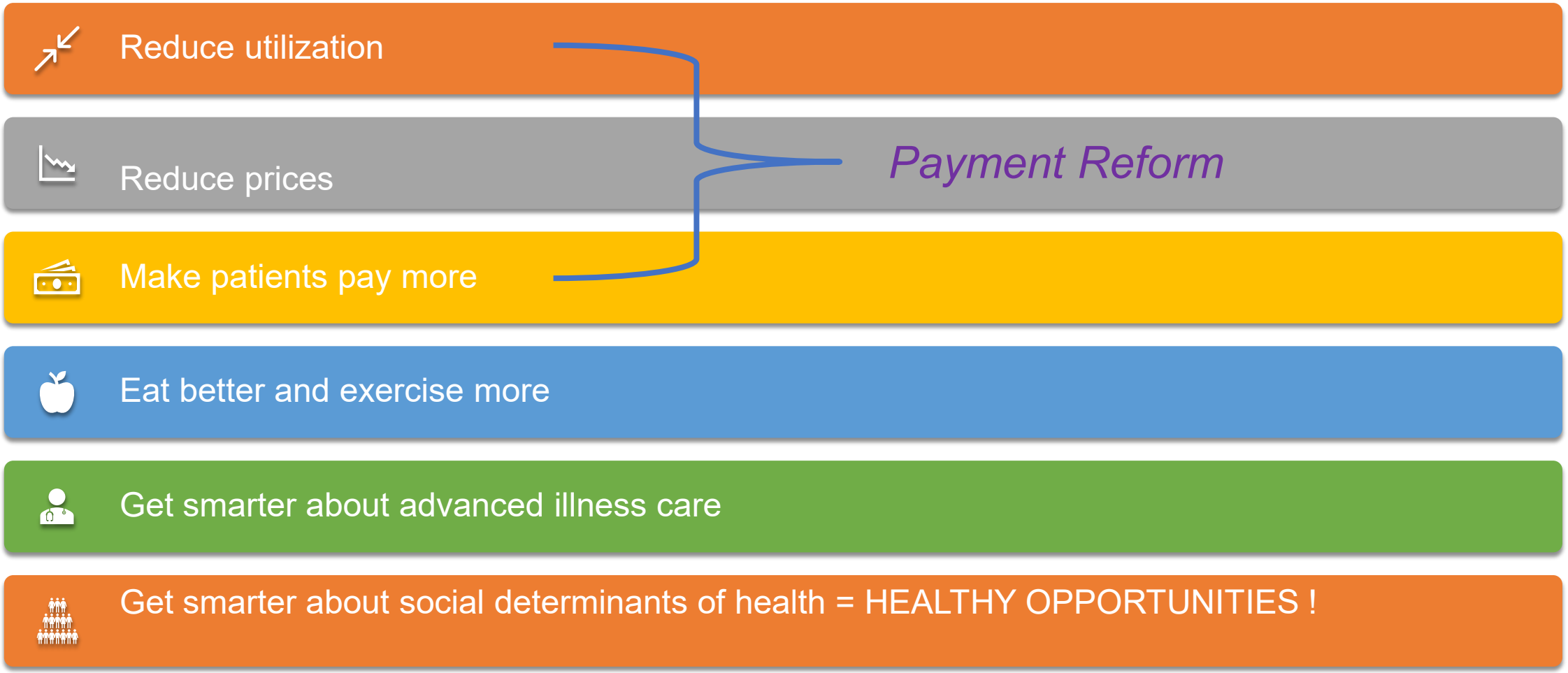
Our Major Problem

Source: Congressional Budget Office. For details about the sources of data used for past debt held by the public, see Congressional Budget Office, *Historical Data on Federal Debt Held by the Public* (July 2010), www.cbo.gov/publication/21728.

Our Major Problem driven home: Family Premium / Family Income

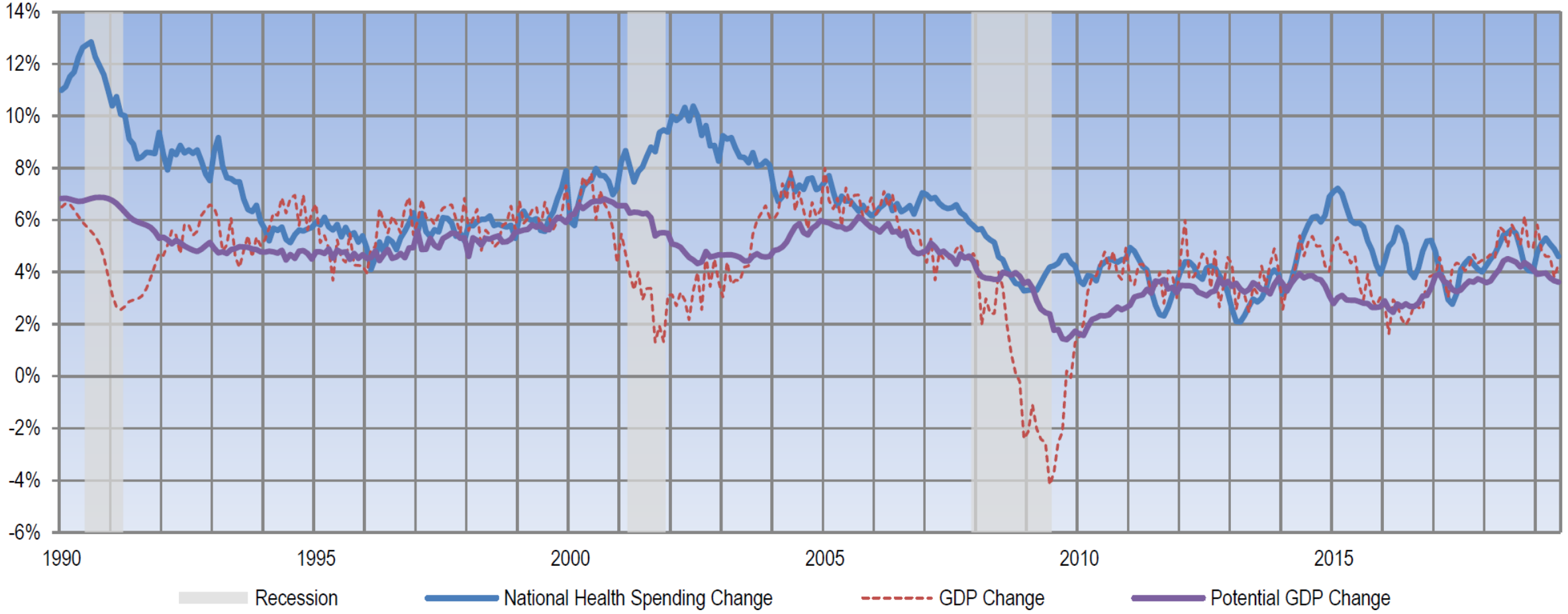


Pathways to Health Cost Reduction



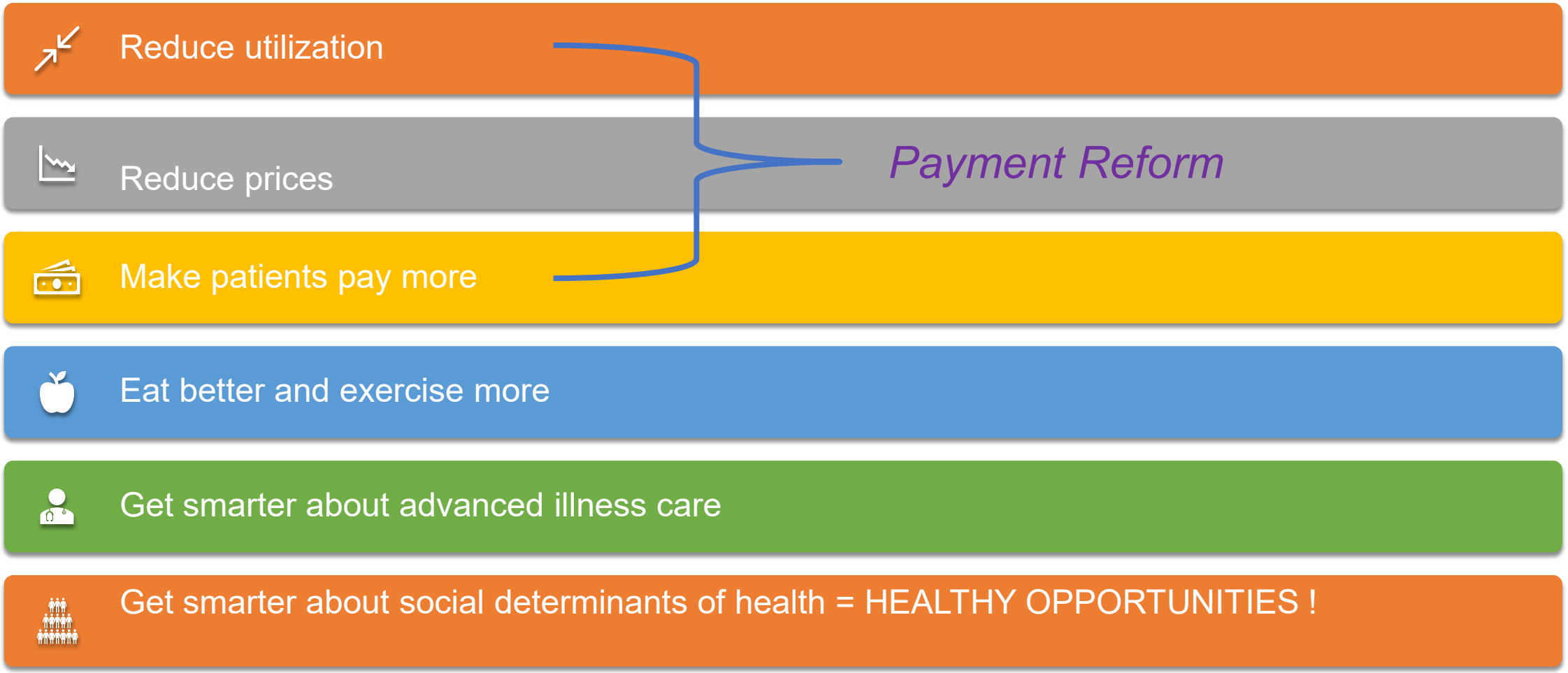
TIME SERIES TRACKER

Exhibit 7. Year-over-Year Percentage Change in Spending and GDP



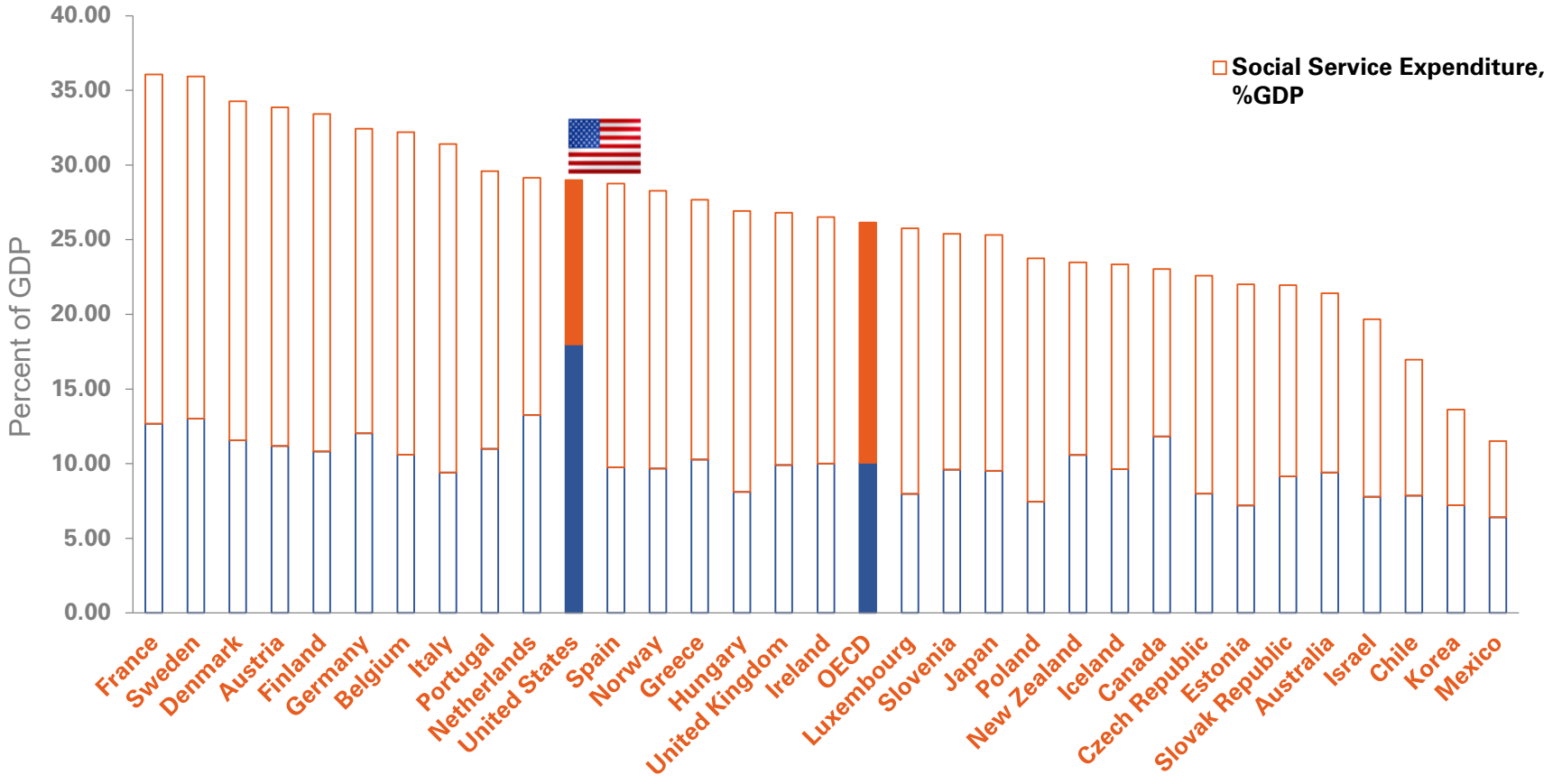
Source: Altarum monthly national health spending estimates. Monthly GDP is from Macroeconomic Advisers and Altarum estimates.
Note: Lightly shaded bars denote recession periods.

Pathways to Health Cost Reduction



Total Expenditures as a %GDP

(Slide borrowed from Lauren A. Taylor)



*Turkey is missing data for 2009; Data from Bradley and Taylor, The American Health Care Paradox.

DOI: 10.1377/hlthaff.2015.0814
HEALTH AFFAIRS 35,
NO. 5 (2016): 760–768

By Elizabeth H. Bradley, Maureen Canavan, Erika Rogan, Kristina Talbert-Slagle, Chima Ndumele, Lauren Taylor, and Leslie A. Curry

Variation In Health Outcomes: The Role Of Spending On Social Services, Public Health, And Health Care, 2000–09

EXHIBIT 4

Adjusted associations between the ratio of social to health spending with a one-year lag and health outcomes across the fifty states and the District of Columbia, 2000–09

	Model 1[a]		Model 2[b]	
Health outcome	Estimated coefficient[c]	*p* value	Estimated coefficient[c]	*p* value
PERCENT OF ADULTS WHO:				
Were obese (body mass index ≥30)	−0.33	0.014	−0.16	0.101
Had asthma	−0.11	0.041	−0.12	0.012
Reported 14+ days in past 30 days as mentally unhealthy days	−0.43	0.007	−0.24	0.035
Reported 14+ days in past 30 days with activity limitations	−0.37	<0.001	−0.25	0.002
MORTALITY RATE FOR:				
Acute myocardial infarction (per 100,000 population)	−4.02	0.032	−0.64	0.649
Lung cancer (per 100,000 population)	−2.72	0.001	−2.35	0.002
Type 2 diabetes (per 100,000 population)	−0.45	0.004	−0.51	<0.001
Postneonatal infants[d] (per 100,000 live births)	−4.15	0.325	−6.56	0.037

CONSIDERING HEALTH SPENDING

By Irene Papanicolas, Liana R. Woskie, Duncan Orlander, E. John Orav, and Ashish K. Jha

The Relationship Between Health Spending And Social Spending In High-Income Countries: How Does The US Compare?

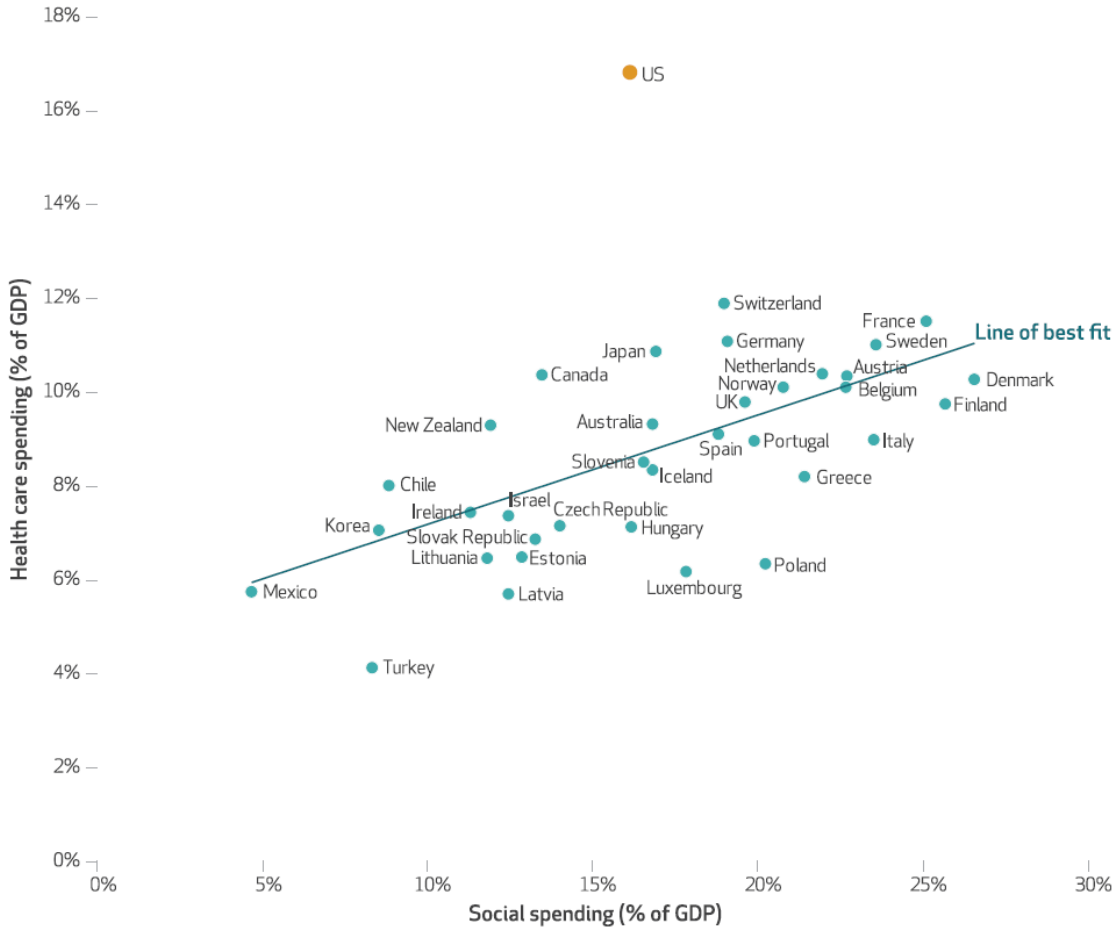
DOI: 10.1377/hlthaff.2018.05187
HEALTH AFFAIRS 38,
NO. 9 (2019): -

Fundamental point: you won't necessarily lower health spending by shifting aggregate dollars from health to social purposes

> Finally, it is important to note that our findings explore aggregate trends in spending patterns at the national level. These findings should not be interpreted as suggesting that social spending might not be effective at lowering health care costs for subpopulations, such as frail elderly or homeless people. Indeed, other research has shown that investment in specific social interventions can result in a decrease in health spending for a subset of high-need patients, such as chronically homeless people with severe alcohol problems or asthma patients

EXHIBIT 3

Percent of gross domestic product (GDP) devoted to social spending and health care spending in the US and other Organization for Economic Cooperation and Development (OECD) countries

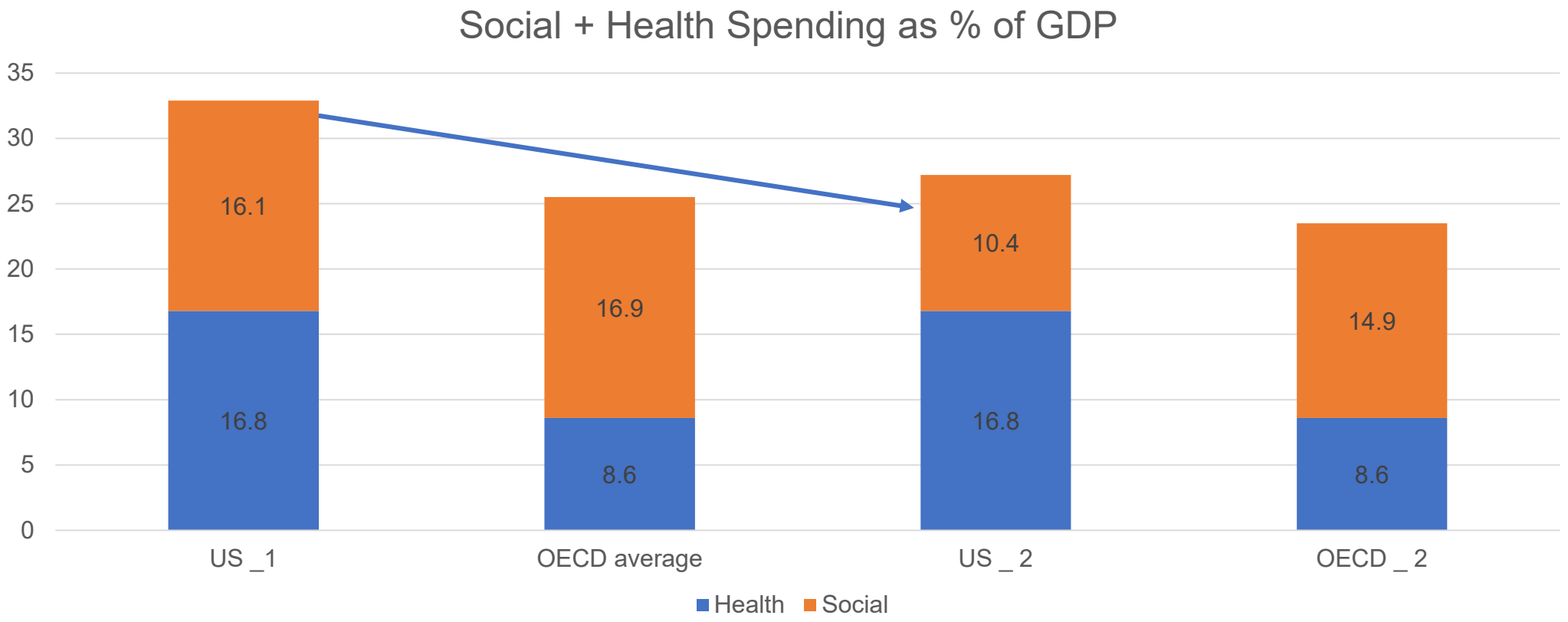


SOURCE Authors' analysis of data from the OECD's Social Expenditure Database (SOCX). **NOTES** Health-related social spending is excluded. Data are from 2015 for all countries apart from Poland. The line of best fit shows that countries that spend more on health tend to spend more on social spending (Pearson's r: = 0.54; p = 0.00).

Some thoughts on Papanicolas et al

- OECD Social Spending data, used by Papanicolas, et al, include private pensions = private social spending
- Growth in private pensions is biggest difference in US social spending since Bradley et al did their work
- For US, private social spending now = 5.7% of GDP
- If you take private social spending out of total social spending, the picture changes

Health and Social Spending as % of GDP, with and without private pensions = private social $



Maybe what really matters is social spending on social gaps, not aggregate social OR health $$$

- US Poverty rate 17%, OECD 11.2 (8.9 for UK, FR, GR, SW)
  - 56m US citizens live in poverty, 13m children 17% of kids live in poverty
- US Inequality (Gini = 41.5, avg. for UK, FR, GR, SW = 31.6)
- Homelessness
  - US has over 500k homeless
  - Would cost approximately $7-10B annually to house the homeless IF there was space, (but they need supportive housing, which costs more)
- Hunger, in 2017 40m food insecure in US, including 12m kids
- Transportation: 2.3% of pop is challenged, 7.6m in 2019

Figure 1

Social Determinants of Health (Healthy Opportunities)

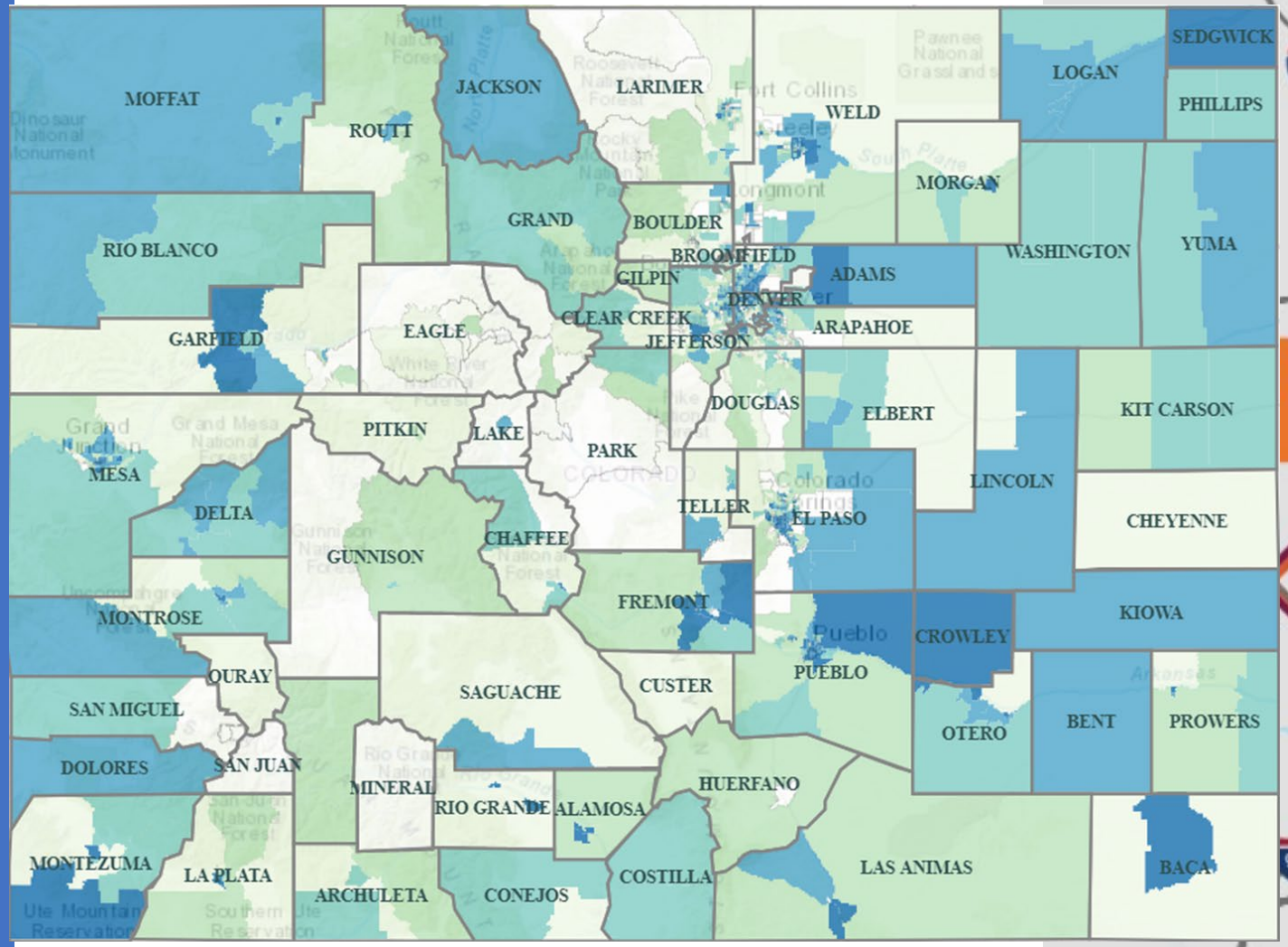
Economic Stability	Neighborhood and Physical Environment	Education	Food	Community and Social Context	Health Care System
Employment	Housing	Literacy	Hunger	Social integration	Health coverage
Income	Transportation	Language	Access to healthy options	Support systems	Provider availability
Expenses	Safety	Early childhood education		Community engagement	Provider linguistic and cultural competency
Debt	Parks	Vocational training		Discrimination	Quality of care
Medical bills	Playgrounds	Higher education		Stress	
Support	Walkability				
	Zip code / geography				

Health Outcomes

Mortality, Morbidity, Life Expectancy, Health Care Expenditures, Health Status, Functional Limitations

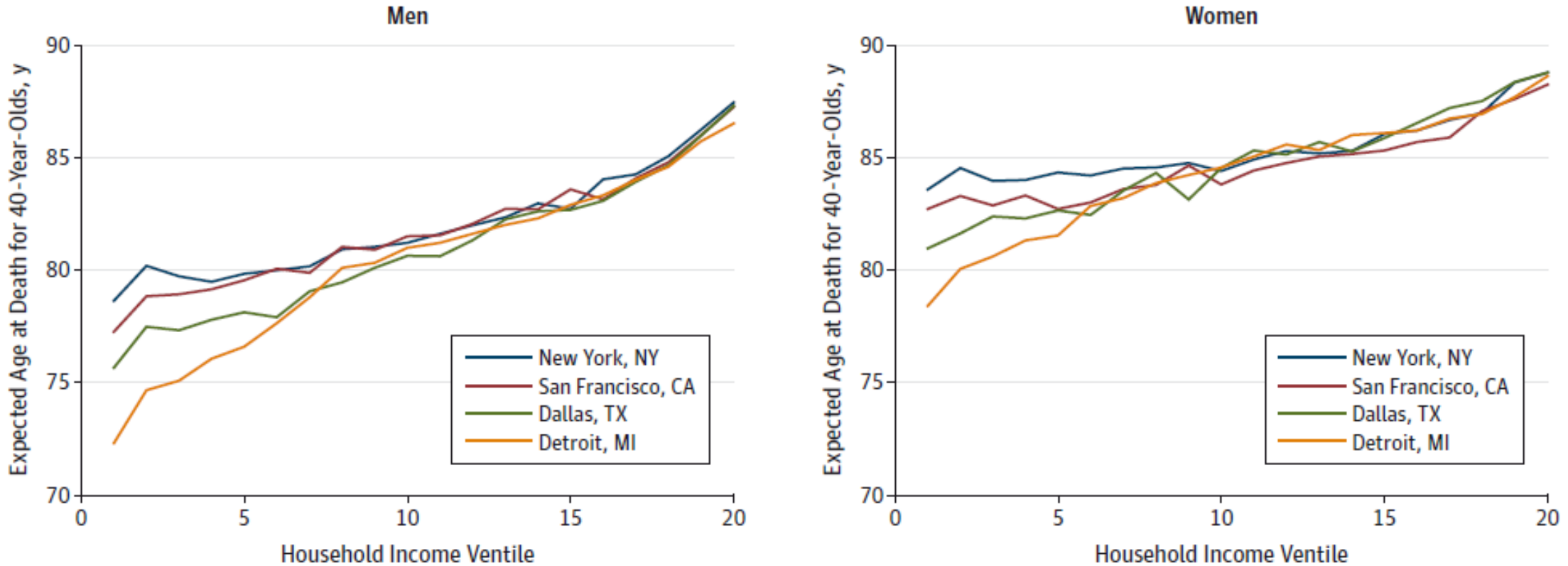
KFF
HENRY J KAISER FAMILY FOUNDATION

Mesa County LE varies across Census Tracts By 10.2 years (83.8 – 73.6)



http://www.cohealthmaps.dphe.state.co.us/cdphe_community_health_equity_map/

Figure 4. Race- and Ethnicity-Adjusted Life Expectancy by Income Ventile in Selected Commuting Zones, 2001-2014



Mean household income in thousands, $[a]	30	60	101	683	27	54	95	653

Estimates of race- and ethnicity-adjusted expected age at death for 40-year-olds computed by income ventile (5 percentile point bins).

[a] Averaged across years and ages.

Source: R. Chetty et al, "Association between income and life expectancy in the US," *JAMA* April 10, 2016

Prevalence of Adverse Child Events Among Children, 2016

Table 1: National and Across-State Prevalence of ACEs among Children and Youth

Adverse Childhood Experiences (ACEs)	National Prevalence, by Age of Child				Range Across States
	All Children	Age 0-5	Age 6-11	Age 12-17	
Child had ≥ 1 Adverse Childhood Experience	46.3%	35.0%	47.6%	55.7%	38.1% (MN) – 55.9% (AR)
Child had ≥ 2 Adverse Childhood Experiences	21.7%	12.1%	22.6%	29.9%	15.0% (NY) – 30.6% (AZ)
Nine assessed on the 2016 NSCH[1]					% with 1+ Additional ACEs
Somewhat often/very often hard to get by on income*	25.5%	24.1%	25.7%	26.5%	54.4%
Parent/guardian divorced or separated	25.0%	12.8%	27.5%	34.2%	68.0%
Parent/guardian died	3.3%	1.2%	2.9%	5.9%	74.7%
Parent/guardian served time in jail	8.2%	4.5%	9.2%	10.6%	90.6%
Saw or heard violence in the home	5.7%	3.0%	6.1%	8.0%	95.4%
Victim/witness of neighborhood violence	3.9%	1.2%	3.7%	6.5%	92.1%
Lived with anyone mentally ill, suicidal, or depressed	7.8%	4.4%	8.6%	10.3%	82.4%
Lived with anyone with alcohol or drug problem	9.0%	5.0%	9.3%	12.7%	90.7%
Often treated or judged unfairly due to race/ethnicity**	3.7%	1.2%	4.1%	5.7%	75.3%

*47% of children in households with poverty level incomes have parents who reported "often hard to get by on income". **1 in 10 black and "other" race/ethnicity children had parents who reported their children often were treated or judged unfairly. 4.4% of Hispanic and Asian/Non-Hispanic children had parents who reported this (1% for white children)

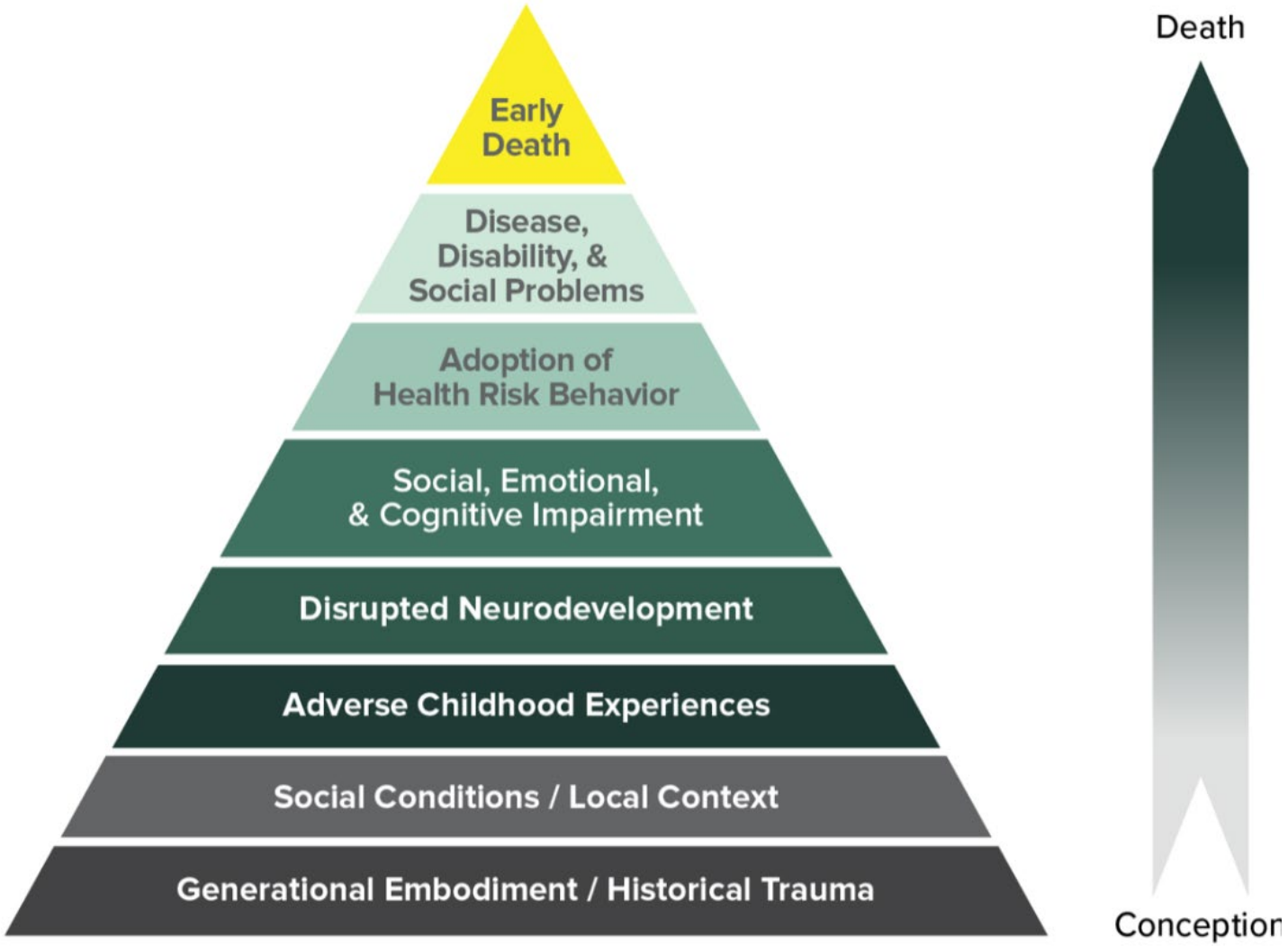
https://www.cahmi.org/wp-content/uploads/2018/05/aces_fact_sheet.pdf

Table 2: Prevalence of ACEs by Race/Ethnicity and Income

	All Children	White, NH*	Hispanic	Black, NH*	Asian, NH*	Other, NH*
% of all US children		51.9%	24.5%	12.7%	4.5%	6.3%
% 1+ ACEs	46.3%	40.9%	51.4%	63.7%	25.0%	51.5%
% 2+ ACEs	21.7%	19.2%	21.9%	33.8%	6.4%	28.3%
% among children with 1+ ACES		46.0%	27.0%	17.4%	2.4%	7.1%
Income < 200% of Federal Poverty Level (43.7% of all US children; 58% of children with 1+ ACEs)						
% 1+ ACEs	61.9%	63.3%	57.0%	70.5%	36.4%	70.6%
% 2+ ACEs	31.9%	34.7%	25.1%	39.9%	9.0%	44.4%
Income 200-399% of Federal Poverty Level (26.8% of all US Children; 25.1% of children with 1+ ACEs)						
% 1+ ACEs	43.2%	39.7%	46.8%	59.1%	24.8%	50.7%
% 2+ ACEs	19.0%	17.2%	19.8%	29.4%	7.0%	24.5%
Income ≥ 400% of Federal Poverty Level (29.5% of all US Children; 17.0% of children with 1+ ACEs)						
% 1+ ACEs	26.4%	24.4%	35.5%	41.2%	14.3%	27.3%
% 2+ ACEs	9.2%	8.6%	12.1%	14.1%	3.6%	10.5%

*NH=Non-Hispanic

The ACE Pyramid



Mechanism by which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan

COLORADO
Office of Early Childhood
Department of Human Services

Percent of Adult Coloradans with Each ACE Score

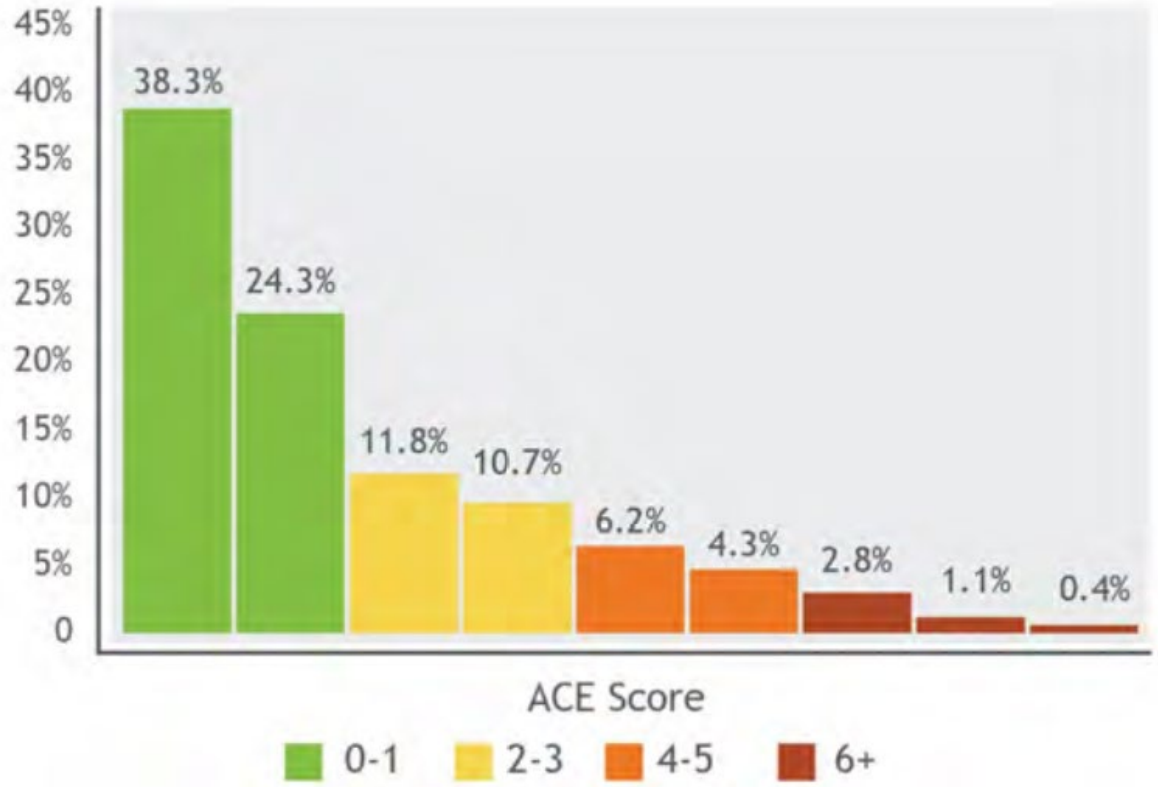
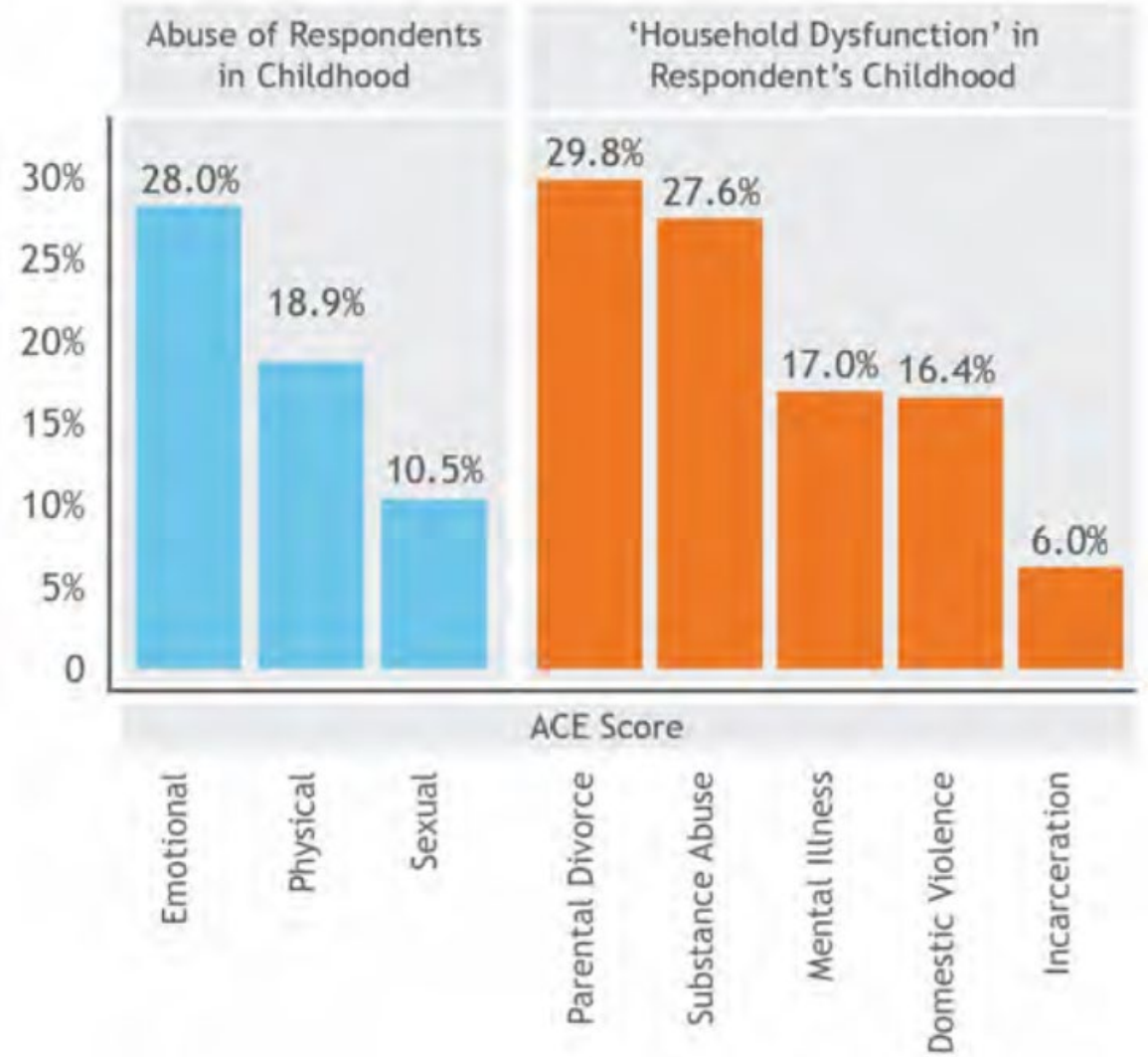


Figure 3: Percent of Adult Coloradans with Each ACE Score

Percent of Adult Coloradans Reporting Each Type of ACE



https://dcfs.my.salesforce.com/sfc/p/#410000012srR/a/410000000yp3/6qy0RIGU00pw1a10kBBP0B.1UBGb2Z7XycN0V4XZUqk

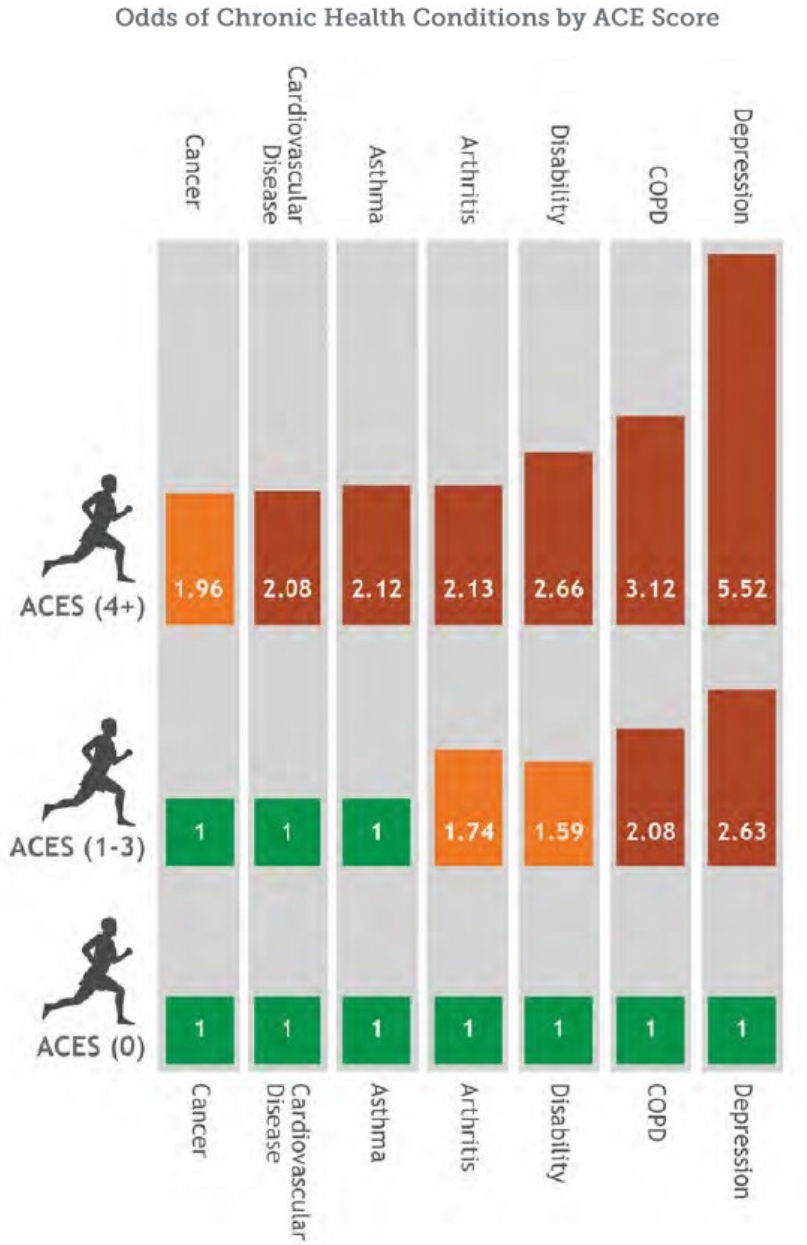


Figure 5: Odds of Chronic Health Conditions by ACE Score, controlling respondent age, sex, race, and educational level and using population weights

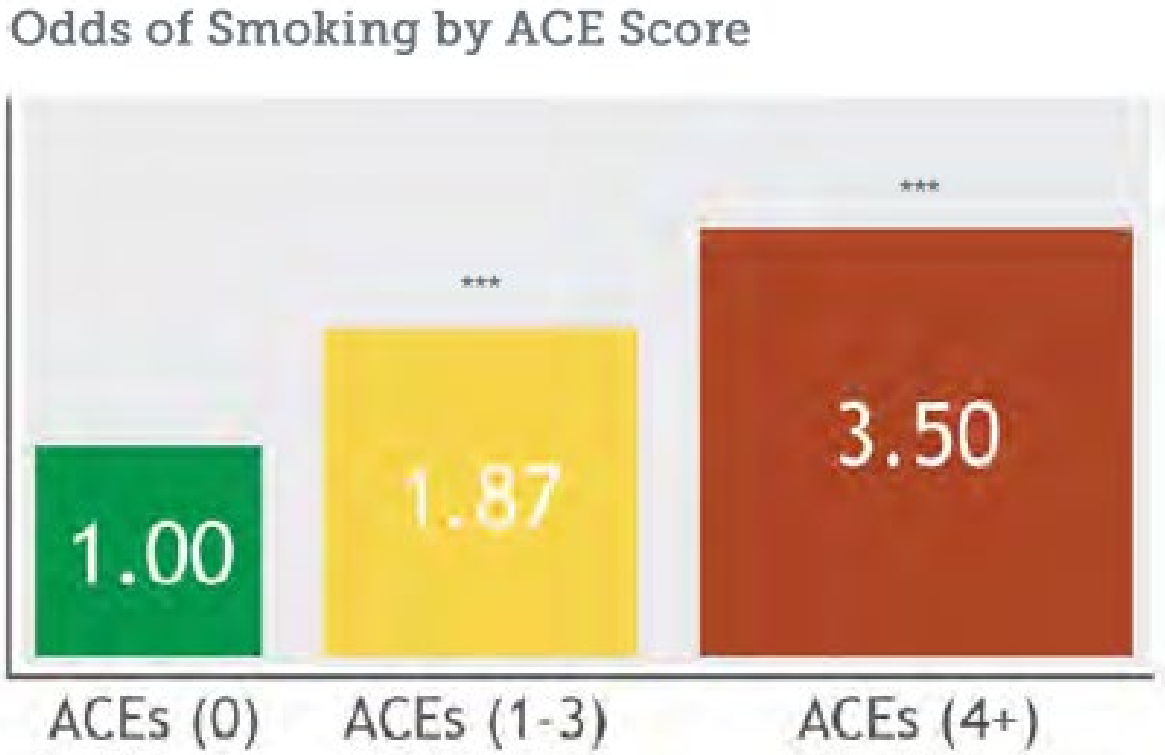
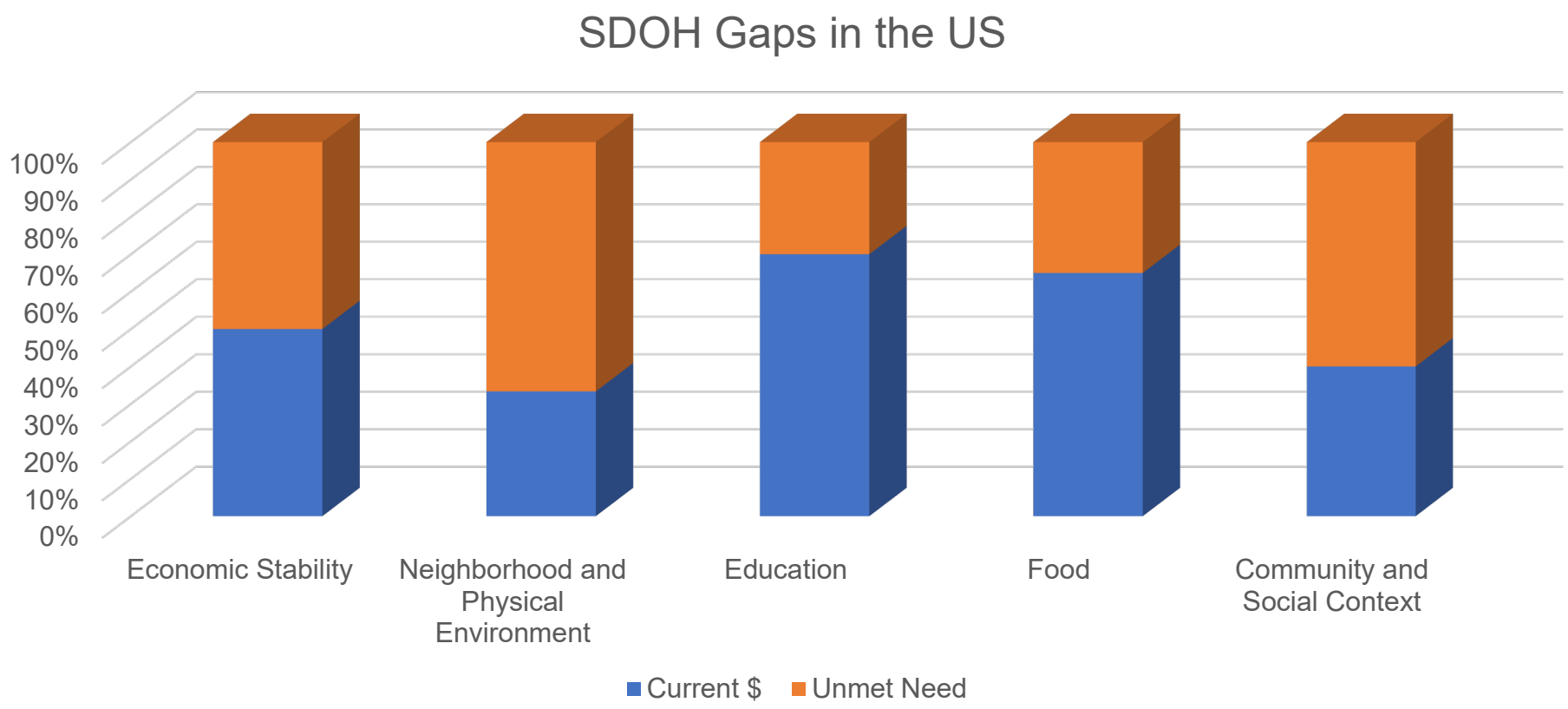


Figure 6: Odds of Smoking by ACE Score controlling for age, sex, race, and education level; *Note.* ***$p<.001$

Stylized (LN) depictions of "gaps" in SDoH in US



Center on Budget and Policy Priorities

820 First Street NE, Suite 510
Washington, DC 20002

Tel: 202-408-1080
Fax: 202-408-1056

center@cbpp.org
www.cbpp.org

Updated March 8, 2017

Chart Book: Federal Housing Spending Is Poorly Matched to Need

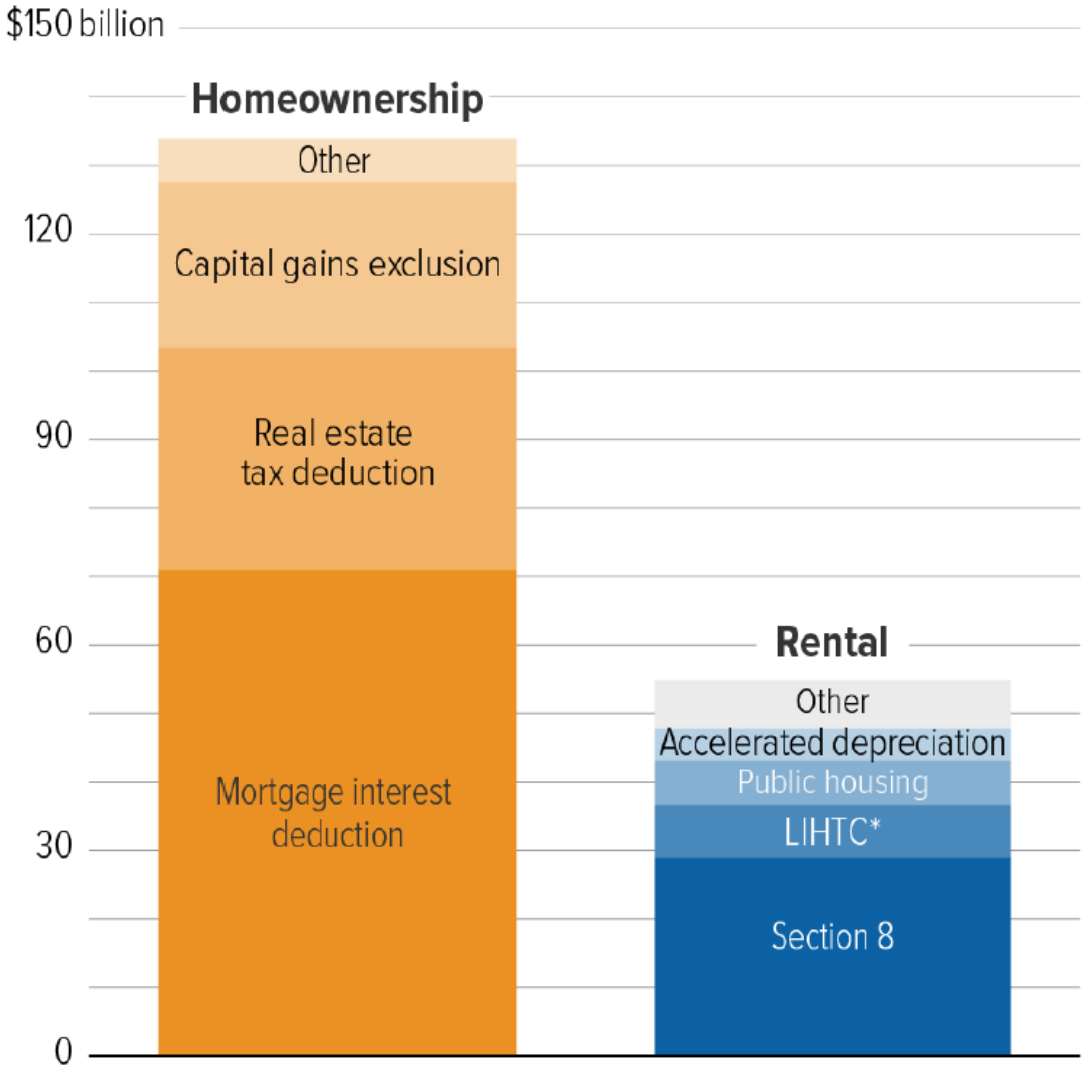
Tilt Toward Well-Off Homeowners Leaves Struggling Low-Income Renters Without Help

By Will Fischer and Barbara Sard

https://www.cbpp.org/sites/default/files/atoms/files/12-18-13hous.pdf

Most Federal Housing Expenditures Benefit Homeowners

Federal housing expenditures in billions, 2015



Leveraging What Works

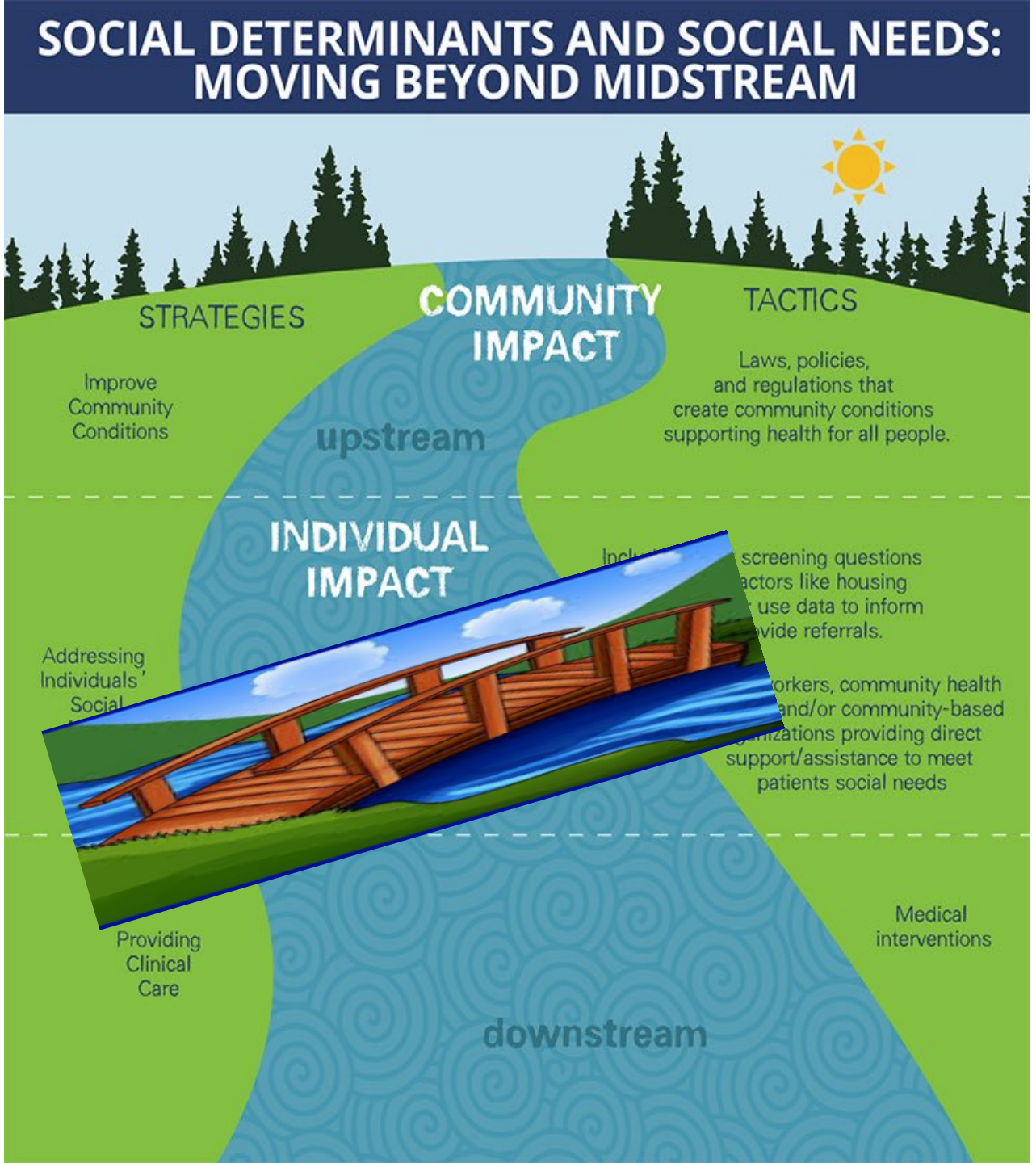
- Evidence is strong that upstream interventions can affect health outcomes (from Lauren Taylor, Laura Gottlieb, and others)
  - https://bluecrossmafoundation.org/sites/default/files/download/publication/Social_Equity_Report_Final.pdf
  - https://www.commonwealthfund.org/sites/default/files/2019-07/ROI-EVIDENCE-REVIEW-FINAL-VERSION.pdf
- Specific interventions – targeted investments in SDOH, or Healthy Opportunities – ***may*** have net financial payoffs
  - Housing First for homeless with SMI, SUD, other CCs
  - Food through WIC, SNAP, Meals on Wheels
  - Complex Case management and navigation for high need adults and children (ex., Nurse Family Partnership, Community Health Workers, etc.)
  - Non-emergency transportation for people with chronic conditions
- Not every intervention will save money, may still be "worth doing"

HUMANA

Is targeting loneliness as
A high need indicator

Centene's Social Bridge

https://www.socialhealthbridge.com/



Kaiser Permamente's

THRIVE LOCAL

Using Unite Us to connect

Social services and EHRs

https://healthitanalytics.com/news/kaiser-permanente-launches-full-network-social-determinants-program

North Carolina's Medicaid

1115 waiver allows
Healthy Opportunity Pilots

Motivations for the Our Collaborative Approach

- Our nation suffers from underinvestment in upstream SDOH deficits / Healthy Opportunities
- Underinvestment stems from 5 distinct causes
  - People who could benefit have not been able to make their voices heard
  - Leaders of institutions which could benefit financially are often not aware of the evidence on ROI from upstream investments
  - Health care systems and social service delivery systems are somewhat like Mars and Venus
  - Governments have restrictions on how money can be blended and braided, and are often constrained from funding novel projects
  - Upstream investments are “public good” like => “free rider” financing problems

COMMUNITY HEALTH

By Len M. Nichols and Lauren A. Taylor

DOI: 10.1377/hlthaff.2018.0039
HEALTH AFFAIRS 37,
NO. 8 (2018): 1223–1230

POLICY INSIGHT

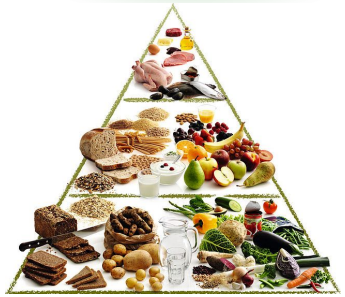
Social Determinants As Public Goods: A New Approach To Financing Key Investments In Healthy Communities

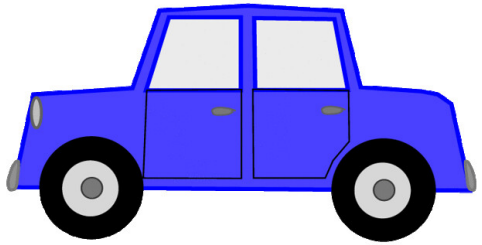
https://www.healthaffairs.org/doi/full/10.1377/hlthaff.2018.0039

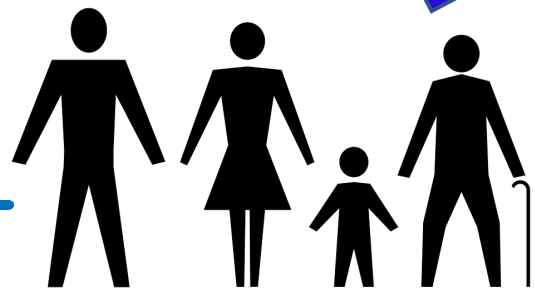
Fundamental Insights

- SDoH investments have public good-like properties => free rider problems

Value Creation from Upstream Interventions



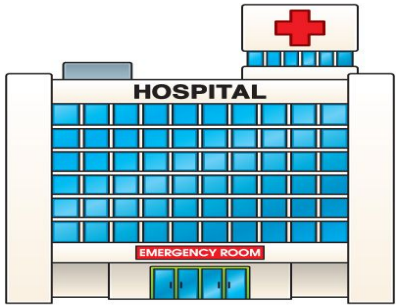


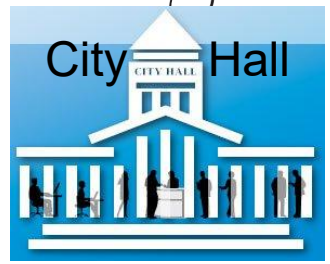


Improved Health And well being

Stronger Community

Lower Costs





How Long?

Fundamental Insights

- SDoH investments have public good-like properties => free rider problems
- Economics profession worked out a functional solution to the free-rider problem in the 1970s, Vickrey-Clarke-Groves (VCG), which works under 2 conditions
  - Operational local stakeholder coalition
  - "Trusted Broker"
- Those conditions are likely to be present in many communities grappling with SDOH/HO deficits today
- Key elements of VCG auction model:
  - Reveal willingness to pay to the trusted broker *only*
  - If project is economically feasible, it's possible to have all pay less than they are willing to pay, and still collect enough to pay for the intervention
    - Contributions and Sustainability are based on enlightened self-interest

Example of Pricing for Upstream Investments

Cost: $180 for Complex Case Management by CHWs and Social Workers

Value Expressed

Insurers — Initial Bid: $110

Hospitals — Initial Bid: $50

Non-Vendor CBOs — Initial Bid: $40

= $200

Sum of Bids (Collective Valuation) = $110 + $50 + 40 = $200

But We only Need $180 to Cover the Cost

so

We need 90% (180/200) of Total

We can allow 10% “Discount” or ROI to All Bidders

Prices Assigned

Insurers — Price Charged: $99 ($11 less than Bid)

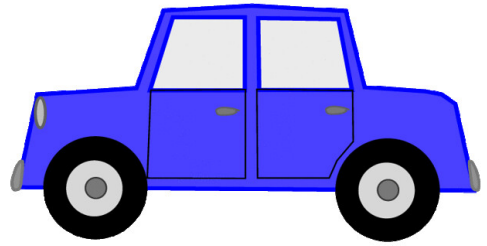
Hospitals — Price Charged: $45 ($5 less than bid)

Non-Vendor CBOs — Price Charged: $36 ($4 less than bid)

= $180

Total Collected = $180 = Cost of Intervention = $180, but *VALUE delivered = $200*

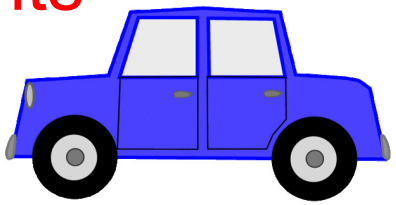
Real World Example using NEMT



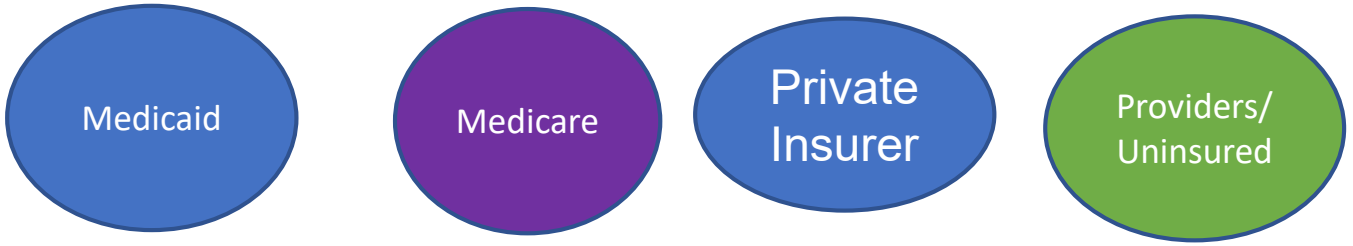
- Cost and benefit estimates, updated with M-CPI from 2005 NAS report, with updated prevalence estimates*
- Assume community of 300,000: estimate of transportation-challenged population = 7,000 (2.3%)
  - There are 162 MSAs in US with 300,000 or more residents
- Net Savings estimates of $2,200 per client per year
- Cost of transport = $750 per client per year
- Note: Providers LOSE margin when insured patients' utilization goes down (we assumed 20% of gross revenue decline)

Another Example of Pricing for Upstream Investments

Cost: $5,250,000 for Non-Emergency Transportation for 7,000 people



Value Expressed



= $12,936,000

Initial Bid: $7,700,000 $3,080,000 $1,540,000 $616,000

Sum of Bids (Collective Valuation) = $7,700,000 + $3,080,000 + $1,540,000 + $616,000 = $12,936,000

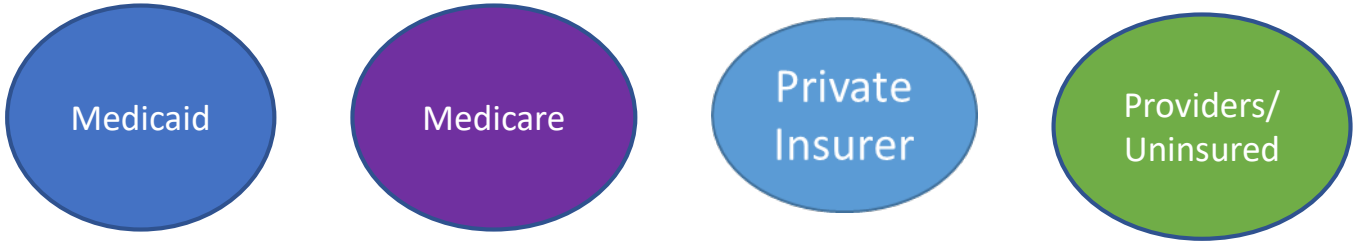
But We only Need $5,250,000 to Cover the Cost

so

We need 40.6% ($5,250,000/$12,936,000) of Total Bid

We can allow 59.4% Discount/ROI to All Bidders

Prices Assigned



= $5,250,000

Assigned Price: $3,125,000 $1,250,000 $625,000 $250,000

Discount: $4,575,000 $1,830,000 $915,000 $366,000

Total Collected = $5,250,000 = Cost of Intervention, but *VALUE delivered = $12,936,000*

Key Roles in Model Implementation

Technical Assistants (TAs): Researchers, Evaluators, numbers people, for VCG will need to be tweaked to fit a SDOH context

(Len and Lauren + Altarum)

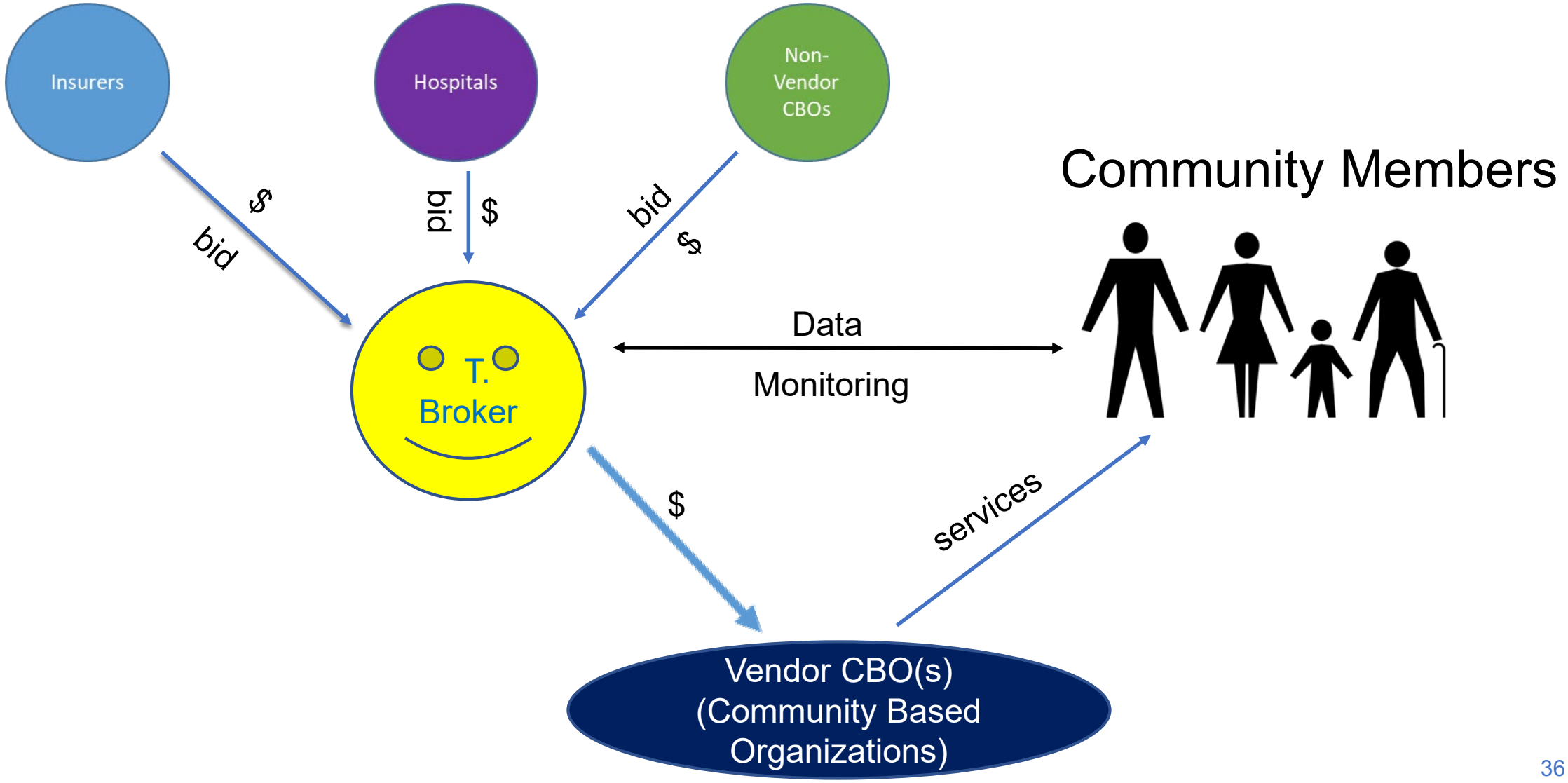
Trusted Broker (TB): to be chosen by local stakeholders

Stakeholders: health delivery and payor organizations, CBOs, local governmental units as well

Vendors: Organizations that can deliver SDoH interventions and results

What We've Been Doing Lately

CAPGI Roles


Insurers
Hospitals
Non-Vendor CBOs
$
bid
bid
$
bid
$
T.
Broker
Data
Monitoring
Community Members
$
services
Vendor CBO(s)
(Community Based Organizations)

8 Step Process

Setup
- TAs and stakeholders identify TB

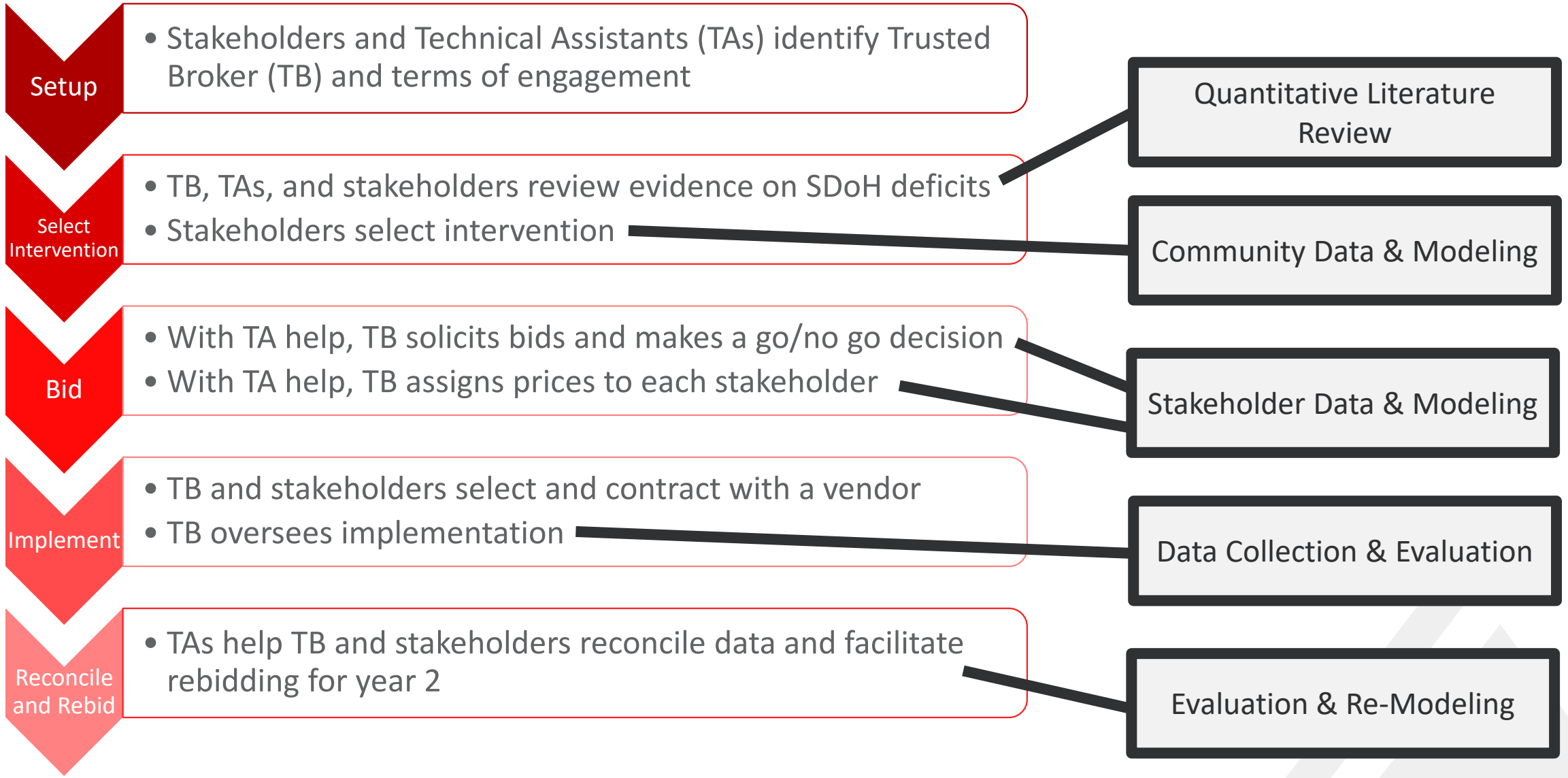
Select Intervention
- TB, TAs, and stakeholders review evidence on SDoH deficits
- Stakeholders select intervention

Bid
- With TA help, TB solicits bids and makes a go/no go decision
- With TA help, TB assigns prices to each stakeholder

Implement
- TB and stakeholders select and contract with a vendor
- TB oversees implementation

Reconcile and Rebid
- TAs help TB and stakeholders reconcile data and facilitate rebidding for year 2

The CAPGI Process (Data Components)



Webinar Series

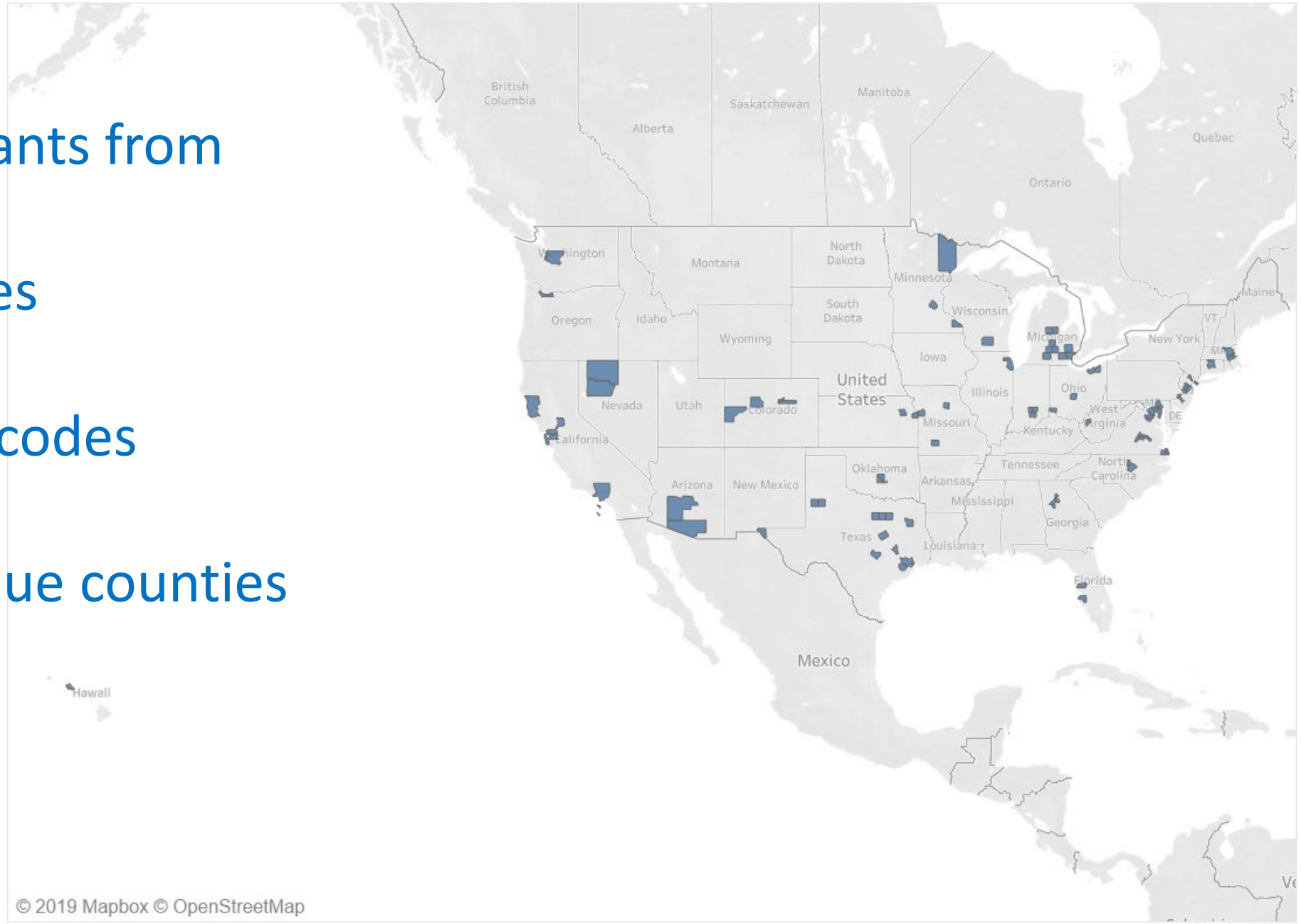
- July 12; Detailed Overview of Model and Processes
- July 24, Governance
  - Key roles, tasks, and the role of trust
  - Challenges
- September 12, Data and Information Requirements
  - Translating the literature on interventions into Value of Health estimates, for each stakeholder and the community
  - Key roles of Evaluation
- September 25, Bidding, Price Determination, Reconciliation, Bidding in future years
  - How bidding and price determination will work
  - How data flows during implementation will provide feedback which can lead to adjustments

Registrants from

29 states

171 zipcodes

95 unique counties



Map based on Longitude (generated) and Latitude (generated). Details are shown for State and Countyname.

The Feasibility Study as a Whole

- Communities will look to themselves and our model to assess their commitment and suitability of our model and processes for them
- We will assess communities' and stakeholder coalitions' fit with the requirements to implement, test, and evaluate our model and processes, using publicly available data and conversations
- We will engage and learn of mutual interest in site visits to learn more about possible implementation in specific communities
- Site visits would occur in late 2019/early 2020
- In Spring of 2020 we will help the willing and able write proposals for TA funding to implement and test the model
- We will write a "lessons learned" paper in mid-2020 as a roadmap to future implementation

Challenges, Next Steps, Questions?

- Can sufficient trust, and willingness to share the surplus/ROI, be nurtured, enhanced, and channeled into CAPGI-type efforts?
- Will CMS let Medicaid MCOs and MA plans, *and* FFS Medicare, spend $ upstream to the extent they may come to want to?
- Will state Medicaid agencies sabotage efforts by cutting PMPM instead of sharing savings?
- Will CFOs believe the literature applies to their people/data?
- Will people believe they can work together, collaboratively, again?