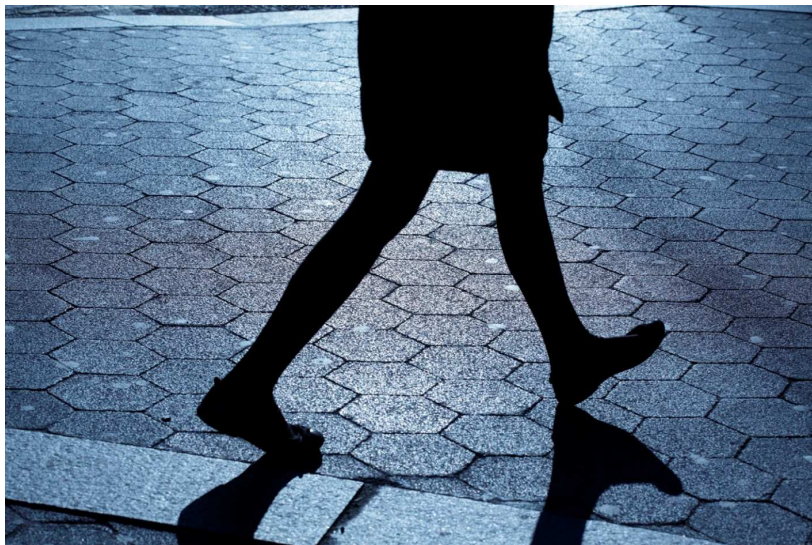


Creating A Healthier World By Addressing Social Determinants of Health

Claire Pomeroy MD, MBA

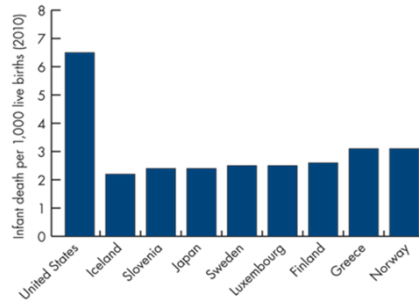
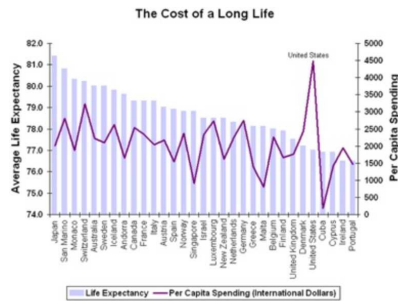
Innovation Café: Strategies to Address Social Determinants of Health
Oregon Health Authority Transformation Center

June 5, 2019



Cost, Outcomes Demand Change

- High cost
 - Highest per capita spending (2x other OECD countries)
 - 17% of GDP and increasing
- Poor outcomes
 - Infant mortality (31st/34 OECD)
 - Life expectancy: 40th (UN)

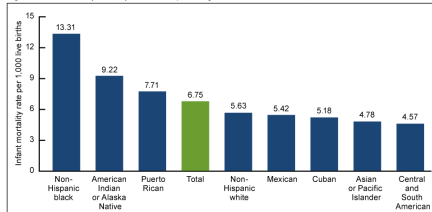


3

Unconscionable Disparities Demand Change

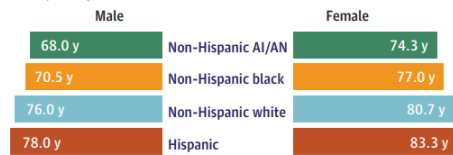
- Race, ethnicity

Figure 1. Infant mortality rates, by race and Hispanic origin of mother: United States, 2007



SOURCE: CDC/NCHS, linked birth/infant death data set, 2007.

Life expectancy at birth



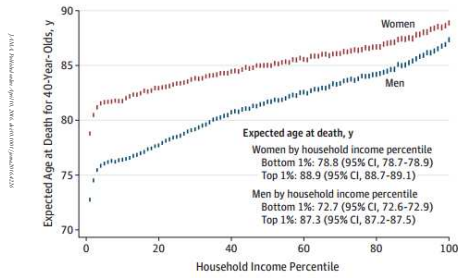
SOURCE: CDC/NCHS, linked birth/infant death data set, 2007.

4

Unconscionable Disparities Demand Change

- Socio-economic status

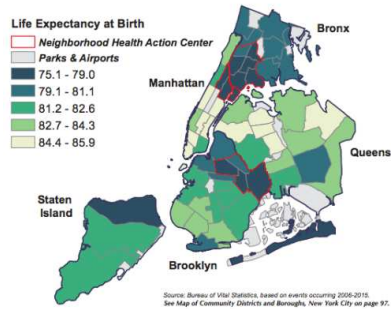
Income correlates with life expectancy:



In U.S., life expectancy differs by up to 20 years between counties with highest and lowest life expectancies

LIFE EXPECTANCY

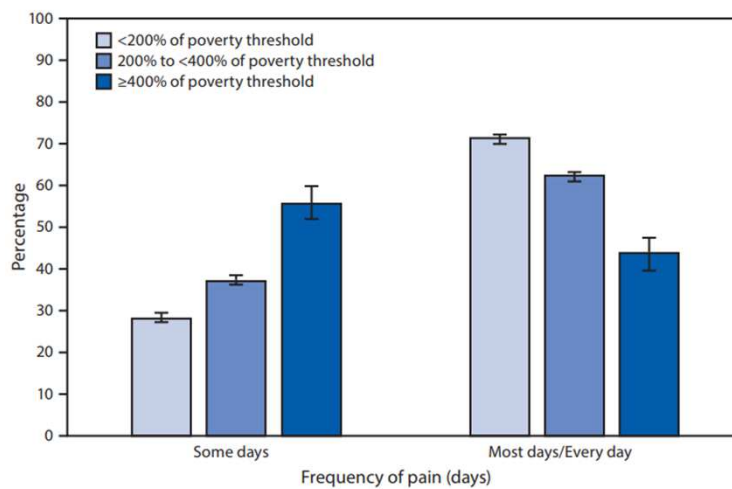
Figure 4. Life Expectancy at Birth by Community District, New York City, 2006-2015



Note: UES – 85.9 yrs
E. Harlem – 77.3 yrs

5

Disparities Demand Change – “Pain Every Day”



AMPRR | May 17, 2019 | 142 of 176 pp

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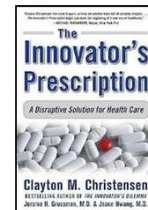
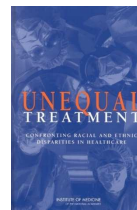


“Of all the forms of inequality, injustice in health care is the most shocking and inhumane.”

“True health comes from social and economic justice.”
- Sandro Galea

Redesigning the U.S. Health System

- “Sick care” → “well care”
- Reactive → proactive
 - Disease-based → prevention-based
 - Acute intervention, crisis response → primary care
 - Hospital-, provider-centric → population focus
 - Fragmented care → coordinated care across lifespan
- Medical model → social determinants model
 (disease treatment) (upstream prevention)



“Perfecting health care is a half answer if the living conditions that cause disease prevail.”
- Steven Woolf, Virginia Commonwealth University

Genetic Code vs. Zip Code



“Social factors, including education, racial segregation, social supports, and poverty account for 1/3 of total US deaths annually.”

- Kaiser Family Foundation, Nov. 4, 2015

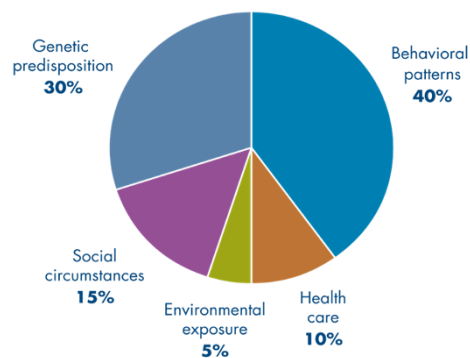
“Zip code is a more powerful driver of health status than your genetic code”



9

Social Determinants of Health

- Race, ethnicity, gender
- Socioeconomic status
- Education
- Occupation, job security
- Housing, transportation, food access
- Neighborhood safety, violence prevention
- Social cohesion and community support



Source: Schroeder, SA, N Engl J Med 2007; 357:1221-8

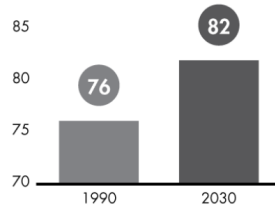
Clinical care accounts for only about 10% of health status in the U.S.

10

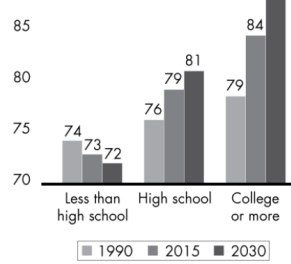
Education as Driver of Health

Life span growth is higher for those with higher levels of education

Total life expectancy for population age 25
90 years



Total life expectancy for population age 25
90 years



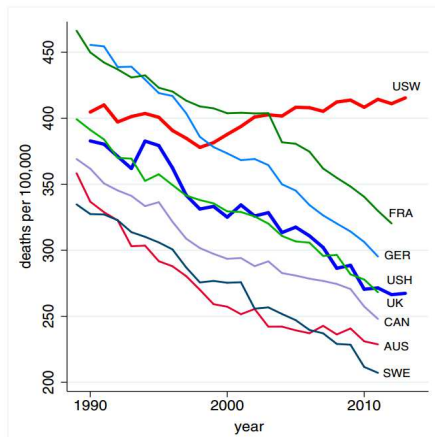
Sources: US Census Bureau, "Trends in Life Expectancy and Lifespan Variation by Educational Attainment: United States, 1990-2010," Isaac Sasson, Bain Macro Trends Group analysis, 2017

- By 2030, life expectancy gap (no HS degree vs. college degree) will widen further to 16 years

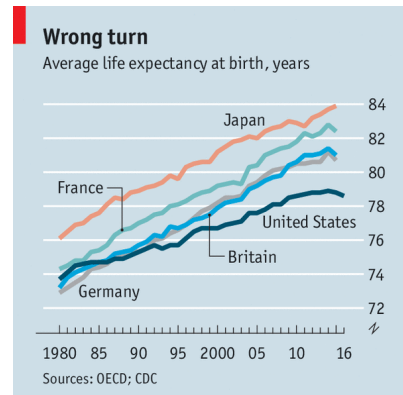
11

Perceived Social Role as a Driver of Health: "Deaths of Despair"

Worsening death rates for U.S. white men



U.S. life expectancy has declined each year since 2015



Sources: OECD; CDC
Economist.com

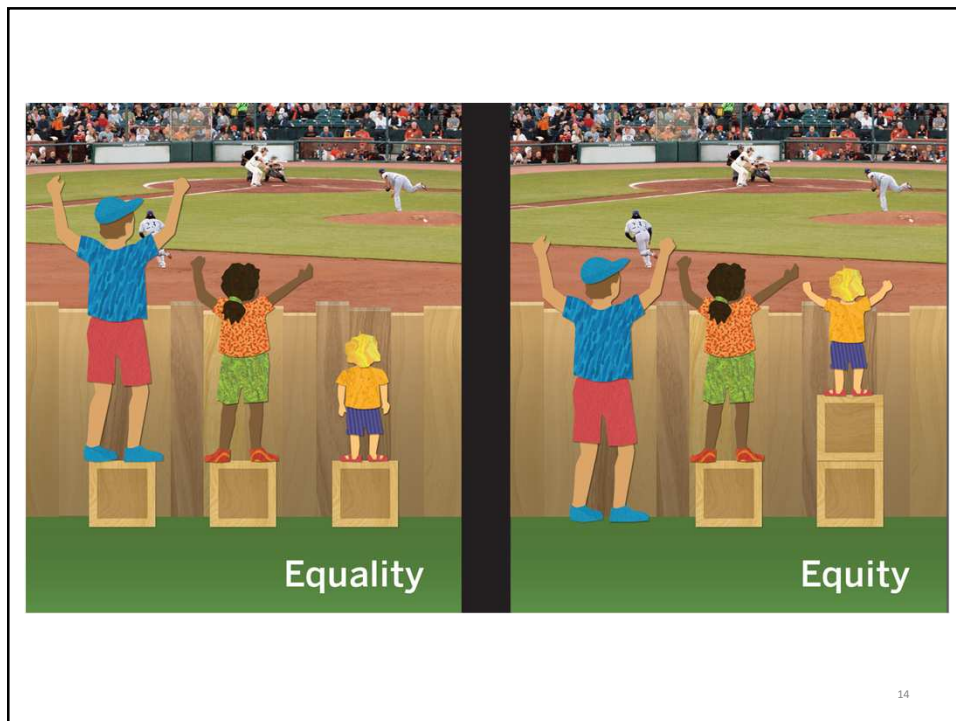
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Incarceration as a Driver of Health

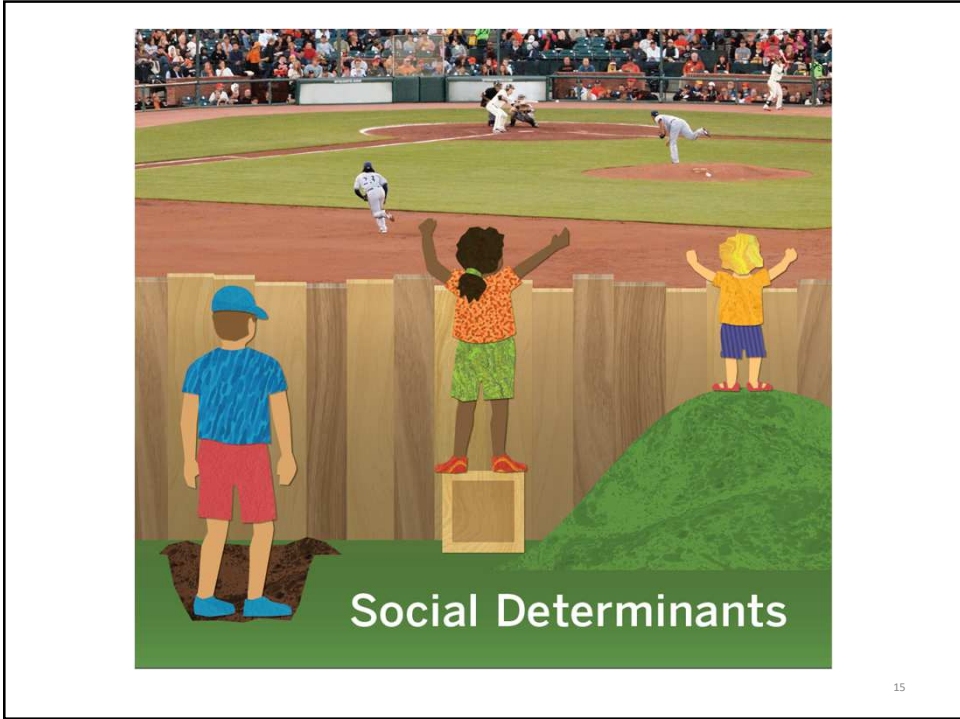
- Incarceration is itself a social determinant of health; other social determinants impact risk of incarceration (selling marijuana in a college dorm less likely to result in jail sentence than selling in a low income neighborhood)
- U.S Rate – 492/100,000 persons – 2.2 million in jail
- U.S Rate – Black Men – 3074/100,000 persons;
 - 1/3 will go to jail some time in their life
- “A good job may be the best preventative medicine we can offer”
 - Annals Int Med 161:522 and 524, 2014



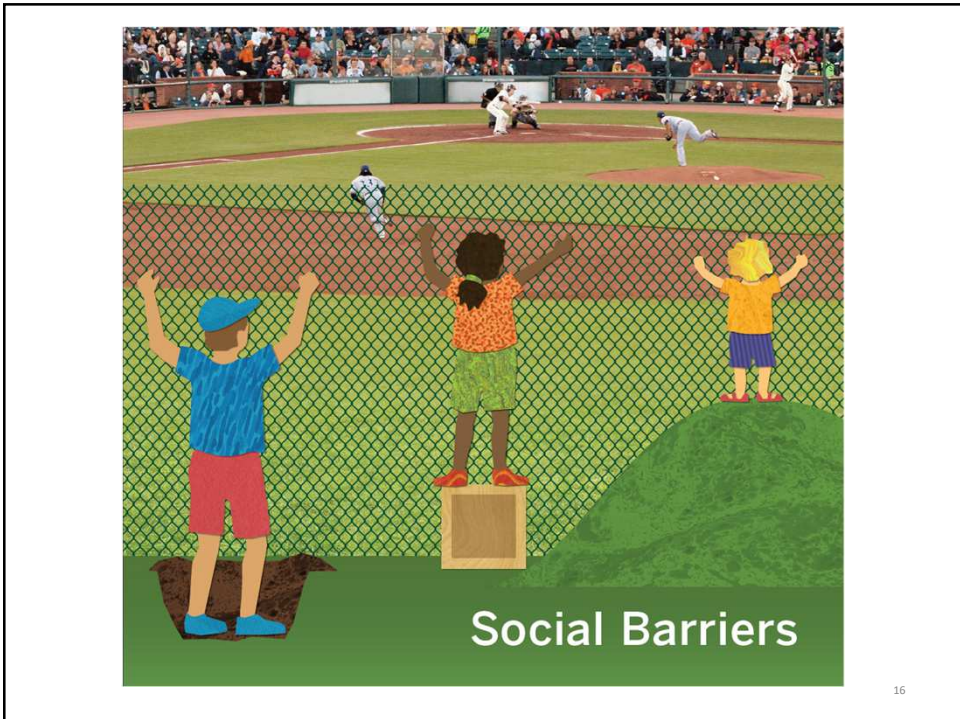
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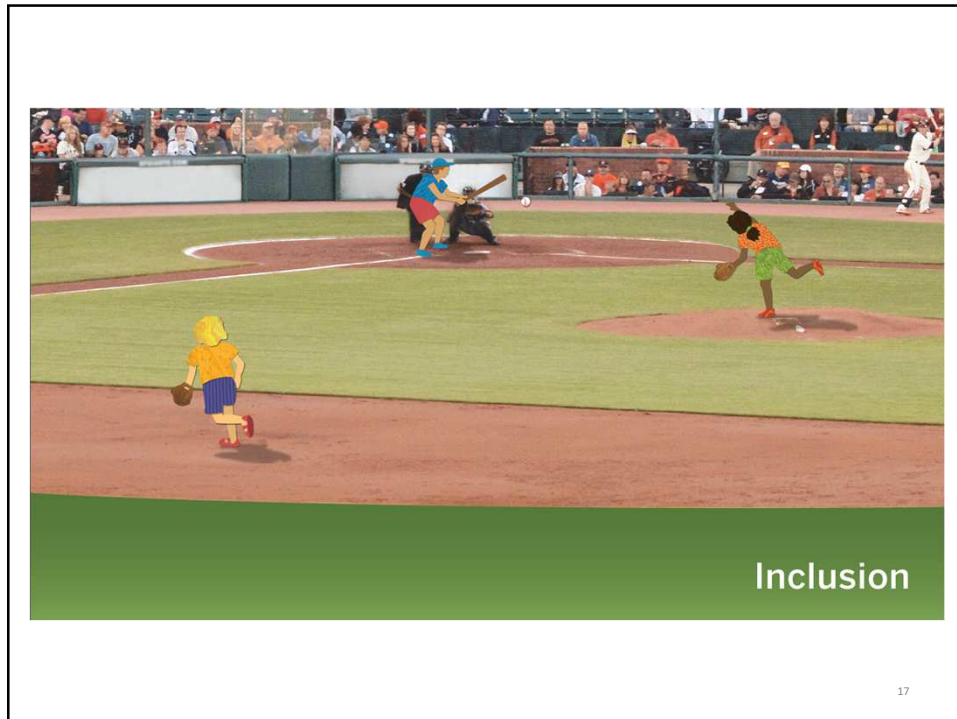
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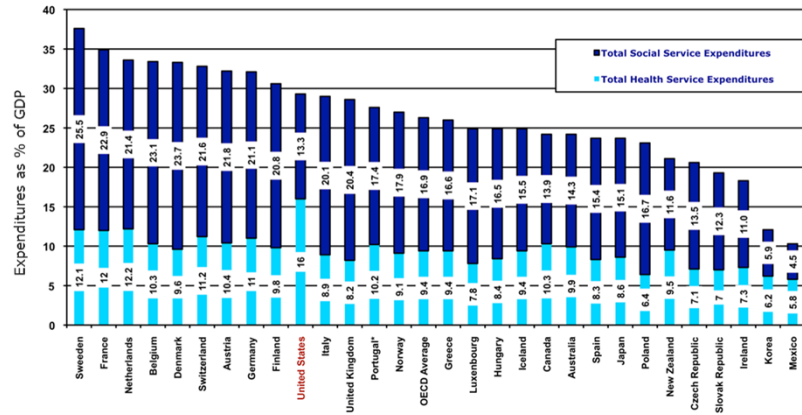
16



The Social Determinants Ten Tips for Better Health

1. Don't be poor. If you can, stop. If you can't, try not to be poor for long.
2. Don't have poor parents.
3. Own a car.
4. Don't work in a stressful, low-paid manual job.
5. Don't live in damp, low-quality housing.
6. Be able to afford to go on a vacation and sunbathe.
7. Practice not losing your job and don't become unemployed.
8. Make sure you have access to benefits, particularly if you are unemployed, retired, or sick or disabled.
9. Don't live next to a busy major road or near a polluting factory.
10. Learn how to fill in the complex housing benefit/shelter application forms before you become homeless and destitute.

Spending on Social Determinants Makes Financial Sense



A social determinants approach is not charity, it is strategy.

Spending on Social Determinants Makes Societal and Financial Sense – Housing

- **Special Homeless Initiative:** 93% reduction in hospital costs (102 vs. 7 hospital days/client) - Levine et al, 2007
- **Camden Coalition of Healthcare Providers (NJ) and Hennepin County (MN)** use housing vouchers to reduce healthcare costs
- **Bon Secours (MD) and Nationwide Children’s Hospital (OH)** have built affordable housing
- **Bronx Healthy Buildings Program:** Health systems and schools collaborate to use school absenteeism data to target housing improvements → ↓ ER asthma visits by 90%

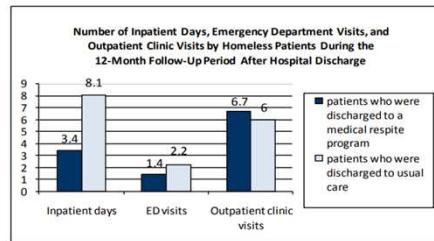


Figure 1: Hospital and clinic utilization before and after medical respite program participation

Source: Buchanan, D., Doblin, B., Sai, T., & Garcia, P. (2006). The effects of respite care for homeless patients: A cohort study. *American Journal of Public Health, 96*(7), 1278–1281.

“Without stable housing, medical treatments are reduced to short-term limited fixes...at significant cost and insignificant health gains”
- JAMA 318: 2291, 2017

Spending on Social Determinants Makes Societal and Financial Sense – Nutrition

- 23.5 million Americans live in a food desert
- Community grocery stores can revitalize a neighborhood and improve health
- Food insecurity has been linked to obesity, diabetes in adults; and poor glucose control in adult diabetics - J Gen Intern Med 22: 1018, 2007
- Every \$25 increase in home-delivered meals per older adult → 1% decline in nursing home admits
- Health Aff (Millwood) 32:1796, 2013



21

Spending on Social Determinants Makes Societal and Financial Sense – Nutrition

- Increasing use of clinician prescriptions for food
 - University of New Mexico
 - Geisinger Health: Fresh Food Farmacy



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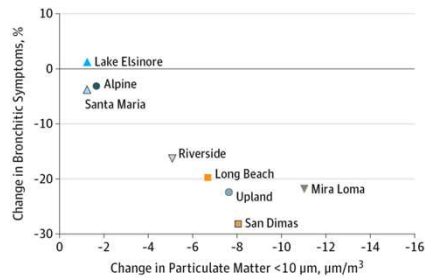
Spending on Social Determinants Makes Societal and Financial Sense – Built Environment

- Reductions in air pollution → Decreased bronchitic symptoms in children with asthma

- Berhane et al, JAMA, 315:1491, 2016

- Women living in “greenest areas” (measured by satellite) → 34% less likely to die from respiratory illness and 13% less likely to die from cancer

- James et al, Enviro Health Persp, April, 2016

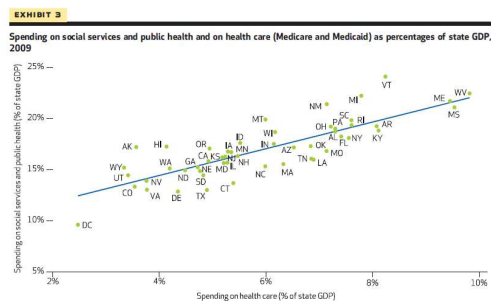


Spending on Social Determinants Makes Societal and Financial Sense – States

- States with higher ratios of social to health care delivery spending had better health outcomes 1-2 years later

- Statistically significant correlation of higher social:health spending ratio with

- ↓ mentally unhealthy days
- ↓ days with physical limitations
- ↓ lung cancer mortality





“People must make good health decisions, but they must have good decisions to make.”

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Identifying High Pay-off Interventions: Impact of ACE

- Adverse childhood events increase disease risk
 - ↑ in unhealthy behaviors
 - Impact on brain development
 - Alteration in physiologic regulation
- Adverse Childhood Experiences Study
 - Child abuse/neglect → ↑ risk (graded response) of adult stroke (2.4x), CV disease (2.2x), obesity (1.4 - 1.6x)
 - Molec Psych 19: 544, 2014
 - Am J Prev Med 14: 245, 1998
- Several studies show childhood poverty, maternal stress during pregnancy, inadequate in-utero nutrition → Poorer adult health
 - Am J Psych 172: 108, 2015



26

Identifying High Pay-off Interventions: Start with Kids

- Early childhood interventions can improve adult health
- Carolina Abecedarian Project
 - Disadvantaged children randomized to intervention
 - Play stimulation + free meals (age 0-5)
 - ↓ cardiovascular disease risk as adults (age 30)
 - Systolic BP: 143 (control) vs. 126 (treated)
 - Metabolic syndrome: 25% (control) vs. 0 (treated)
 - Cost of phase 1 intervention (\$67,000 in 2002 dollars)
 - Fetal Science 343: 1478, 2014
- Concept of “allostatic load” – accumulation of physiologic and psychologic stress on ability to maintain homeostasis



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Challenges to Adopting a Social Determinants Approach: Intersectoral Collaboration is Essential



- Inter-sectoral cooperation will require:
 - Policy changes
 - Common agenda across service providers
 - Linked data and information-sharing systems
 - Aligned budgets
 - Linked evaluation metrics

“Breaking down agency budget silos is particularly challenging, but is ultimately essential if U.S. is to rebalance spending between medical and social programs to improve...health.”
- JAMA 318: 1855, 2017

28

Challenges to Adopting a Social Determinants Approach: Vulnerable Populations Have Higher Health Costs

It costs more to care for the poor:

Income	% ↑ in LOS	% ↑ in charges
Lowest 1/3 vs. Highest 1/3	24% ↑ (8 to 21)	13% ↑ (5 to 13)

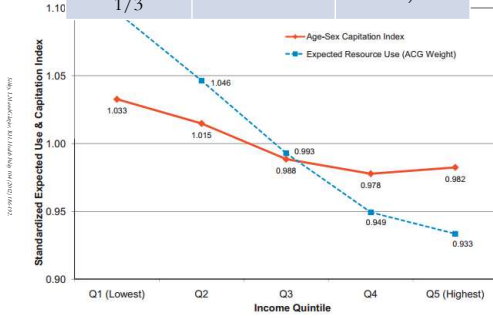
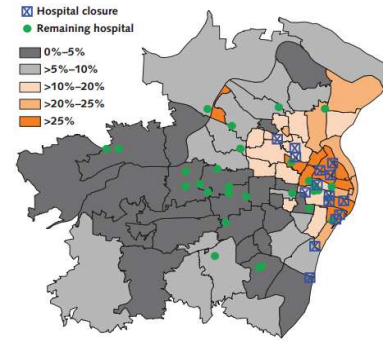


Figure. St. Louis metropolitan area hospital closures, by poverty level of ZIP code, 1978–2013.



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Challenges to Adopting a Social Determinants Approach: The “Wrong Pocket” Phenomenon

- Clinical care budgets vs. social services budgets in different public, private silos
- Social services budgets often in multiple silos (e.g. education, criminal justice, housing)
- Lack of “cross-talk” for budget planning, spending decisions



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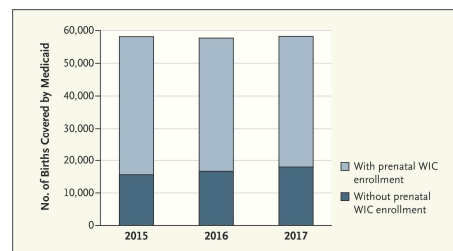
Challenges to Adopting a Social Determinants Approach: Silo-ed Information

- Proprietary clinical care information – between providers, health systems, payers, others
- Lack of social determinants data accessible to providers, policy-makers, others (individual, community-level, etc.)
- Lack of information on available social services in clinical settings

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Challenges to Adopting a Social Determinants Approach: Silo-ed Information

- Silo-ed data in the different sectors that impact social determinants (schools, justice system, transportation, WIC/SNAP, housing authorities, philanthropies, others)
- Example – North Carolina study: 31% of Medicaid births were to mothers not enrolled in WIC



“Information technology in both the government and health care sector lags behind what is needed to support seamless integration of Medicaid and other services and programs.”

- Cohen M. et al. NEJM, 2019

32

Starting to Find Solutions: Tools to Address Social Determinants of Health

- 2014 IOM Report
 - Collect data on social determinants in EMR
- 2017 NAM Discussion Paper – “Social Determinants of Health 101 for Health Care: Five Plus Five”
 - “As a determinant of health, medical care is insufficient for ensuring better health outcomes”
 - New payment models are prompting interest in SDOH
 - Data frameworks are emerging
 - Capturing SDOH in EMR (community/individual)
 - Screening tools

“With so many unknowns about the use of SDOH in clinical care, having data for measurement and evaluation of interventions is essential.”

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Starting to Find Solutions: Tools to Address Social Determinants of Health

- Identification of high-risk neighborhoods/communities to focus on
 - e.g. Social Vulnerability Index (Northwell); Opportunity Index; Risk Index
- Individual social vulnerability assessments

“Screening for health-related social needs can help identify people who would benefit from enrollment in social services programs.”

- NEJM, 2019
- Links to social services resources (akin to KBO for medications)
 - States (e.g. North Carolina); Hospital systems (e.g. Northwell); Independent businesses (for profit); Non-profit organizations

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Starting to Find Solutions: Tools to Address Social Determinants of Health

- We have lots of evidence – it’s time to move beyond pilots and philanthropic projects
- We must implement systems that sustain a social determinants approach
- Solutions include:
 - Programs (in a linked, cohesive system)
 - Policies (that provide incentives for SDOH approach)
 - Payment practices (that solve the “wrong pocket” problem)
 - Technologies (linked IT systems, etc.)
 - Research (especially economic analysis)

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Solutions: Programs (linked, cohesive systems) Example – Camden Coalition

- 64-page “playbook” on how to address social determinants in high-risk patients – “complex care”
 - Importance of access to shared data; must overcome pushback from clinical organizations and insurance companies

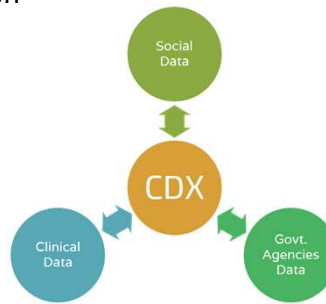
“We use data to drive decisions. We use data to impact people’s lives every day. It’s data in action.”

- Victor Murray, Director, Care Management

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Solutions: Programs (linked, cohesive systems)
Example – Houston’s Patient Care Intervention Center Unified Care Continuum Platform

- Goal – improve health care quality and costs for under-resourced populations through data integration (social and medical) and care coordination
- Community Data eXchange



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Solutions: Policies (incentives for SDOH approach)
Example – “Health in All Policies”

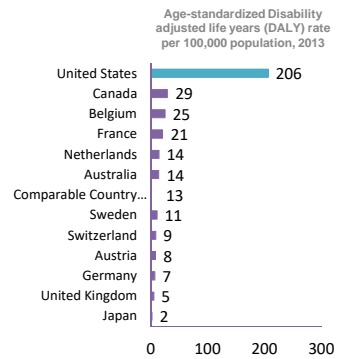
- Collaborative approach incorporating health considerations into decision-making across all sectors and policy areas
- RWJ – “Health in All Policies, at its core, is an approach to addressing the social determinants of health that are the key drivers of health outcomes and health inequities.”

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Solutions: Policies (incentives for SDOH approach) Example – “Health in All Policies”

- Example – Agricultural subsidies:
High-fructose juices linked to obesity
“One government office subsidizes corn, while across the hall, another funds an anti-obesity campaign”
versus
- Example – Tax breaks for grocery stores that locate in inner city neighborhoods
- Challenging given that health impacted by controversial social issues

The U.S. has the highest rate of years of life lost to disability and premature death due to firearm assaults

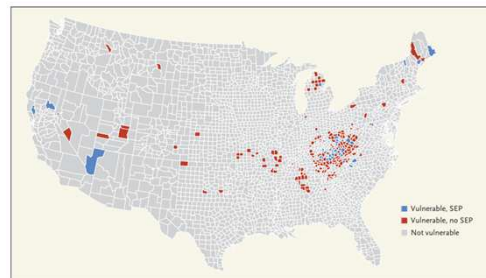


Kaiser Family Foundation analysis of data from the University of Washington Institute for Health Metrics and Evaluation. Available at: <http://gho.healthdata.org/global-burden-disease-study-2013-gho-2013-diseases-download>. Accessed on November 23, 2015.

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Solutions: Policies (incentives for SDOH approach) Example – Syringe Exchange

- 2015 outbreak of HIV/HCV in Indiana
 - Then Gov. Pence declared public health emergency authorizing syringe exchange program ➡
> 90,000 syringes exchanged and
↓ new HIV cases
- Shortly thereafter, Congress overturned federal ban on syringe exchange
- But most of the most vulnerable counties still have no syringe exchange program



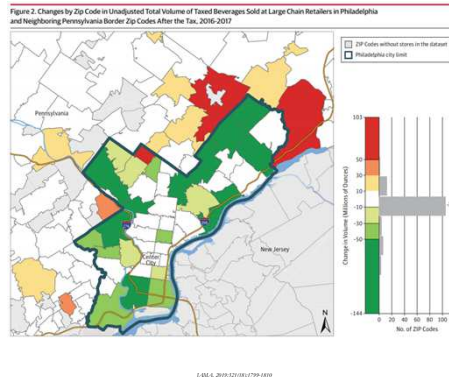
U.S. Counties' Vulnerability to HIV and HCV Outbreaks and Their Syringe-Exchange Program (SEP) Status. Data are as of 2018 and are from the CDC and the North American Syringe Exchange Network.

NIJ | July 2018 | 180-000-000

40

Solutions: Policies (incentives for SDOH approach) Example – Soda Tax

- Philadelphia – Tax (1.5¢/ounce)
 - ➔ 38% ↓ in soda sales (1 billion fewer ounces of soda in 2017 than in 2016)
- Revenues used for pre-K access, medical services in schools, investment in parks
- Similar results in Mexico and in 7 U.S. cities



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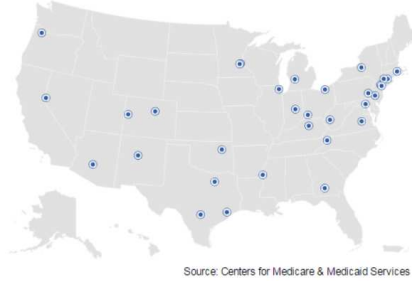
Starting to Find Solutions: Payment Models Incentivizing Providers to Address Social Determinants

- Community needs assessment requirements
- Managed care organizations responsible for longer-term outcomes (vs. FFS)
- CMS' State Innovation Models Initiative – innovative models to address population health
 - CMS amended Medicaid managed care rule to incentivize Medicaid MCOs to cover “non-medical” expenses crucial to achieving health outcomes

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Starting to Find Solutions: Payment Models

- Increasing number of states requiring Medicaid MCOs to address social determinants (per contracts)
 - e.g. NY-Empire State’s Value-Based Payment Roadmap
- 2018 CHRONIC Care Act – allows Medicare Advantage plans to pay CHW to address social determinants
- CMS Accountable Health Communities Model
 - 5 yr. pilot: can social assistance improve health and reduce costs?
 - \$157 million to “bridge organizations”
 - Can address housing, food access, utility costs, transportation, other social services
 - Recently announced plan for ACH focused on children (Integrated Care for Kids model)



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Starting to Find Solutions: Payment Models Accountable Health Communities (AHC)

- Community integrator – trusted organization that understands community needs and can leverage multisector solutions
 - Examples: University of Kentucky, Delta Health Alliance (MS), Health Collaborative (Cincinnati, OH) - JAMA 318: 1865, 2017
- Funders Forum on Accountable Health – public/private collaborative to encourage SDOH
 - 100 communities with AHC-type interventions
 - Examples: 1) CACHI – California Accountable Communities for Health Initiative; 2) Healthy Neighborhoods Healthy Families – Columbus, OH - Health Aff blog Oct. 24, 2018

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Starting to Find Solutions Adjusting Payments Based on Social Determinants of Health?

- Individual Level
- Community Level

<u>Potential Risks of Community-Risk Adjustment</u>	<u>Potential Benefits of Community-Risk Adjustment</u>
<ul style="list-style-type: none"> • Validate a lower standard of care • Reward poor quality • Perpetuate health disparities 	<ul style="list-style-type: none"> • Compensate providers for higher cost of care • Ensure financial viability of safety net providers • Provide resources to deliver needed social services

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Starting to Find Solutions: Technologies Example – Accountable Health Communities Social Needs Screening Tool

Box 1 | Accountable Health Communities Core Health-Related Social Needs Screening Questions

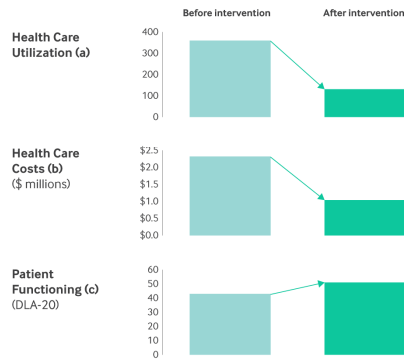
Underlined answer options indicate positive responses for the associated health-related social need. A value greater than 10 when the numerical values for answers to questions 7-10 are summed indicates a positive screen for interpersonal safety.

- Questions on:
 - Housing Instability
 - Food Insecurity
 - Transportation Needs
 - Utility Needs
 - Interpersonal Safety

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Solutions: Research (especially economic analysis) Example – Houston’s Patient Care Intervention Center Outcomes

Analysis of health care utilization, cost, and patient functioning among the 39 enrolled patients in the 12 months prior to and 12 months after PCIC intervention.



Source: Original data
NBM Center for Health Systems Research © Massachusetts Medical Society

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Addressing Social Determinants of Health: The Central Role of Advocacy

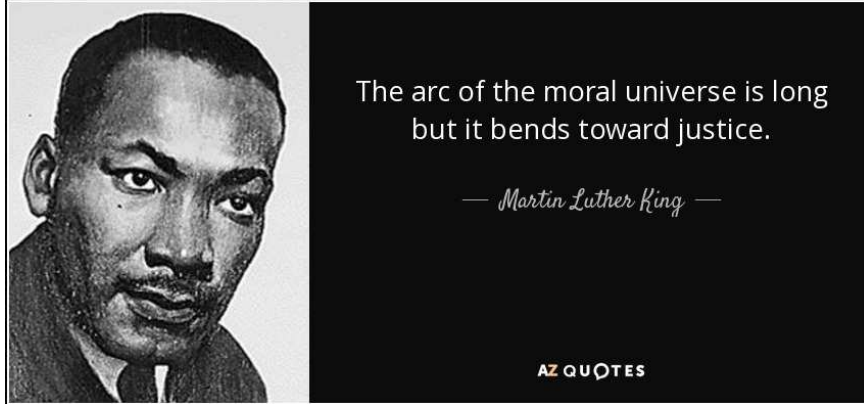
“At a moment of prominence for social policy ... Sweeping decisions are being made that will affect living conditions, and resulting health outcomes, for many years. This is the wrong time for the health professions to keep their distance from these issues.”

-Woolf S., JAMA 301:1166, 2009

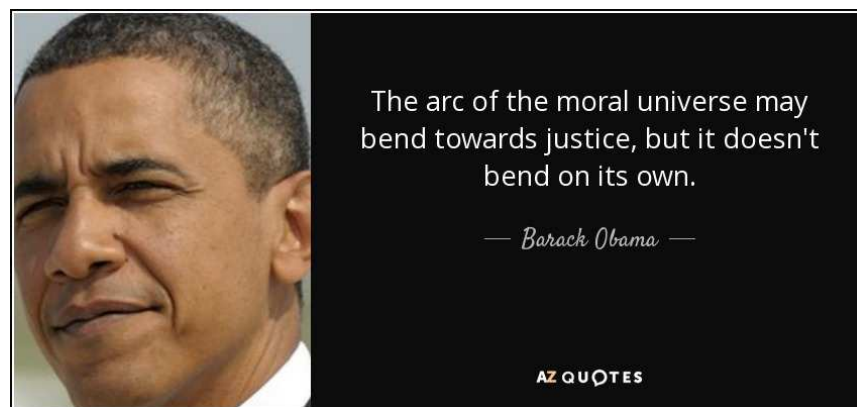


Photo: University of Pennsylvania student Ricardo Linares

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Appendix

PEARLS: Connecting Societal Forces, Social Determinants, and Health Outcomes

Key Societal Forces

Societal Force	Key Question
Politics	How do political priorities and systems of power affect social patterns that affect citizens' quality of life or measurable aspects of the population?
Economics	What levels of domestic and international energy exist, and how do economic policies address or further contribute to these questions?
Environment	Do people with similar (or different) environmental characteristics, for example, urban, rural, and offshore, experience the same quality of exposure to hazardous environmental conditions, and, if so, how are they affected?
Ethics	What ethical issues guide medical and public health practice, and how do these vary or change across social boundaries?
Religion	How much money is allocated to military expenditures relative to health programs in social settings, and what are the implications for the distribution?
Life circumstances	What is the influence of religion on social attitudes, and how do religious practices guide medical practice, health beliefs, and individual behaviors?
Social roles	How do behaviors such as law, obedience, civility, and expression of justice, politeness and etiquette behaviors, and how have they been shaped by health and global histories?
Social structures	What are the consequences of interpersonal interactions, and how do institutions (e.g., gender, ethnicity, geography, social class, and education) affect them?
Other forces	What social institutions inhibit or enhance equity, and how?

Social Determinants of Health → **Health Outcomes**

Health Outcomes: Measurable disparities in morbidity and mortality across categories including, among others, income, genetics, ethnicity, geography, and education in both domestic and international settings.

PEARLS: Connecting Societal Forces, Social Determinants, and Health Outcomes

Ventres, William; Kravitz, Jay D.; Dharamsi, Shafik
 Academic Medicine 93(1):143, January 2018.
 doi: 10.1097/ACM.0000000000002012

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Economist.com

Economist.com

© Statista, CBS and Zacks. Fighting for pensions in court. The Economist June 4, 2016.