CODE

Data for Health Equity: Applying Data on the Social Determinants of Health

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About CODE and Its Programs

Our mission: Putting open data into action for public good

ROUNDTABLES

Interactive convenings for data providers and data users.

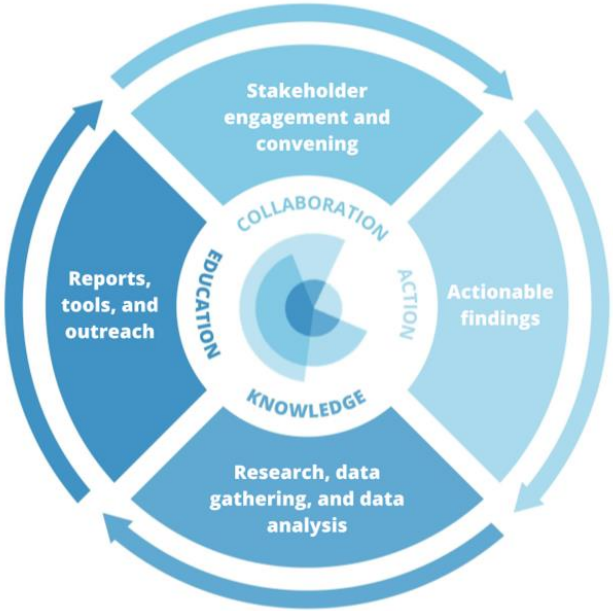
RESOURCES

Action-oriented resources to help government, industry, and the public utilize data.

RESEARCH

Innovative research on the applications and management of publicly available data.

CODE's Theory of Change



- **Collaboration**, **Action**, **Knowledge**, **Education**
- Focused on *how* data can be used
- Stakeholder engagement as an essential ingredient
- Increasingly focused on tools and resources for data action

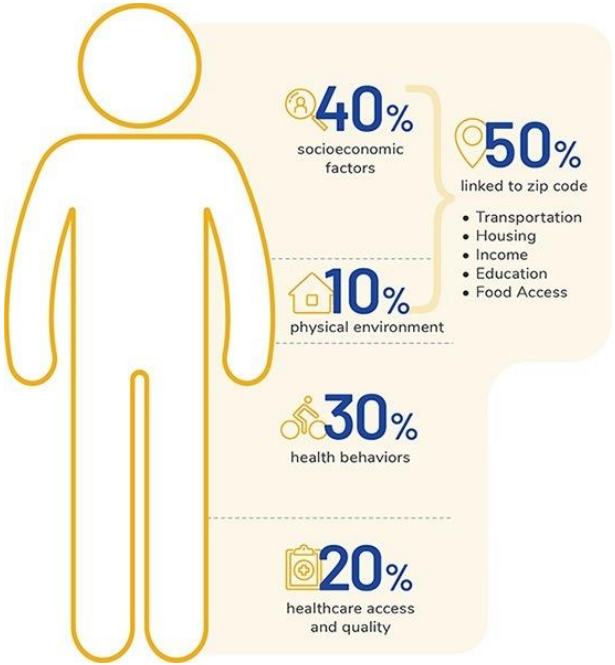
Social Determinants of Health

Social determinants of health (SDOH) are the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.

Source: https://health.gov/healthypeople/priority-areas/social-determinants-health

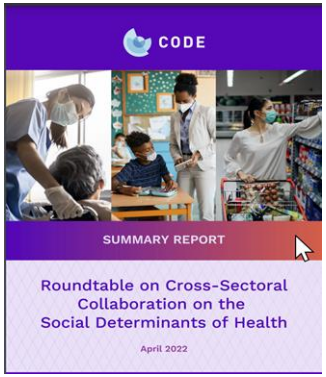
Social Determinants of Health

The social determinants of health can account for up to 80% of outcomes.



Source: ZeOmega

CODE's SDOH work



Who we have worked with

DEPARTMENT OF HEALTH & HUMAN SERVICES · USA

pcori
PATIENT-CENTERED OUTCOMES RESEARCH INSTITUTE

CTO
Office of the CHIEF TECHNOLOGY OFFICER

zeomega

INNOVATION

The Social Determinants of Health

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	
Medical bills	Playgrounds	Higher education		Stress	Quality of care
Support	Walkability				
	Zip code / geography				

Health Outcomes

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

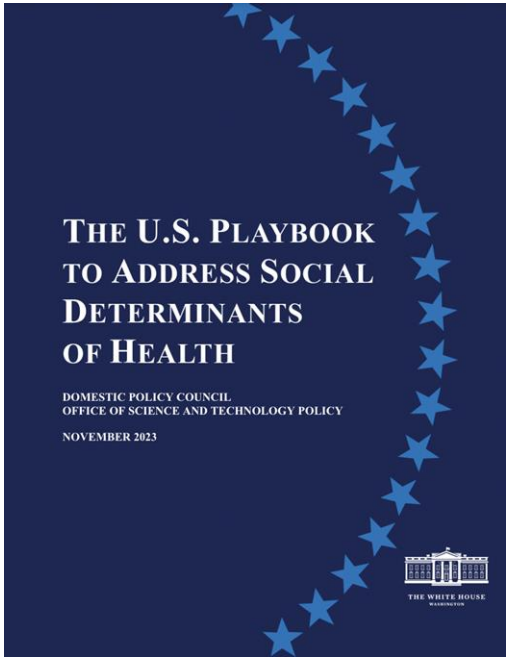
Source: https://www.kff.org/racial-equity-and-health-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/

SDOH, Climate, and Health Equity

Climate change is a threat multiplier.

The US Playbook to Address SDOH

- Released in November 2023
- **Vision: to enable every American to lead a full and healthy life within their community**
- 3 Pillars:
  - Expand *Data Gathering* and *Sharing*
  - Support *Flexible Funding* to Address Social Needs
  - Support *Backbone Organizations*
- Available at: https://www.whitehouse.gov/wp-content/uploads/2023/11/SDOH-Playbook-3.pdf



The US Playbook to Address SDOH

- Expand *Data Gathering* and *Sharing* to advance collection and interoperability among health care, public health, social care services, and other data systems to address SDOH across federal, state, local, tribal, and territorial levels.
- Support *Flexible Funding* to address social needs and align investments across sectors to finance community infrastructure, offer grants for communities to address HRSNs, and encourage coordinating resources to improve health outcomes
- Support *Backbone Organizations* and other infrastructure to link health care systems to community-based organizations

The Context for Addressing SDOH

- Biden Administration Actions
  - Executive Order 13985, Advancing Racial Equity and Support for Underserved Communities Through the Federal Government
  - Executive Order 14091, Further Advancing Racial Equity and Support for Underserved Communities Through the Federal Government
  - American Rescue Plan (ARP) and Inflation Reduction Act (IRA)
  - Thriving Communities Network
  - Blueprint for Addressing the Maternal Health Crisis
  - U.S. National Plan to End Gender-Based Violence: Strategies for Action
  - National Strategy on Hunger, Nutrition, and Health
  - White House Initiative on Women's Health Research
  - National Mental Health Strategy

The National Mental Health Strategy (White House Release March 2022)

- **Strengthen System Capacity**
  - Invest in proven programs that bring providers into behavioral health.
  - Pilot new approaches to train a diverse group of paraprofessionals.
  - Build a national certification program for peer specialists.
  - Promote the mental well-being of our frontline health workforce.
  - Launch the “988” crisis response line and strengthen community-based crisis response.
  - Expand the availability of evidence-based community mental health services.
  - Invest in research in new practice methods.

The National Mental Health Strategy

- **Connect Americans to Care**
  - Expand and strengthen parity.
  - Integrate mental health and substance use treatment into primary care settings.
  - Improve veterans' access to same-day mental health care.
  - Expand access to tele- and virtual mental health care options.
  - Expand access to mental health support in schools and colleges and universities.
  - Embed and co-locate mental health and substance use providers into community-based settings.
  - Increase behavioral health navigation resources.

The National Mental Health Strategy

- **Support Americans by Creating Healthy Environments**
  - Strengthen children's privacy and ban targeted advertising for children online
  - Institute stronger online protections for young people, including prioritizing safety by design standards and practices for online platforms, products, and services.
  - Stop discriminatory algorithmic decision-making that limits opportunities for young Americans.
  - Invest in research on social media's mental harms.
  - Expand early childhood and school-based intervention services and supports.
  - Set students up for success.
  - Increase mental health resources for justice-involved populations.
  - Train social and human services professional in basic mental health skills.

SDOH Data Ecosystem

- **Population Level**
  - HHS
  - The Census Bureau
  - Department of Labor
  - Department of Transportation
  - Department of Education
  - State and Local Governments
- **Individual Level**
  - Physicians
  - Clinical Trials
  - Health Networks
  - Schools
  - Community-based Organizations

Sample Determinants and Data Sources

- Economic Stability
  - Determinant: Access to employment
  - Data Source: Department of Labor Unemployment Statistics
- Neighborhood and Physical Environment
  - Determinant: Access to transportation
  - Data Source: Department of Transportation data on proximity to public transportation
- Education
  - Determinant: Early childhood education
  - Data Source: Head Start early childhood education enrollment data
- Food and Nutrition
  - Determinants: Access to fresh fruits and vegetables
  - Data Source: WIC and SNAP rates by neighborhood
- Climate and Environment
  - Determinant: Exposure to power plant emissions
  - Data Source: Department of Energy power plant data

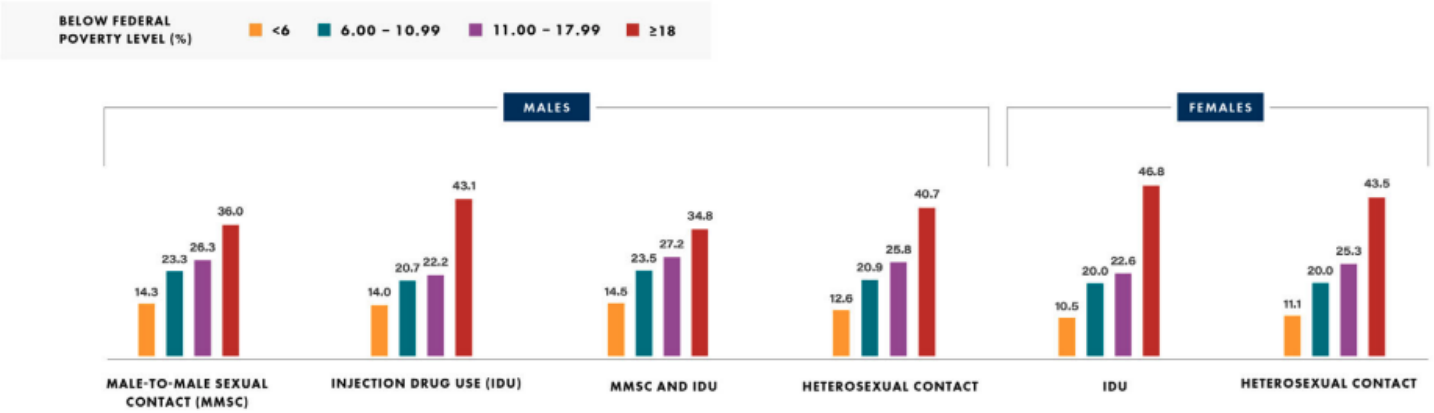
Sample Determinants and Data Sources

Unmet social needs negatively impact health outcomes. Addressing SDOH can lead to improved health equity.

- Food insecurity - higher levels of diabetes, hypertension, and heart failure
- Housing instability - lower treatment adherence
- Transportation barriers - missed appointments, delayed care, lower medication compliance

SDOH and Health Equity

Figure 3. Diagnoses of HIV infection among adults, by transmission category, sex at birth, and federal poverty status, 2019—census tract level, United States and Puerto Rico

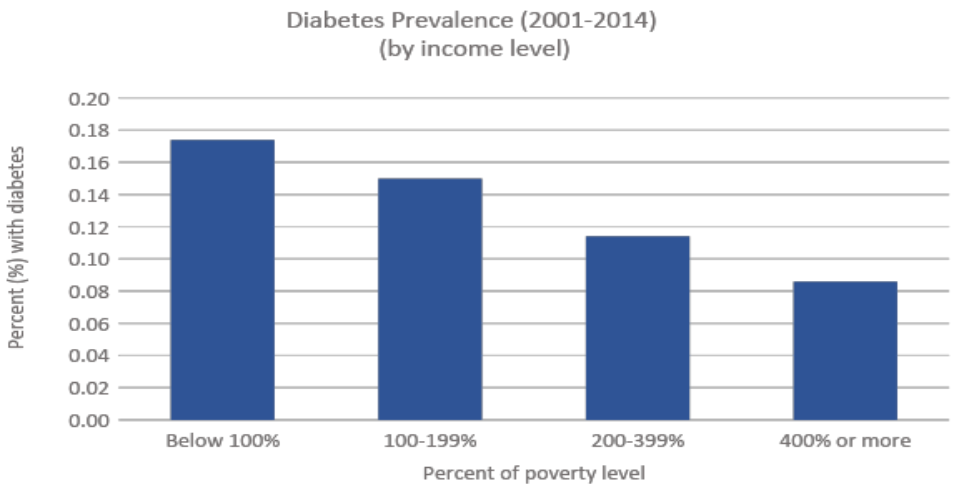


Source: https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-supplemental-report-vol-27-2.pdf

SDOH linked to higher HIV rates and lower levels of care: Poverty, Household income, Income inequality, Lower levels of education, and Insurance coverage

SDOH, Diabetes, and Health Equity

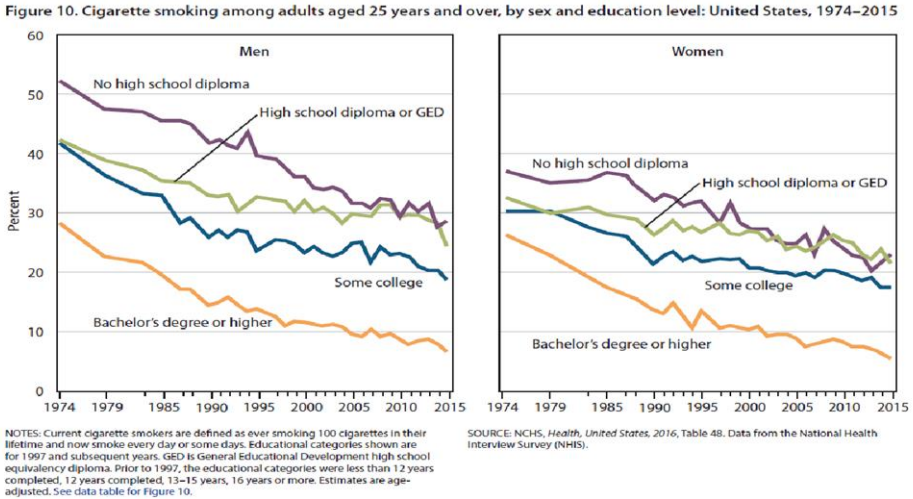
Diabetes Prevalence by Income Level

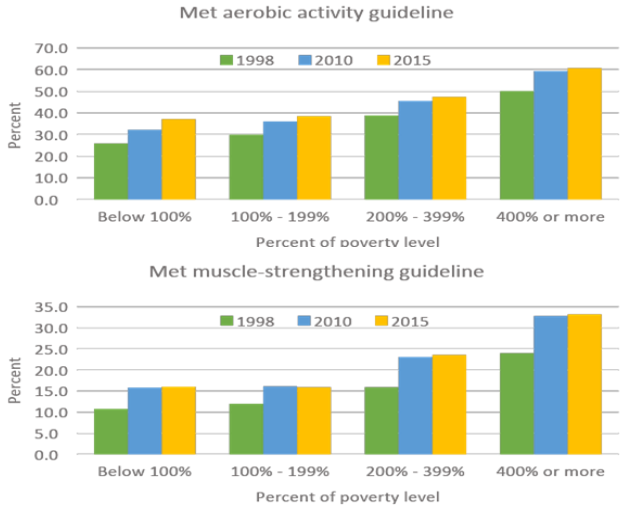


- Data collected from 2011-2014
- Clear trend correlating diabetes with income level
- **2x relative risk difference between highest and lowest income categories**

Source: https://www.cdc.gov/nchs/hus/contents2016.htm#040, ZeOmega

Healthy Behaviors, SDOH, and Health Equity





Education Level Impact on Smoking and Exercise: *Smoking steadily down over time in all categories (but higher at lower education levels); Exercise steadily up over time in all categories (but lower at lower income levels)*

Source: https://www.cdc.gov/nchs/hus/contents2016.htm#057, ZeOmega

Geography, SDOH and Health Equity

Two "work-friends" share similar profiles. Both high-school grads (with some college) and both have two kids. The only material difference is where they live (~ 5 miles apart)… *Does that matter?*

	Profile	Current Health Status	Home Location
 **Mary Mitchell**	Age/Gender: 35 yo / Female Vocation: CSR at Cable Co. Annual Income: $37,000 Home Location: Risk Area: 2 Income: Mod. Median	- BMI=28 (overweight) - Borderline HTN - Moderately active	
 **Nora Newton**	Age/Gender: 35 yo / Female Vocation: CSR at Cable Co. Annual Income: $37,000 Home Location: Risk Area: 4 Income: Low Median	- BMI=28 (overweight) - Borderline HTN - Moderately active	

Source: ZeOmega

Geography, SDOH and Health Equity

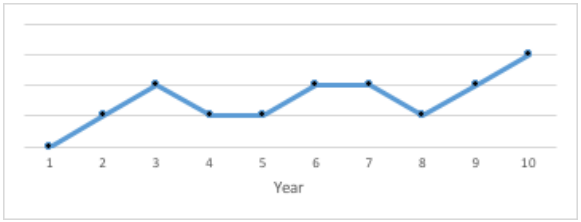
Divergence of health behaviors and outcomes

Mary Mitchell

Baseline Health Status

- BMI=28 (overweight)
- Borderline HTN
- Moderately active

10-Year Health Trend

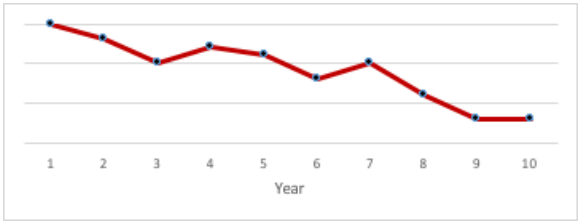


10-Year Health Status

- Weight under control
- Adherent to HTN meds
- Moderately active

Nora Newton

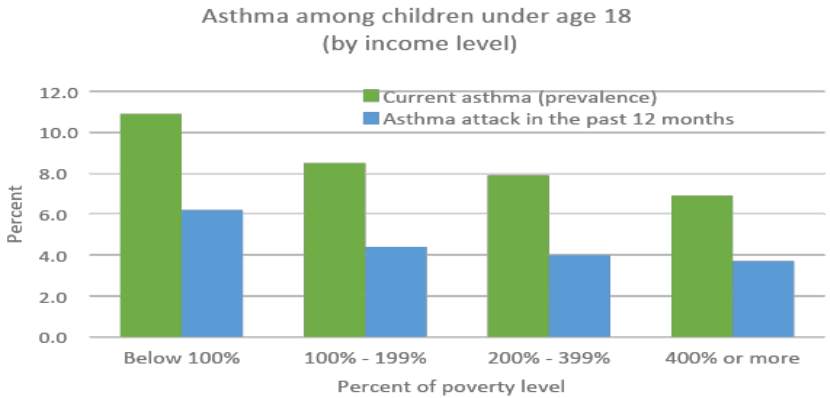
- BMI=28 (overweight)
- Borderline HTN
- Moderately active

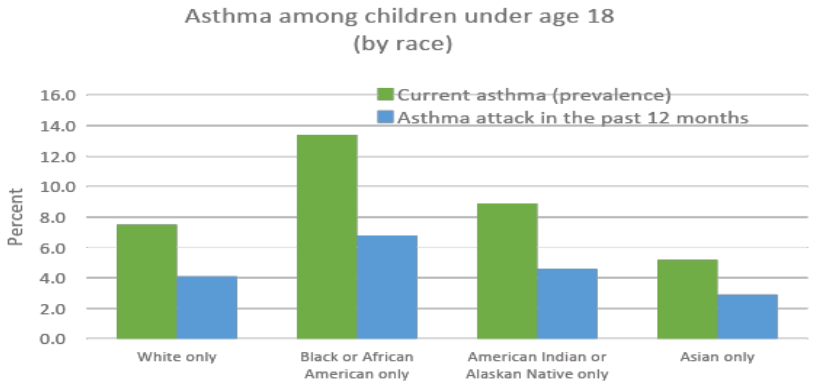


- Obese
- Chronic HTN
- Pre-diabetes

Source: ZeOmega

Race and the SDOH: Asthma and Health Equity





Source: https://www.cdc.gov/nchs/hus/contents2016.htm#035, ZeOmega

Asthma Prevalence and Severity: *Clear correlation between income level and asthma (both prevalence and severity)*; *African American – 2x higher prevalence than White or Asian categories*

Racism and Mental Health

- A large scale meta-analysis found that perceived discrimination has a significant negative effect on mental health
- BIPOCs who experieced racism also experienced: depression; stress; emotional distress; anxiety; PTSD; suicidal thoughts

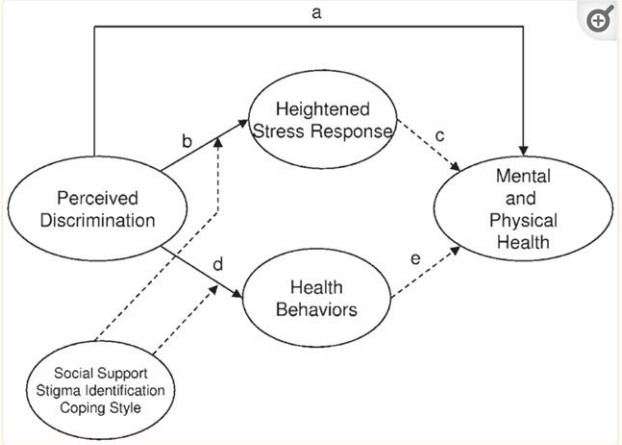


Figure 1

Pathways by which perceived discrimination influences health outcomes. Solid lines indicate analyzed pathways; dashed lines represent pathways hypothesized by past research.

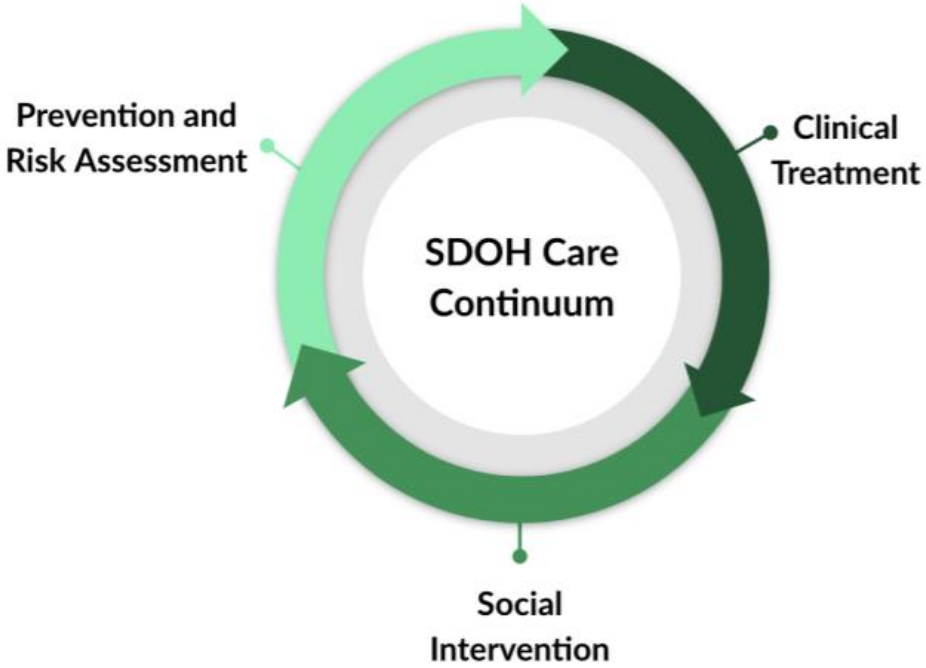
Source: Psychol Bull. 2009 Jul; 135(4): 531–554.

Kaiser Family Foundation:
Race, Mental Health, and the Pandemic (2022)

- Rates of death by suicide are rising faster among people of color compared to their white counterparts [though still roughly half the rate for whites].
- The recent rise in deaths associated with drug overdoses has disproportionately affected people of color.
- Overall rates of mental illness and substance use disorder are lower for people of color compared to white people but may be underdiagnosed among people of color.
- People of color have experienced worsening mental health during the pandemic.
- People of color face disproportionate barriers to accessing mental health care.

Source: https://www.kff.org/mental-health...KFF

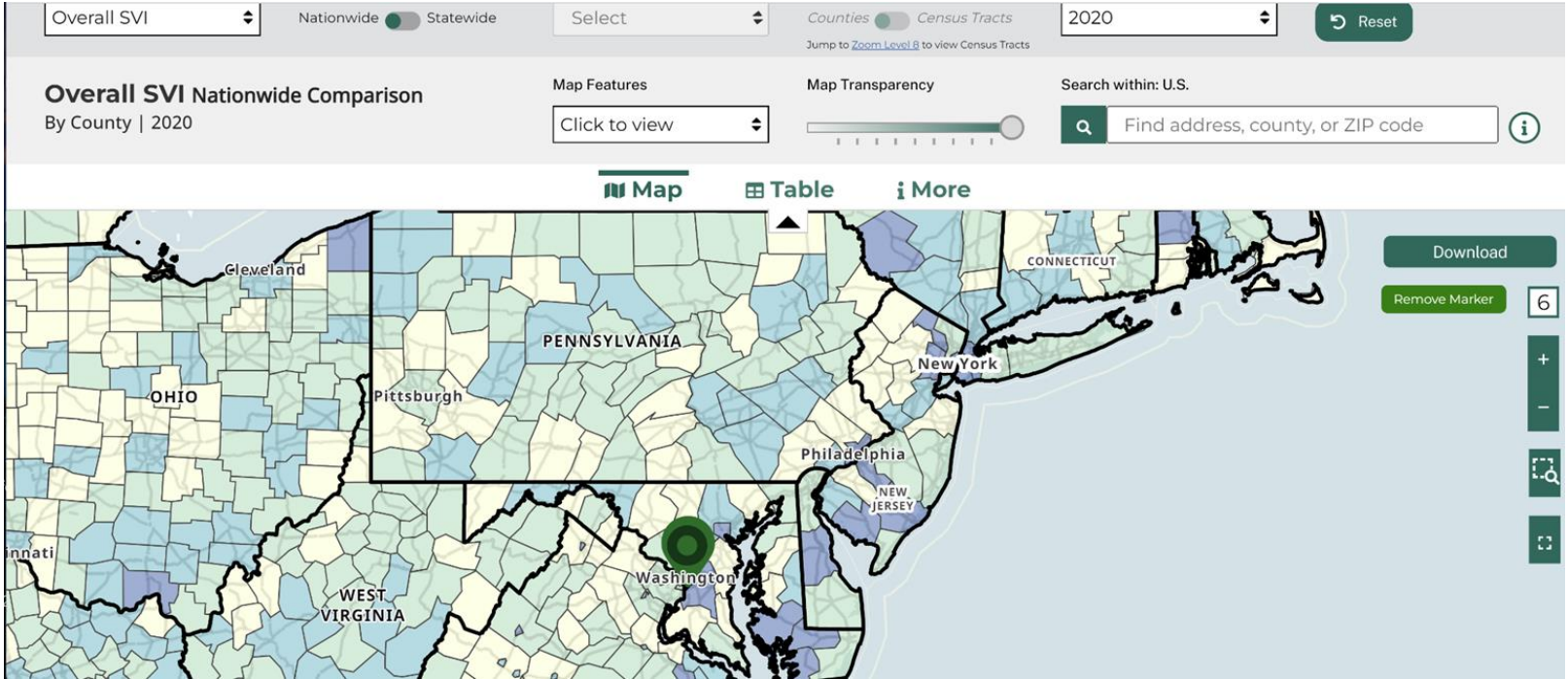
SDOH Care Continuum



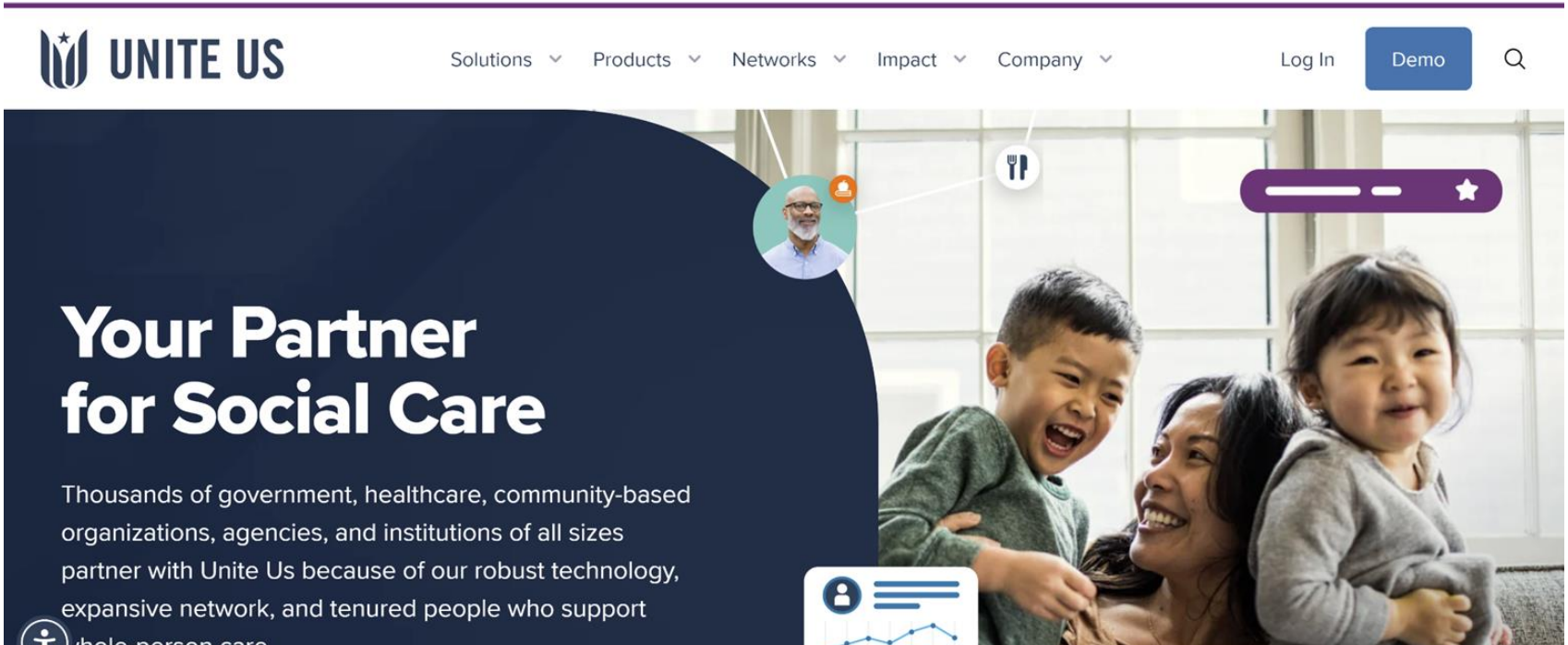
How Can Awareness of the SDOH Help Clinicians?

- Interrelationship of social, behavioral, and mental health
- Two-way interaction: physical and mental health
- Awareness of community-level risk
- Prioritizing connections to social services where appropriate
- And more. . . .

CDC/ATSDR Social Vulnerability Index (“CDC SVI”)



Unite Us: Connecting with social services for “whole-person care”



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Thank You!

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