The intersection between social determinants of health and health outcomes: where are we today with addressing the health impacts of systemic racism?

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Health disparities

• A particular type of health difference that is closely linked with social, economic, and/or environmental disadvantage

• Health disparities adversely affect groups of people who have systematically experienced greater obstacles to health based on:
  • racial or ethnic group
  • religion
  • socioeconomic status
  • gender
  • age
  • mental health
  • cognitive, sensory, or physical disability
  • sexual orientation or gender identity
  • geographic location
  • other characteristics historically linked to discrimination or exclusion
Colorado health disparities

- Perinatal and infant mortality
- Child and adult obesity
- Child oral health
- Teen fertility
- Diabetes mortality
- Liver disease mortality
- Motor vehicle injury fatality
- Homicide mortality
- Mental health

- Low birth weight
- Suicide
- Cervical cancer incidence and mortality
- Lung cancer incidence and mortality
- Prostate cancer mortality
- Diabetes incidence and mortality
- Infectious disease (HIV, TB, HBV)
Social determinants of health

• The social determinants of health are the circumstances in which people are born, grow up, live, work and age, and the systems put in place to deal with illness

• These circumstances are in turn shaped by a wider set of forces: economics, social policies, and politics

Social determinants of health

• Think in terms of opportunities and barriers:
  • Early childhood development, schools, education, literacy
  • Economy, jobs, employment, occupation, working conditions, income, wealth
  • Housing, transportation, public safety, parks and recreation, healthy food access
  • Racism, social status, culture, social network, political clout, justice
  • Environment, pollution, hazards
From: Bay Area Regional Health Inequities Initiative

SOCIAL INEQUITIES
- Class
- Race/Ethnicity
- Immigration Status
- Gender
- Sexual Orientation

INSTITUTIONAL POWER
- Corporations & Businesses
- Government Agencies
- Schools
- Laws & Regulations
- Not-for-Profit Organizations

LIVING CONDITIONS
- Physical Environment
  - Land use
  - Transportation
  - Housing
  - Residential Segregation
  - Exposure to Toxins
- Social Environment
  - Experience of Class, Racism, Gender, Immigration
  - Culture – Ads - Media
  - Violence
- Economic & Work Environment
  - Employment
  - Income
  - Retail Businesses
  - Occupational Hazards
- Service Environment
  - Health Care
  - Education
  - Social Services

RISK BEHAVIORS
- Risk Behaviors
- Smoking
- Poor nutrition
- Low physical activity
- Violence
- Alcohol & other Drugs
- Sexual behavior

DISEASE & INJURY
- Communicable Disease
- Chronic Disease
- Injury (Intentional & Unintentional)

MORTALITY
- Infant Mortality
- Life Expectancy

Emerging Public Health Practice

Current Public Health Practice

POLICY

COMMUNITY CAPACITY BUILDING
- Community Organizing
- Civic Engagement

STRATEGIC PARTNERSHIPS
- Advocacy

INDIVIDUAL HEALTH EDUCATION
- Case Management

HEALTH CARE
Figure 1. Healthy People 2030
Model of the Social Determinants of Health

- Educational access and quality
- Health care access and quality
- Economic stability
- Neighborhood and built environment
- Social and community context
Root causes of health inequities (National Academies report, 2017)

- **Unequal allocation of power and resources**—including goods, services, and societal attention—which manifests itself in unequal social, economic, and environmental conditions

- **Structural inequities** that organize the distribution of power and resources differentially across lines of race, gender, class, sexual orientation, gender expression, and other dimensions of individual and group identity
Economics of health disparities
Economic burden

• Direct medical costs of health inequalities
• Indirect costs of health inequalities
• Costs of premature death
Economic burden of health inequalities in the United States

- Between 2003 and 2006, 30.6% of direct medical care expenditures for African Americans, Asians, and Hispanics were excess costs due to health inequalities.
- Eliminating health inequalities for minorities would have reduced direct medical care expenditures by $229.4 billion for the years 2003-2006.
- Between 2003 and 2006 the combined costs of health inequalities and premature death were $1.24 trillion.
Economic benefit of addressing racial equity in Colorado

GDP gains with racial equity in Colorado

Breakdown:
Actual GDP and estimated GDP with racial equity in income (billions): Colorado vs. CO, 2015

- Actual: $315.20
- Projected (no racial gaps in income/employment): $355.62

Source: PolicyLink
Education and health disparities
Education and health

Egerter et al., 2011
Self-Assessed Health by Educational Attainment, US, 2015

- **Bachelor's or more:**
  - Excellent or very good: 74.1%
  - Good: 19.8%
  - Fair or poor: 6.1%

- **Some college:**
  - Excellent or very good: 57.7%
  - Good: 28.8%
  - Fair or poor: 13.5%

- **High school or GED:**
  - Excellent or very good: 50.8%
  - Good: 33.0%
  - Fair or poor: 16.2%

- **Less than high school:**
  - Excellent or very good: 36.5%
  - Good: 35.8%
  - Fair or poor: 27.7%

CDC; National Center for Health Statistics. Summary Health Statistics: National Health Interview Survey, 2015
Age-adjusted death rates among persons 25-64 years of age for selected causes of death, by sex and educational attainment: selected states, 1994-2005
Educational attainment, high school graduation and mortality

Data source: Montez 2012, Graph by Hummer, 2013
Potential health impact of improving education
Income and health disparities
How income impacts health

• Pollack et al., 2013
  • Wealth can have mechanisms not necessarily monetary, such as power and prestige, attitudes and behavior, and social capital

• Evans and Kim, 2010
  • “Multiple risk exposure” --the convergence among populations with low socioeconomic status of multiple physical and psychosocial risk factors such as poor housing and neighborhood quality, pollutants and toxins, crowding and congestion, noise exposure, and adverse interpersonal relationships

• Woolf et al., 2015
  • Provides access to health care services and health insurance
  • Supports a healthy lifestyle and provides access to place-based benefits in terms of other social determinants of health
  • Avoids the economic disadvantage and hardship that leads to stress and harmful physiological effects on the body
Income and health

• Based on 1.4 billion people in the US from 1999 through 2014 and consistent with three prior studies since 2007:
  • Higher income is related to higher life expectancy; Lower income is related to lower life expectancy
  • The gap in life expectancy for the richest and poorest 1 percent of individuals was 14.6 years for men and 10.1 years for women
  • In certain local areas, the effect of being at the bottom of the income gradient is more pronounced than in others, with four- to five-fold differences: consistent with other studies, place matters
  • Temporal trends in life expectancy varied geographically, with some areas experiencing improvements and others declines

Chetty, et al., 2016
Household income and life expectancy at age 40 years

Structural racism, social determinants of health and health disparities
Colorado high school graduation rates 2015-16

Source: Colorado Department of Education
Income and health, and race

- African American men below poverty status had 2.66 times higher risk of mortality than African American men living above poverty status.
- White men below poverty status had approximately the same risk as white men living above poverty status.
- Both African American women and white women living below poverty status were at an increased mortality risk relative to those living above poverty status.

Zonderman et al., 2016
Colorado median household income
2015

Source: U.S. Census, American Community Survey
Colorado poverty rate 2015

Source: U.S. Census, American Community Survey
Median hourly wage by race/ethnicity: Colorado 1980-2015

Source: PolicyLink
Figure 35: Home ownership
Percentage of occupied houses that are owned, by race/ethnicity, Colorado 2016-2020 combined annual average

- Black/African American: 40%
- American Indian/Alaska Native: 50%
- Hispanic: 52%
- Multiracial: 54%
- Native Hawaiian/Pacific Islander: 59%
- Asian: 64%
- White: 71%
- Colorado Average: 66%
### Figure 6. Percentage of adults self-reporting “Excellent,” “Very Good,” or “Good” health Colorado, 2016-2021 (Combined annual average)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian/Pacific Islander</td>
<td>93.0%</td>
</tr>
<tr>
<td>White</td>
<td>89.1%</td>
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<tr>
<td>Black/African American</td>
<td>82.2%</td>
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<tr>
<td>Hispanic</td>
<td>78.7%</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>77.5%</td>
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</table>

### Figure 7. Percentage of adults self-reporting “Fair” or “Poor” health Colorado, 2016-2021 (Combined annual average)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian/Pacific Islander</td>
<td>7.0%</td>
</tr>
<tr>
<td>White</td>
<td>10.9%</td>
</tr>
<tr>
<td>Black/African American</td>
<td>17.8%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>21.3%</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>22.5%</td>
</tr>
</tbody>
</table>
Figure 8. Overall death rate
Age-adjusted, five-year combined rates per 100,000 population, Colorado 2001-2020

- White: 647.6 (2001-2005), 647.6 (2006-2010), 647.6 (2011-2015), 647.6 (2016-2020)
- Asian/Pacific Islander: 462.2 (2001-2005), 408.0 (2016-2020)
Figure 9. Premature death
Years of potential life lost before age 75, per 100,000 population, Colorado 2001-2020

- American Indian/Alaska Native: 11,023.6
- Black/African American: 8,786.9
- Colorado: 6,366.8
- Hispanic: 6,284.4
- White: 6,082.1
- Asian/Pacific Islander: 3,106.5
Figure 22. Infant Mortality Rates
Five-year combined infant mortality rates (death before age 1 per 1,000 live births), CO 2001-2020
Impact of resolving racial disparities in the U.S., 1991-2000

Woolf et al, Am J Public Health 2004
## Estimated deaths attributable to social factors in the US

### Calculation of the Number of US Deaths in 2000 Attributable to Each Social Factor

<table>
<thead>
<tr>
<th>Social Factor and Age Group</th>
<th>RR (95% CI)^a</th>
<th>Prevalence, %^b</th>
<th>PAF, %^c</th>
<th>Total Deaths,^d No.</th>
<th>Deaths Attributable to Social Factor,^e No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual-level factors</strong></td>
<td></td>
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<tr>
<td>Low education</td>
<td></td>
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<tr>
<td>Aged ≥25 y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aged 25–64 y</td>
<td>1.81 (1.64, 2.00)</td>
<td>16.1</td>
<td>11.5</td>
<td>972,645</td>
<td>112,209</td>
</tr>
<tr>
<td>Aged ≥65 y</td>
<td>1.23 (0.86, 1.76)</td>
<td>34.5</td>
<td>7.4</td>
<td>1,799,825</td>
<td>132,317</td>
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<tr>
<td>Poverty</td>
<td></td>
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<tr>
<td>Aged ≥25 y</td>
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</tr>
<tr>
<td>Aged 25–64 y</td>
<td>1.75 (1.51, 2.04)</td>
<td>9.5</td>
<td>6.7</td>
<td>972,645</td>
<td>64,692</td>
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<tr>
<td>Aged ≥65 y</td>
<td>1.40 (1.37, 1.45)</td>
<td>9.9</td>
<td>3.8</td>
<td>1,799,825</td>
<td>68,558</td>
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<tr>
<td>Low social support</td>
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<tr>
<td>Aged ≥25 y</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Aged 25–64 y</td>
<td>1.34 (1.23, 1.47)</td>
<td>21.0</td>
<td>6.7</td>
<td>972,645</td>
<td>64,819</td>
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<tr>
<td>Aged ≥65 y</td>
<td>1.34 (1.16, 1.55)</td>
<td>16.7</td>
<td>5.4</td>
<td>1,799,825</td>
<td>96,703</td>
</tr>
<tr>
<td><strong>Area-level factors</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Area-level poverty</td>
<td>1.22 (1.17, 1.28)</td>
<td>7.8</td>
<td>1.7</td>
<td>2,331,261</td>
<td>39,330</td>
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<tr>
<td>Income inequality</td>
<td>1.17 (1.06, 1.29)</td>
<td>31.7</td>
<td>5.1</td>
<td>2,331,261</td>
<td>119,208</td>
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<tr>
<td>Racial segregation</td>
<td>1.59 (1.31, 1.94)</td>
<td>13.8</td>
<td>7.5</td>
<td>2,331,261</td>
<td>175,520</td>
</tr>
</tbody>
</table>

Note. CI=confidence interval; PAF=population attributable fraction; RR=relative risk.

Denver life expectancy
Where are the intersections with systemic racism?

- Political disempowerment
- Segregation
- Financial/lending practices
- Environmental justice
- Criminal justice system
- Data aggregation
Systemic racism and health

APPENDIX EXHIBIT 2. How systemic racism is thought to damage health: key steps

Systemic racism
- Systems/structures with discriminatory effects, e.g.:
  - Racial residential segregation
  - Unfair financial systems & structures
  - Gerrymandering & voter suppression
  - Biased policing & sentencing
  - Environmental injustice
  - Pervasive discrimination in employment, housing, education
  - Beliefs in White supremacy

Differential access to resources and opportunities
- Economic disadvantage, including lack of access to wealth, home ownership, & educational opportunity
- Disenfranchisement
- Mass incarceration

Health-harming (or lack of health-promoting) experiences, e.g.:
- Chronic stress
- Environmental hazards
- Inferior schools
- Inadequate housing
- Unhealthy food & exercise environments
- Exposure to violence
- Unhealthy behaviors
- Obesity
- Inadequate medical care

Biological mechanisms, e.g.:
- Neuroendocrine processes
- Inflammation
- Immune system dysfunction
- Infection
- Vascular mechanisms
- Premature aging
- Epigenetic effects (gene-environment interactions)

Worse health among people of color (health inequities)
Levers to push

• Enforce existing antidiscrimination laws
• Enact new legislation
• Advocacy
• Affirmative Action
• Reduce the damage
• Change attitudes

Braveman 2022
Where are we today?

• There was significant movement and awareness that developed with the pandemic and the George Floyd murder and riots
  • Recognition of racism as a public health crisis (declaration in 22 states)
• There is a continuingly emerging backlash and backsliding
  • “Weaponizing” of antiracism language including diversity, equity, inclusion, social determinants of health, Critical Race Theory, evidence-based
  • SCOTUS rulings on Affirmative Action policies
  • Movement to undercut ESG (equity, sustainability and governance) rating in investments and endowment portfolios
CDPHE and health equity work

- Office of Health Equity (OHE)
- Health Equity Advisory Committee (HEC)
- Data Advisory Work Group (DAWG)
- Health Equity Report (December 2023)
- Maternal Mortality in Colorado 2016-2020 (April 2023)
- HB22-1267 Culturally relevant training available to health care providers (2023)
How to move forward?

• Continue to engage communities
• Continue to shine a light on evidence of impact on health and the economy
• Work to undermine the weaponizing of language—work to communicate the evidence that underlies it