The Social Determinants of Health and Infectious Disease

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Social determinants of health (SDOH) and infectious disease

- SDOH: Circumstances of our lives –apart from medical care--that plausibly could (a) affect health & (b) be shaped by social policies
- Review current concepts and knowledge in the field of social determinants of health directly or indirectly relevant to I.D.
- The socioeconomic gradient in health and its implications
- Growing knowledge of pathways and mechanisms by which social advantage/disadvantage in many dimensions could affect health
- Analytic frameworks that can guide measurement, research, policy, and practice
Life expectancy varies by income, across the income spectrum

Higher Income, Longer Life

Adult life expectancy* increases with increasing income. Men and women in the highest-income group can expect to live at least six and a half years longer than poor men and women.

Prepared for the Robert Wood Johnson Foundation by the Center on Social Disparities in Health at the University of California, San Francisco; and Norman Johnson, U.S. Bureau of the Census.


*This chart describes the number of years that adults in different income groups can expect to live beyond age 25. For example, a 25-year-old woman whose family income is at or below 100 percent of the Federal Poverty Level can expect to live 51.5 more years and reach an age of 78.5 years.

Child health varies by income—across the income spectrum

Parents’ Income, A Child’s Chances for Health

Children in poor families are about seven times as likely to be in poor or fair health as children in the highest-income families.

Prepared for the Robert Wood Johnson Foundation by the Center on Social Disparities in Health at the University of California, San Francisco.


*Age-adjusted

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www.commissiononhealth.org

P. Braveman et al., Am J Public Health 2010
Adults’ self-reported poor or fair health varies by (a) income & (b) race/ethnicity

Health Varies by Income and Across Racial or Ethnic Groups

Lower income generally means worse health. Racial or ethnic differences in health status are also evident: Poor or fair health is much more common among black and Hispanic adults than among white adults.
Higher income, better adult health -- across income and racial/ethnic groups

Income Is Linked With Health Regardless of Racial or Ethnic Group

Differences in health status by income do not simply reflect differences by race or ethnicity; differences in health can be seen within each racial or ethnic group. Both income and racial or ethnic group matter.

Prepared for the Robert Wood Johnson Foundation by the Center on Social Disparities in Health at the University of California, San Francisco.


*Age-adjusted


P. Braveman et al., Am J Public Health 2010
Poor/fair adult health varies by race or ethnic group, within income groups.
What influences health?

- Medical care
- Genetic makeup
- Climate & natural physical environment
- Behaviors, nutrition
- What else?
- And what influences the influences?
How could income affect health?

Income directly shapes:
- Medical care
- Housing quality
- Nutrition & physical activity options
- Neighborhood conditions
- Social networks & support
- Stress

Parents’ income shapes the next generation’s:
- Education
- Working conditions (physical & psychosocial)
- Income

Center on Social Disparities in Health, University of CA, San Francisco
What influences health?
What influences the influences?

Low Educational Attainment

Poor Job

Low income
Unhealthy housing
Poor nutrition
Unhealthy neighborhood
Lack of exercise
Stress

Poor working conditions
Physical hazards
Lack of health insurance
Lack of sick leave
Lack of control

Poor Adult & Child Health
How could education affect health?

Educational attainment → Health knowledge, literacy & behaviors
- Nutrition
- Exercise
- Drugs & alcohol
- Health/disease management

Educational attainment → Working conditions
- Exposure to hazards
- Control / demand imbalance
- Stress

Educational attainment → Work-related resources
- Health insurance
- Sick leave
- Retirement benefits
- Other benefits
- Housing quality
- Neighborhood environment
- Nutrition
- Stress

Educational attainment → Sense of control
- Work-related factors
- Health-related behaviors
- Stress

Educational attainment → Social standing
- Social & economic resources
- Stress

Educational attainment → Social support
- Social & economic resources
- Health-related behaviors
- Family stability
- Stress

Braveman & Egerter, UCSF Center on Social Disparities in Health, 2010
How could a neighborhood affect health?

- Physical danger from crime
- Safe places to exercise
- Air pollution, other toxics
- Access to healthy food
- Quality of schools
- Role models, peer pressure
- Social networks & support
- Stress, fear, anxiety, despair
- Blacks & Hispanics live in different kinds of neighborhoods than Whites with similar incomes
Chronic stress, chronic disease, & infection

- STRESSOR
- Hypothalamus
  - CRH
  - Pituitary Gland
    - ACTH
    - Adrenal Glands
      - CORTISOL

DAMAGE TO MULTIPLE ORGANS & SYSTEMS → chronic disease, immune suppression, inflammation

P. Braveman, Center on Social Disparities in Health, UCSF
Chronic stress. Cumulative effects of stress over the life course

- Poverty/near-poverty is often stressful
- Chronic stress or stress during critical periods could lead to ill health in adulthood through neuro-endocrine, immune, inflammatory pathways
  - E.g., adult chronic disease (heart disease, diabetes)
  - Low birthweight, prematurity
  - Could cause neuro-endocrine dysregulation with lifelong effects
- Cumulative stress over lifetime
What about racial/ethnic disparities?

- Compared with whites, blacks and Hispanics:
  - Have less income and schooling
  - At a given educational level, have lower incomes
  - At a given income level
    - Have far less wealth
    - Live in worse-off neighborhoods
  - At a given income/educational level, are more likely to have grown up in disadvantaged families

- All these can influence health
  - via multiple, complex pathways, including stress
Racial/ethnic disparities

- Race/ethnic group often captures unmeasured socioeconomic factors
  - Depth of poverty, wealth, educational quality, neighborhood conditions, childhood experience
  - Health-damaging or -promoting exposures
  - More stress, fewer resources to cope

- Added stress due to societal legacy of discrimination
  - Not just overt incidents or intentional bias
  - Pervasive vigilance, anticipating unfair treatment or judgment
  - Vicarious experiences of loved ones/group identification
Inadequate socioeconomic data: an obstacle to understanding and addressing health disparities

- Health data identifying race/ethnicity but not key social factors can reinforce racial/ethnic stereotypes and unfounded assumptions about biology or “culture”

- We need information on both racial/ethnic group and key socioeconomic factors
  - Different dimensions, levels, & life stages
Widening the focus:
Seeking the causes of the causes

Policies to promote child and youth development and education

Policies to promote economic development and reduce poverty & racial segregation

Economic & Social Opportunities and Resources

Living & Working Conditions in Homes and Communities

Medical Care

Personal Behavior

HEALTH

P. Braveman, UCSF Center on Social Disparities in Health. For the Robert Wood Johnson Foundation Commission (www.commissiononhealth.org)
Understanding how health is transmitted across lifetimes and generations

Social Advantage and Health Across Lifetimes and Generations

Social disadvantage and health disadvantage accumulate over time, creating ever more daunting obstacles to health.
What creates health disparities by race & class?

**SOCIETY**

1. Social stratification
   - A. Reduce social stratification
   - B. Decrease exposures
   - C. Decrease vulnerability
   - D. Prevent unequal consequences
   - 5. Further social stratification

**INDIVIDUAL**

2. Differential exposure
   - Specific exposure
   - Disease or injury
   - Social consequences of ill health

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Finn Diderichsen, Karolinska Institute
Implications for I.D. research, policy and practice

- More adequate consideration of social factors in ongoing data sources & 1-time studies – even if not the main focus
  - Better measurement
  - Better conceptualization: What do income, education, and race/ethnic group represent? Possible pathways and mechanisms

- Consider the causes of the causes: Consider joint action with other sectors to reduce:
  - Exposure, Vulnerability, Consequences -- & Social Inequality

- Advocate for policies to reduce social disadvantage, based on effects on infectious disease exposure, susceptibility, access to Rx, & consequences