



CENTER ON SOCIAL DISPARITIES IN HEALTH
University of California, San Francisco

Where health disparities begin: the role of social and economic determinants

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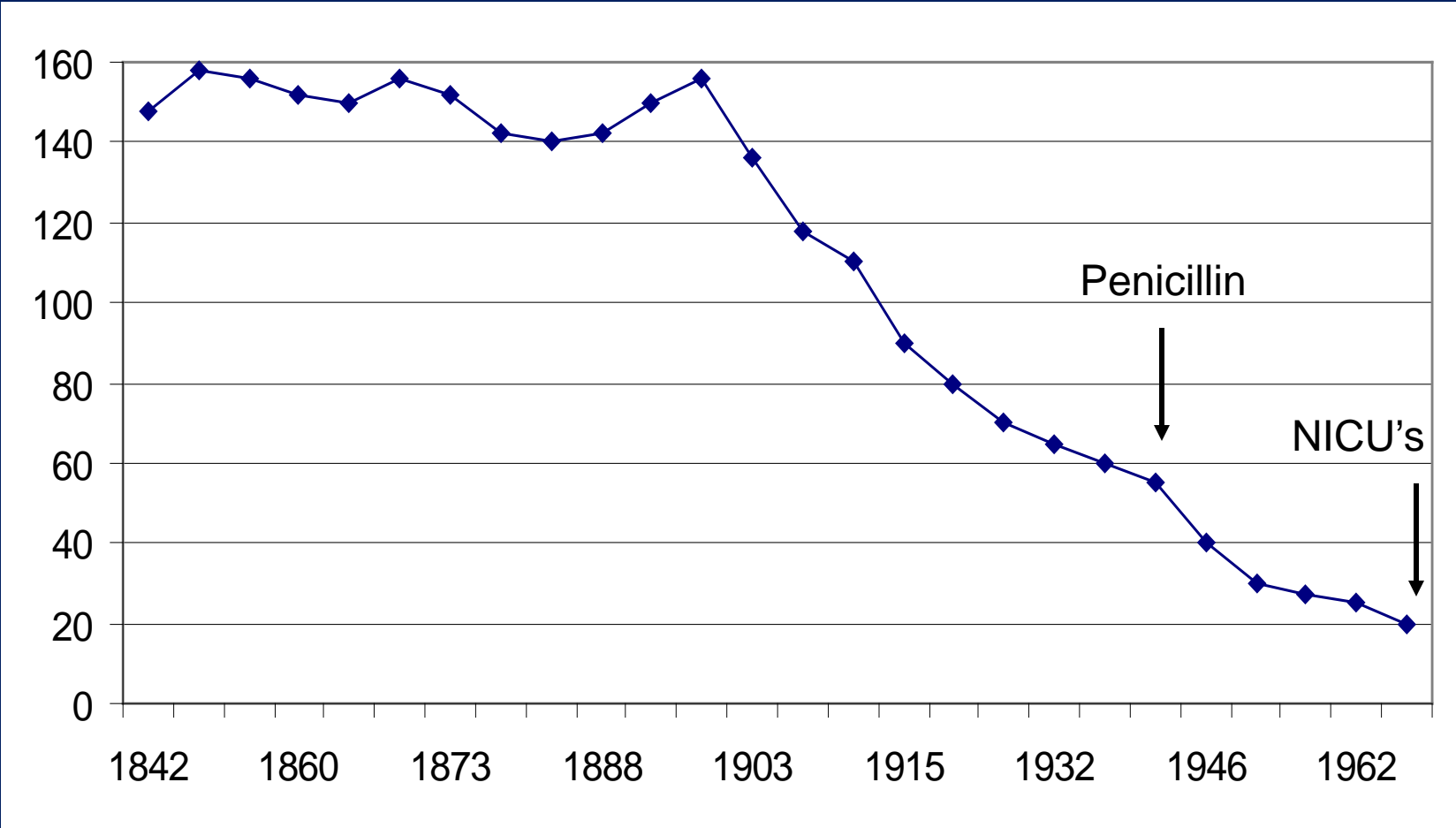
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A few definitions

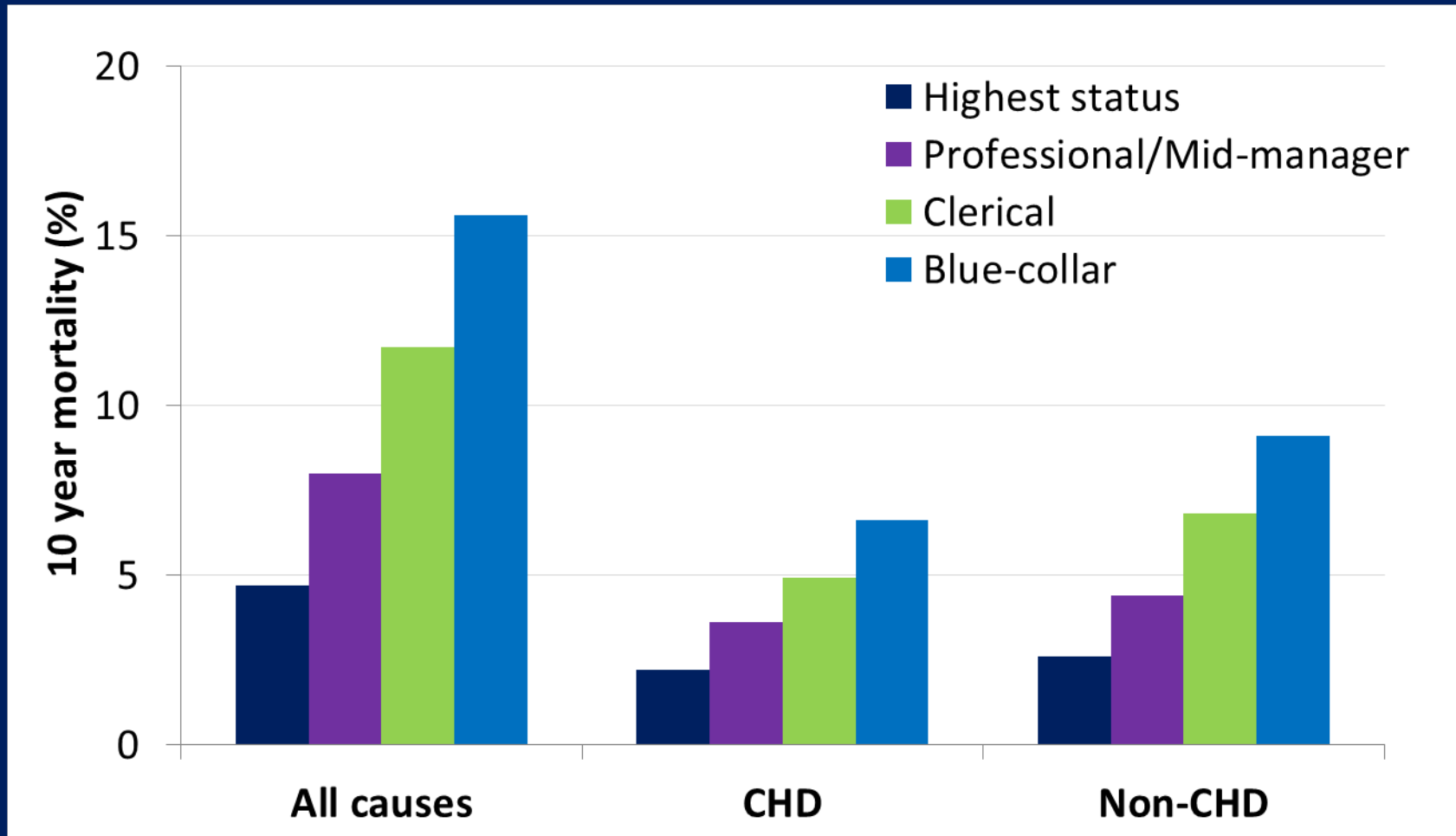
- **Health disparities: health differences closely linked with social & economic disadvantage**
 - adversely affect groups who are at an underlying social disadvantage– e.g., based on race, wealth, gender, disability, LGBT – because of historical discrimination or exclusion
- **Health equity : the principle underlying a commitment to eliminate disparities.**
 - implies addressing social (including economic) determinants of health, as well as health care
 - Justice
- **Social determinants: non-medical factors that influence health and can be shaped by policies; includes economic factors**

Infant mortality rate: England and Wales



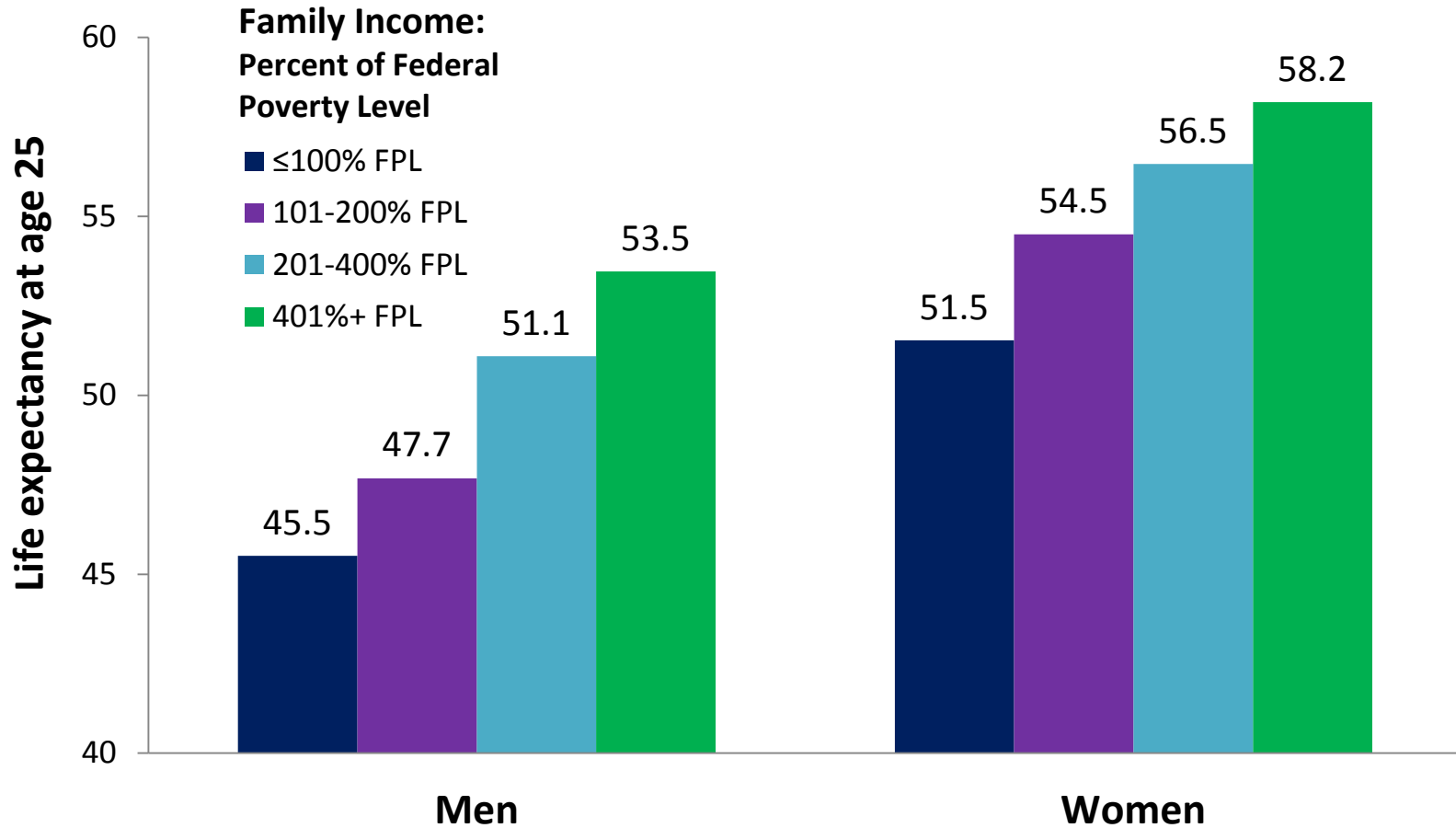
Source: T. McKeown, 1974.

Age-adjusted mortality by occupation, UK civil servants aged 40-64, Whitehall Study



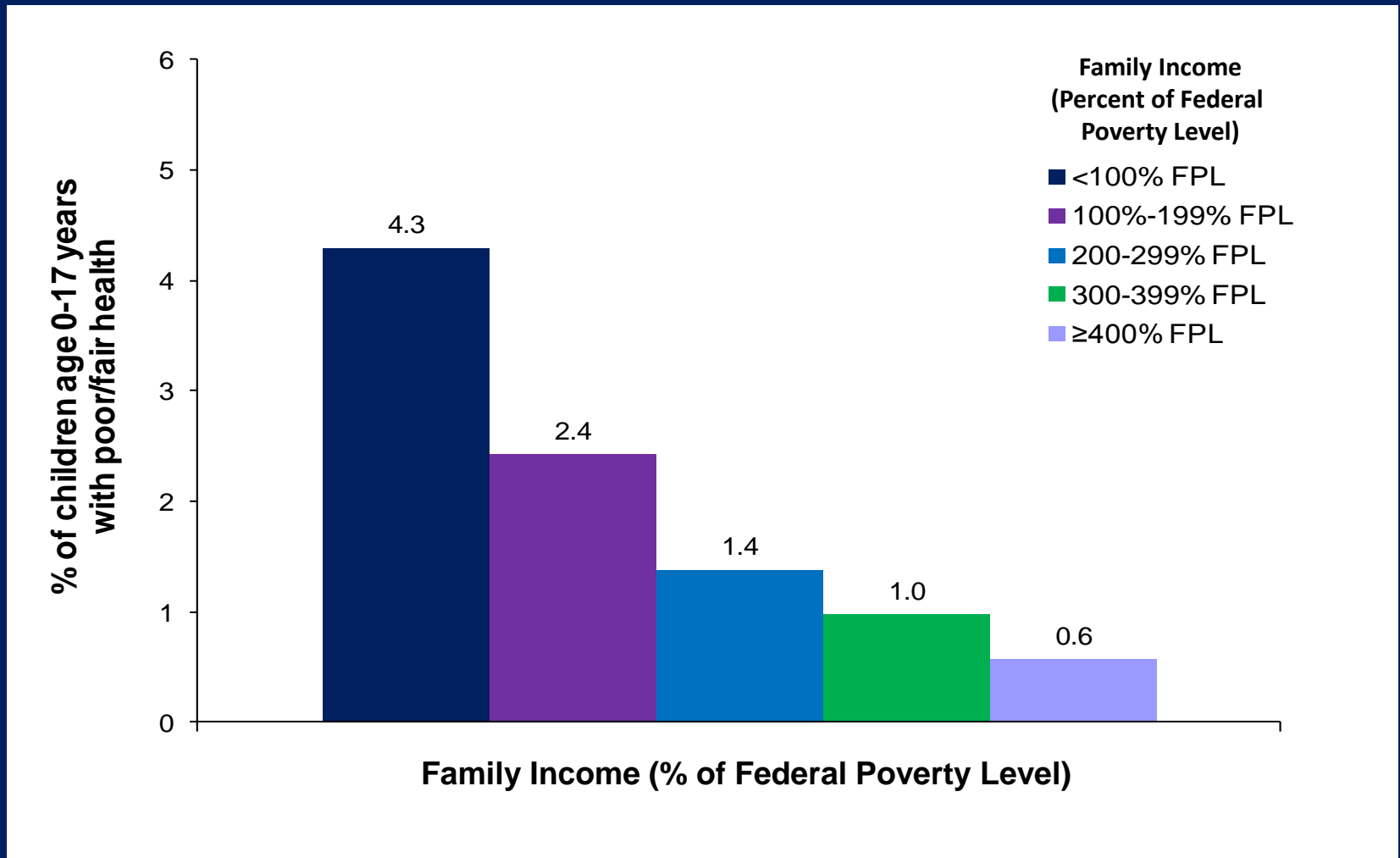
Source: Marmot, M. G., et al (1984). "Inequalities in death--specific explanations of a general pattern?" *Lancet* 1(8384): 1003-1006.

Life expectancy in US varies by income in a stepwise gradient pattern



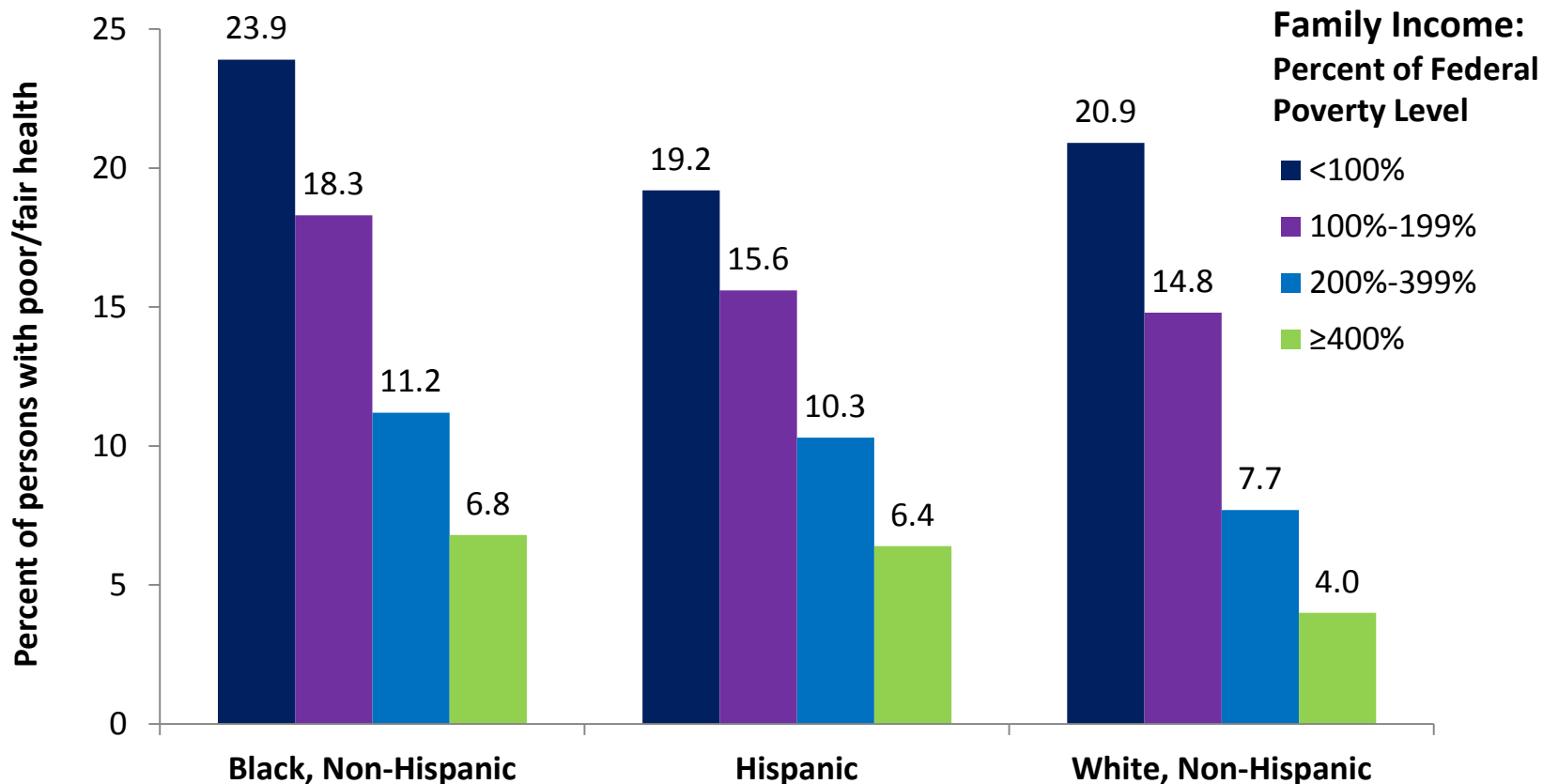
Source: National Longitudinal Mortality Study, 1988-98.

Child health varies by parents' income (& education): Poor/fair child health reported by parent



Source: National Health Interview Survey (NHIS) 2001-2005.
Age-Adjusted.

Racial/ethnic differences do not explain differences in adult health by income



Source: CDC/NCHS, National Health Interview Survey 2010.
Age adjusted.

How could income affect health?

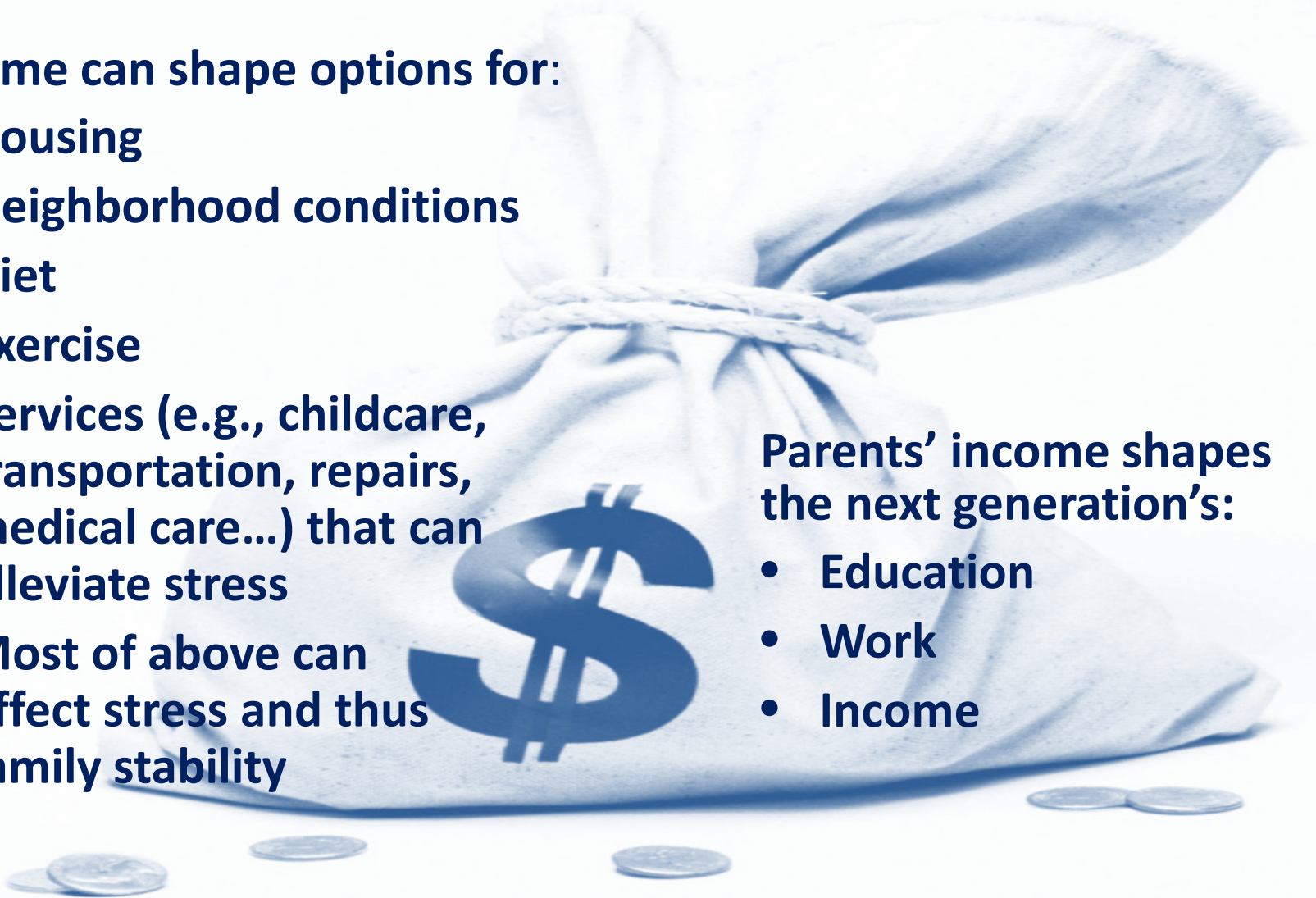
A body of literature supports:

Income can shape options for:

- Housing
- Neighborhood conditions
- Diet
- Exercise
- Services (e.g., childcare, transportation, repairs, medical care...) that can alleviate stress
- Most of above can affect stress and thus family stability

Parents' income shapes the next generation's:

- Education
- Work
- Income



Income shapes neighborhood options.

How could a neighborhood affect health?

- Safe places to exercise
- Access to healthy food
- Ads for harmful substances
- Social networks & support
- Norms, role models, peer pressure
- Fear, anxiety, despair, stress
- Quality of schools
- **Racial segregation tracks Blacks & Latinos into poorer neighborhoods than Whites of similar income**



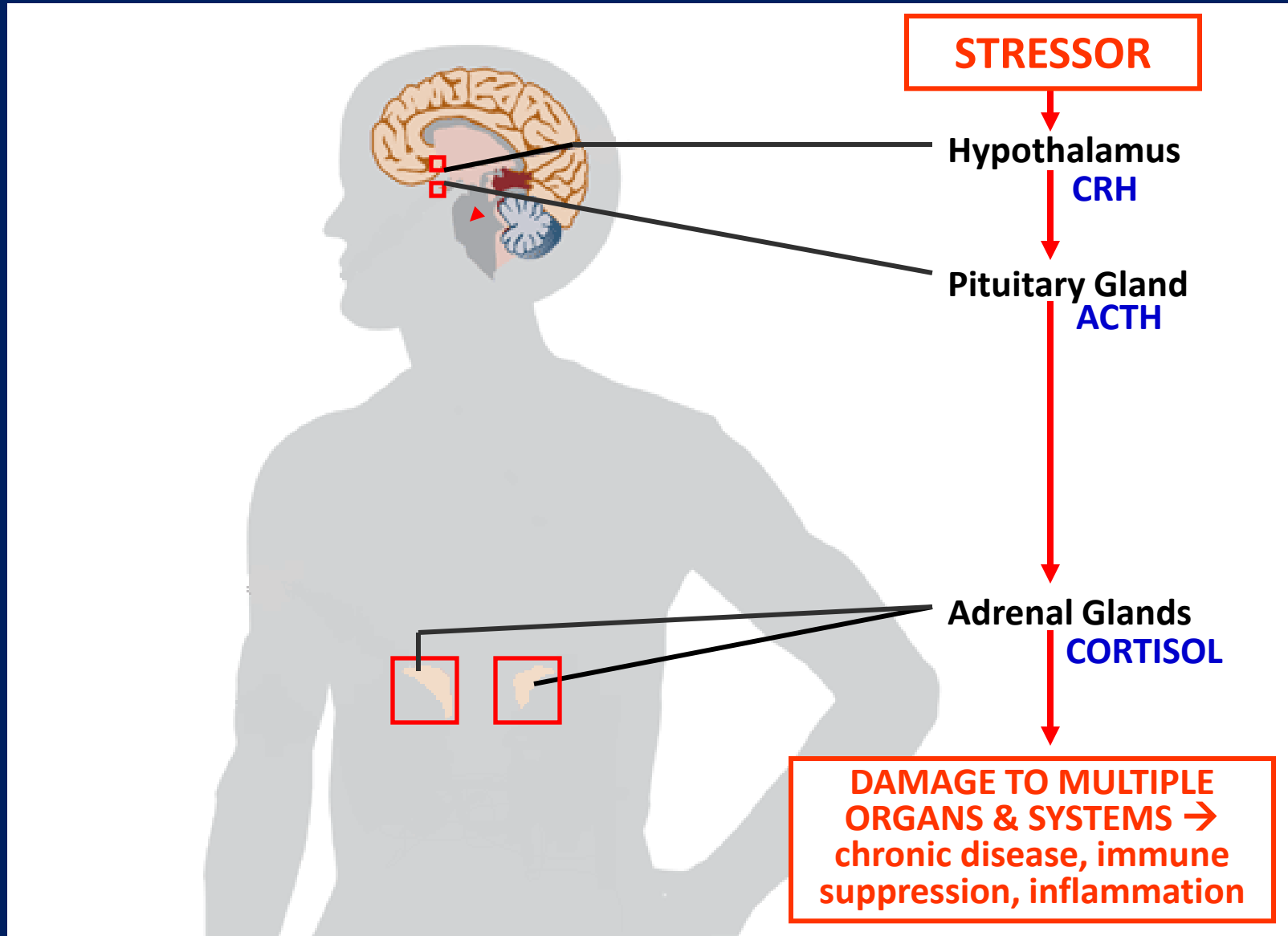
Image: <http://www.seattlemet.com/news-and-profiles/publicola/articles/some-rich-architects-mansion>.



The stress-health link: biologically plausible?

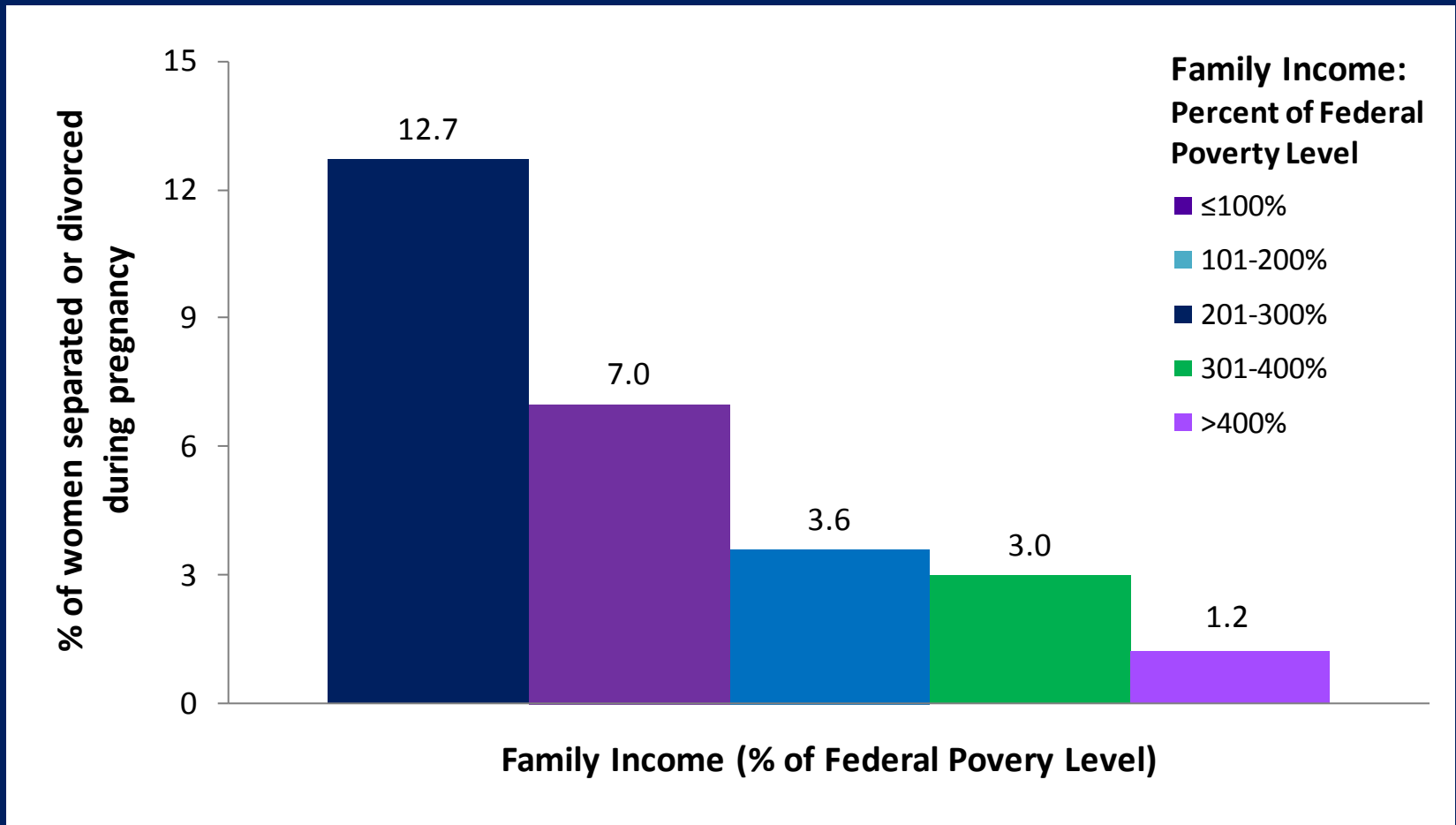
- Advances in neuroscience help elucidate how social factors “get into the body”
- HPA axis, sympathetic nervous system, and immune/inflammatory mechanisms have been demonstrated as responses to stress
 - Mediators include cortisol, other stress hormones, cytokines, telomerase
- Chronic stress is a plausible and likely major contributor to both socioeconomic and racial/ethnic inequalities in health

How could stress affect health?

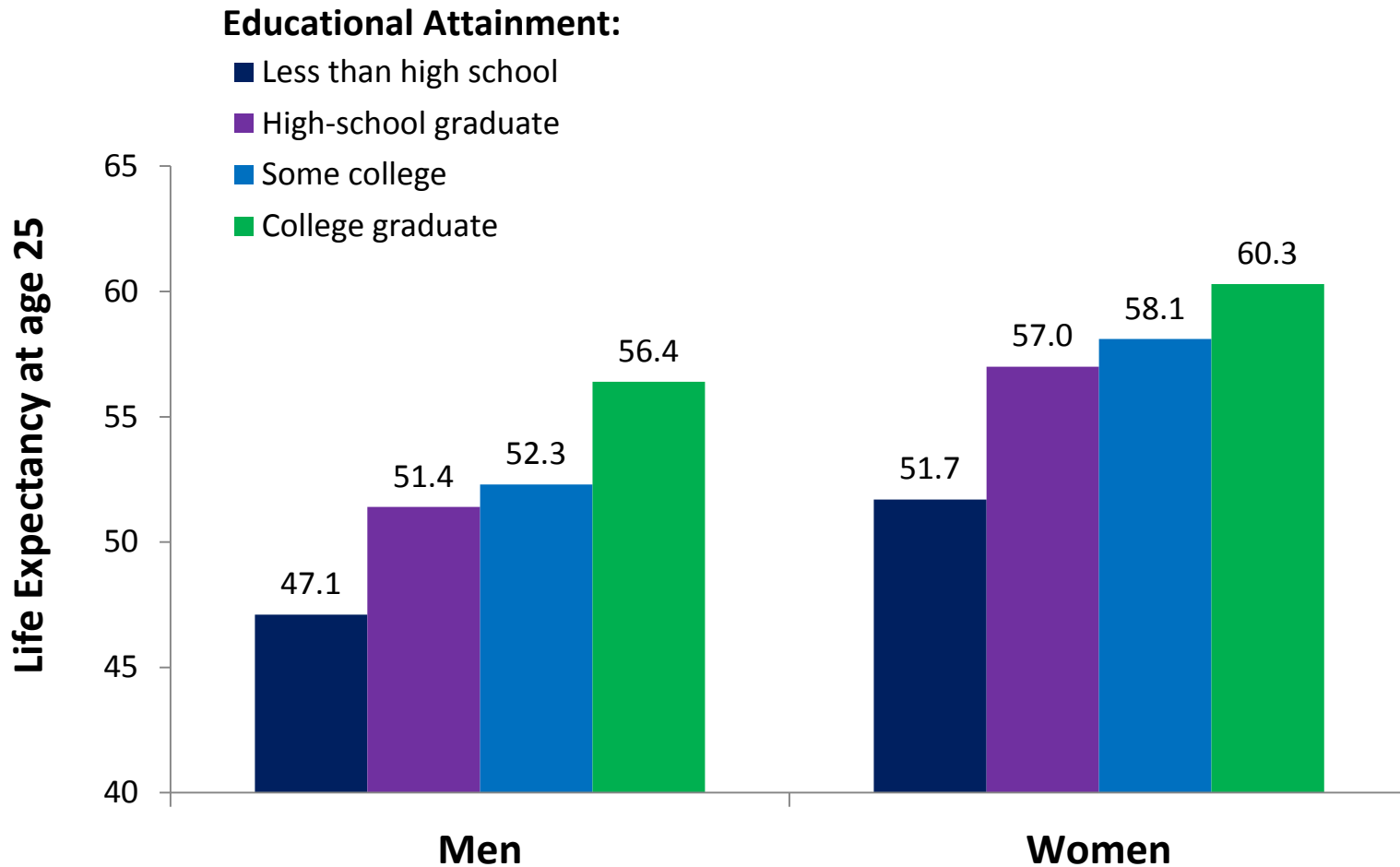


Less income, more stressors

Separation or divorce during pregnancy (similar patterns for 11 major stressors)

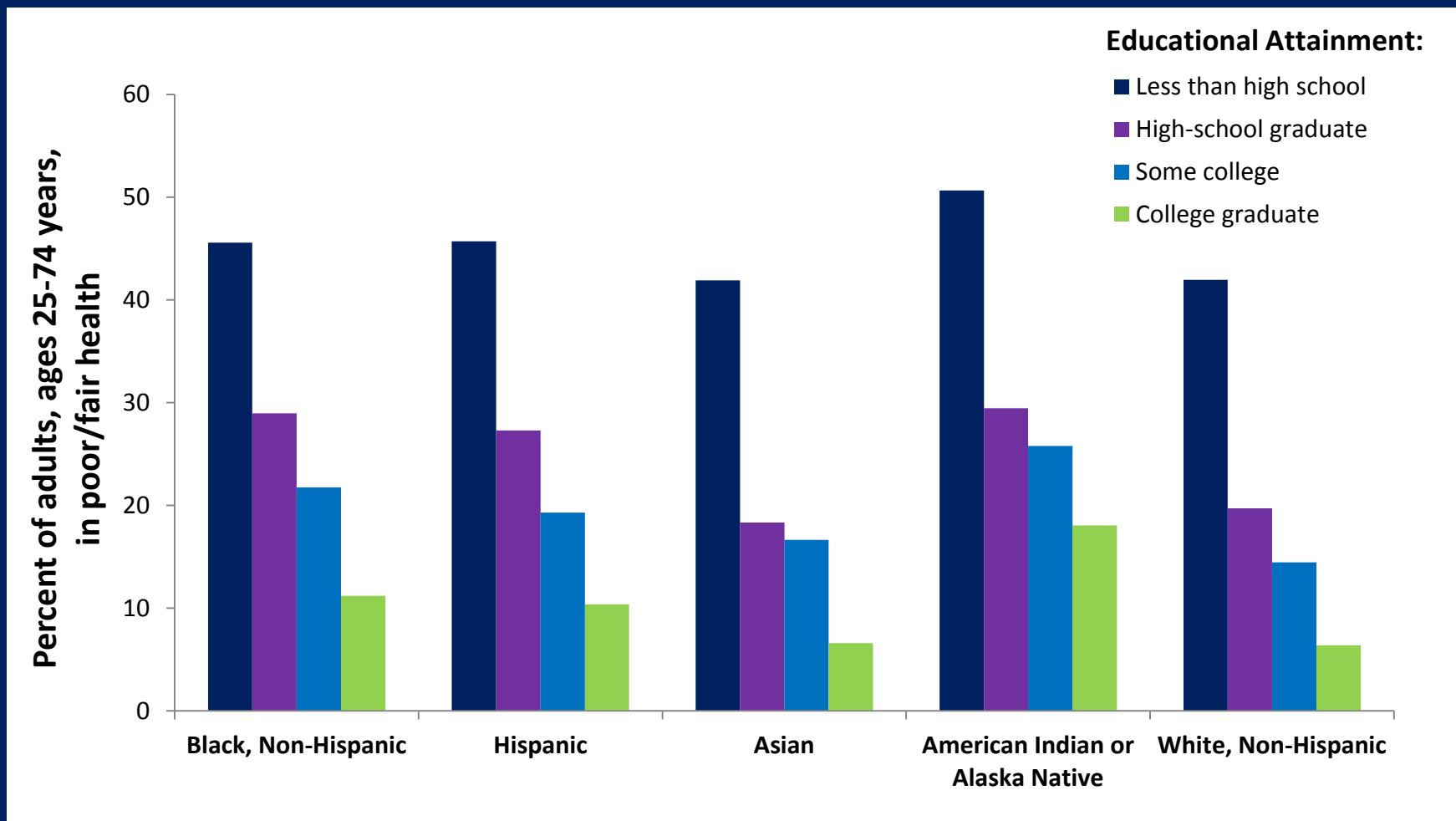


More education, longer life



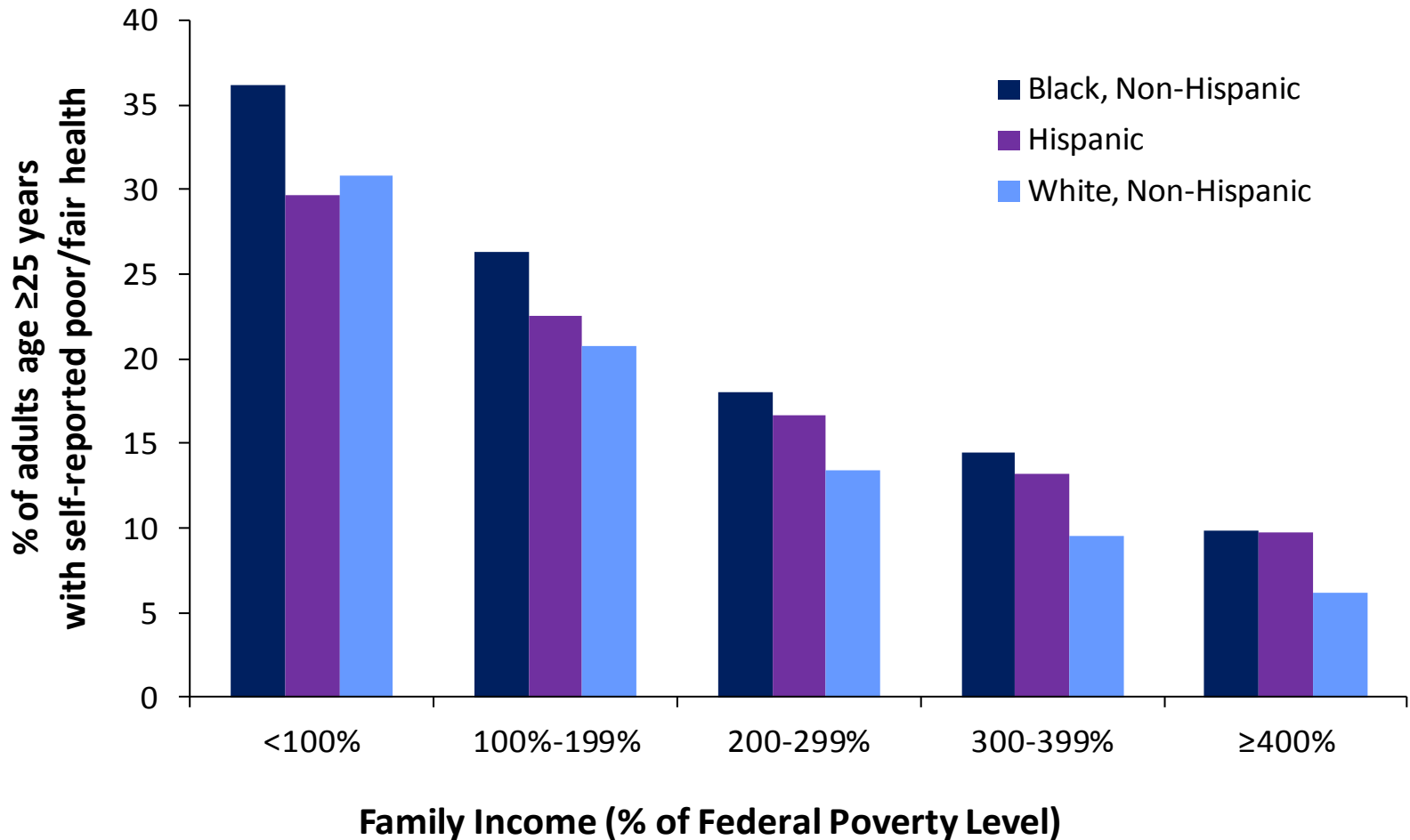
Source: CDC/NCHS, National Health Interview Survey
Linked Mortality File, 2006.

Racial/ethnic differences do not explain adult health differences by education



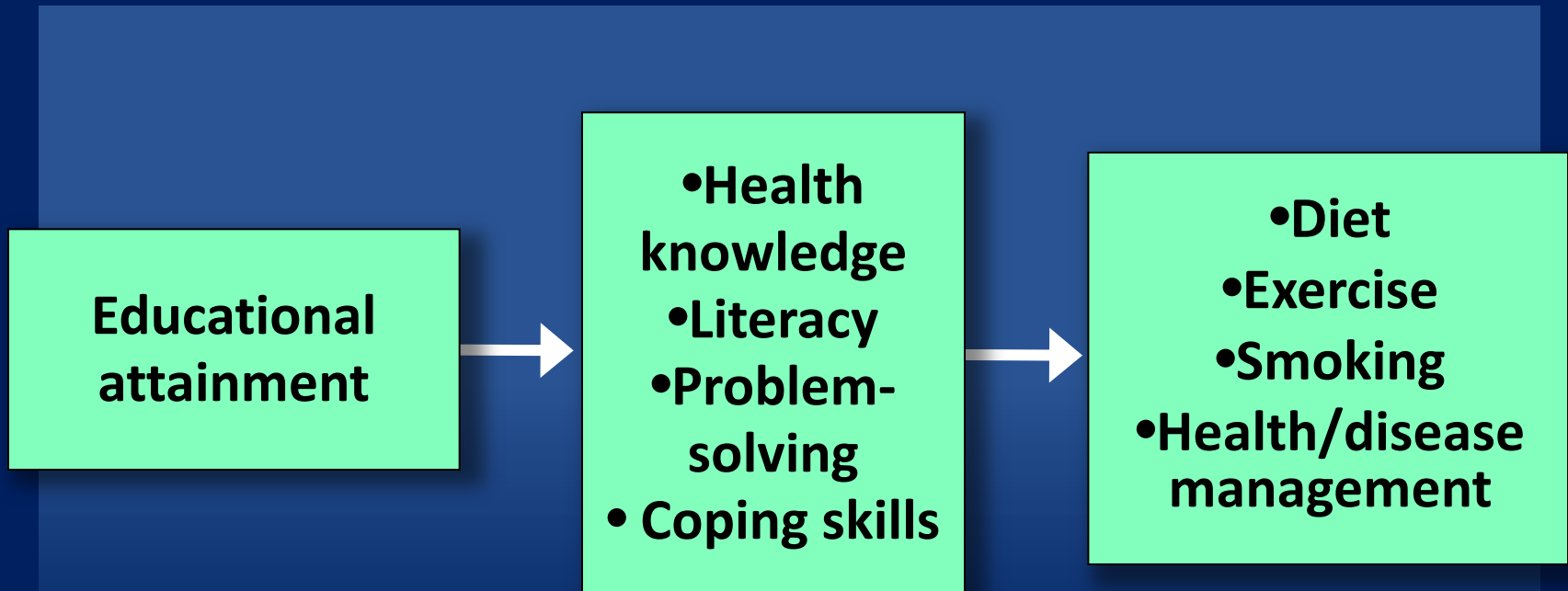
Source: Braveman, Cubbin et al., analyses of BRFSS 2008-2010.
Age-Adjusted.

Both race and socioeconomic factors matter

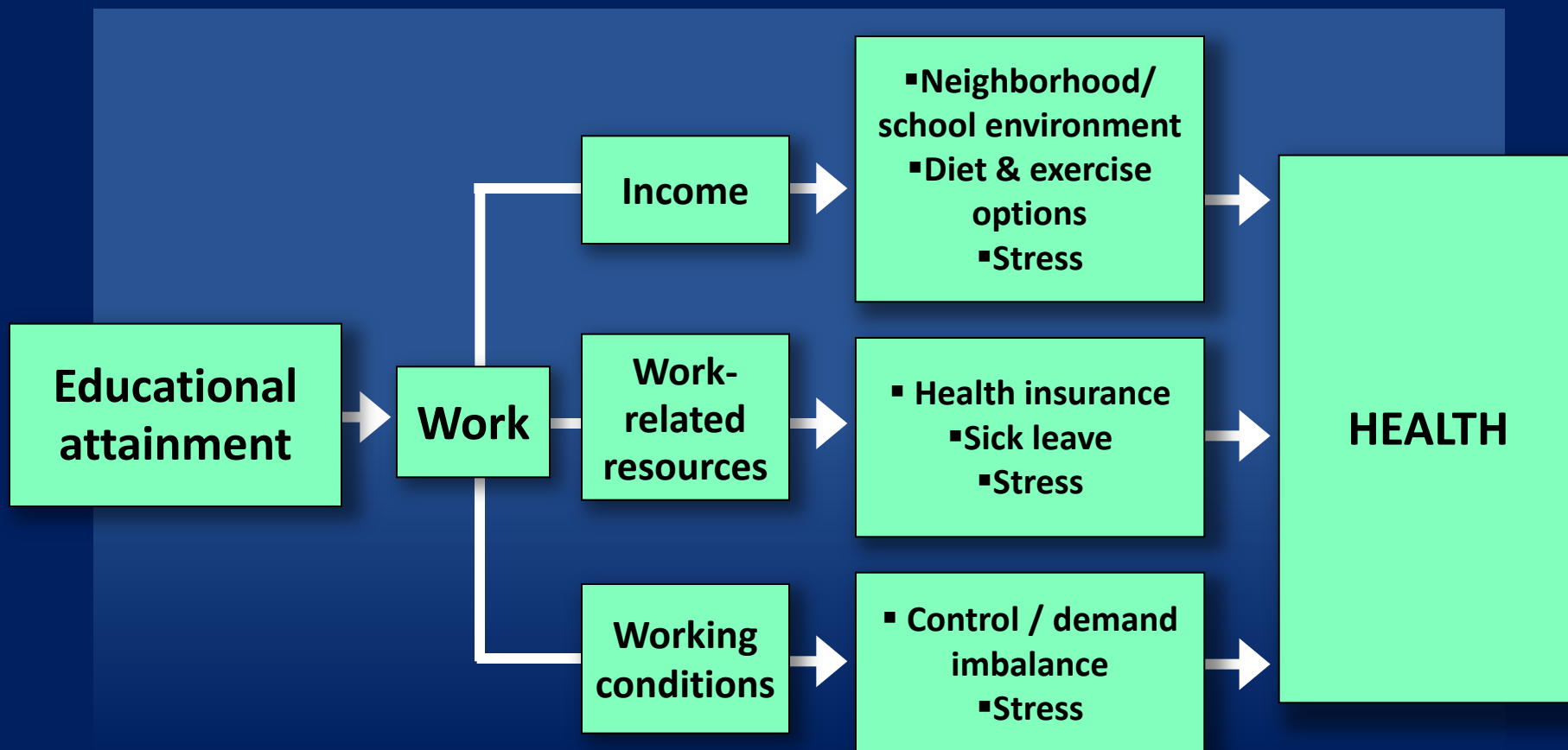


Braveman et al. analyses of NHIS 2001-2005.
Age-Adjusted.

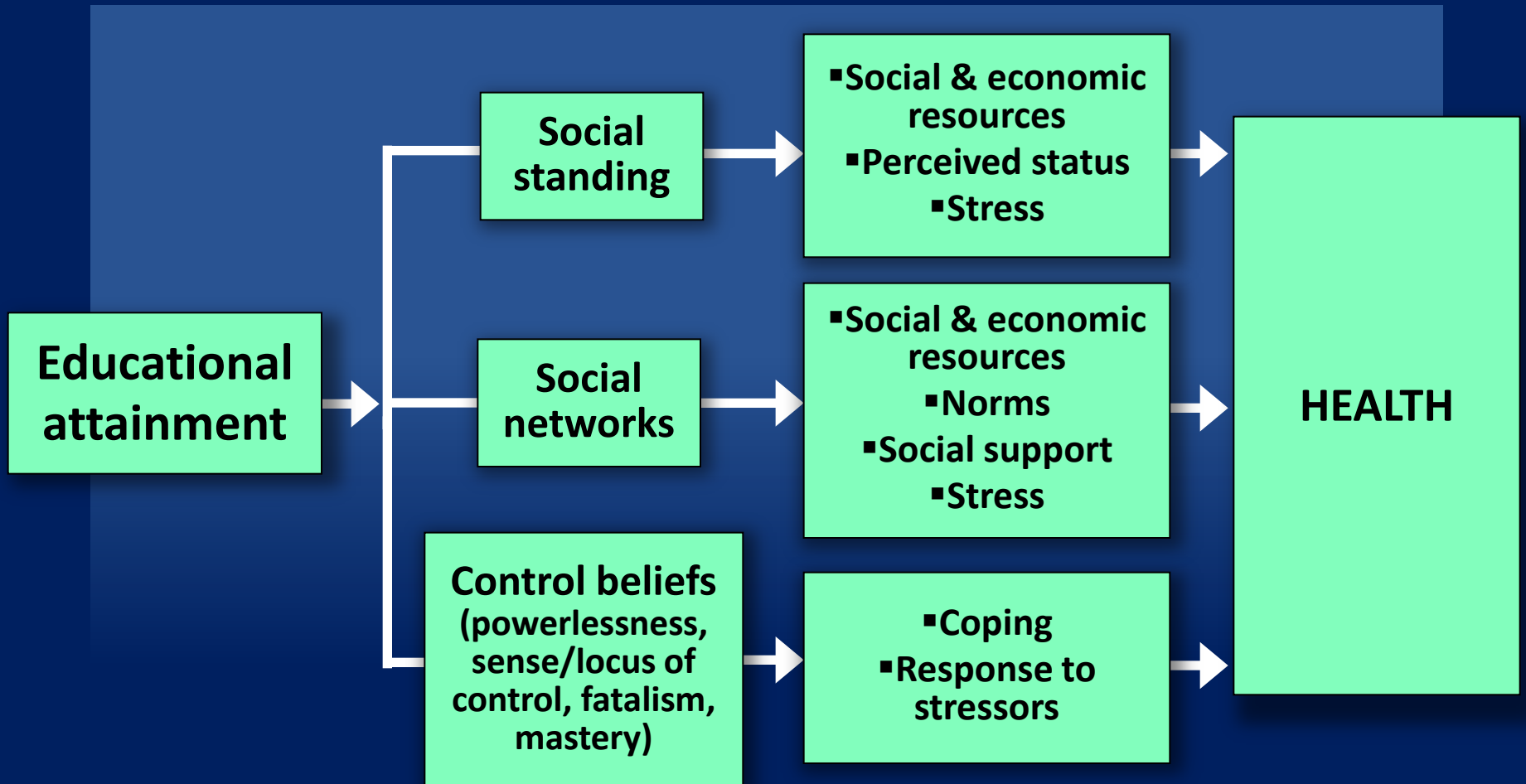
Education can shape health behaviors by determining knowledge and skills



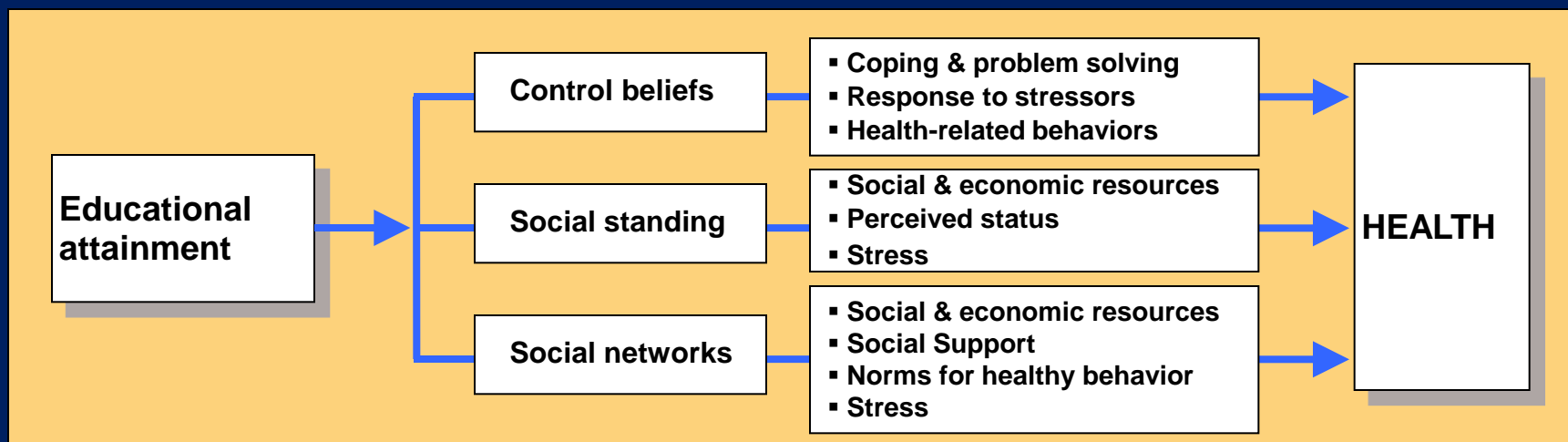
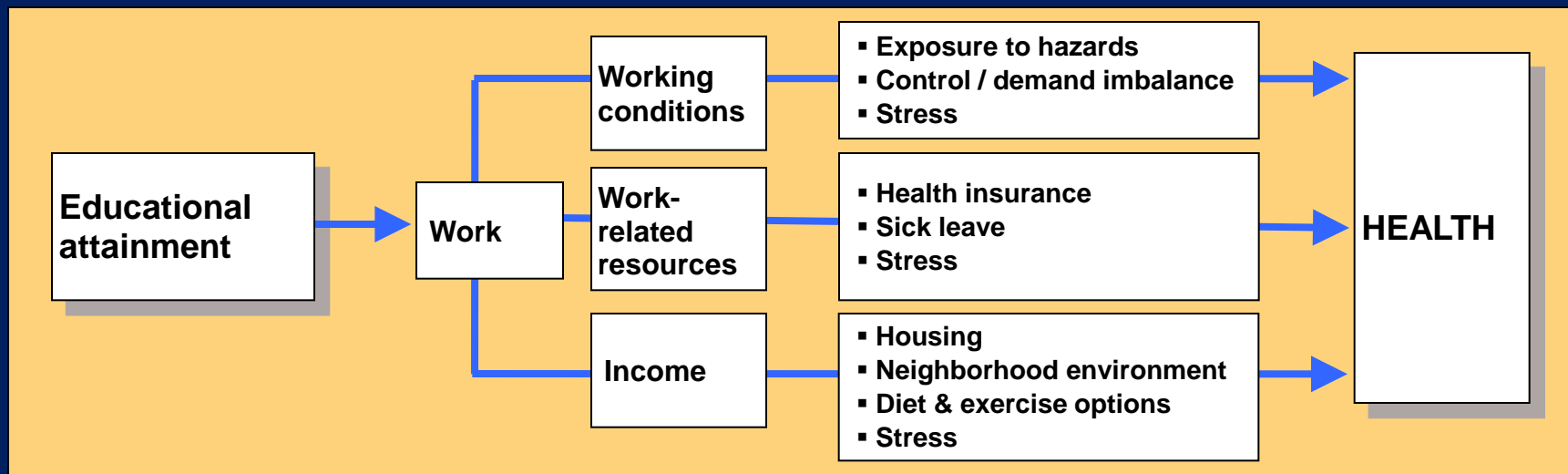
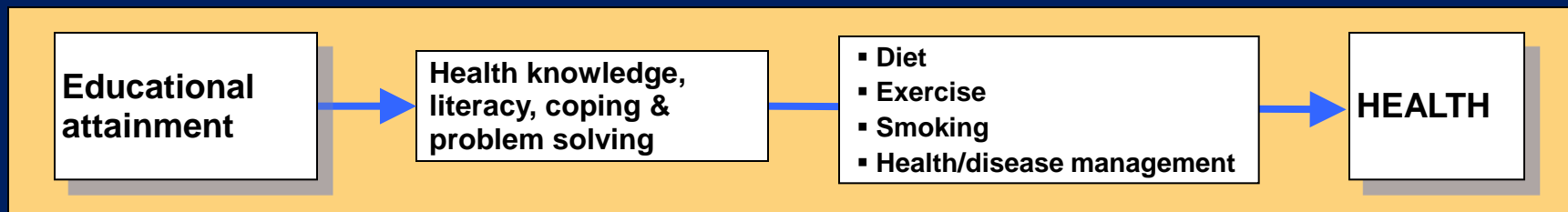
Other plausible pathways from education to health, e.g., via work & income



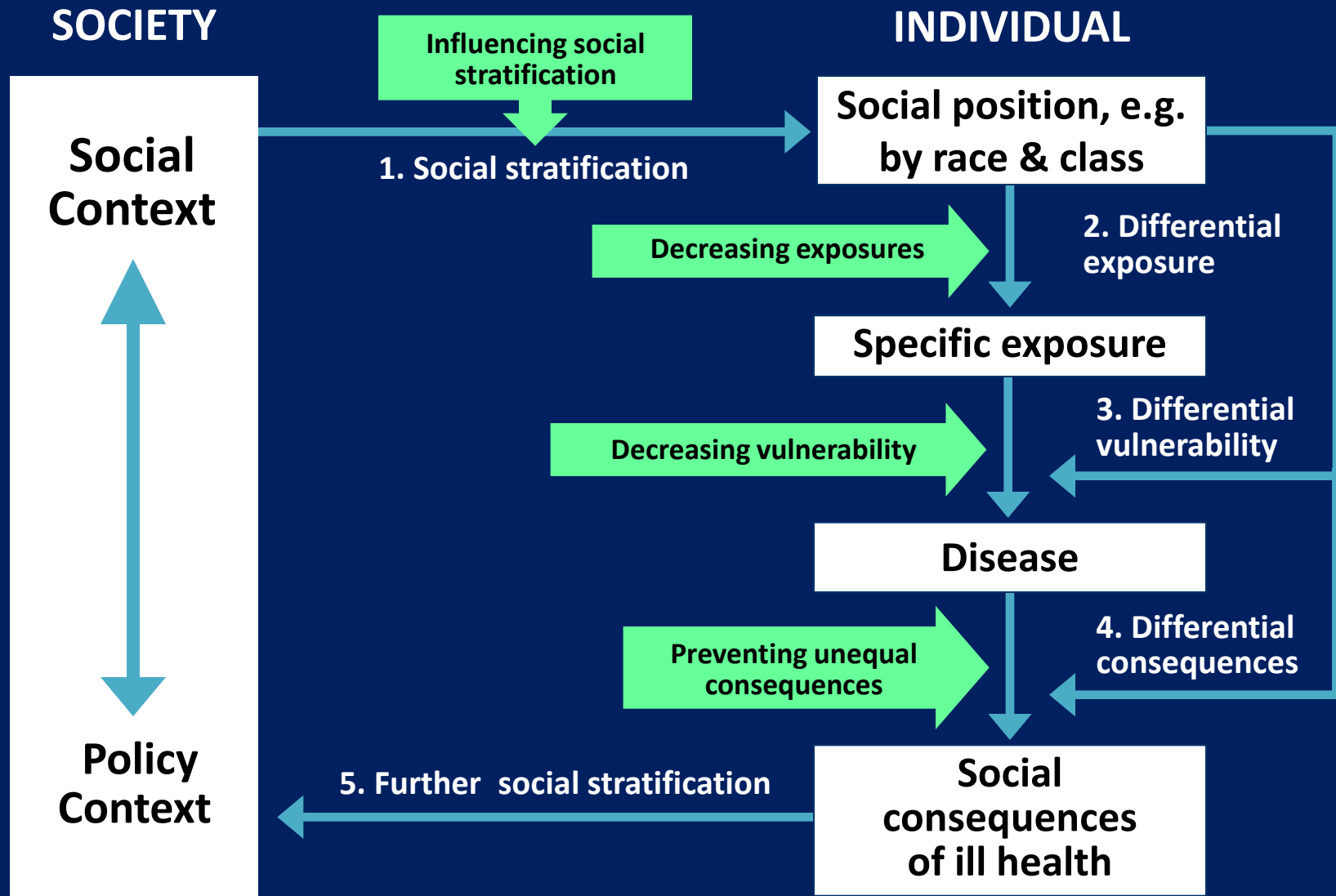
Psychosocial pathways from education to health



How could education affect health?



Understanding health disparities across the life course and across generations





Childhood social/economic conditions shape adult health

- **Adult health is shaped by early experiences**
 - **Lasting effects of in utero/early childhood deprivation, e.g.,**
 - **Low SES in adulthood (by limiting education)**
 - **Neuro-endocrine or immune dysregulation**
 - **May not be erased by later circumstances**
- **Chronic stress/deprivation in childhood**
→ **chronic disease in childhood and adulthood**
 - **Critical or sensitive periods**
- **Cumulative effects of disadvantage**

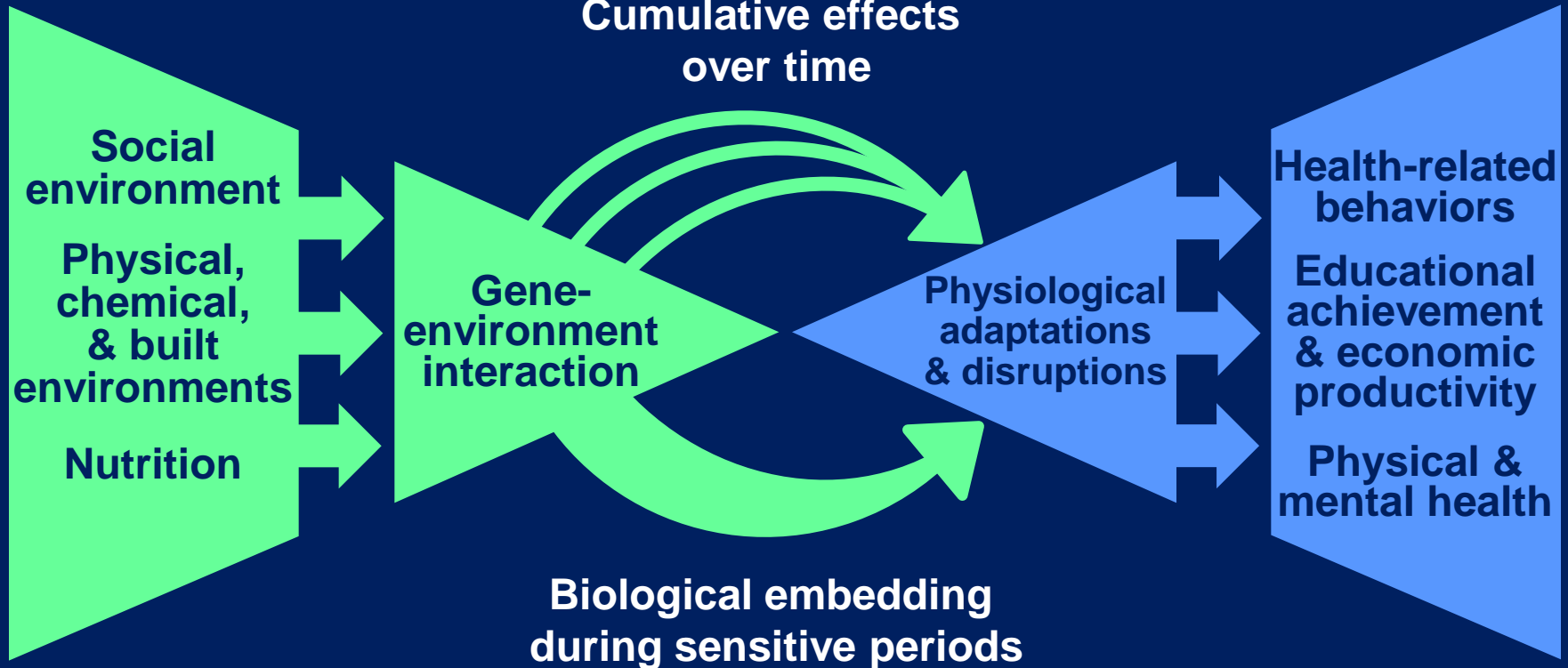


Epigenetics: “Genetics loads the gun. The environment pulls the trigger” (J. Stern)

- Features of social and physical environments can interact with an individual’s genome to influence whether a gene is expressed
- Experience can become biologically embedded -- Some alterations in gene expression are heritable!
- May be important in intergenerational transfer of health risk and social disadvantage
- Policies can alter the social/physical environmental exposures that trigger/suppress gene expression

How early experiences get into the body

Foundations of healthy development and sources of early adversity





Residual confounding of observed racial/ethnic differences in health by unmeasured socioeconomic factors & racism-related stress

- **At the same education level, whites have more income**
- **At the same income, whites have more wealth and live in better-off neighborhoods**
- **At same current SES, whites had higher SES in childhood**
- **Residual confounding by unmeasured SES -- direct and indirect effects**
- **And: unmeasured stressors related to racial discrimination**



Structural racial bias transmits socioeconomic disadvantage across generations

The legacy of (once-legal) discrimination:

Lower incomes, wealth, education, occupations

And, at a given income or educational level, African Americans and Latinos on average:

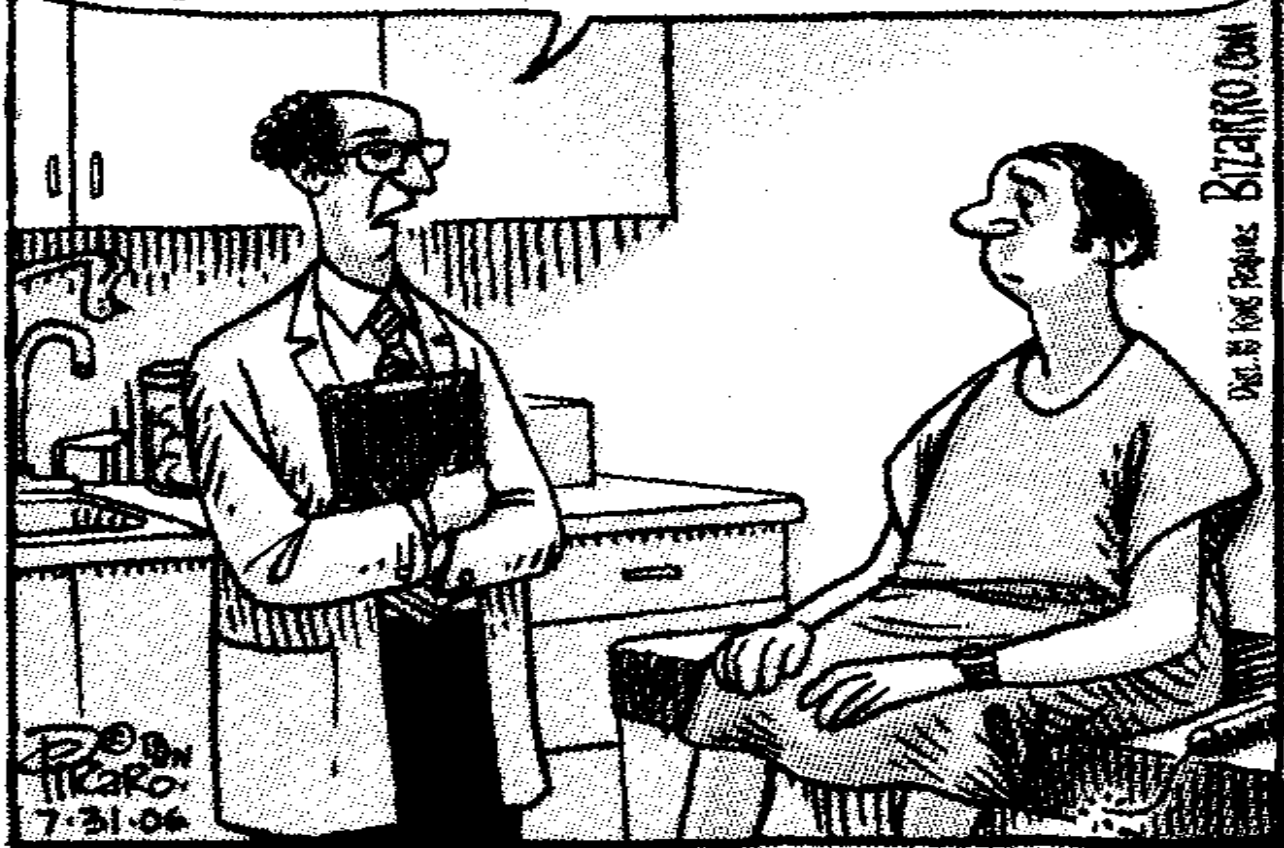
- **Have less wealth**
- **Live in under-resourced, often unhealthier neighborhoods**
- **Were worse off in childhood**
- **More hardship with fewer resources to cope**
- **Rarely measured but studies often conclude a racial difference is genetic if it persists after “control for SES”**
- **Race often captures unmeasured socioeconomic factors**



Can racial discrimination harm health in other ways – other than by limiting education, income, wealth...?

- **Overt incidents still occur**
- **But considerable stress even without overt incidents**
- **Pervasive subtle incidents. Chronic, pervasive concern about being judged or treated unfairly based on race**
- **Discrimination could affect health through pathways involved in stress; chronic stress is particularly toxic, even in absence of dramatic events**
- **Internalized racism could harm health by undermining self-esteem and sense of control**

Find a way to keep your stress level down. What works for me is making a ton of money & having practically free health care.



Pursuing health equity: Understanding the role of social factors

