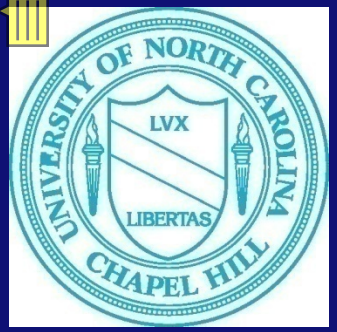


MCH Federal/State Partnership Meeting
October 2009

Social Determinants, Life Course Health Care and Health Inequities

(Understanding the intersection and why it matters in MCH)

Vijaya K. Hogan MPH, DrPH

Clinical Associate Professor
Dept Maternal and Child Health
Gillings School of Global Public Health
University of N Carolina at Chapel Hill

Agenda

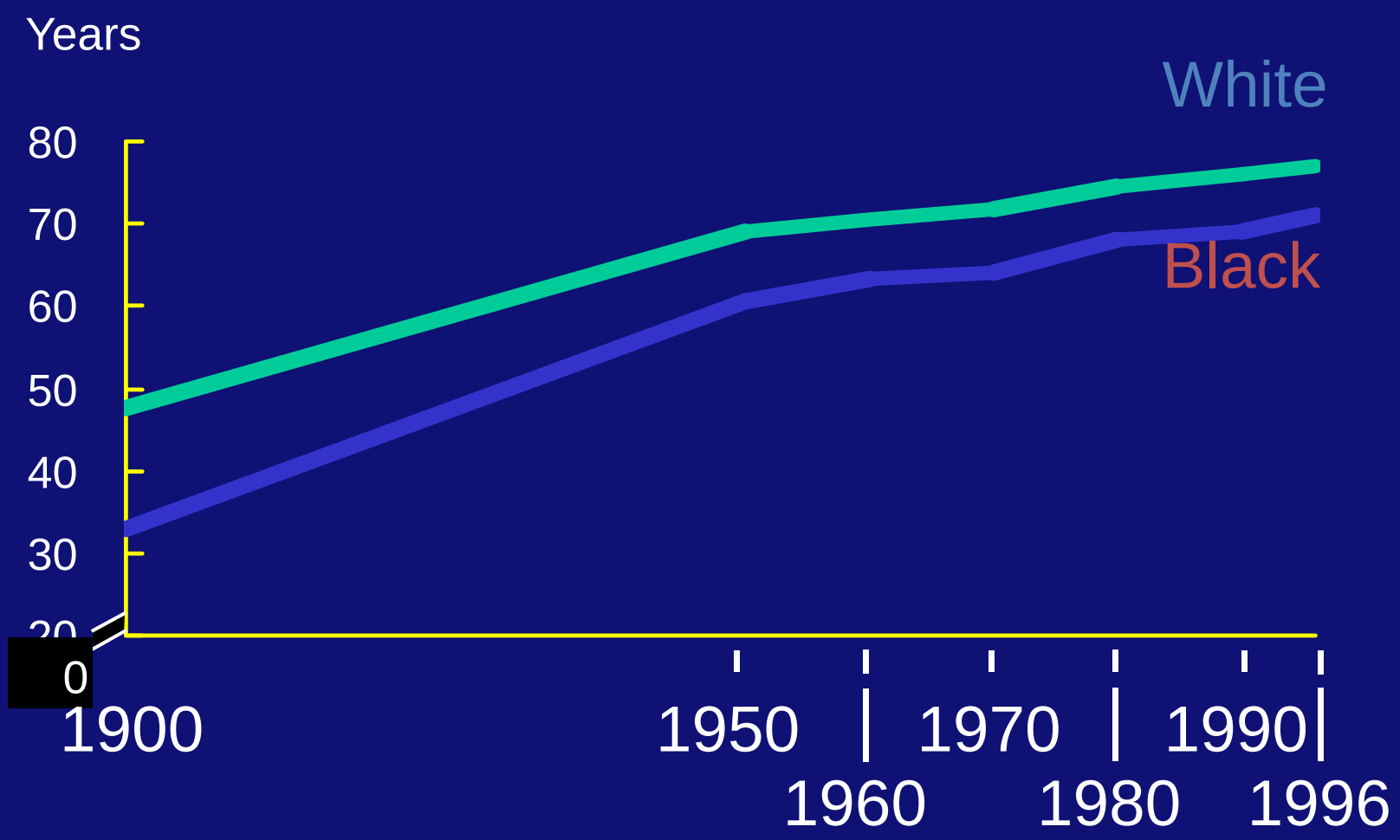
- **Part 1: The Problem**
  - Disparities
  - Social contribution to disease etiology and health care participation
- **Part 2: Background Knowledge**
  - Social Determinants and health
  - Life Course and health
- **Part 3: Understanding the Intersection of Life Course, Social determinants, health intervention and health inequities**
- **Part 4: Implications for Sustained Infant Mortality Reduction and Disparity Elimination**

The Problem: Disparities/Health Inequities

When one group of people gets sick and/or dies at a higher rate than other groups of people

"…differences in the incidence, prevalence, mortality and burden of diseases and other adverse health conditions that exist among specific population subgroups in the US". (NIH)

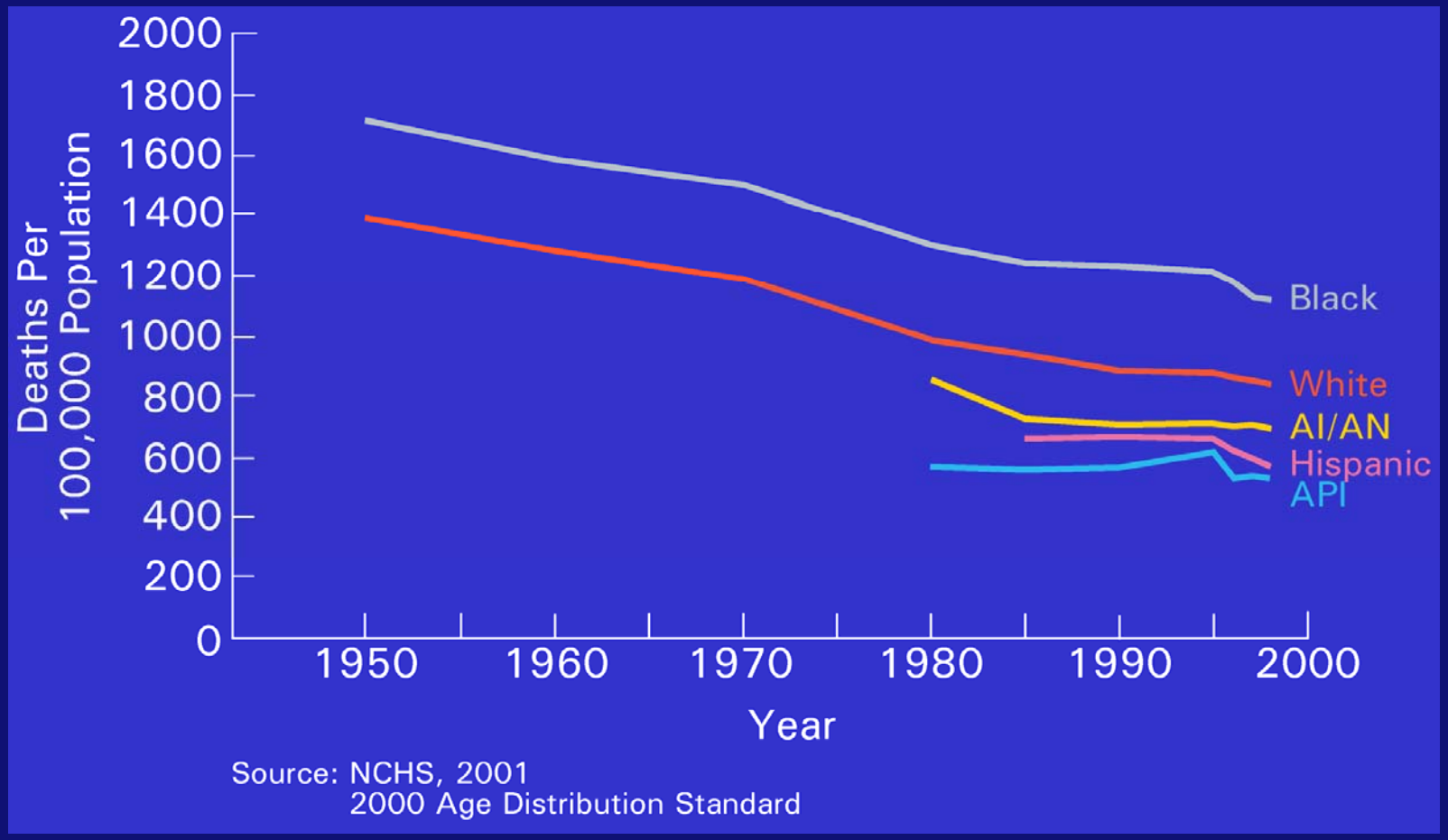
How Long People Are Expected To Live



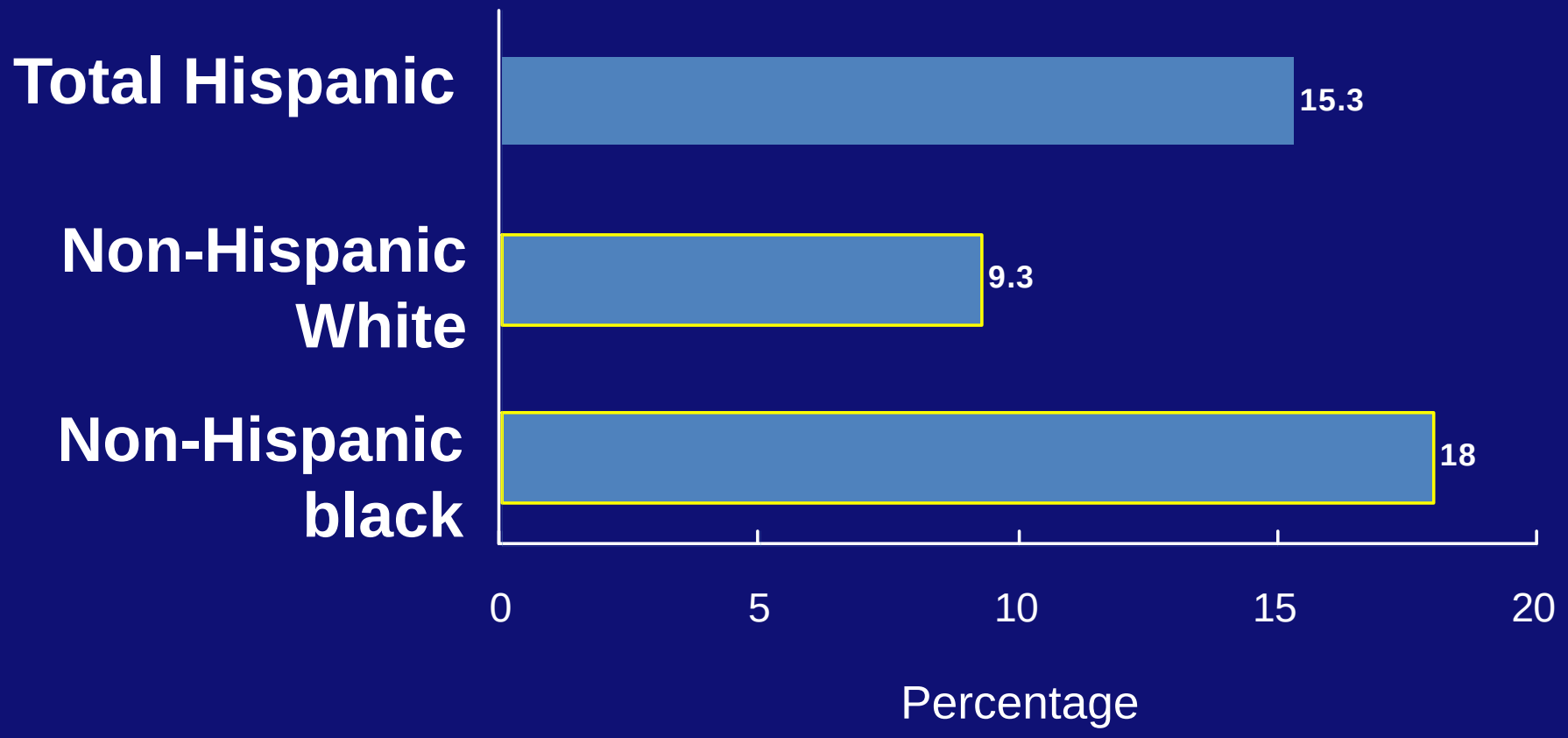
SOURCE: CDC/NCHS, National Vital Statistics Systems, 1900-96

Age-Adjusted Death Rates

United States

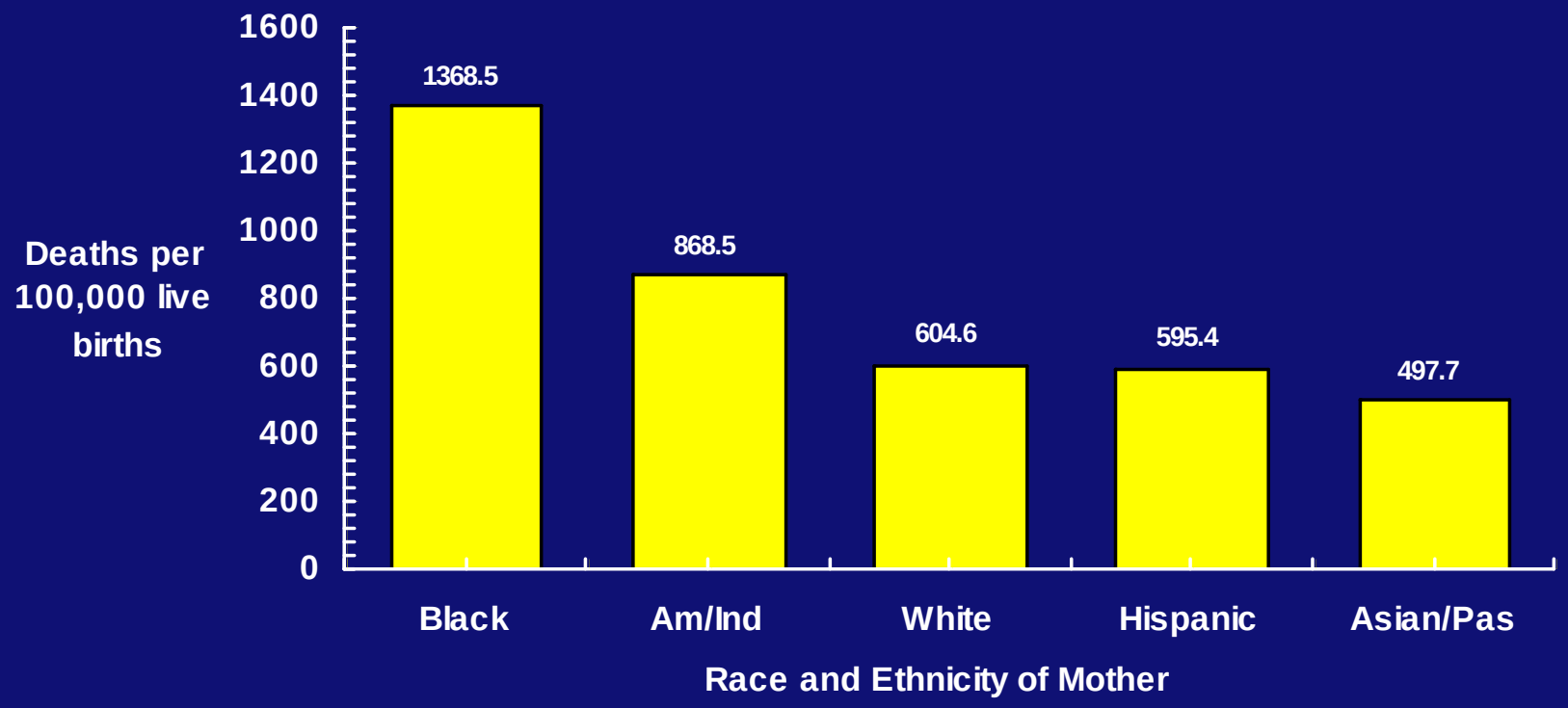


Respondent-Assessed Health Status
Fair or Poor health (age-adjusted)

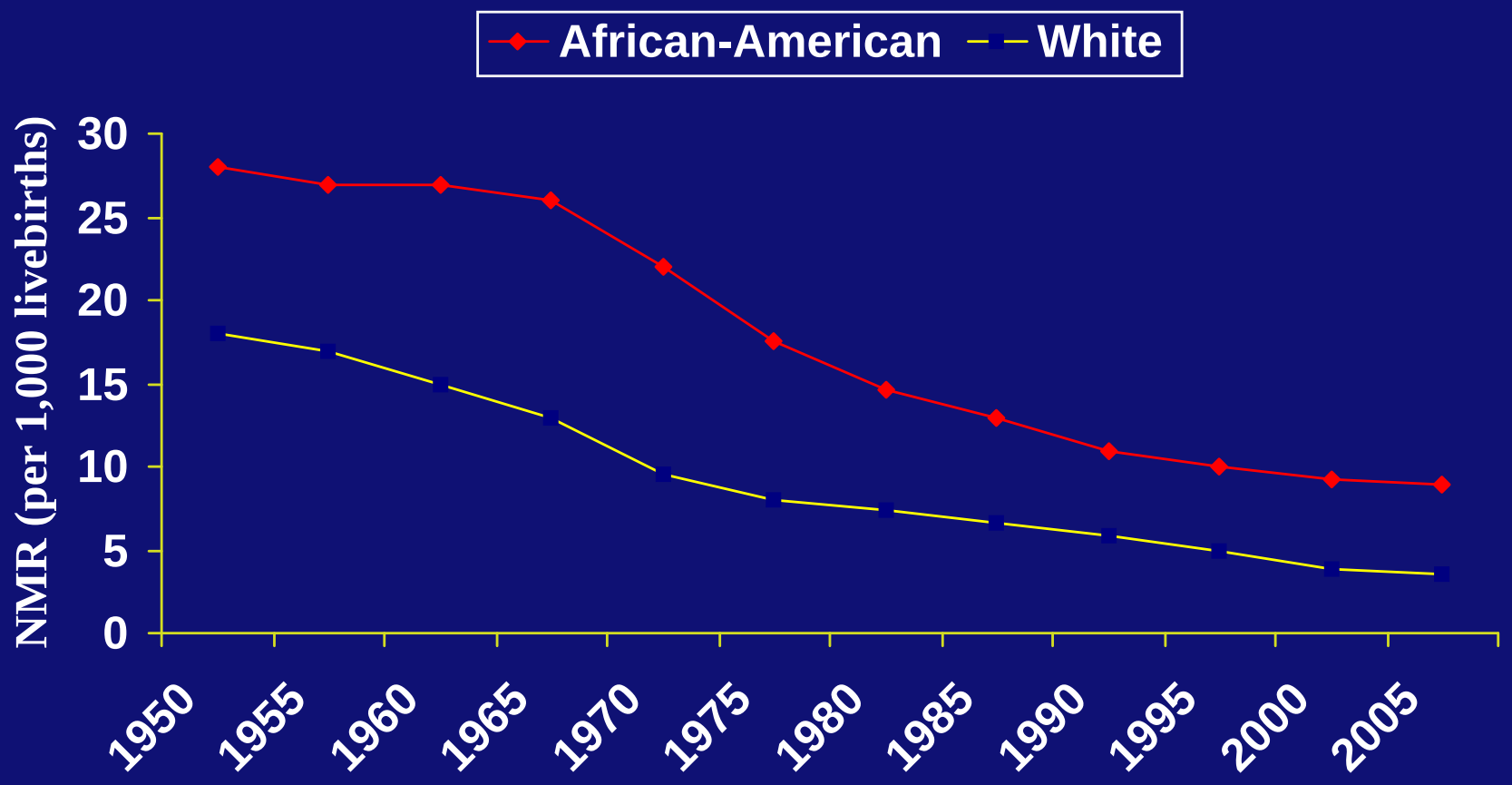


SOURCE: CDC/NCHS, National Health Interview Survey, 1992-1995

How likely it is that a baby will die before age 1 in the US

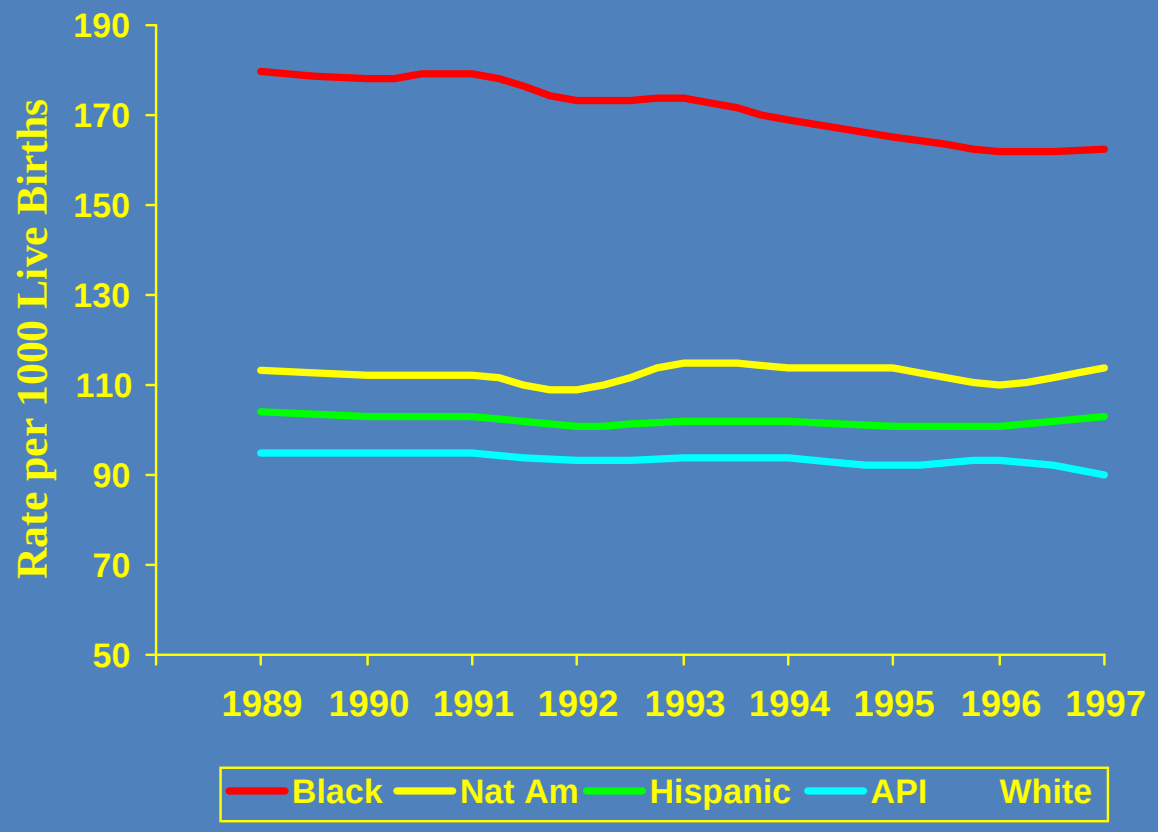


How likely a baby will die in the first month of life (neonatal mortality rates)



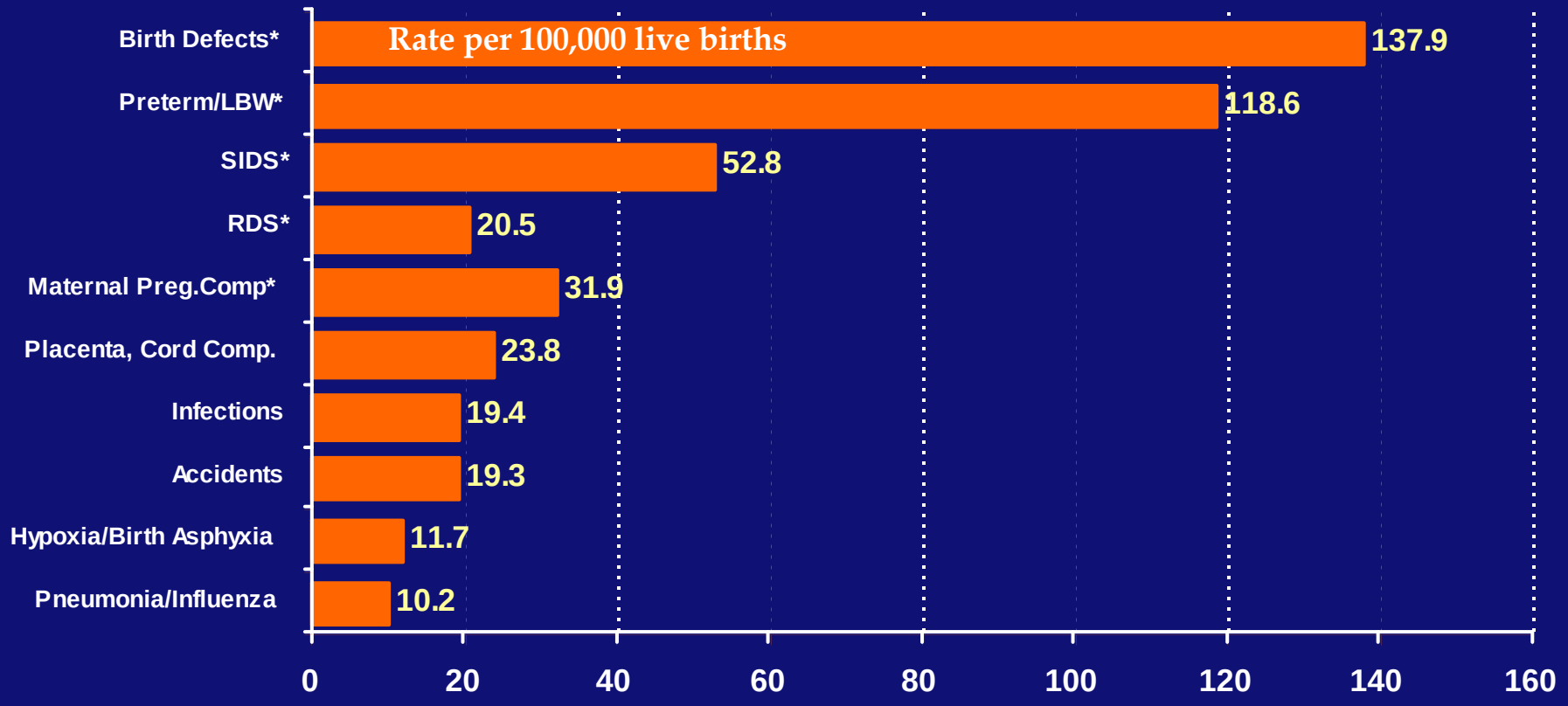
Collins et al.

How likely it is that a baby will be born too soon



- Why no sustained decline in rates?
- Why no sustained decline in disparity?

Ten Leading Causes of Infant Mortality** United States, 2003*

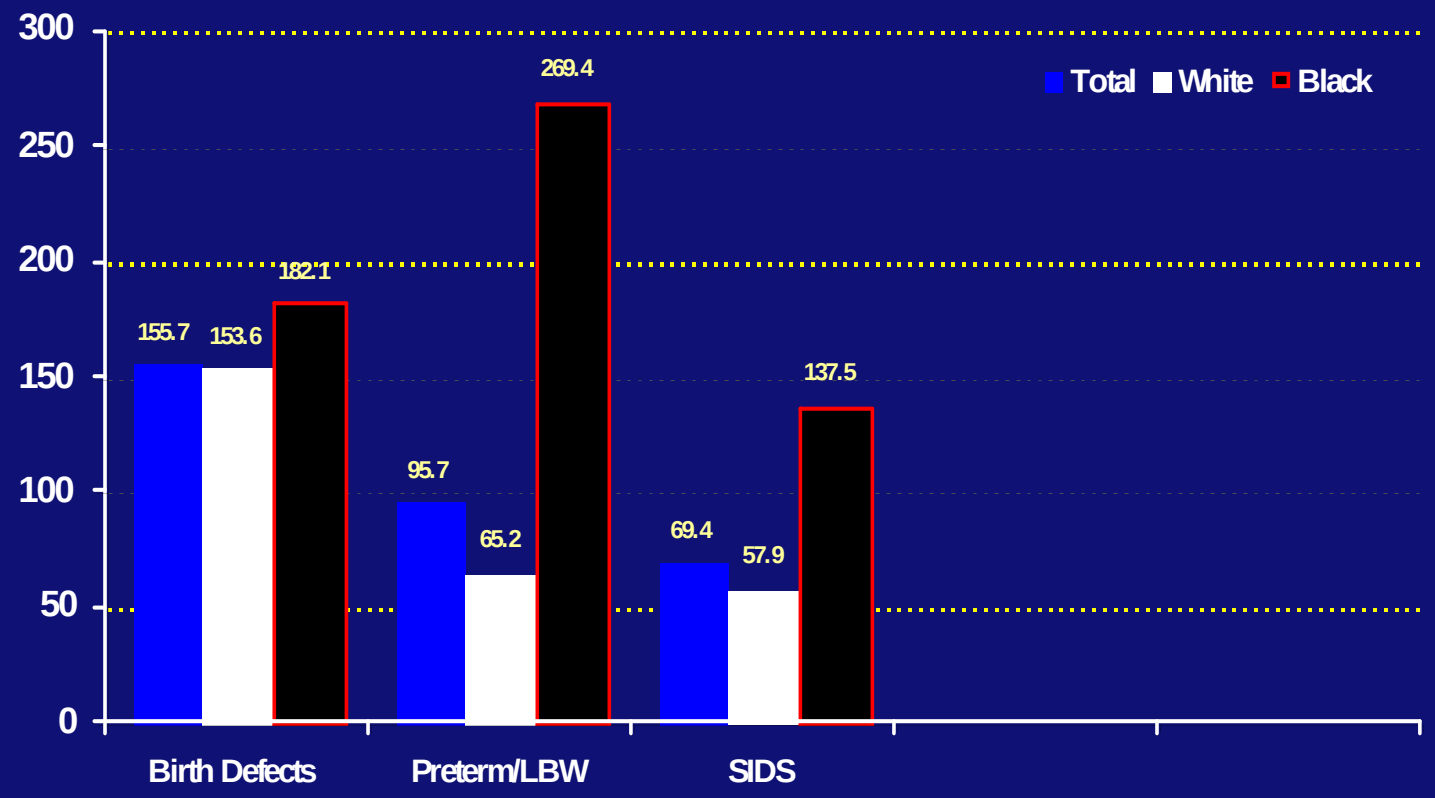


*All *others are 1997 rates*

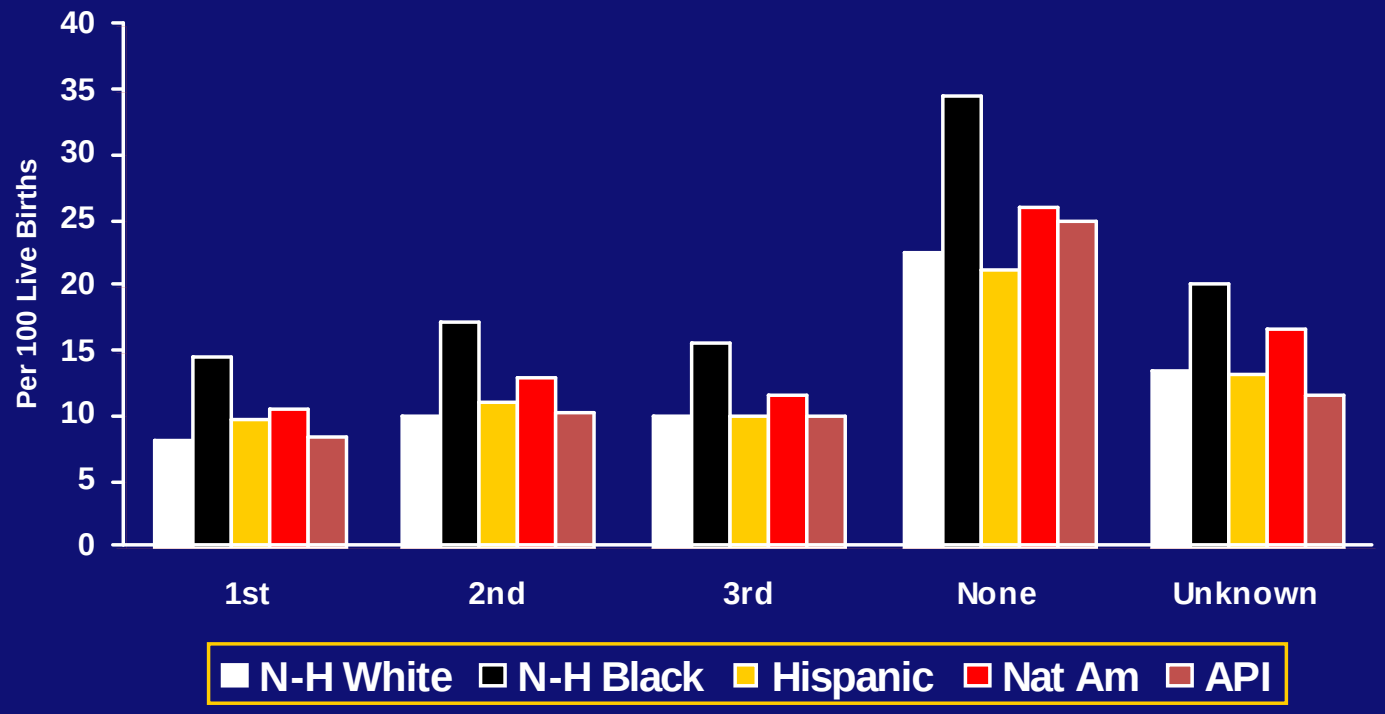
** *in 2006, PTB is the leading cause of death*

Leading Causes of Infant Mortality By Maternal Ethnicity, United States, 1997

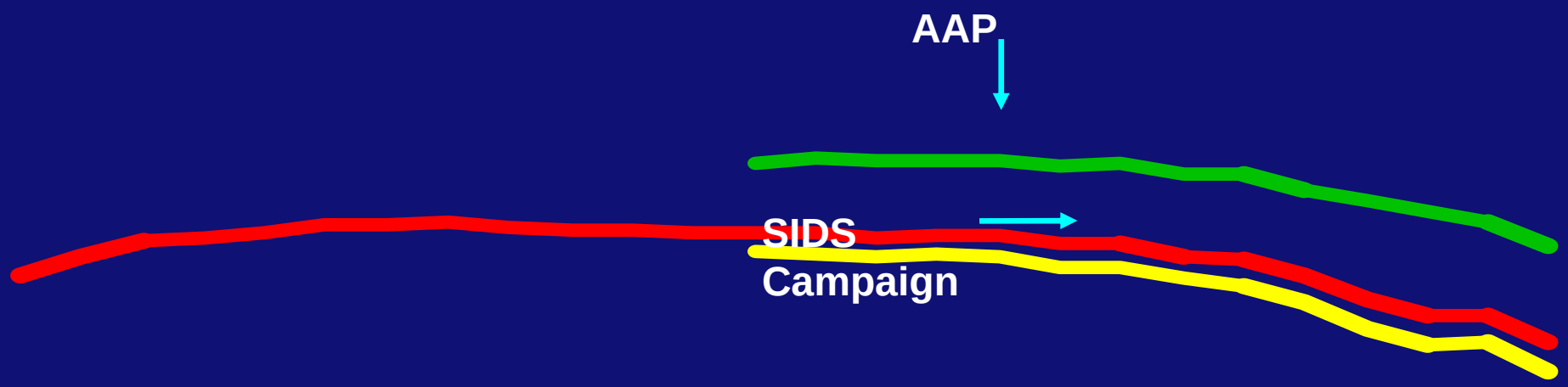
Rate per 100,000 live births



Preterm Delivery Rates by Maternal Race/Ethnicity and Trimester of Initial Prenatal Care Singletons, United States, 2000



Infant Mortality Rates Due to SIDS, United States by race, 1973-1998



80 90 96 98

Factors Examined for Contribution to Disparities

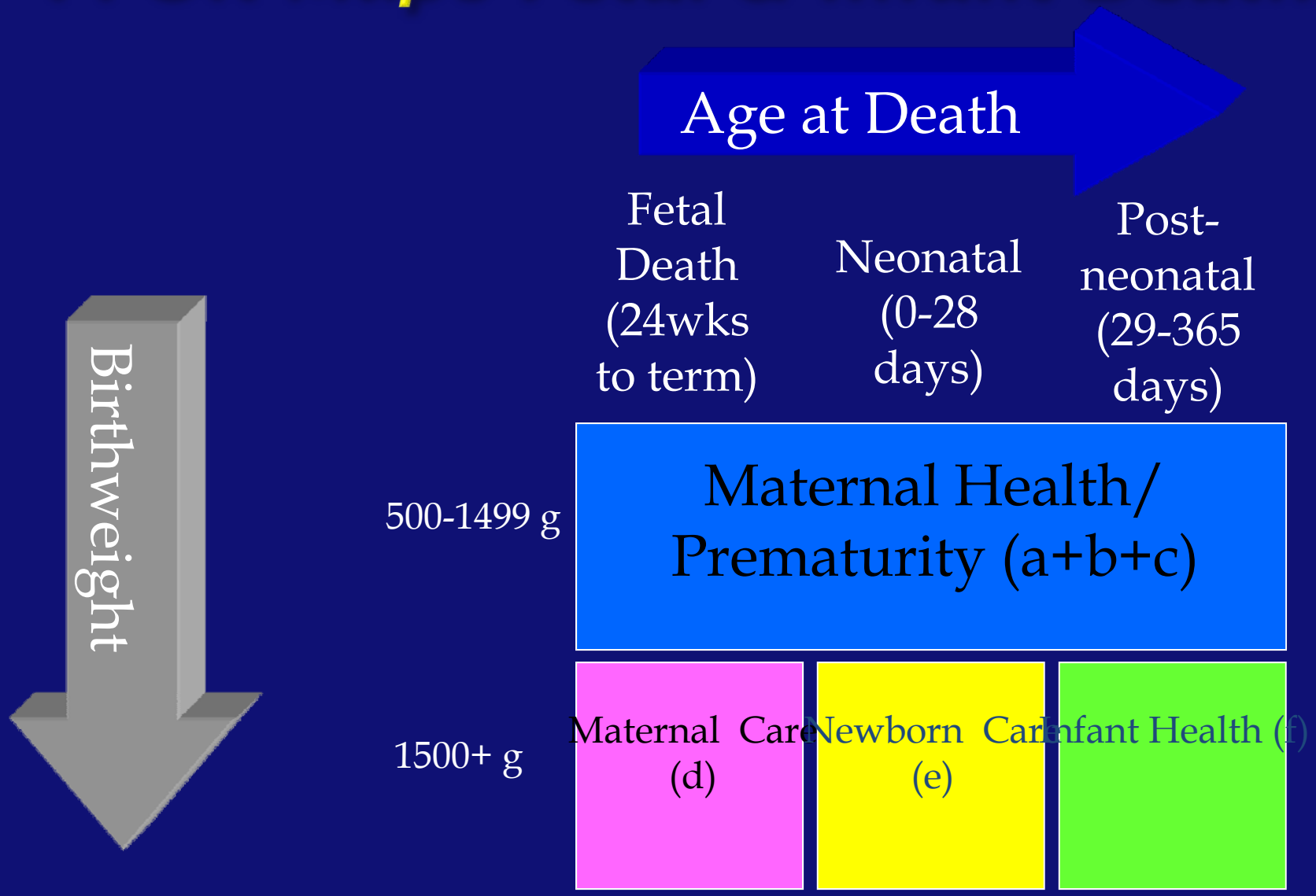
- Health care
- *Behavior**
- Culture
- Social factors
- Environmental factors
- "Weathering"
- Racism

*not consistently implicated across all diseases

- *Genes**
- Economic factors
- Neighborhood factors
- National, state or local Policies
- Stress

(Kington and Nickens)
in: America Becoming: Racial Trends and their Consequences,
National Academy Press,2000

PPOR *Maps* Fetal & Infant Deaths



PPOR is about *ACTION*

Maternal Health/ Prematurity	Preconception Health Health Behaviors Perinatal Care
Maternal Care	Prenatal Care High Risk Referral Obstetric Care
Newborn Care	Perinatal Management Neonatal Care Pediatric Surgery
Infant Health	Sleep Position Breastfeeding Injury Prevention

Phase 1 PPOR Analysis: Wis. Reference Population, 02-04

Number of Deaths

Age at Death

Birthweight

	Fetal	Neonatal	Post neonatal
500-1499g	216		
1500g	78	100	83

Total = 477

Fetal –Infant Mortality Rate

Age at Death

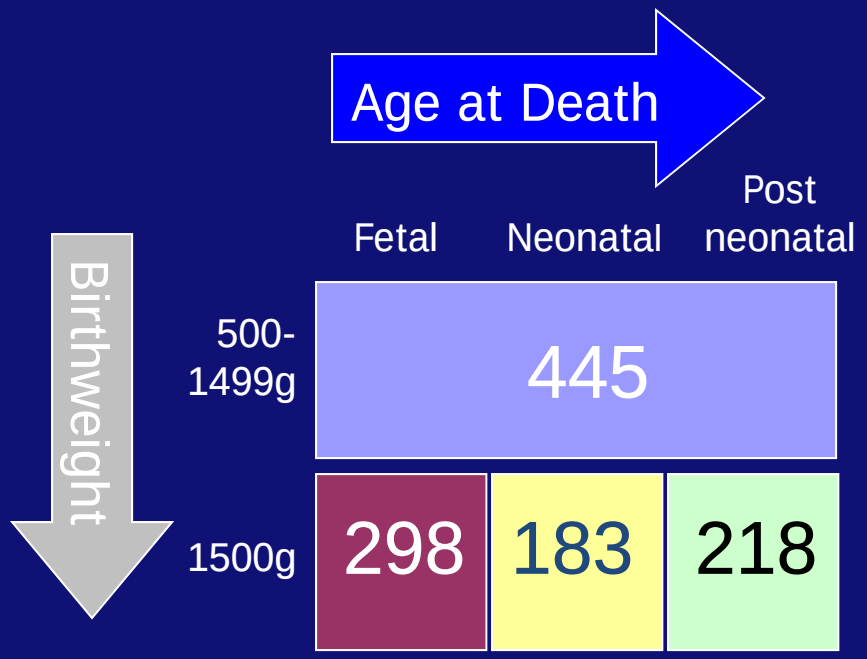
Birthweight

	Fetal	Neonatal	Post neonatal
500-1499g	2.1		
1500g	0.8	1.0	0.8

Total Rate = 4.7 per 1,000

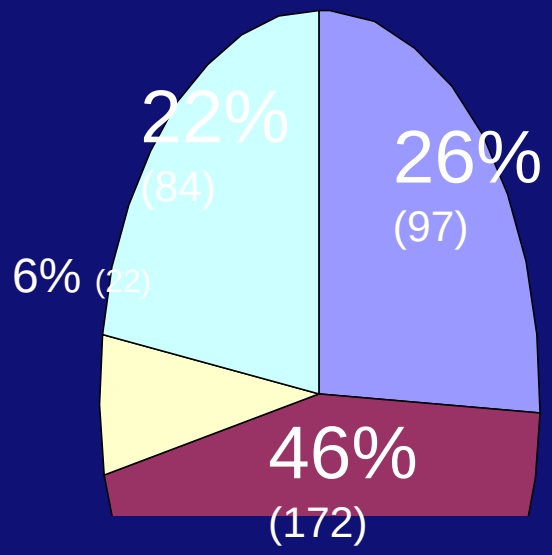
Phase 1 PPOR Analysis: Wisconsin Whites, 02-04

Number of Deaths



Total = 1144

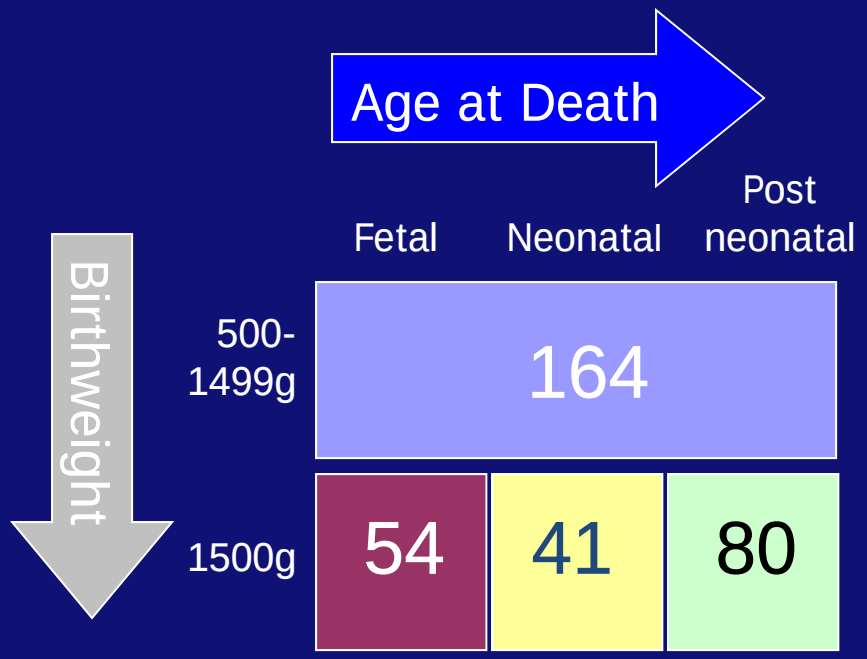
Percent Excess Deaths



Total Excess = 375

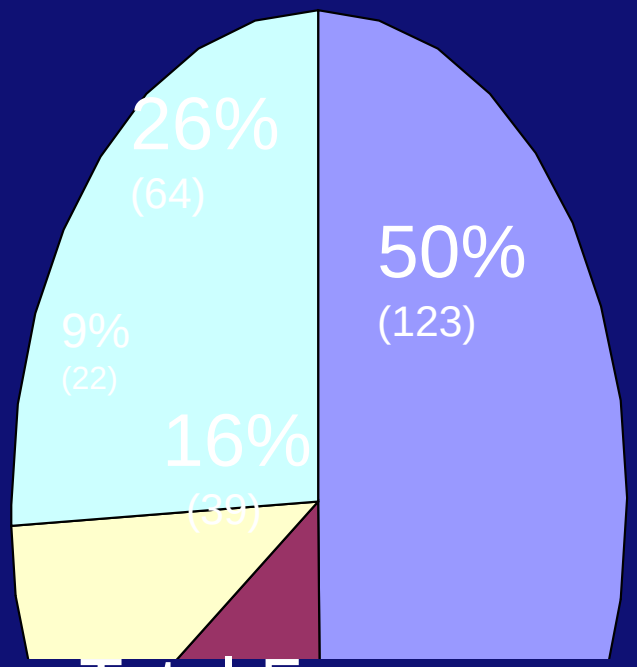
Phase 1 PPOR Analysis: Wis. African Americans, 02-04

Number of Deaths



Total = 339

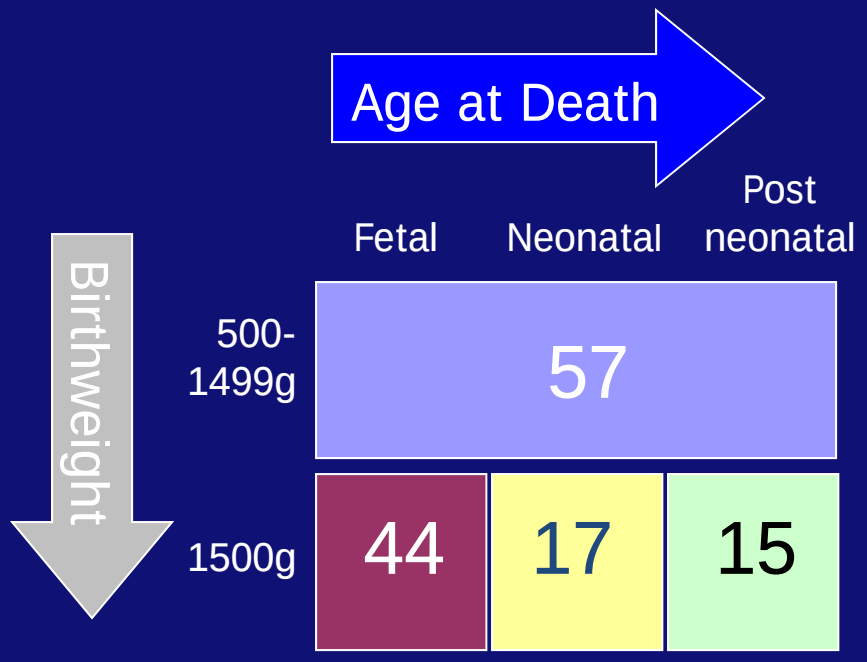
Percent Excess Deaths



Total Excess = 248

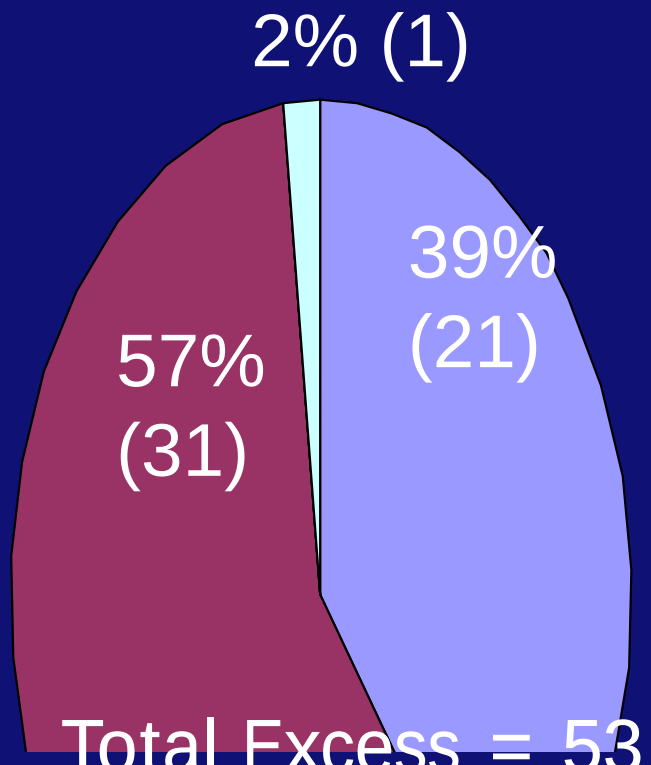
Phase 1 PPOR Analysis: Wis. Hispanic/Latina, 02-04

Number of Deaths



Total = 133

Percent Excess Deaths



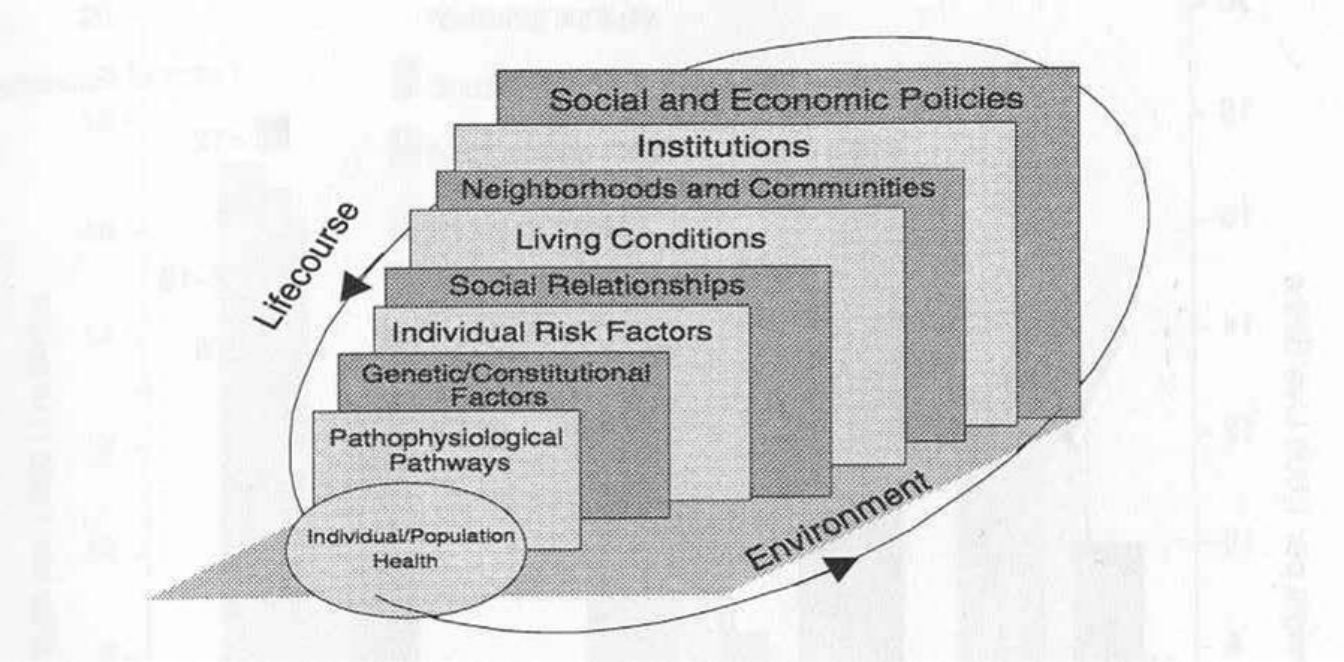
Total Excess = 53

Social Determinants

Social Determinants of Health

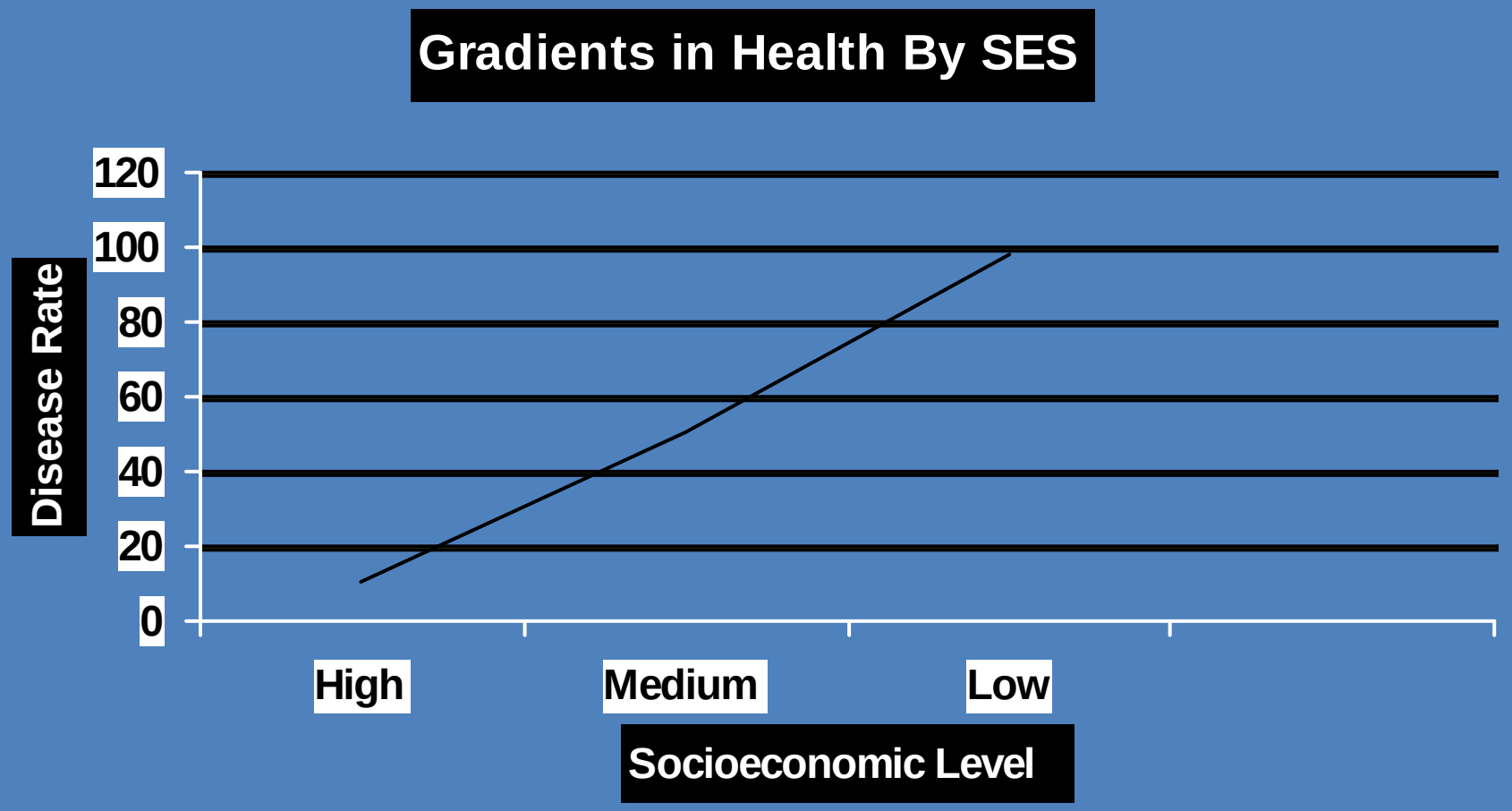
- Income
- Wealth
- Racism
- Stressful experiences (chronic)
- Resource limitations
- Social capital
- Housing quality and availability
- Employment security
- Food security
- Social exclusion
- Language barriers
- Working conditions
- Education
- Early childhood care
- Legislation, regulations

The Circles of Influence on Health



Kaplan, et al. (2000). A Multilevel Framework for Health in :Promoting Health. Washington, DC: National Academy Press

Social Inequities in the US

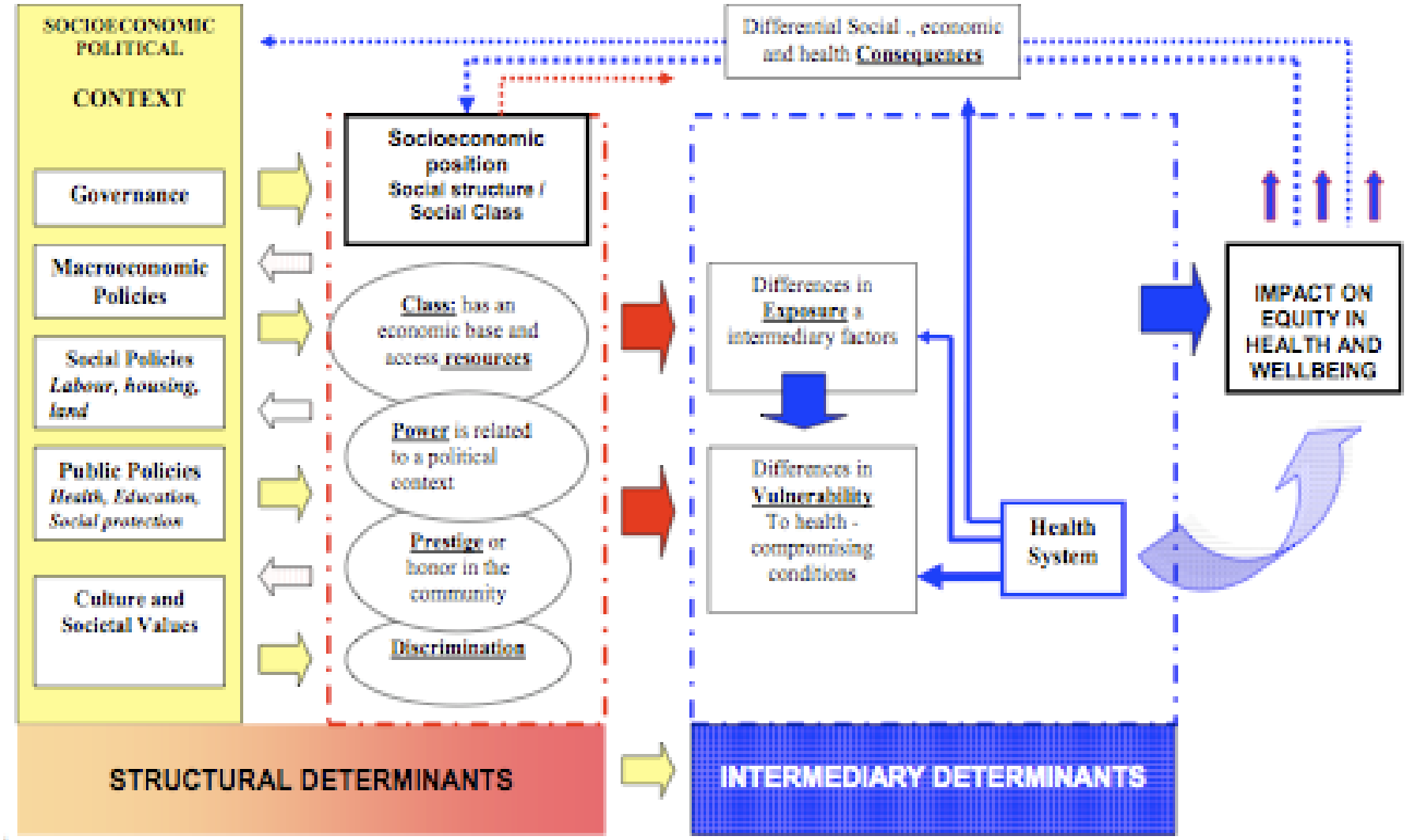


"The causes of health disparities are multiple. They include poverty, level of education, inadequate access to medical care, lack of health insurance, societal discrimination and lack of complete knowledge of the causes, treatment and prevention of serious diseases affecting different populations. The causes {of health disparities} are not genetic, except in rare diseases like sickle cell…….Eliminating health disparities will require a cross-cutting effort, involving not only various components of the Federal government, but the private sector as well…

Ruth Kirstein, Former Acting Director of NIH. 2001

"….racial and ethnic disparities in health status largely reflect differences in social, socioeconomic, behavioral risk factors and environmental living conditions. Health care is therefore necessary but insufficient in and of itself to redress racial and ethnic disparities in health status. A broad and intensive strategy to address social-economic inequality, concentrated poverty, inequitable and segregated housing and education…individual risk behaviors as well as disparate access to medical care is needed to seriously address racial and ethnic disparities in health status"

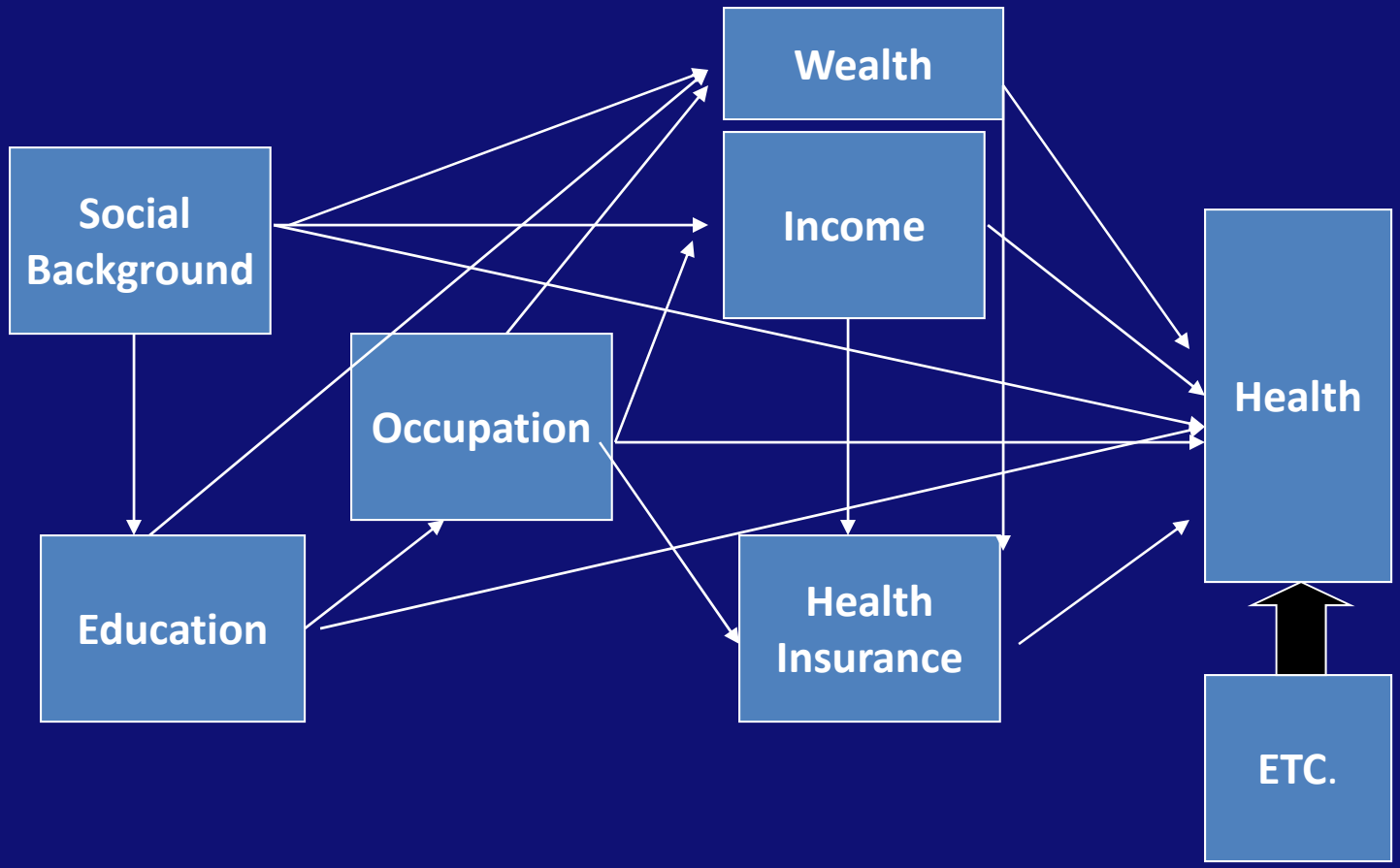
Institute of Medicine—Unequal Treatment Report 2003



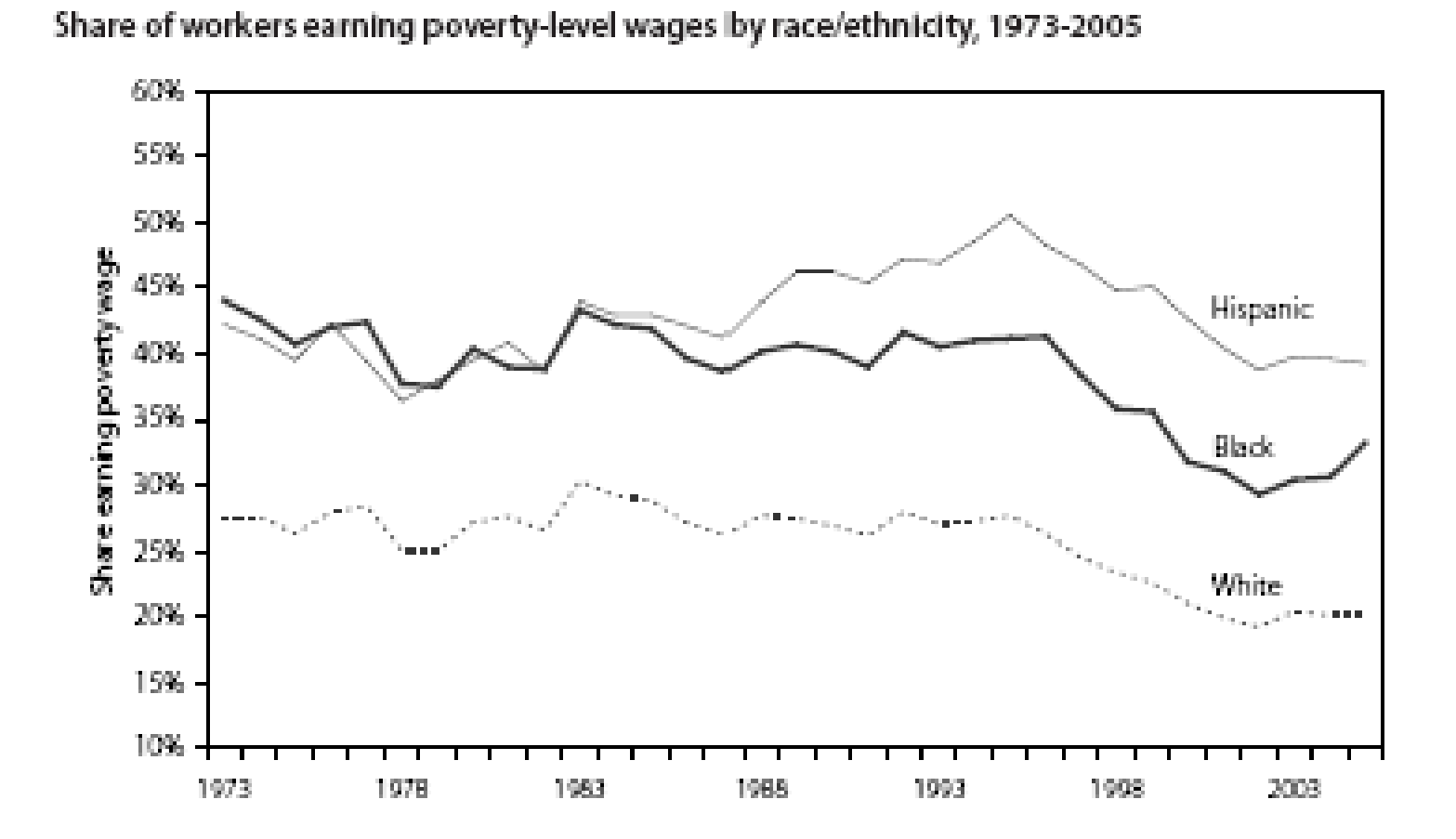
[1] **Figure** summary pathway and mechanism of social determinants of health inequities elaborated EQH/EIP 2006 (OPSU)

WHO, 2008

The Process of Stratification



Trends in Poverty by race/ethnicity



Percentage of Related Children <= Age 18 Below 150% of Poverty Level

	1998
White	18%
Black	52%
Hispanic	52%

Source: US Census Bureau, March Current Population Survey

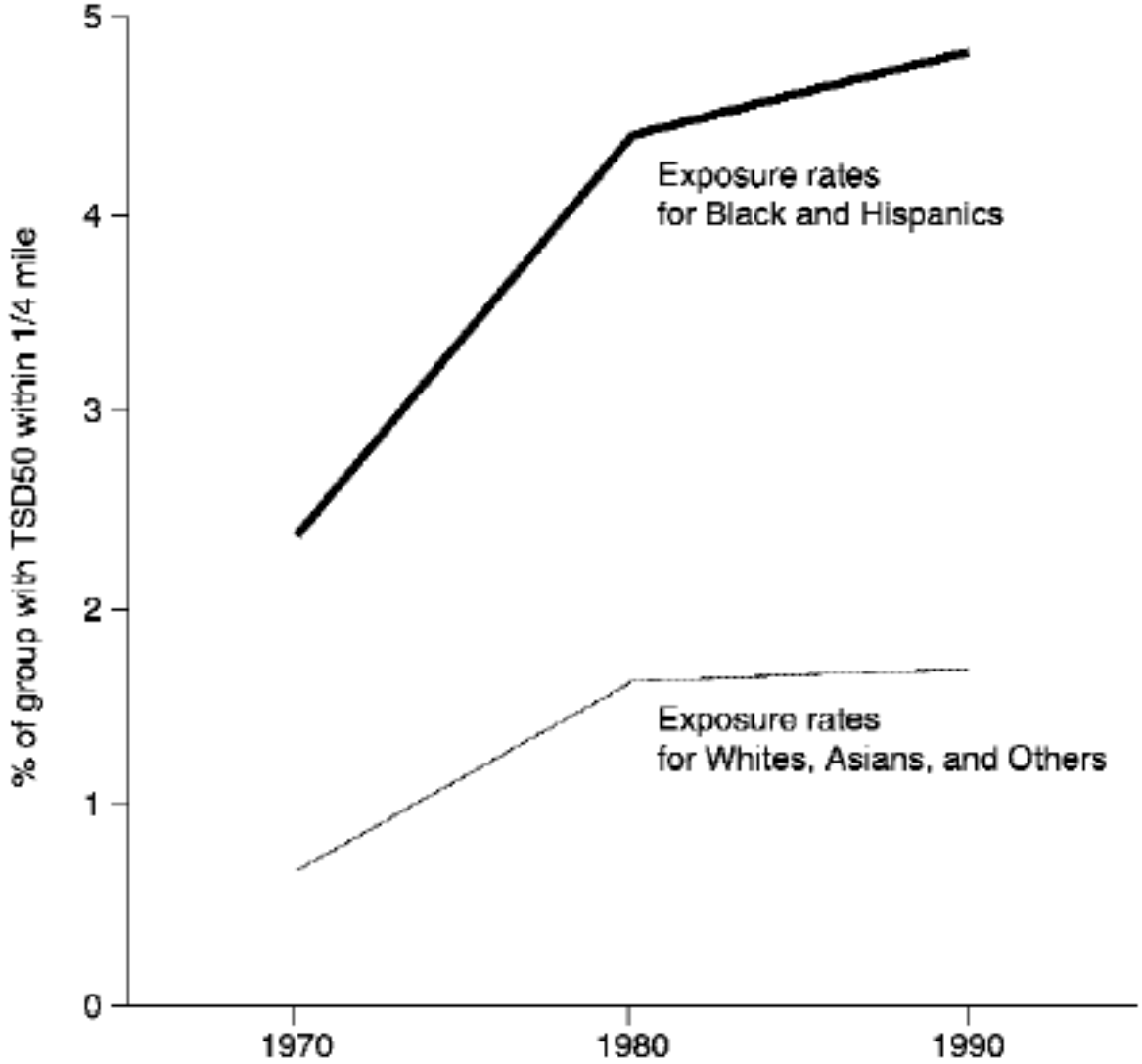


FIGURE 14-9 Exposure to high-capacity toxic facilities over time in Los Angeles County. The exposure to high-capacity toxic storage and disposal facilities (TSD50s) has generally risen over time for both Whites and minorities. The increase has been greatest for Blacks and Hispanics, leading to an even greater exposure differential.

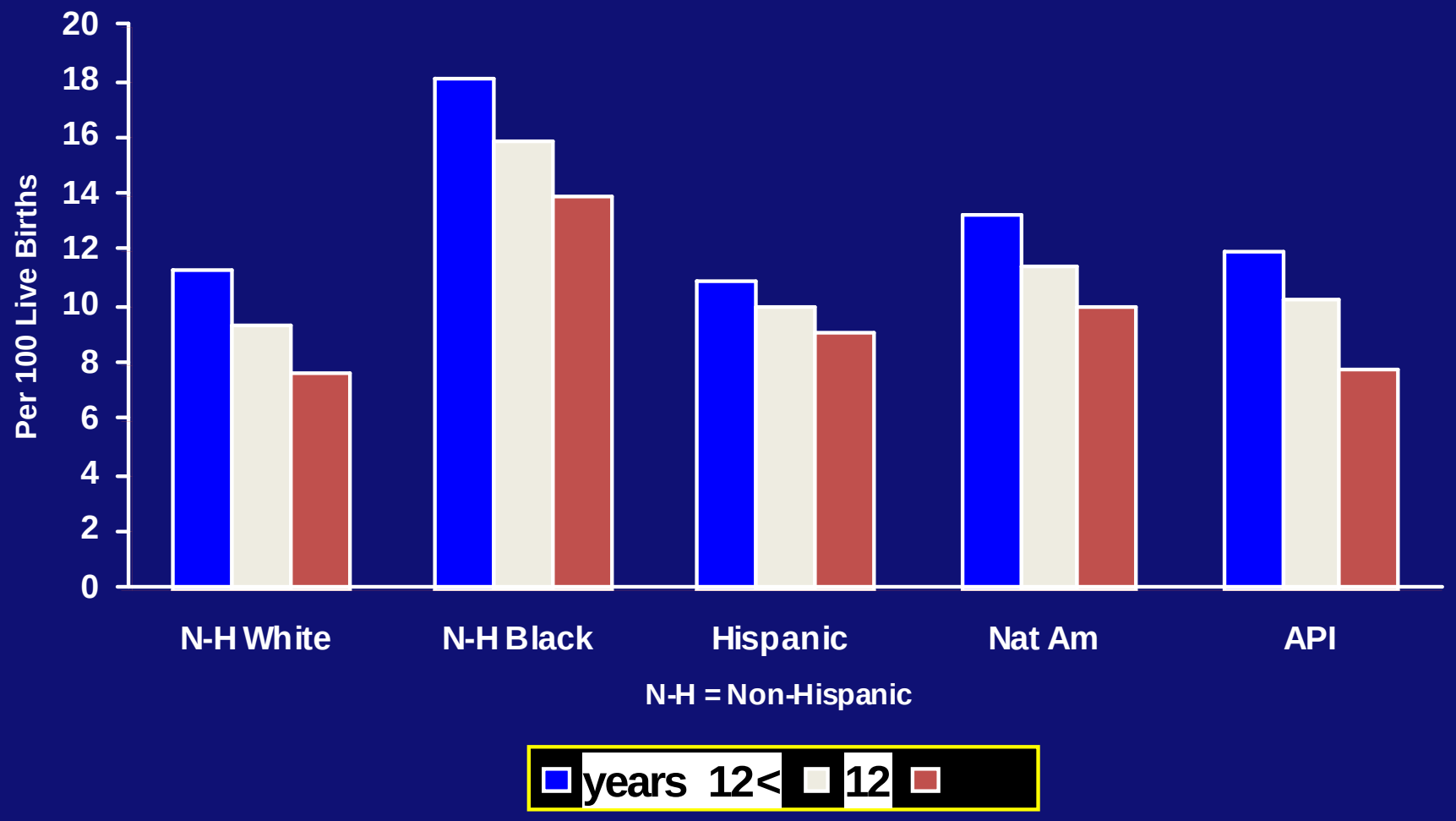
Source: Pastor, 2001

Economic and Social Hardships during pregnancy, by ethnicity MIHA, 2002-2003

	African American	Anglo
< Poverty	44.7	14.9
Hard to make ends meet	22.4	10.7
Food insecurity	19.3	10.4
Food insecurity and hunger	7.3	3.3
No practical support	10.2	6.2
No emotional support	7.2	3.9
Separated or divorced	16.4	4.6
Homeless	7.2	2.3
Involuntary job loss	14.2	6.8
Partner job loss	16.9	11.0
Incarceration of partner	10.5	2.5
Domestic Violence	5.8	1.8
1-5 hardships	70.0	39.0

Source: Braverman P. (Center on Social Disparities in Health, UC-SF)) Presented at Jacobs Institute of Woman's Health Conference, May 2005

Preterm Delivery by Maternal Education and Maternal Race/Et,hnicity, United States, 2000



Life Course

Life course: Ecological Evidence

- Geographic analysis
  - Barker and Osmond 1986 (England and Wales)
    - *Infant mortality, child nutrition and heart disease*
  - Forsdahl 1977 (Norway)
    - *Poor housing conditions d/adolescence and later arteriosclerotic heart disease*
  - Notkola 1985 (Finland)
    - *Childhood living conditions and coronary heart disease in adulthood*
  - Buck et al 1982 (US)
    - *Infant diarrhea and subsequent cancer and CHD mortality*

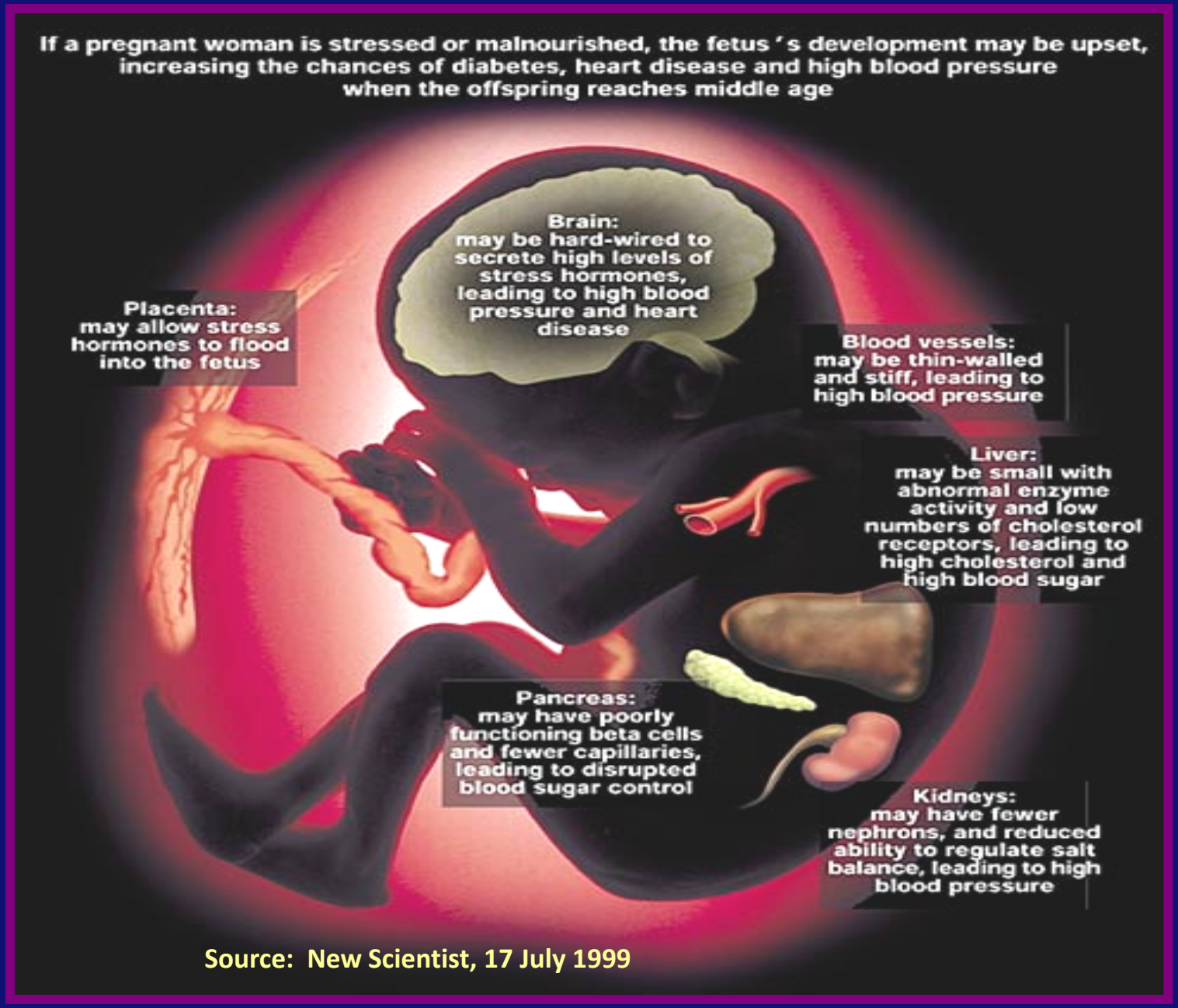
Childhood social experience and adult outcomes

- Luo and White (2005) *Lower SES I childhood results in worse health in later life. Most impact thru determination of adult education and income*
- Maty et al (2008) *low SES in childhood a robust predictor of increased diabetes risk in adulthood*
- Moody-Ayers et al (2007) *Child SES associated with health thru midlife, then attenuates in later life.*
- Hughes et al (1998).*childhood experience of sexual violence associated with depression, dissociation and low rates of secondary education completion*
- Greenfield and Marks (2009) *children who are abused are more likely to develop obesity in adulthood*

Hypothesized Mechanisms

- **Developmental plasticity**
- **Epigenetics**
- **Inherited social disadvantage**
  - **Children experience the same environments when they reach adulthood as did their parents**
  - **Social and psychological Imprints**
- **Genetic inheritance**

Fetal Effects of Maternal Stress

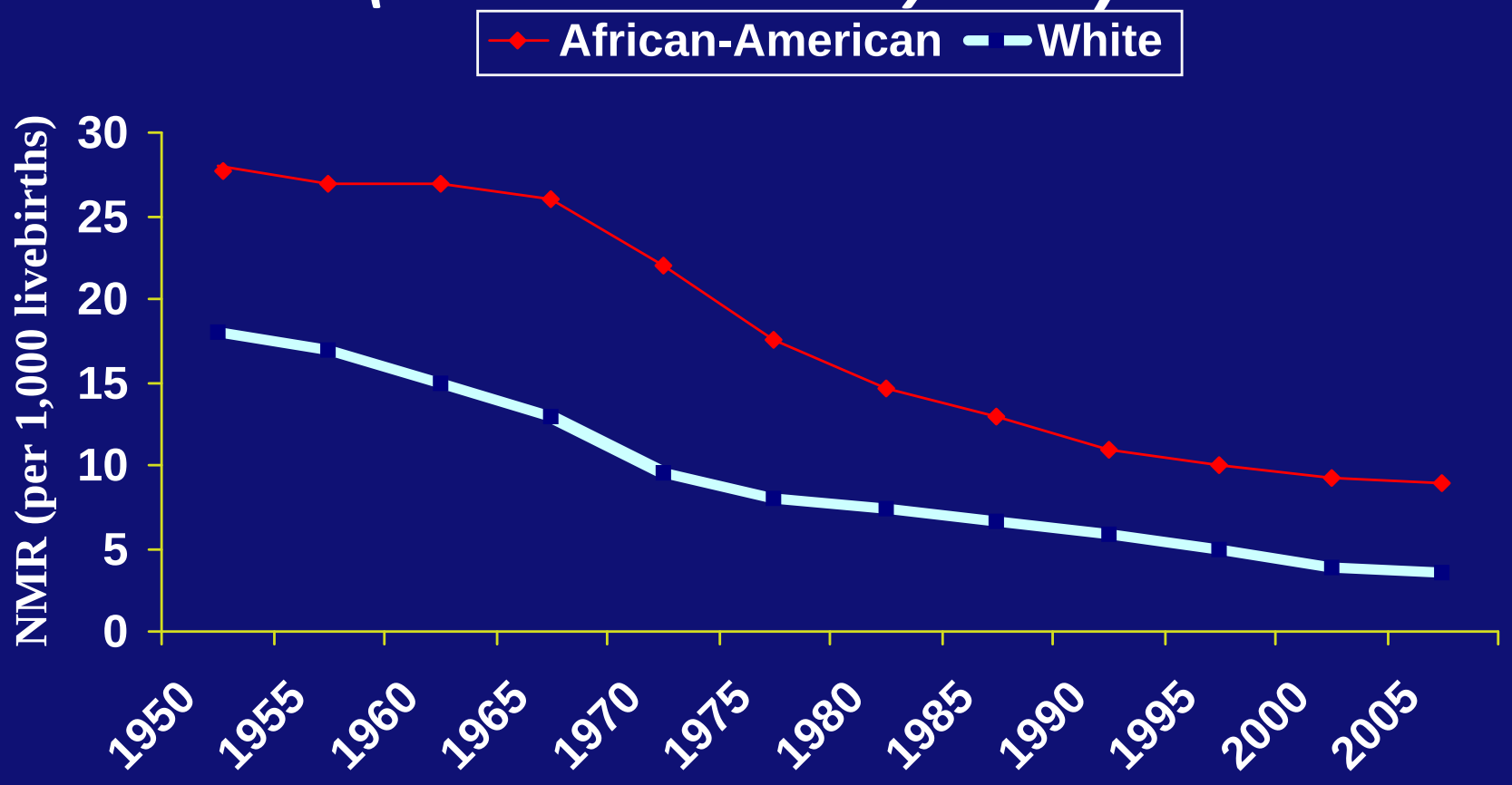


Source: New Scientist, 17 July 1999

SunLife
128
SunLife
124
145

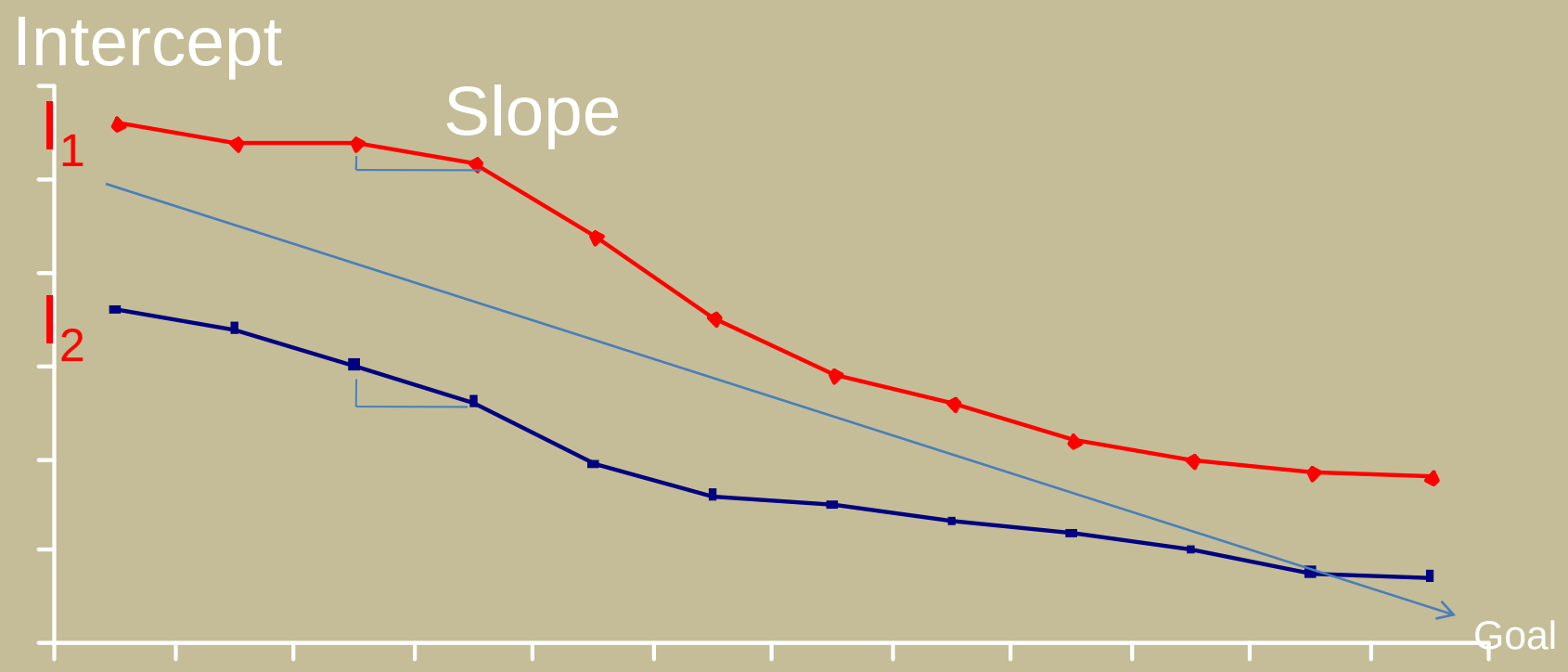
Part 3:
Intersection of Life course, social determinants, health intervention and health disparities

How likely a baby will die in the first month of life (neonatal mortality rates)



Collins et al.

Intercepts, Slopes, Trajectories



S 4: Four Forces in Action

Starting point, Stressor, Substrate, Slope

1. Starting point (the intercept)

2. Stressors

3. Substrate (the context which either buffers or inhibits effects: **Social context + Intervention**

4. Slope (trajectory formed by interaction of 1&2 & 3 (Includes impacts of interventions)

Starting Point

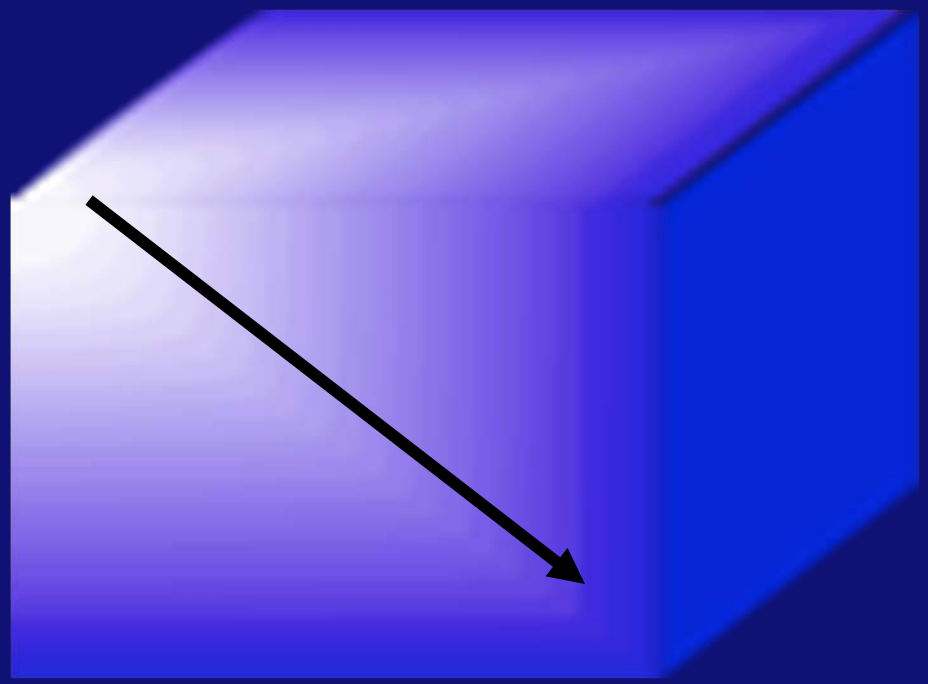
- Defines intercept
- Will never be changed, no intervention can change this --this IS deterministic
- **Historical and Life course factors define where the Intercept is.**

Slope (Trajectory)

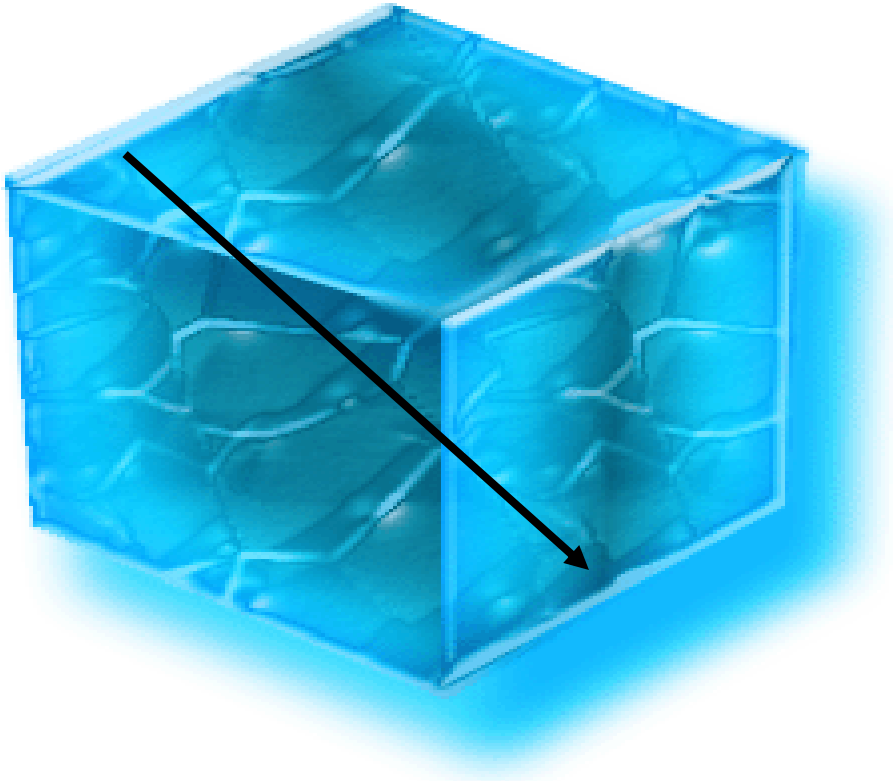
- Inputs (x) determine slope, as well as response (/\y) to inputs
- Evidence based Clinical intervention has a defined /\y
- What if this slope does not lead to equity?
  - Then you need some additional additive (or multiplicative) effects to speed the slope of the intervention for vulnerable groups
- **What are these additive interventions?**

Substrate

In 3d

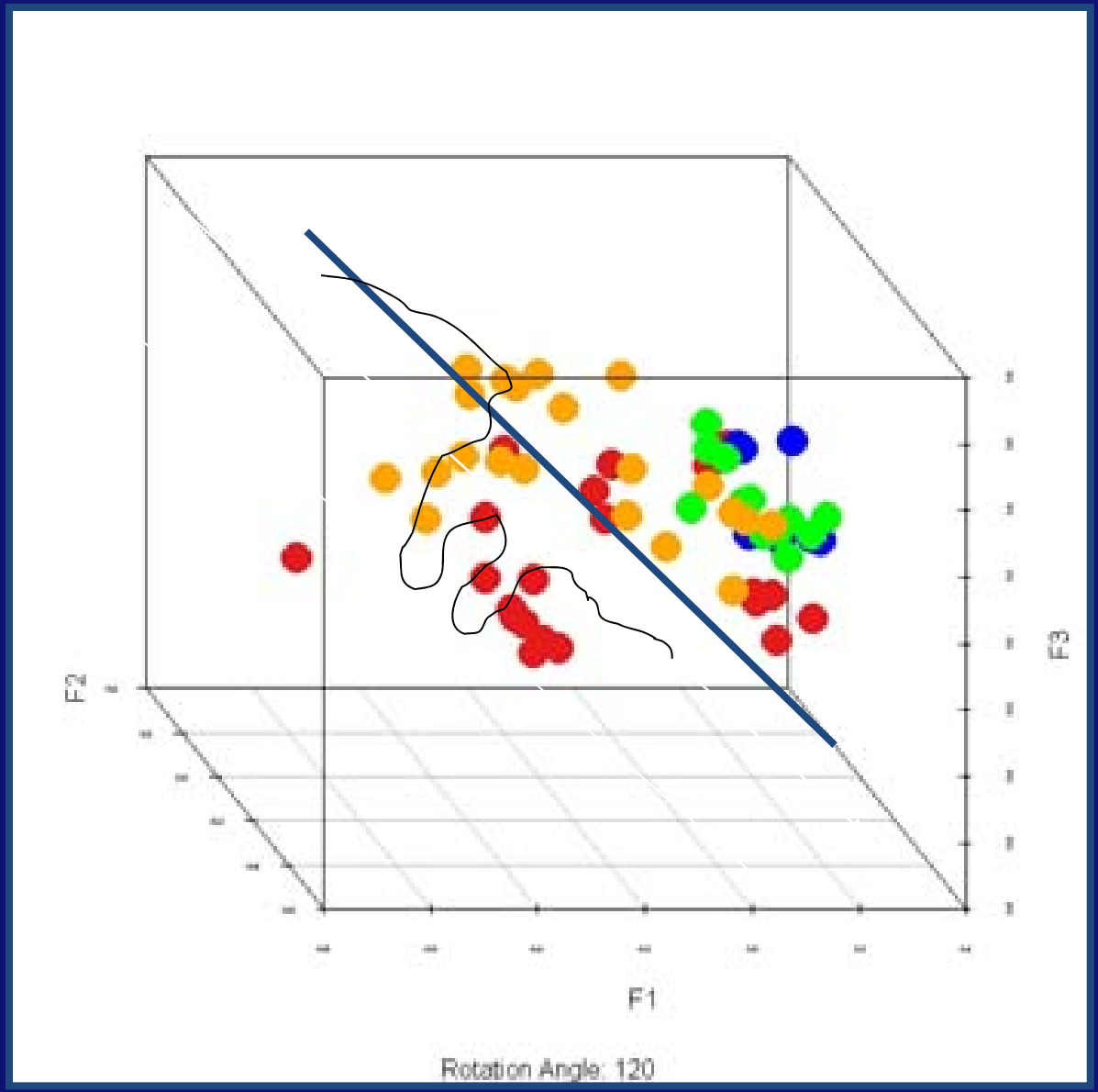


Air



Water

Substrate



Minefield

The parent project:

The Preterm Prevention Project

Jennifer Culhane, PI, Drexel University

- RCT that investigates effect of *interconceptional* preterm birth risk reduction interventions among women in Philadelphia
- Interventions:
  - Genito-urinary infection screening and treatment
  - Nutrition
  - Sleep-mood-depression screening and treatment
  - Housing
  - Smoking cessation
  - Periodontal disease treatment

Randomized controlled Trial

- In addition to study interventions, PPP also addresses all known barriers to participation in health care:
  - *Childcare*
  - *Transportation*
  - *Social support*
  - *All interventions are free of charge*
  - *Flexible hours*

Initial Observations in RCT

- **Low or intermittent participation in some interventions, despite addressing known barriers to access**
  - **Social context** of women's lives needed to be more closely investigated to identify its role in care participation.
    - .
  - A qualitative study was designed to investigate these factors → **Eliminating Disparities in Interconceptional Care Participation Study (EDIC) (V Hogan, PI)**

Preliminary Findings*

- **Structurally imposed barriers** by health system continue to exist **even when known barriers to care (**transportation, childcare, appointment reminders**) are addressed**

- Social structures and relationships **outside of health setting** profoundly affect health care participation

Examples

- **Institutional rules inhibit interconceptional care participation**
  - *i.e., "Two strikes and you are out" provisions--lose provider access if appointments are missed.*

"And it's hard to not like miss these appointments and then you call and they're like, "Well you missed two appointments already."

"Well, do you have any evening appointments?"

You can't get evening appointments and you don't want to miss work!"

Ex. Maintaining Life Balance

- May be a defining metric that defines how a woman will act under a particular set of circumstances
- Termed: *Psychoenergetic resources*
  - *Guarded like a bank account*
  - *Deposits into account are rarely consciously made*
    - *Sleep , meditation, journaling, worship may help replenish*
  - *Women make decisions about whether a particular activity will deplete the account or not, whether she can afford the costs. ("I just do not have the psychic energy to go today")*

Intervention Our way vs. Their way

- Remove or reduce the insulting stressors
  - Our way: Providing on site childcare may purport to do this, but may cost more in terms of women's psychoenergetic resources

  Contrast with:

  - Her way: *Money to pay an at-home sitter as an alternative solution:*
    - Woman loses no monetary resources
    - Woman loses fewer psychobioenergetic resources
    - Woman may gain social capital by being a positive contributor to her social network
    - Woman does not lose social capital by being a burden on social network

Part 4:

Where to from here for Public Health?

How can public health begin to address social determinants and life course/historical factors?

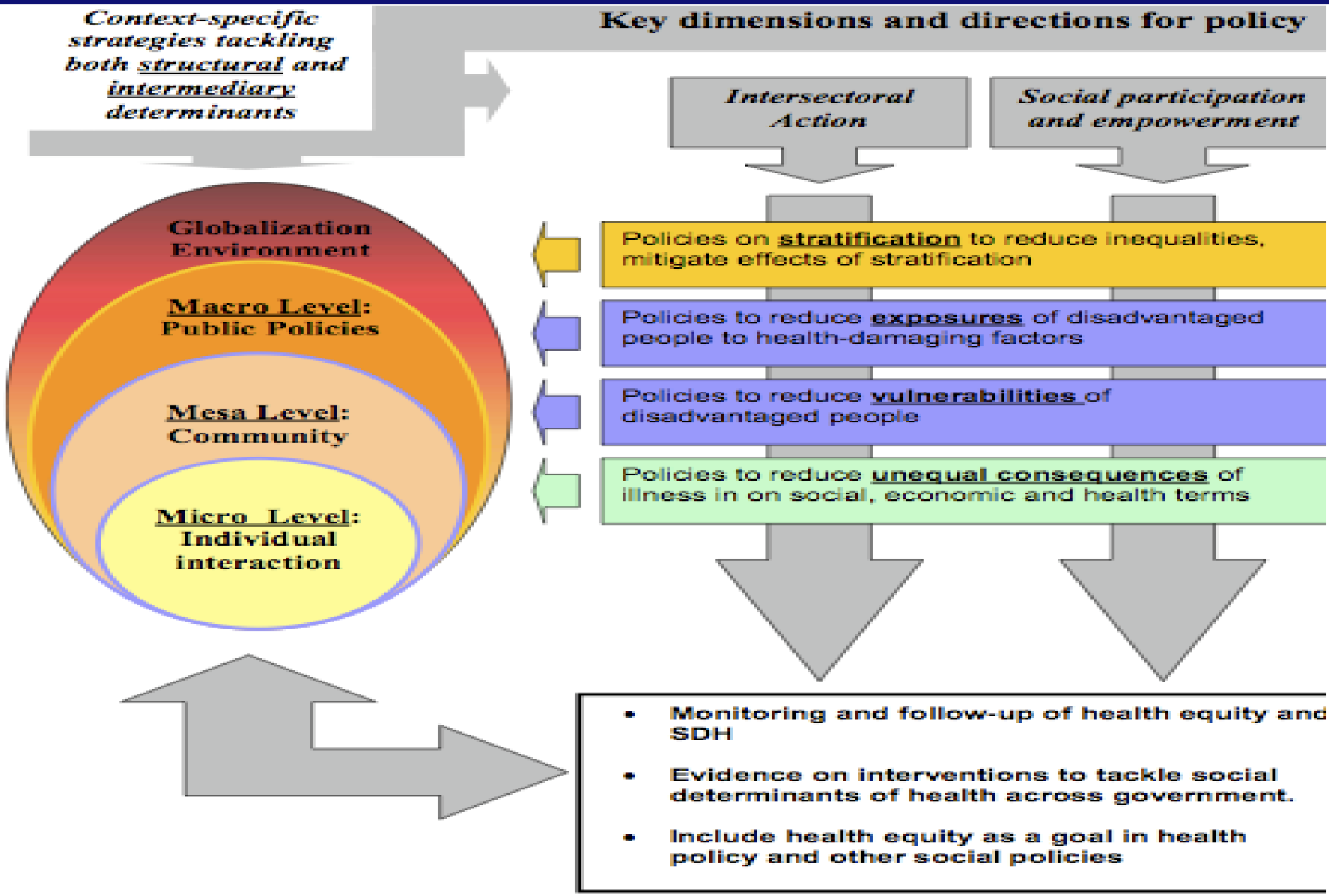


Figure: Framework for action on tackling social determinants of health inequities
Elaborated by EQH/EIP 2006 (OPSH)

Specifically address disparity contributors

- ***Social determinants***
- ***Prevent/ buffer effects of adverse Life course factors***

- Do our interventions change the *slope* in outcome trends for African American populations?
- What countervailing forces act on women to undo effects of effective interventions?
  - *Which of these forces do our agencies create? E.g are health system mediated?*
  - *Which are socially mediated?*
  - *Which are environmentally mediated?*
  - *What are we (Public Health) doing to effect change in these arenas to lessen the impact of these forces?*

- Institutional self-assessments:
  - How is racism operating in my agency/program/Institution?
  - How is my agency/program perpetuating class disparities or gender role bias?

DO something to undo the inequities perpetuated by and within the institution you do have power over

Thank you!

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