

# BEHAVIOR CHANGE, HEALTH, AND HEALTH DISPARITIES

September 25, 2013



## ***Behavior change and reducing health disparities: Priorities of NIH and OBSSR.***

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Sciences Research

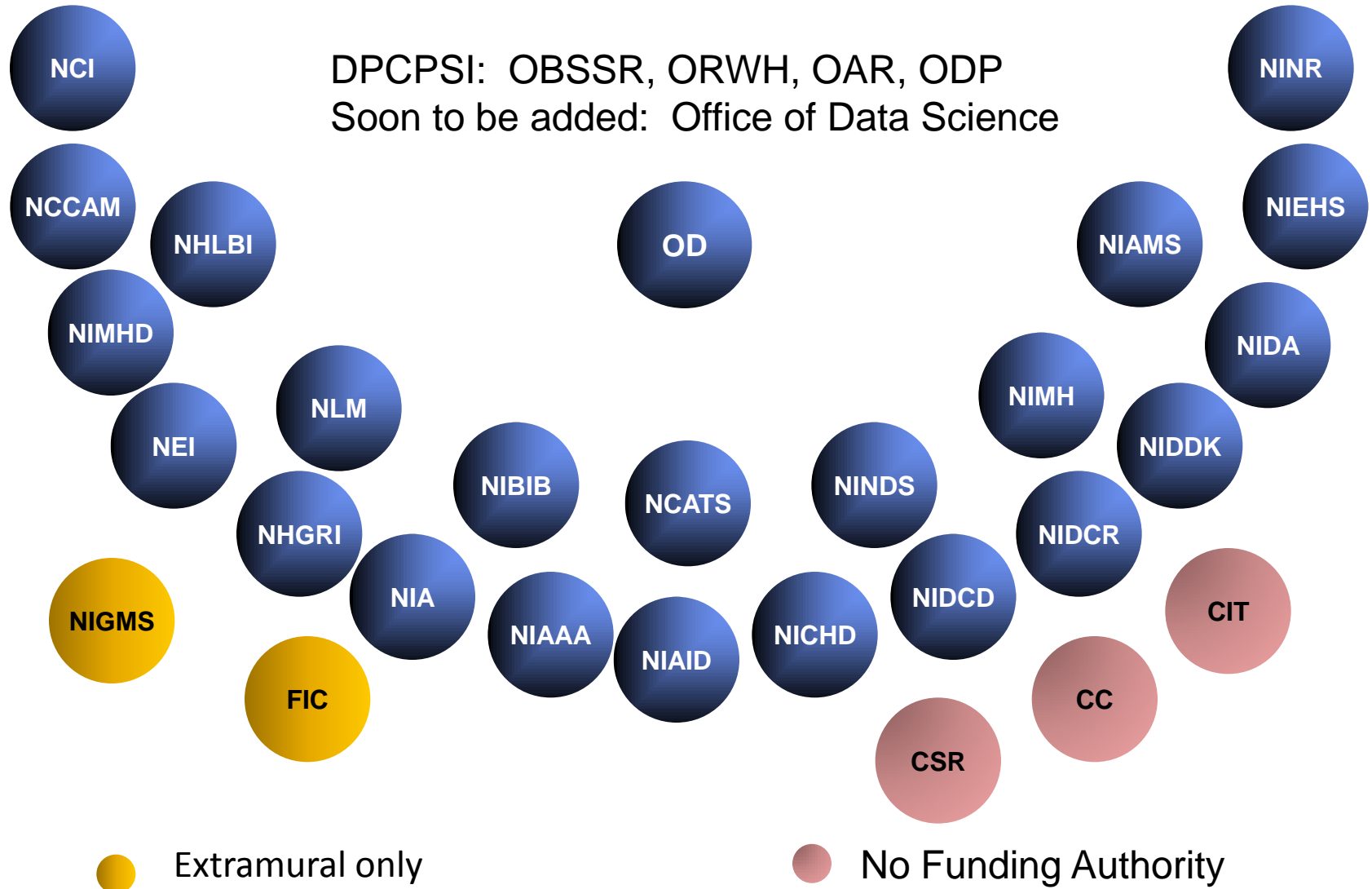
<http://obssr.od.nih.gov>



## Goals for Today's Talk

- Brief overview of the NIH and OBSSR
- Current Funding Climate
- US Health Challenges: Shorter Lives, Poorer Health
- New Directions for OBSSR

# NIH Institutes and Centers



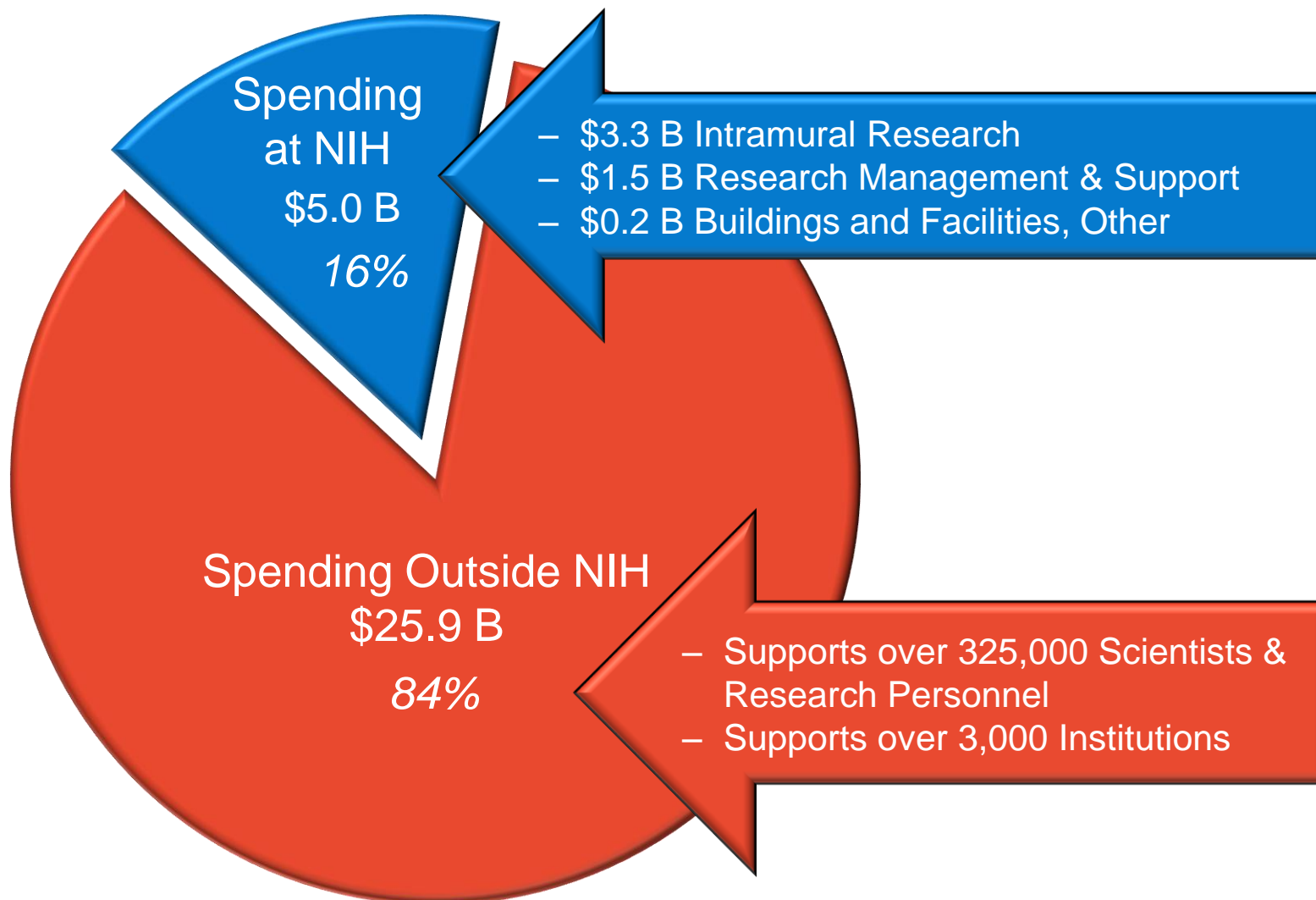


# NIH: Steward of Medical and Behavioral Research for the Nation

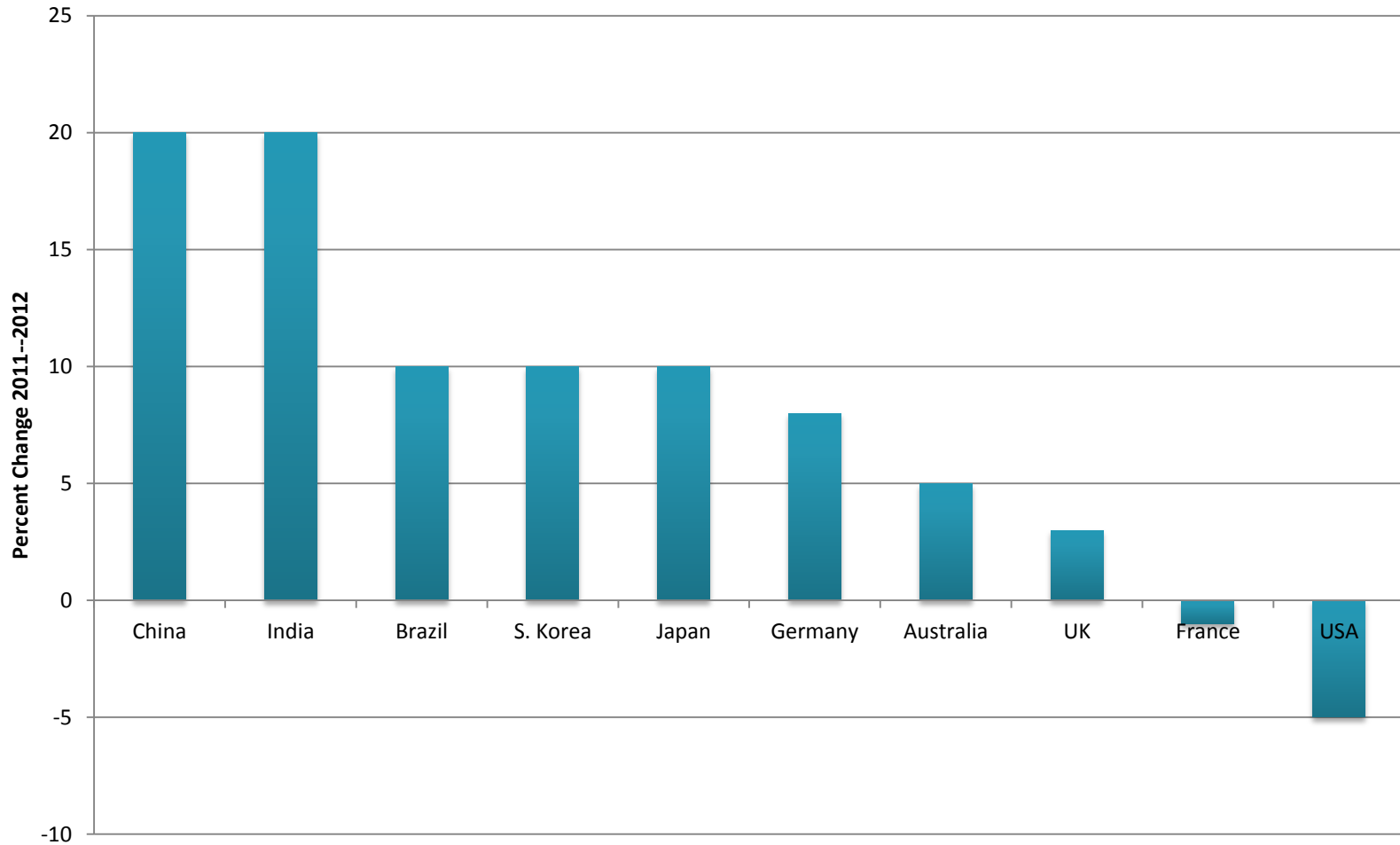
“Science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life and reduce illness and disability.”



# NIH Extramural & Intramural Funding FY 2012 Enacted: \$30.9 Billion

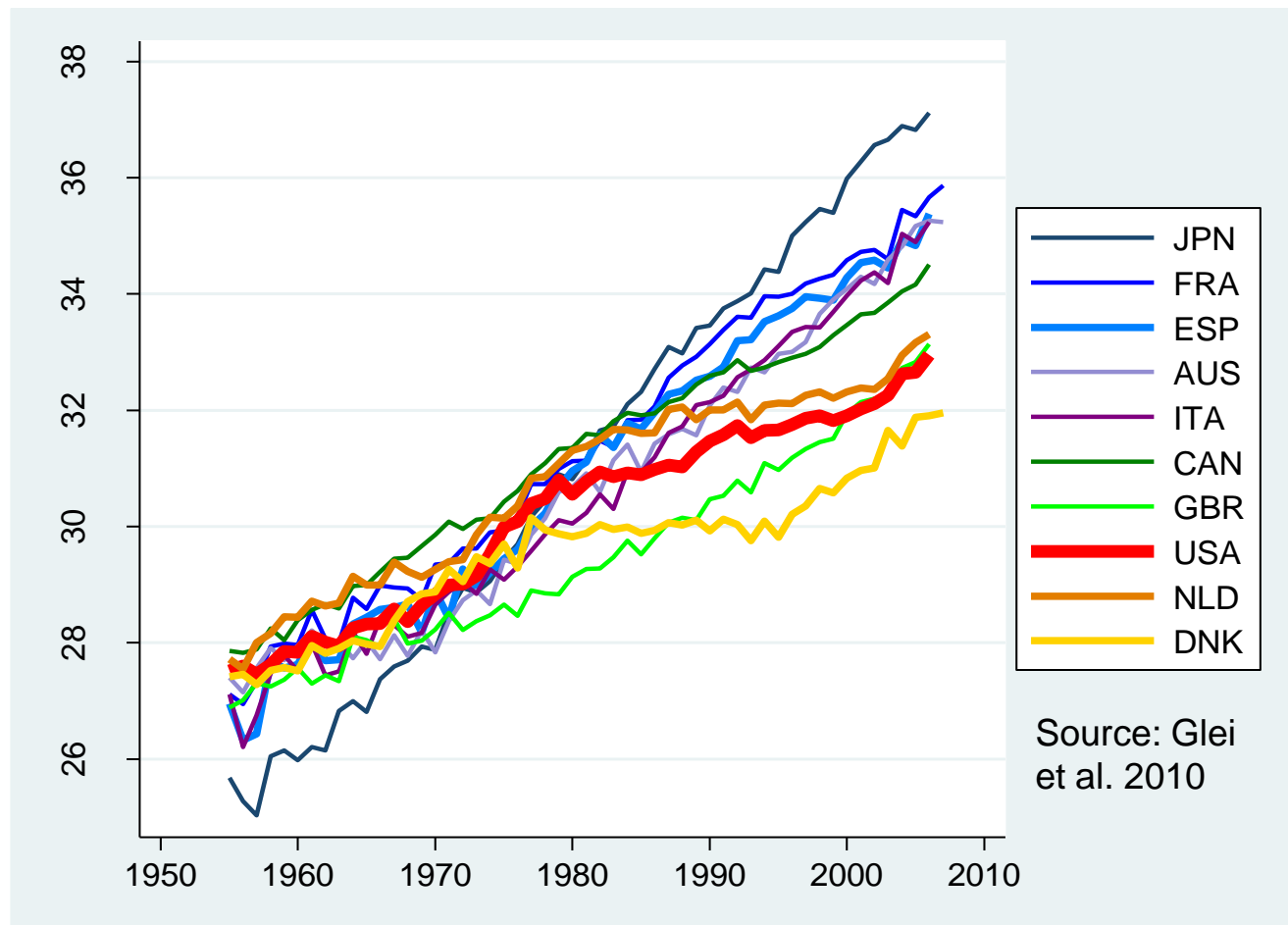


# Biomedical Research Funding Changes 2011-2012





# Trends in $e_{50}$ , Females



Source: Chapter 2, Diverging Trends in Life Expectancy at Age 50: A Look at Causes of Death, D. Glei, F. Mesle, J. Vallin



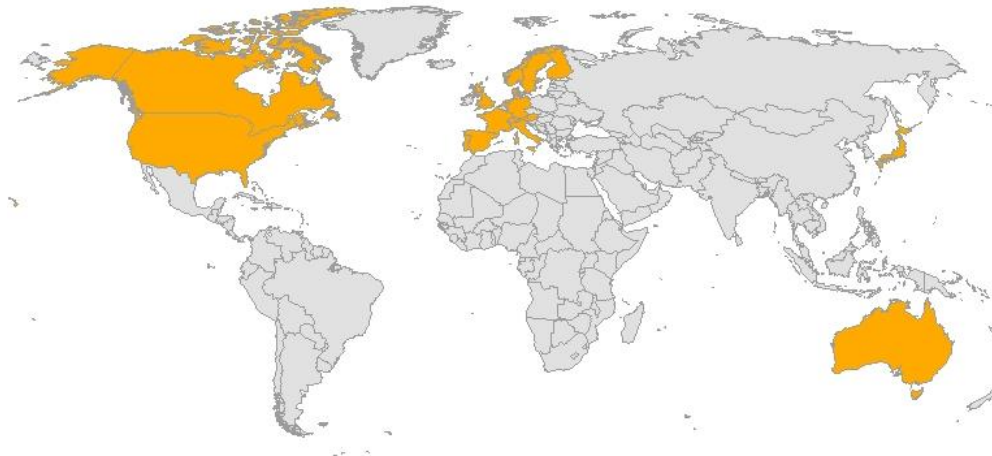
# US Health in International Perspective: Shorter Lives, Poorer Health

- Commissioned by OBSSR and NIH Partners
- IOM Panel on Understanding Cross-National Health Differences Among High-Income Countries
- Chair: Steven H. Woolf, MD, MPH
- Completed January 2013

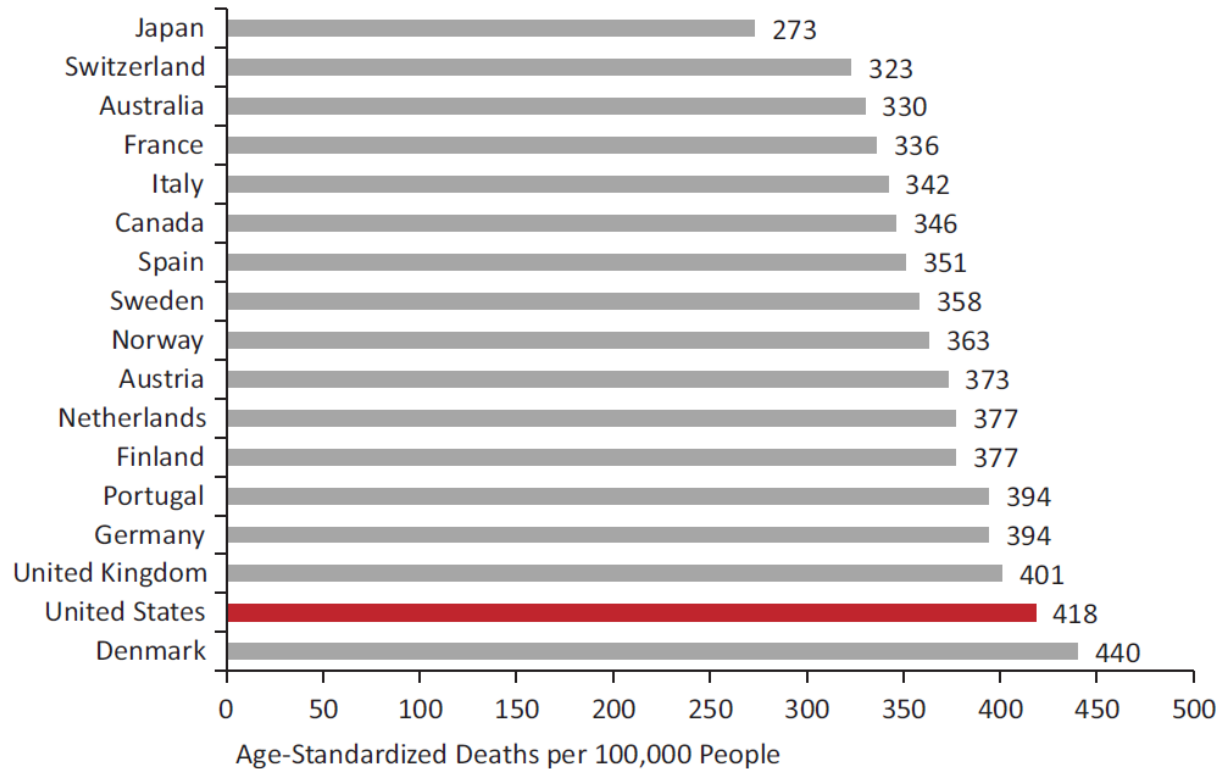


# 17 Peer Comparison Countries

- Australia
- Austria
- Canada
- Denmark
- Finland
- France
- Germany
- Italy
- Japan
- Norway
- Portugal
- Spain
- Sweden
- Switzerland
- The Netherlands
- United Kingdom
- United States



# Mortality from Non-Communicable Diseases (NCD), 2008

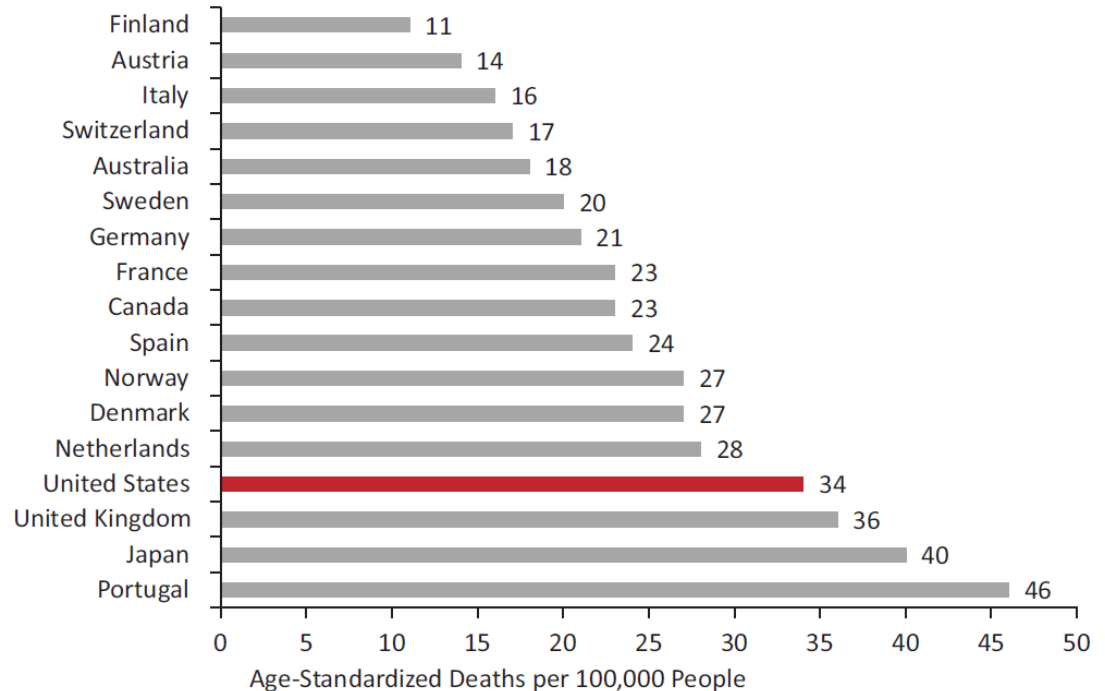


Among the 17 peer countries, the US had 2<sup>nd</sup> highest NCD mortality rate in 2008 (418:100,000)

# Mortality from Communicable (Infectious) Diseases, 2008

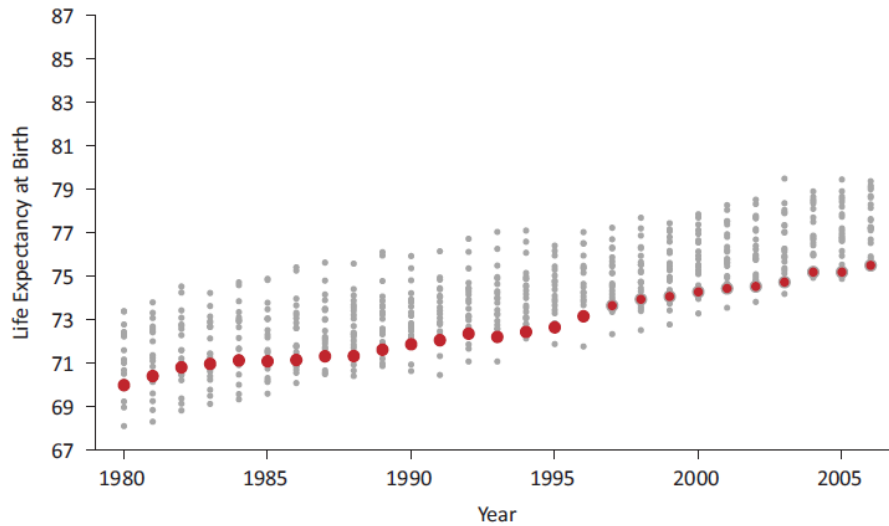
Among the 17 peer countries:

- US had 4<sup>th</sup> highest infectious disease mortality rate in 2008 (34:100,000)
- US had the highest incidence of AIDS (3<sup>rd</sup> highest in OECD, exceeded only by Brazil and South Africa).
- AIDS incidence in the US (122 per million) was almost 9 times the OECD average (14 per million).

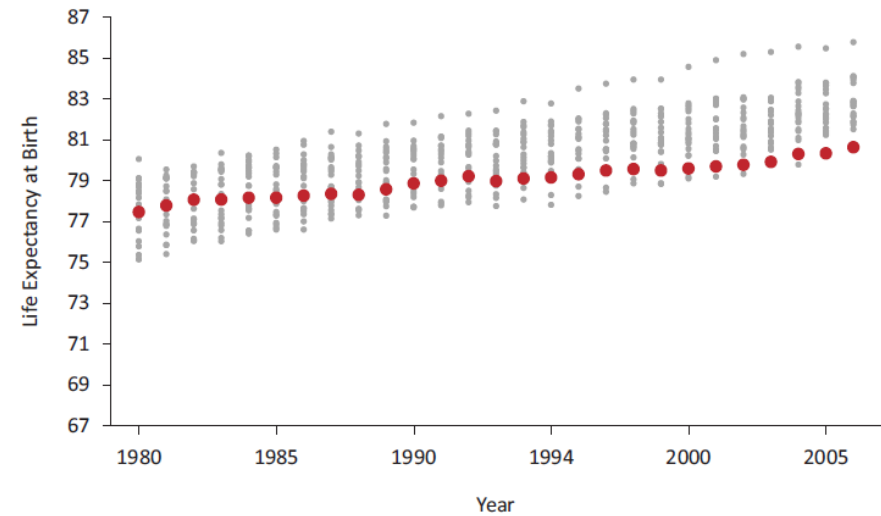


# Life Expectancy at Birth in 21 High-Income Countries, 1980-2006

## Males



## Females



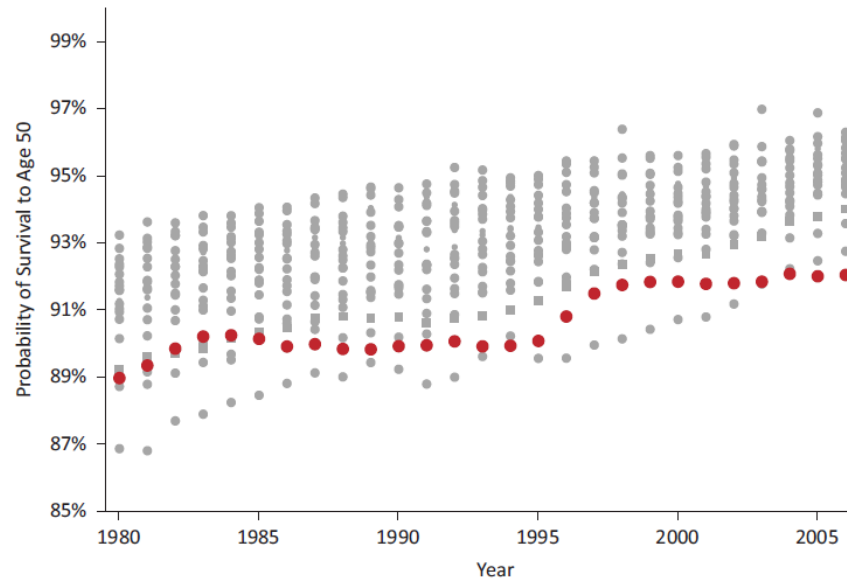
Explaining Divergent Levels of Longevity in High-Income Countries

**The problem is longstanding and worsening.**

In 1980, US life expectancy among females was about average, and was near the bottom for males, but by 2006 US life expectancy for both sexes had fallen to the bottom ranks.

# Probability of Survival to Age 50 in 21 High-Income Countries, 1980-2006

## Males



## Females



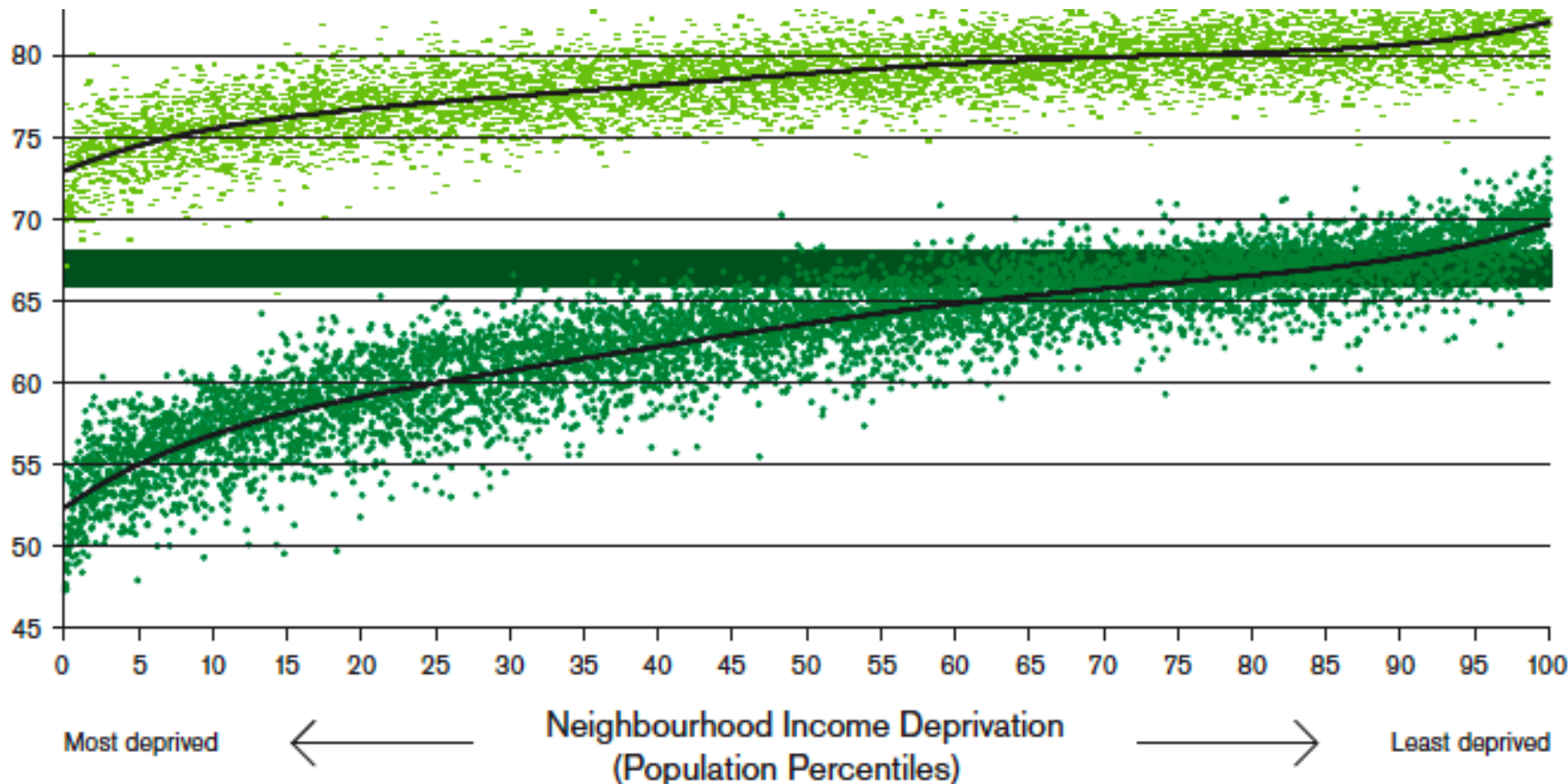
Explaining Divergent  
Levels of Longevity  
in High-Income  
Countries

For decades, American youth have been less likely to survive to age 50 than people in other rich nations.



Are there health determinants that medicine is not attending to?

# Life expectancy (light green) and disability free life expectancy by neighborhood deprivation in England: 1999-2003



From Marmot Report: Fair Societies- Healthy Lives

Strategic review of health inequalities in England post-2010

# A Short Distance to Large Disparities in Health

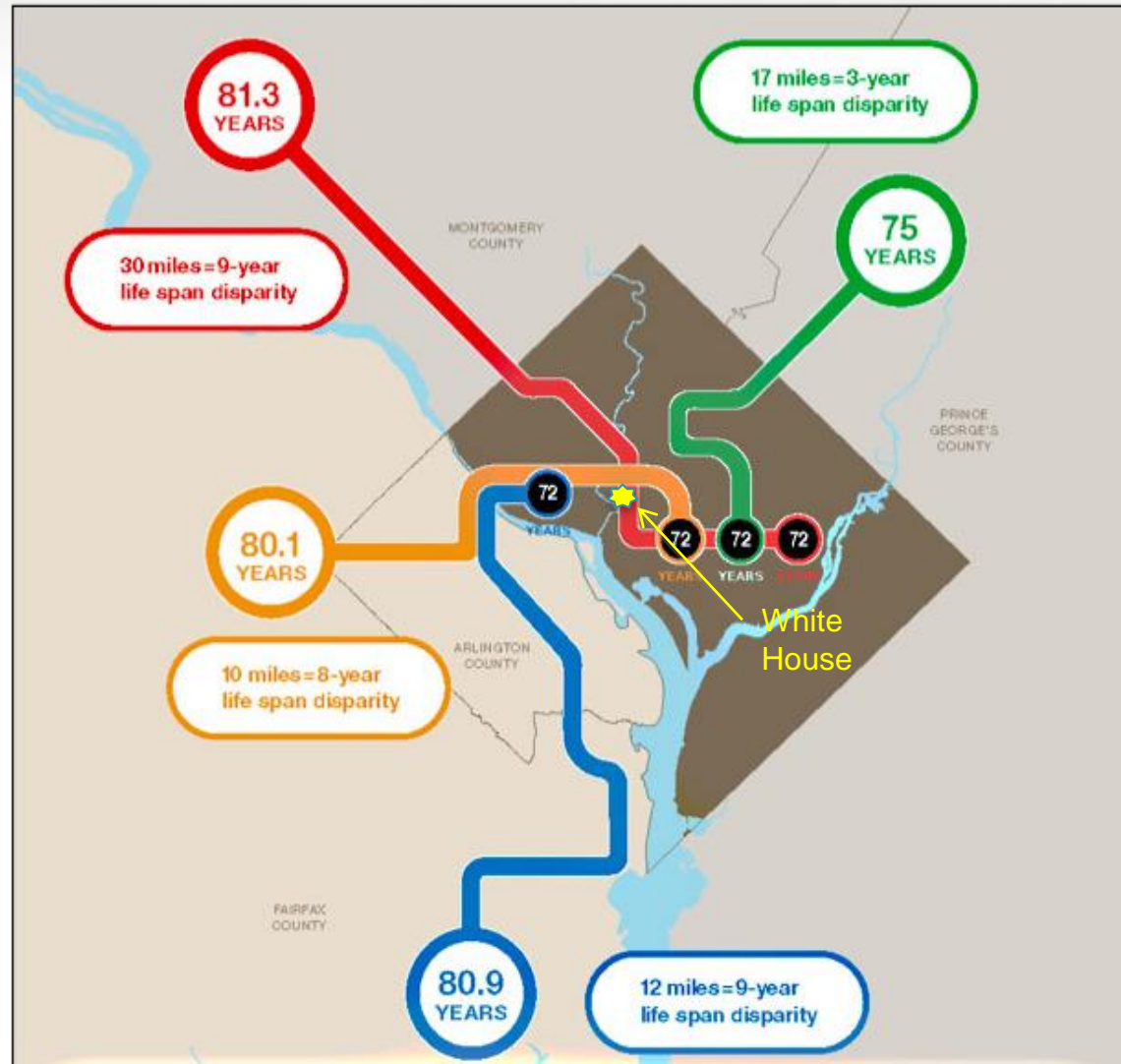
## Washington, D.C.

Red Line between Union Station in Washington and Shady Grove in Montgomery County, Md. are 17 metro stops spanning 30 miles and an estimated nine year difference in life span.

Orange Line between Metro Center in Washington and East Falls Church in Arlington County, Va. are nine metro stops spanning 10 miles and an estimated eight year difference in life span.

Green Line between Gallery Place in Washington and Greenbelt in Prince Georges County, Md. are 11 metro stops spanning 17 miles and an estimated three year difference in life span.

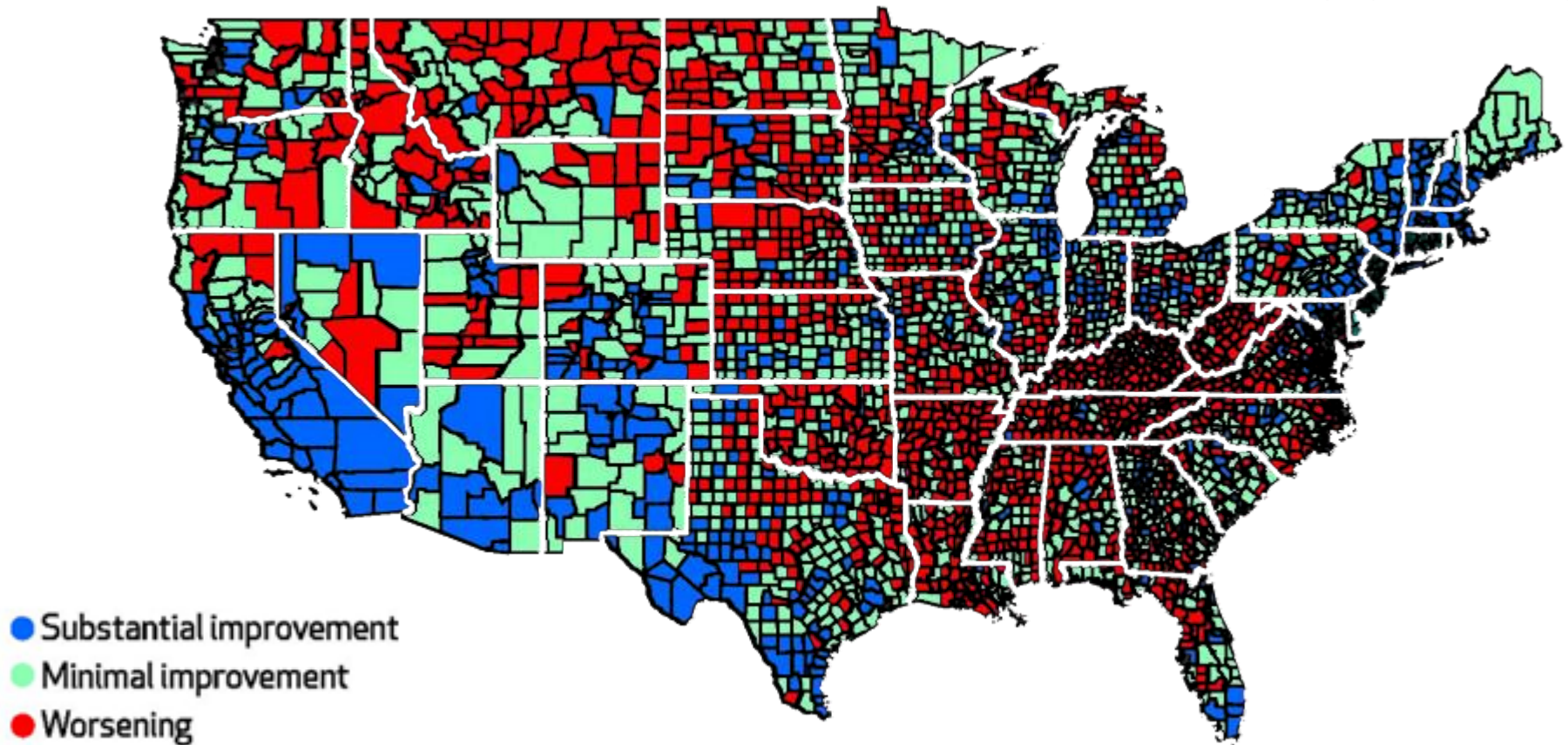
Blue Line between Foggy Bottom in Washington and Springfield-Franconia in Fairfax County, Va. are 10 metro stops spanning 12 miles and an estimated nine year difference in life span.





# Change In Female Mortality Rates From 1992–96 To 2002–06 In US Counties.

HealthAffairs

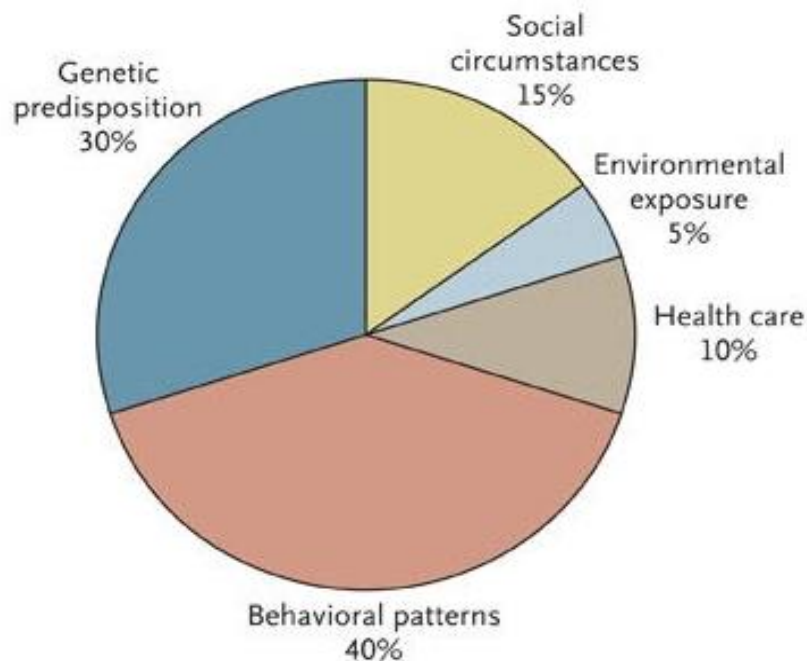


Kindig D A , and Cheng E R Health Aff 2013;32:451-458

## What Are the Underlying Causes of Death in the United States?

From Schroeder, N Engl J Med 2007; 357:1221-1228

Proportional Contribution to Premature Death



- A variety of different analyses consider the factors underlying the most common cause of death.
- Across studies, the high estimate for the benefits of health care is 20%, with most studies estimating around 10%.



## Improve Health Care Systems

By 1961, we knew that the **major risk factors** for CHD included:

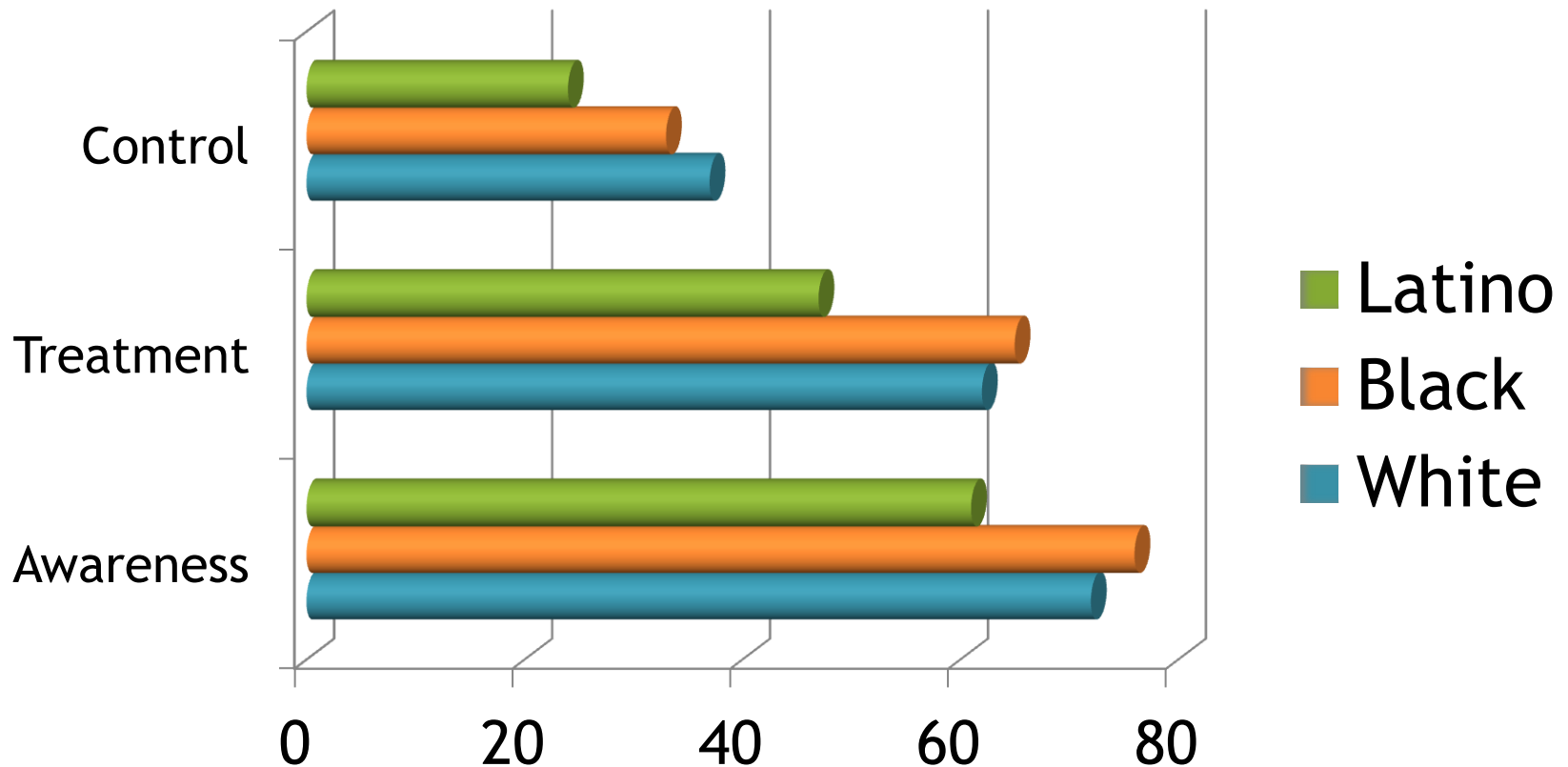
- Tobacco smoking
- High blood pressure
- High serum cholesterol
- Diabetes

The initial findings from the Framingham heart study were published **50** years ago.

# Case Study: Improving the dissemination and implementation of treatments for high cholesterol and high blood pressure



Awareness, Treatment, and Control of Hypertension in 2004 NHANES



# Improve Health Care Systems Even at Current Levels....

- **Awareness:** 80%
- **Treatment:** 70%
- **Control:** 50%

$$.8 \times .7 \times .5 =$$
$$.28$$

Only 28% of people with high blood pressure are being successfully treated.

# Improve Health Care Systems Non-Technical Solutions

Behavioral reminders for  
cholesterol treatments are  
estimated to **prevent**

**7X more deaths**

than replacing older  
cholesterol-lowering  
drugs with more potent  
medicines



**VS.**



## Some New Directions for OBSSR

- Planning for the next generation of behavioral and social sciences research
  - The next generation of measurement and data
  - Delivering services in a reforming health care system
  - Training the next generation of research investigators

# NIH Big Data to Knowledge – Funding at NIH



Big Data = Big money!

NIH is Launching BD2K:

Big Data to Knowledge - \$40M

[www.bd2k.nih.gov](http://www.bd2k.nih.gov)

RFA-HG-13-009

Centers of Excellence for Big Data Computing in the  
Biomedical Sciences (U54)

OBSSR is a Partner







- mHealth = Mobile Health
- Wendy Nilsen, Office of Behavioral and Social Science Research  
[nilsenwj@od.nih.gov](mailto:nilsenwj@od.nih.gov)
- Bill Riley, National Cancer Institute  
[w Riley@mail.nih.gov](mailto:w Riley@mail.nih.gov)



# Network on Inequalities Complexity and Health (NICH)

- Funded by NIH's Office of Behavioral and Social Sciences Research through a contract to George Kaplan (U Michigan)
- NICH Brings together health disparities researchers and systems science methodologists multiple times per year for five years (approximately 20 members)
- Several pilot projects underway; most if not all are ABMs
- Next year is the last year, final event is a conference **February 24-25, 2014** at NIH (Bethesda, MD, USA).
- [http://obssr.od.nih.gov/scientific\\_areas/social\\_culture\\_f\\_actors\\_in\\_health/health\\_disparities/](http://obssr.od.nih.gov/scientific_areas/social_culture_f_actors_in_health/health_disparities/)

# Systems Science Applications in Health Promotion and Public Health

HEB Special Issue October 2013

<http://heb.sagepub.com/content/by/year>

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Guest Editors:  
Patricia Mabry and Bobby Milstein



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With Social Science Traits? | Genetic Differential Sensitivity to Social Environments



*Society, Genetics, and  
Health*

AJPH Supplement,  
Volume 103, Issue S1

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Guest Editors: Michael Spittel,  
Bethany Deeds, & Erica Spotts

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## Current OBSSR Training Initiatives

### Training Institutes

- Annual Summer Training Institute on Randomized Clinical Trials involving Behavioral Interventions
- Summer Institute on SW Research
- Institute on Systems Science and Health
- Mobile Health (mHealth) Summer Institute
- Training Institute for Dissemination and Implementation Research in Health (TIDIRH)





# Contact Information

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