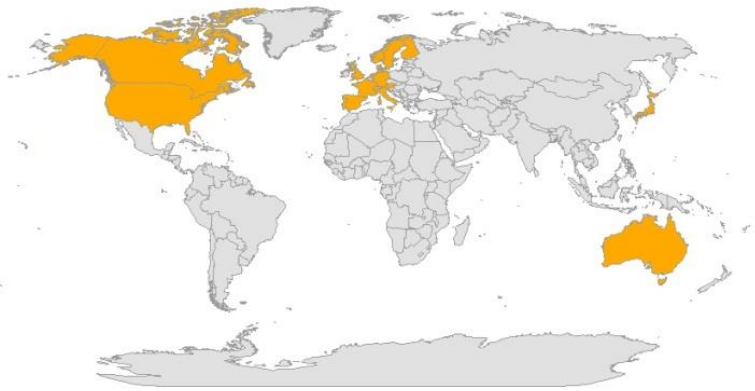
Connecting the Dots

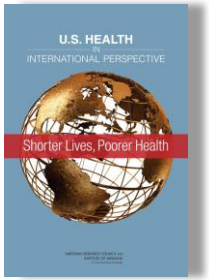
Roundtable on Population Health Improvement
Workshop #1: Perspectives on Improving Population Health
April 9, 2013

Steven H. Woolf, MD, MPH
Department of Family Medicine
Virginia Commonwealth University

Overview of Comparison Group

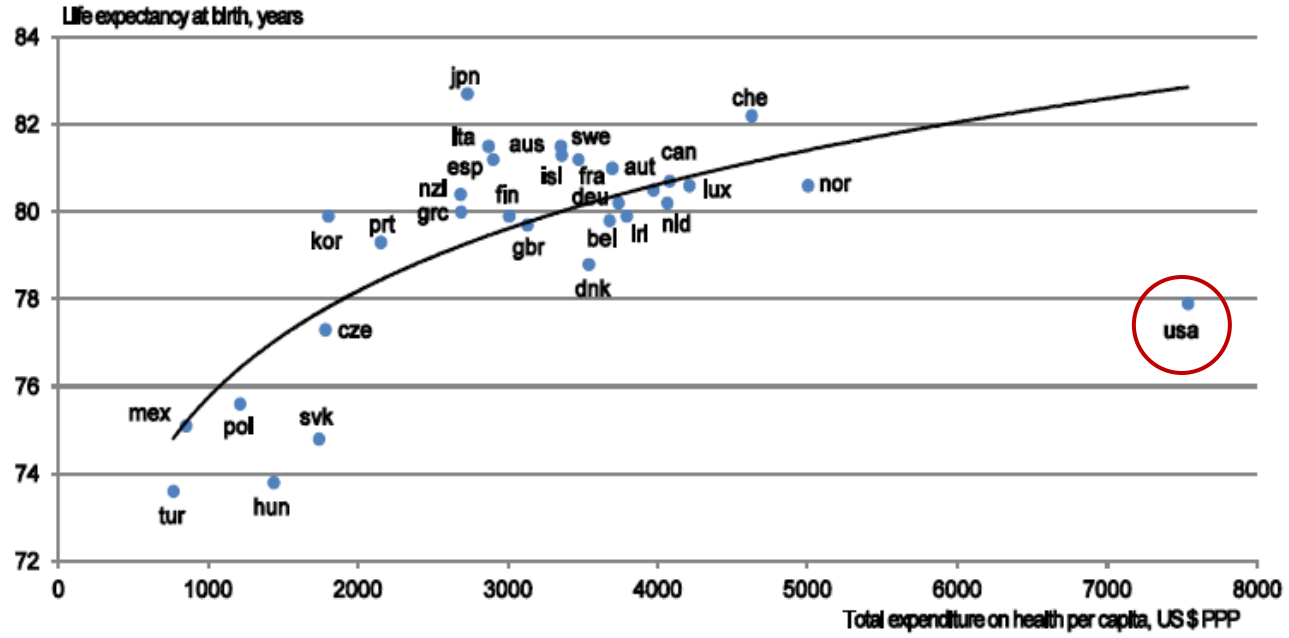


- 17 comparable high-income nations
- Australia, Austria, Canada, Denmark, Finland, France, Germany, Italy, Japan, Norway, Portugal, Spain, Sweden, Switzerland, the Netherlands, the United Kingdom, and the United States



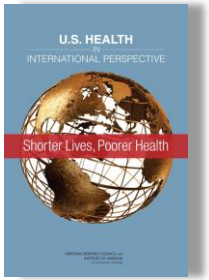
The Health of the Nation: Poor Value for Money

Life Expectancy and Health Care Spending in OECD Countries (2008)



1. Or latest year available.

Source: OECD Health Data 2010.



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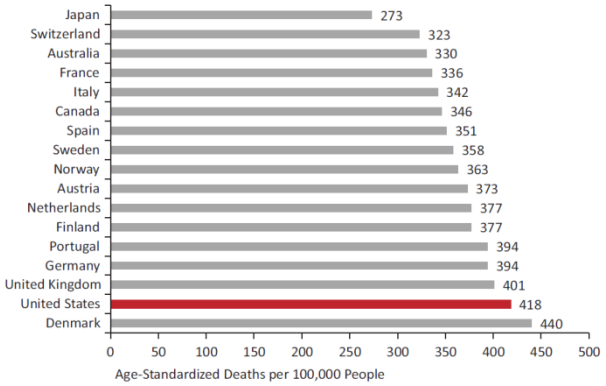
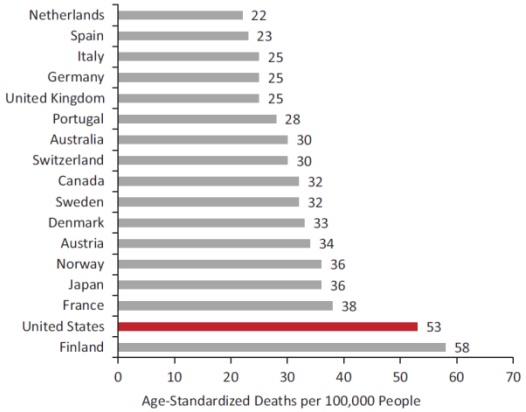
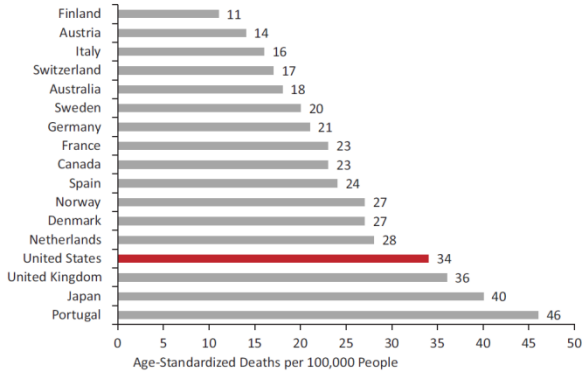
Mortality Rates in Peer Countries, 2008

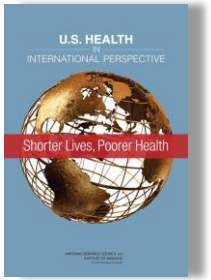
Non-communicable diseases





Communicable diseases





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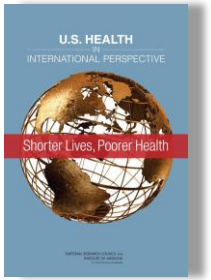
Higher Mortality Rates and Lower Life Expectancy

Mortality Rates by Cause of Death

Cause of Death	Mortality Rate (per 100,000) United States	Peer Countries (N = 16) Unweighted Mean	Peer Countries (N = 16) Range
	U.S. Death Rates Above Average		
Cardiovascular diseases[a]	155.7	133.6	97.4-174.9
Neuropsychiatric conditions[b]	39.2	28.1	7.2-48.4
Respiratory disease	34.3	21.0	12.7-34.4
Infectious and parasitic diseases	15.4	7.7	4.4-17.5
Diabetes mellitus	15.2	10.2	4.5-19.3
Genitourinary diseases[c]	12.3	7.2	3.0-12.2
Endocrine disorders	7.1	4.2	1.6-8.1
Congenital anomalies	4.3	3.3	2.6-4.0
Musculoskeletal diseases[d]	2.9	2.4	1.2-3.5
Nutritional deficiencies	1.0	0.7	0.1-2.0
Skin diseases	0.8	0.6	0.1-1.5
Maternal conditions	0.4	0.1	0.0-0.2
Perinatal conditions	7.1	3.7	1.3-5.9
Unintentional injuries[e]	35.5	20.4	13.7-38.6
Intentional injuries	17.3	11.4	5.6-20.2
	U.S. Death Rates at or Below Average		
Malignant neoplasms[f]	123.8	127.3	106.5-157.7
Digestive diseases[g]	19.8	19.8	13.0-29.5
Respiratory infections	9.7	12.3	4.0-29.7
Other neoplasms	2.9	3.3	2.1-5.3
Oral conditions[b]	0.0	0.0	0.0-0.1
Sense organ diseases[b]	0.0	0.0	0.0

Life Expectancy

Males			Females		
Country	LE	Rank	Country	LE	Rank
Switzerland	79.33	1	Japan	85.98	1
Australia	79.27	2	France	84.43	2
Japan	79.20	3	Switzerland	84.09	3
Sweden	78.92	4	Italy	84.09	3
Italy	78.82	5	Spain	84.03	5
Canada	78.35	6	Australia	83.78	6
Norway	78.25	7	Canada	82.95	7
Netherlands	78.01	8	Sweden	82.95	7
Spain	77.62	9	Austria	82.86	9
United Kingdom	77.43	10	Finland	82.86	9
France	77.41	11	Norway	82.68	11
Austria	77.33	12	Germany	82.44	12
Germany	77.11	13	Netherlands	82.31	13
Denmark	76.13	14	Portugal	82.19	14
Portugal	75.87	15	United Kingdom	81.68	15
Finland	75.86	16	United States	80.78	16
United States	75.64	17	Denmark	80.53	17



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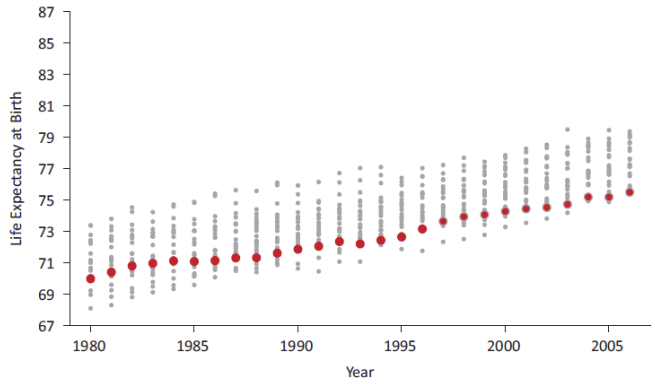
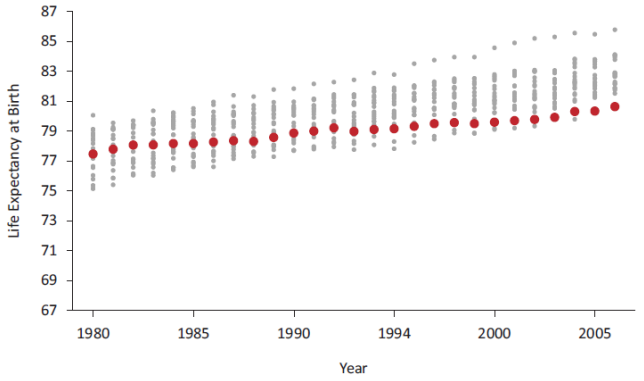
Changes in Life Expectancy over Time

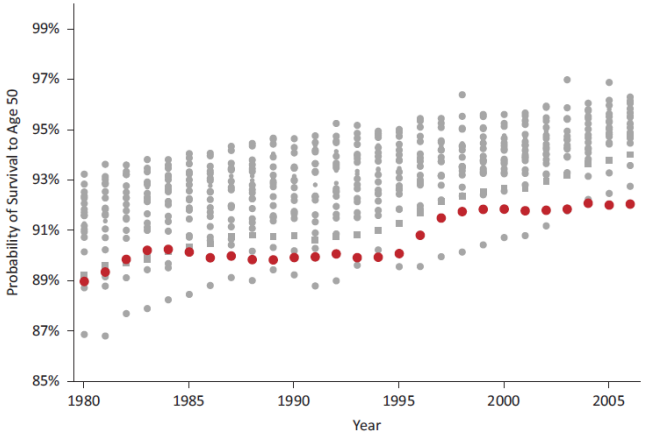
Life Expectancy at Birth - Male



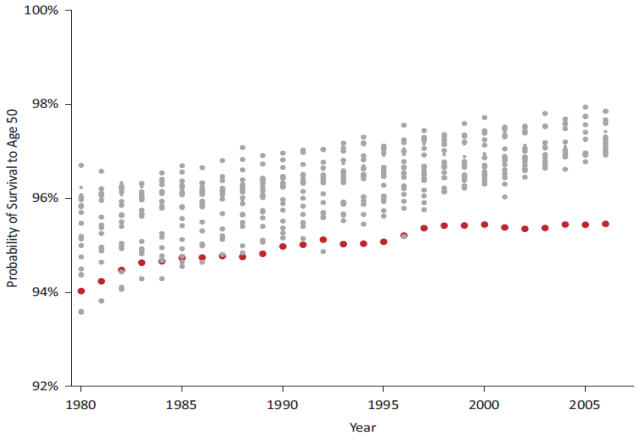
Life Expectancy at Birth - Female

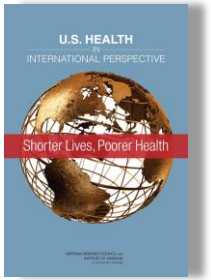


Probability of Survival to Age 50 - Male



Probability of Survival to Age 50 - Female





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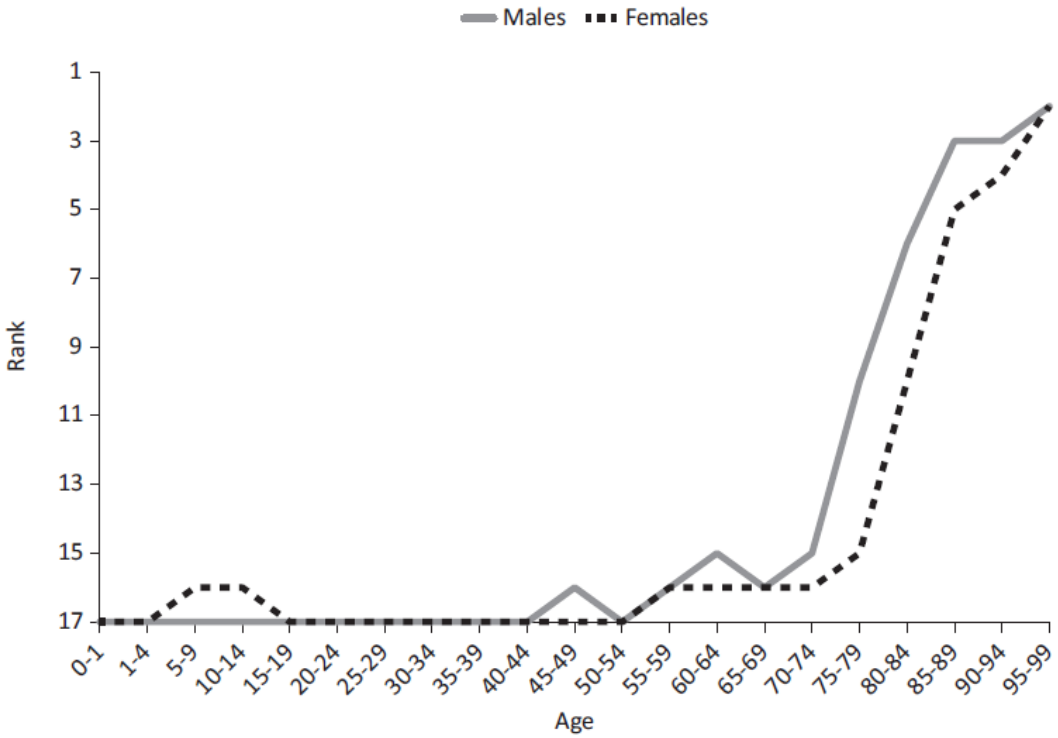
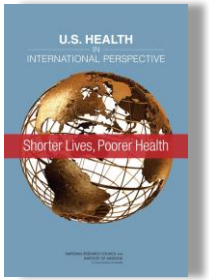
Low Life Expectancy at Every Age

Ranking of US Mortality Rates by Age Group vs. Peer Countries, 2006-2008



- For either sex, the US rank is never better than 15th out of 17 until age 75.



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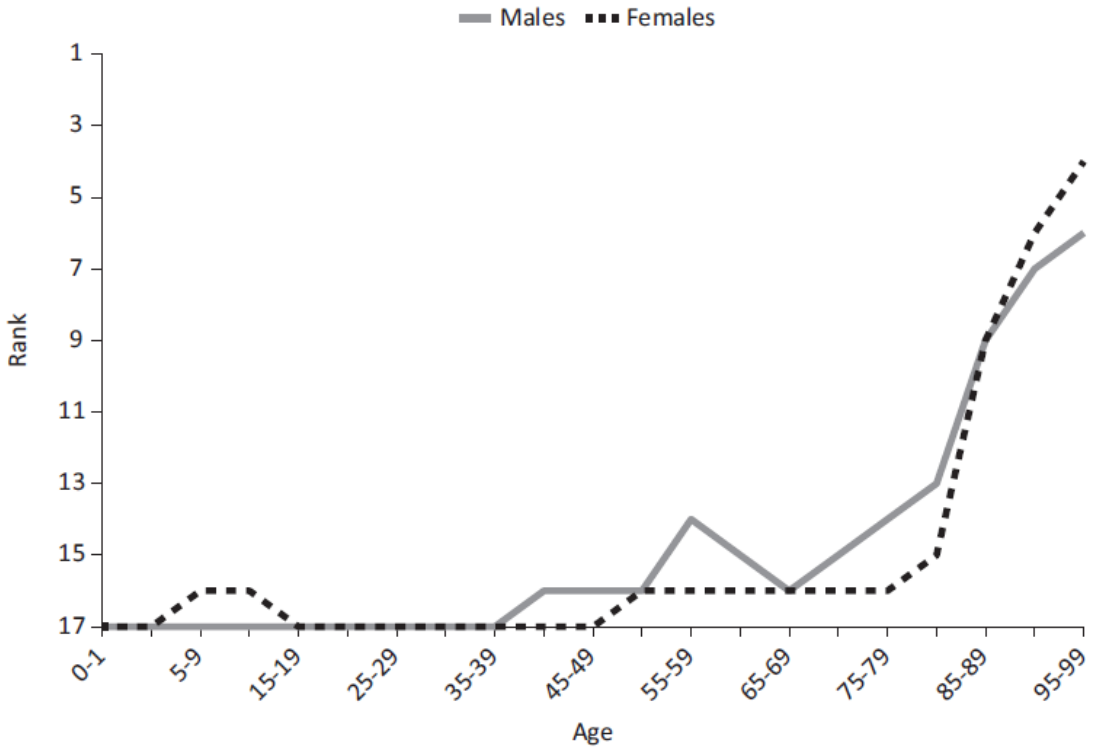
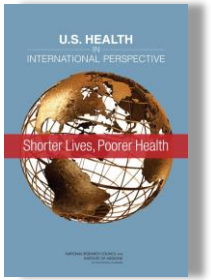
Low Life Expectancy for Non-Hispanic Whites

Ranking of Mortality of Non-Hispanic Whites by Age Group vs. Peer Countries, 2006-2008



- For either sex, the US rank is never ranked higher than 16th out of 17 until age 55.



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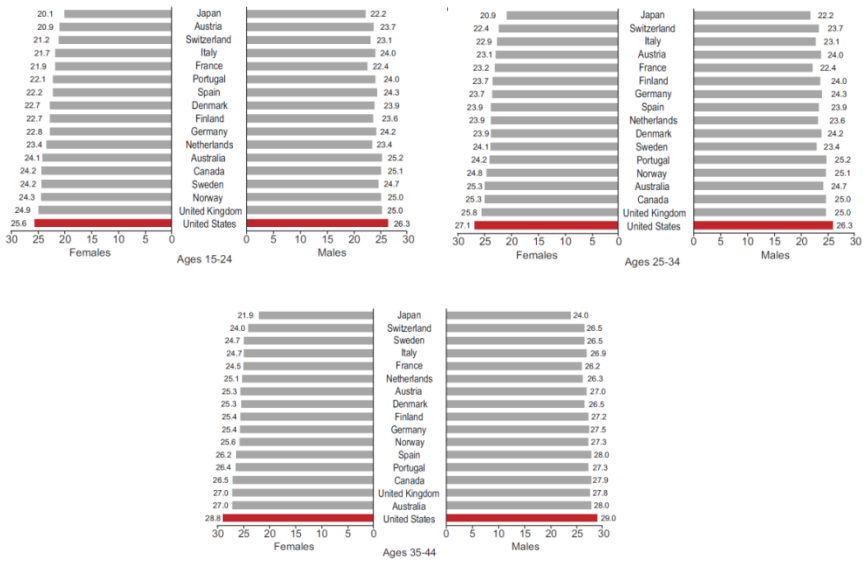
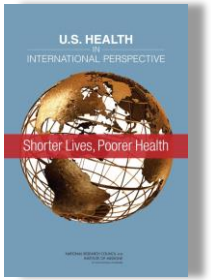
BMI and Obesity

Average BMI in Peer Countries, 2008



- The US has the **highest prevalence of adult obesity** among all OECD countries, a position it has held for decades.
- As of 2009, the prevalence of obesity in the US was twice the OECD average.



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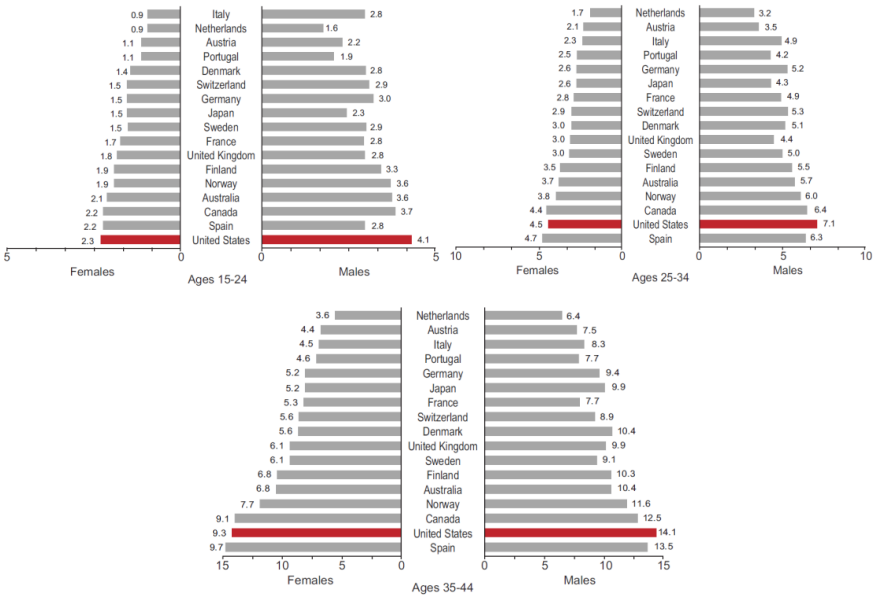
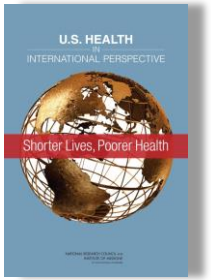
Diabetes

Self-Reported Diabetes Prevalence in Peer Countries, 2008



- As of 2010, the US had **close to the highest prevalence of diabetes** in adults aged 20-79 in all peer countries (and all OECD countries except Mexico).



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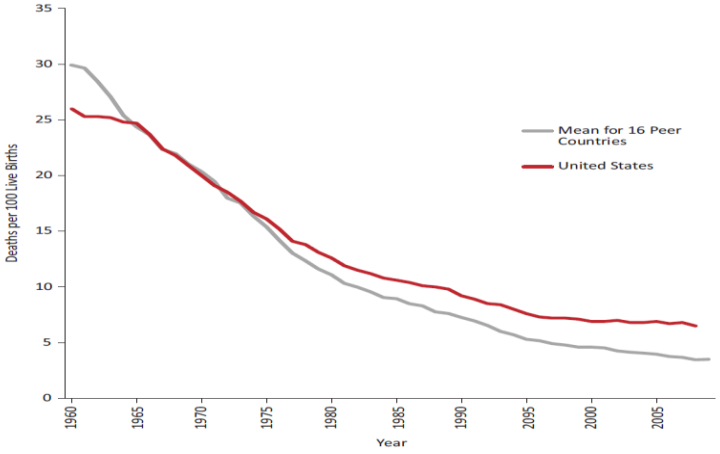
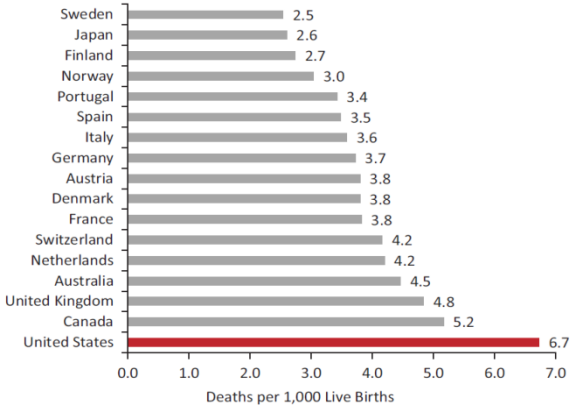
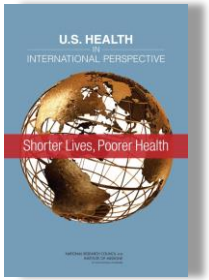
Infant Mortality in Peer Countries

Deaths per 1,000 Live Births





- From 2005-2009, the US had the **highest infant mortality rate** of the peer countries and the 9th highest in the OECD.
- Well-educated non-Hispanic whites and mothers have higher infant mortality rates in the US than those in other countries.
- Since the 1970s, US infant mortality has not kept pace with declines achieved by other countries.
  - US infant mortality declined by 20% from1990-2010, but comparable high-income countries halved their rates.



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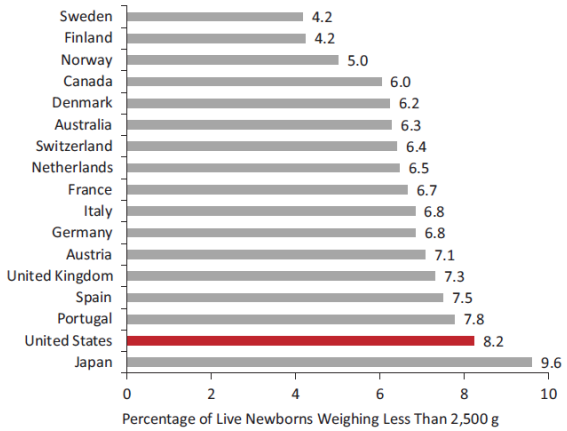
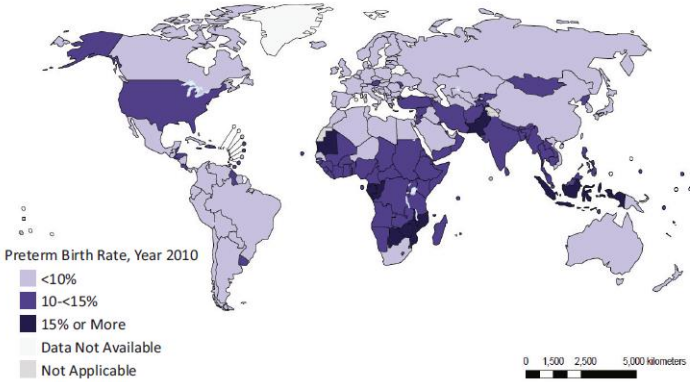
Other Birth Outcomes

Low Birth Weight in Peer Countries

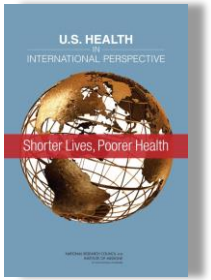


Global Preterm Birth Rates



Blencowe et al. 2012

- The US prevalence of low birth weight is the second highest of the peer countries.
- US stillbirths and perinatal mortality rates are also among the highest.
- A 2012 analysis found that the US **preterm birth rate** (12%) was **comparable to that of sub-Saharan Africa.**



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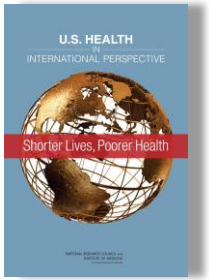
US Children's Health Disadvantage

Children in the US have the **highest probability of dying before age 5** of any of the peer countries.

- In 2004, 11% of US deaths before age 5 were from injuries.
- In 2006, the US had the highest rate of child deaths due to negligence, maltreatment, or physical assault.
- The violent death rate among US boys aged 1-4 has exceeded the OECD average since the late 1960s
- The US is ranked 24th of 30 (OECD) and 21 of 21 (UNICEF) on selected measures of children's well-being.



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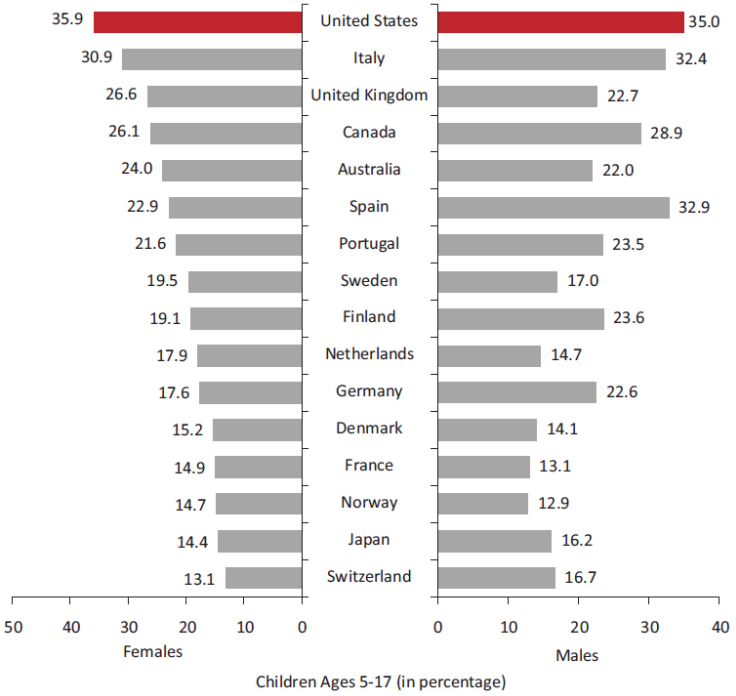
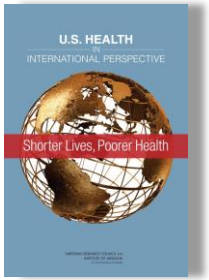
US Adolescent Health Disadvantage

Prevalence of overweight (including obese) children in peer countries (2011)



- Adolescent obesity rates in the US far exceed those in comparable nations
- In 2010, the US had the 5th highest prevalence of diabetes among children ages 0-14 in peer countries.
- Among teens aged 15-19 in 2005, the US had the **highest all-cause mortality rate** among peer countries.



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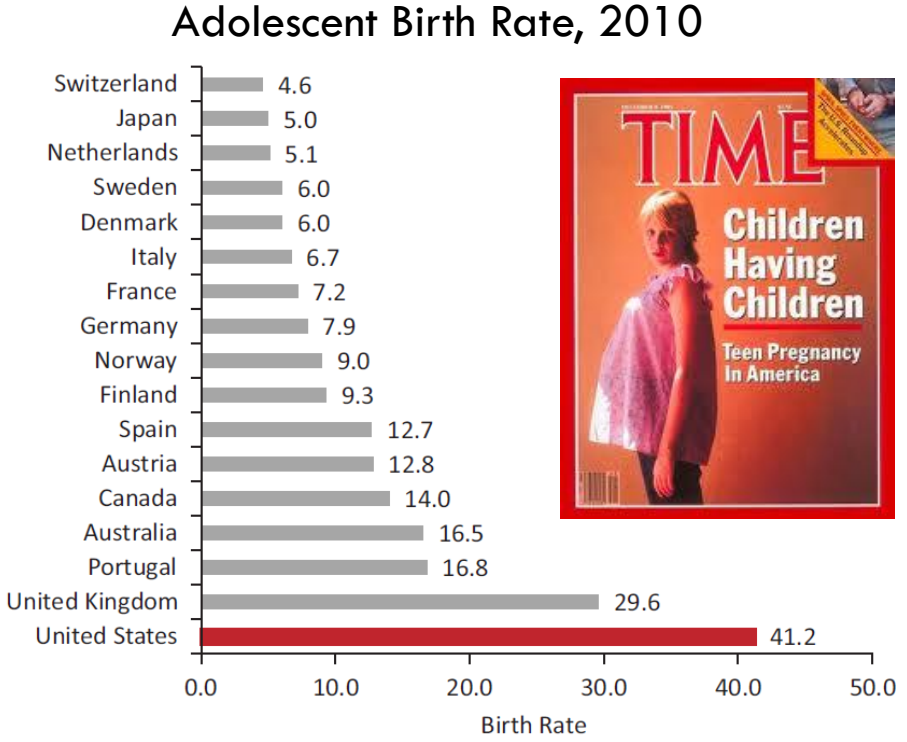
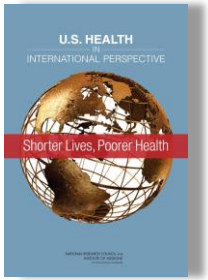
Adolescent Sexual Health

- The US has the highest teen pregnancy rate, **nearly 3.5 times** the average of peer countries in 2010.
- The US has a **higher prevalence of syphilis, gonorrhea, and chlamydia** among15-19 year-olds than any other high-income country that provided comparison data.
- Among high-income countries, the US has the **highest prevalence of HIV infection** at ages 15-24.





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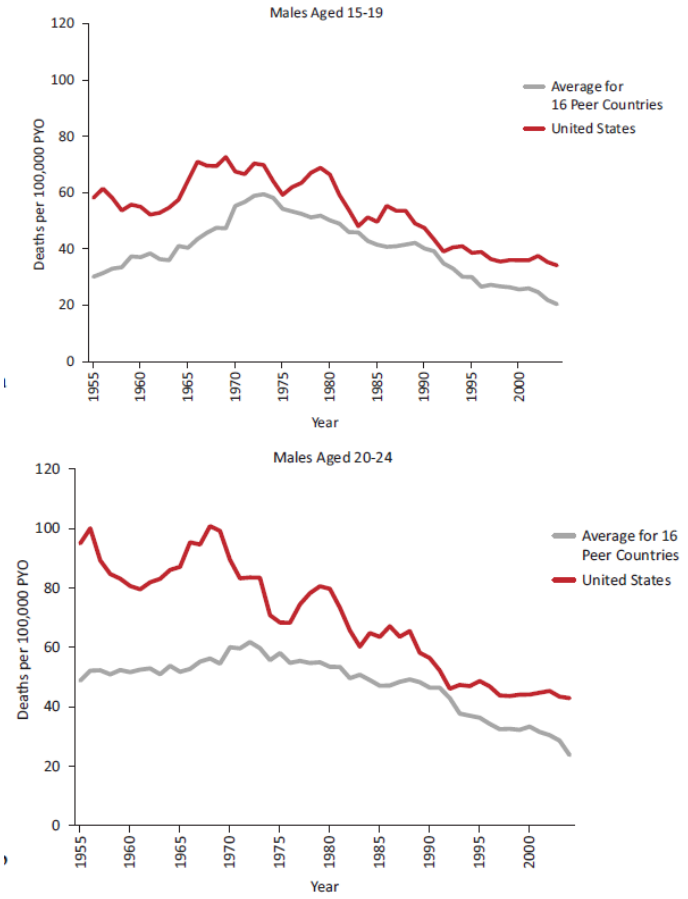
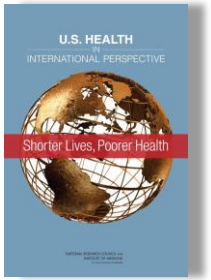
Youth Injury Mortality

Transportation-related Mortality in Peer Countries



- Among adolescents aged 15-19 in 2005, the US had the **highest injury mortality rate.**
- Since the 1950s, transport injury mortality at ages 15-24 has been higher in the US than in peer countries.
- Since the 1960s, the US has had **higher non-transport injury mortality** among children aged 5-9, and especially among males aged 10-19.



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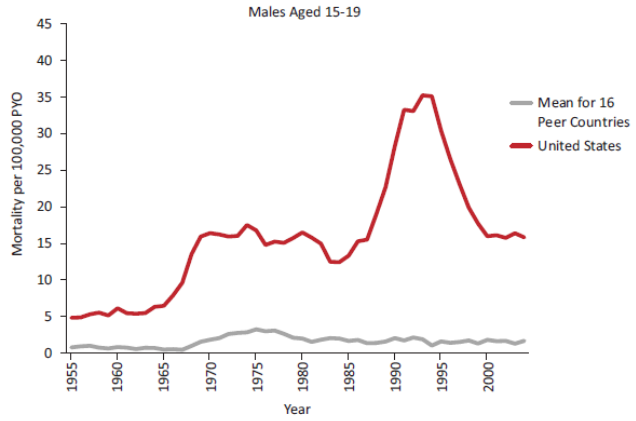
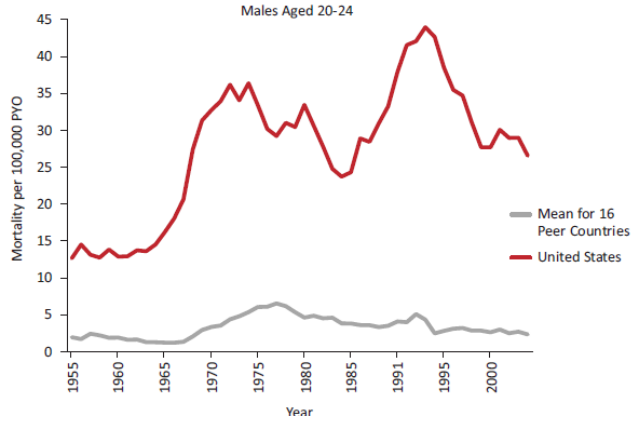
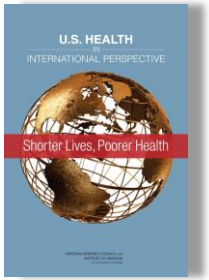
Youth Mortality from Violence

Violent Mortality in Peer Countries





- Since the 1950s, males aged 15-24 have been far more likely to die from violence in the US than in the peer group.
- US males aged 15-19 are **5 times more likely to die from violence** than those in other OECD countries.



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Age 50 and Above

Disease and Disadvantage in the United States and in England

James Banks, PhD
Michael Marmot, MD
Zoe Oldfield, MSc
James P. Smith, PhD

Context The United States spends considerably more money on health care than the United Kingdom, but whether that translates to better health outcomes is unknown.

Objective To assess the relative health status of older individuals in England and the United States, especially how their health status varies by important indicators of socioeconomic position.

Differences In Disease Prevalence As A Source Of The U.S.-European Health Care Spending Gap

Americans are diagnosed with and treated for several chronic illnesses more often than their European counterparts are.

by Kenneth E. Thorpe, David H. Howard, and Katya Galactionova

EXPLAINING DIVERGENT LEVELS OF LONGEVITY IN HIGH-INCOME COUNTRIES

Eileen M. Crimmins, Samuel H. Preston, and Barney Cohen, *Editors*

Panel on Understanding Divergent Trends in Longevity in High-Income Countries

Health Disadvantage in US Adults Aged 50 to 74 Years: A Comparison of the Health of Rich and Poor Americans With That of Europeans

Mauricio Avendano, PhD, M. Maria Glymour, ScD, James Banks, PhD, and Johan P. Mackenbach, PhD

A Tale of Two Countries—the United States and Japan: Are Differences in Health Due to Differences in Overweight?

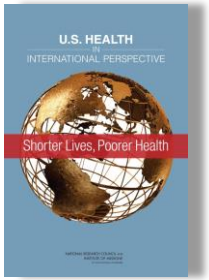
Sandra L. Reynolds[1], Aaron Hagedorn[2], Jihye Yeom[2], Yasuhiko Saito[3], Eise Yokoyama[3], and Eileen M. Crimmins[2]

[1]University of South Florida, Tampa, FL, USA
[2]University of Southern California, Los Angeles, CA, USA
[3]Nihon University, Tokyo, Japan

Differences in health between Americans and Western Europeans: Effects on longevity and public finance

Pierre-Carl Michaud[a,*], Dana Goldman[b], Darius Lakdawalla[b], Adam Gailey[c], Yuhui Zheng[d]

- Conditions more prevalent in the US among those age 50 and older
  - Obesity
  - Diabetes
  - Hypertension
  - Heart disease
  - Myocardial infarction
  - Stroke
  - Chronic lung disease
  - Asthma
  - Cancer
  - Arthritis
  - Activity limitations



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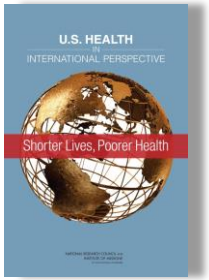
Nine Areas of US Health Disadvantage

- Infant Mortality & Low Birth Weight
- Injuries & Homicides
- Adolescent Pregnancy & STIs
- HIV & AIDS
- Drug-related Deaths
- Obesity & Diabetes
- Cardiovascular Disease
- Chronic Lung Disease
- Disability



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Determinants of Health

Health Systems

- Insurance and access barriers
- Weak primary care
- Coordination and errors

The Environment

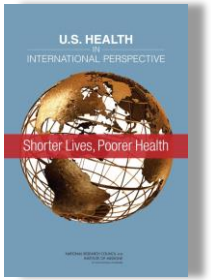
- Physical environment
- Social environment

Individual Behaviors

- Caloric intake
- Drug use
- Sexual practices
- Driver safety
- Firearm possession

Social Factors

- Low income/poverty
- Education
- Social mobility
- Incarceration
- Single-parent households



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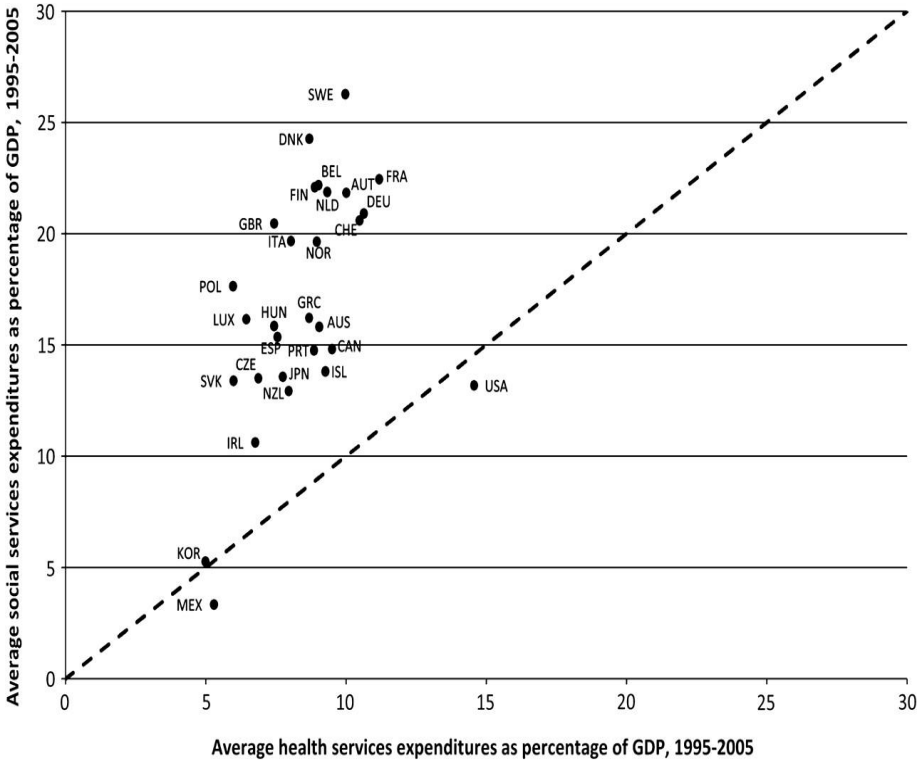
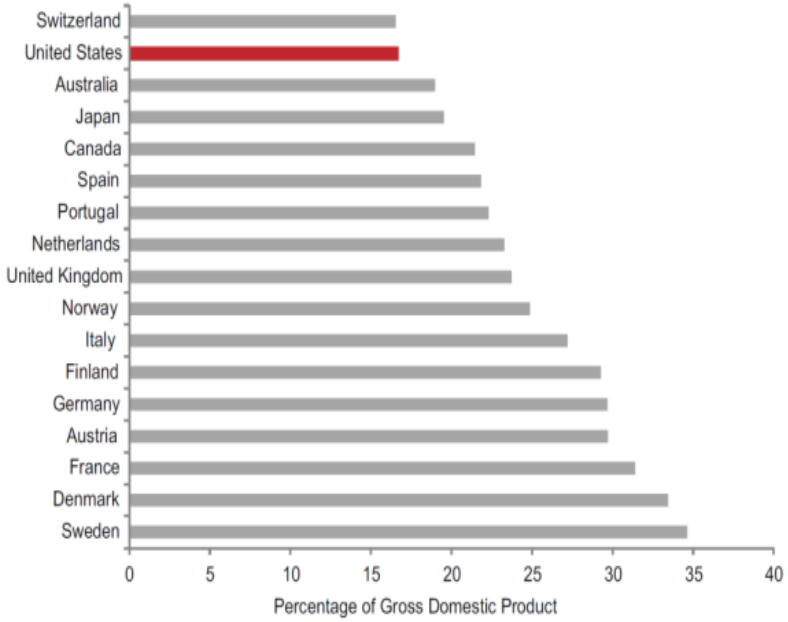
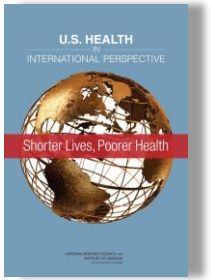
Policies and Social Values



Bradley E H et al. BMJ Qual Saf 2011;20:826-831





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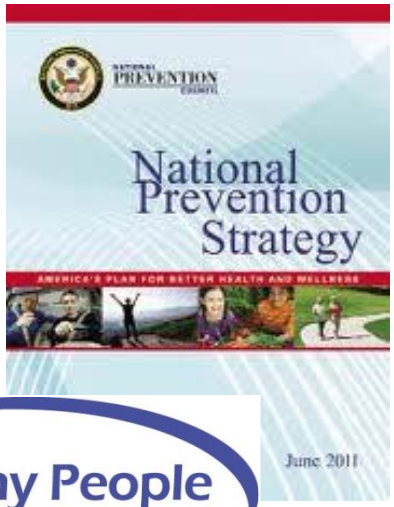
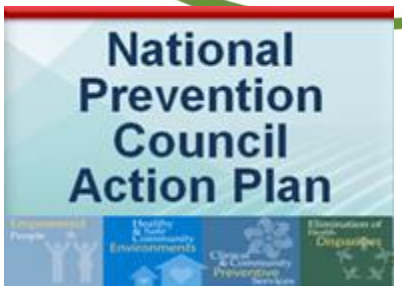
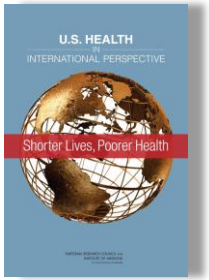
Policy Recommendations

- **Recommendation 4:** Intensify efforts to achieve established national health objectives that are directed at the specific disadvantages documented in this report and that use strategies and approaches that reputable review bodies have identified as effective.



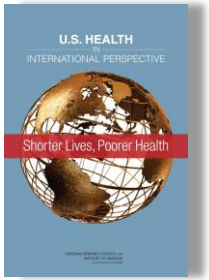




Policy Recommendations (Continued)

- **Recommendation 5:** The philanthropy and advocacy communities should organize a comprehensive media and outreach campaign to inform the general public about the U.S. health disadvantage and to stimulate a national discussion about its implications for the nation.

- **Recommendation 6**: Commission a review of the available evidence on (1) the effects of policies on the areas in which the US has an established health disadvantage, (2) how these policies have varied over time across high-income countries, and (3) the extent to which these policy differences may explain cross-national health differences.



1. Clarify "Population Health"

Can Accountable Care Organizations Improve Population Health?
Should They Try?

Douglas J. Noble, MD, MPH
Lawrence P. Casalino, MD, PhD

THE NUMBER OF ACCOUNTABLE CARE ORGANIZATIONS (ACOs) increased rapidly during 2012. There are now more than 250. This increase is likely to accelerate: commercial health insurers are signing ACO-like contracts with health care organizations, and the return of President Obama to the White House, as well as the Supreme Court ruling upholding the Affordable Care Act (ACA), have removed uncertainty about the Medicare ACO program. The goals for ACOs are well known: to control health care costs, to drive quality in health care, and to improve population health.

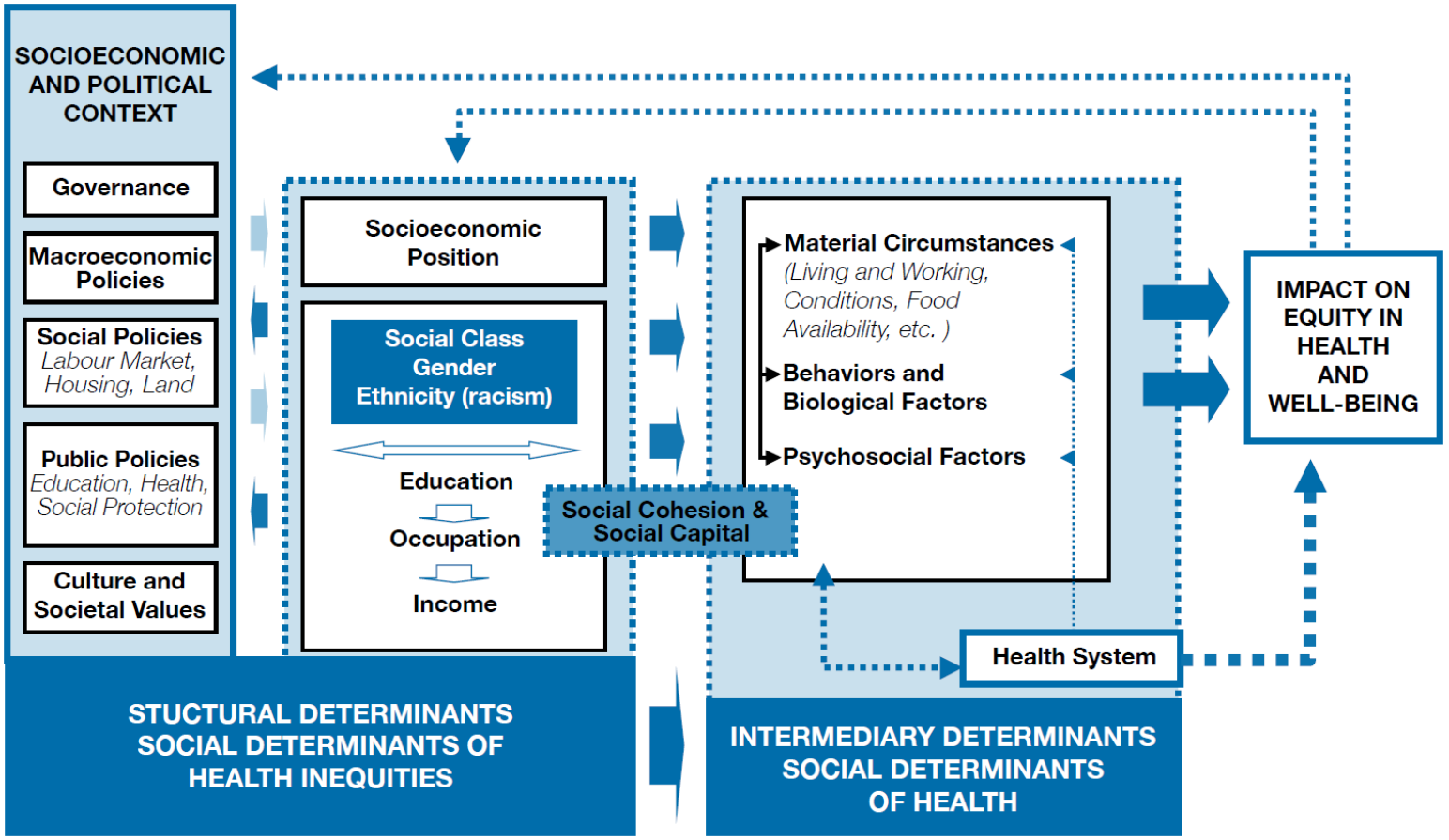
But what does improving population health mean? The word "population" is used only once in the much-cited

Talking about ACOs as if they are focusing on improving population health—as opposed to improving medical care for their populations of patients—leads to a lack of clarity about what ACOs are doing and about population health and may divert attention away from social and public health services and from socioeconomic factors critical to health. It would be unfortunate if ACOs, which have been conceived in idealistic terms, were to result in a narrowing and medicalization of the phrase "population health."

Currently, ACOs lack the incentives and, in most cases, the capabilities to be responsible for population health defined as the health of everyone in their geographic area. ACOs will be challenged to improve medical care and to cooperate with social service organizations for their own population of patients. Many ACOs are small, and few if any have the expertise, authority, and incentives to act effectively in the areas of public health, social services, and socioeco-

JAMA. 2013;309(11):1119-1120

2. Put Health Care in Perspective



From: *A Conceptual Model for Taking Action on the Social Determinants of Health*. Geneva: World Health Organization, 2010

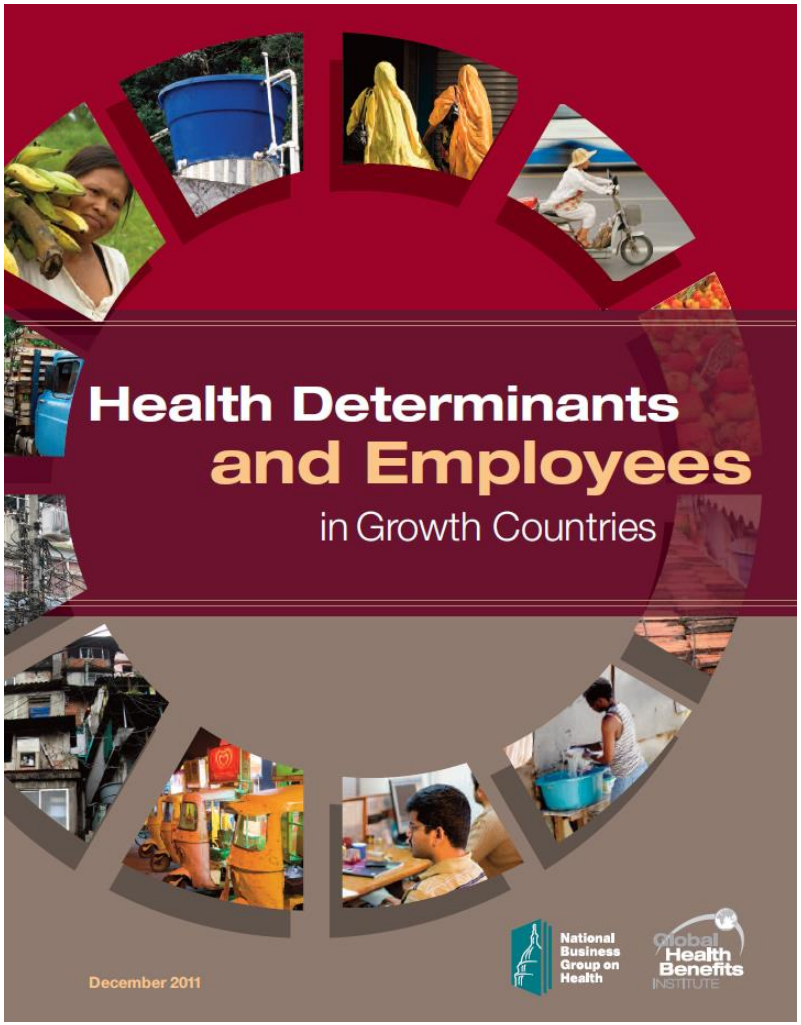
3. We Already Know What to Do

- More evidence can always help but it's not an excuse for inaction
  - The perfunctory refrain: "more research is needed"
  - Data needs outlined by IOM committee still hold
  - Machine learning with big data

4. Connecting the Dots

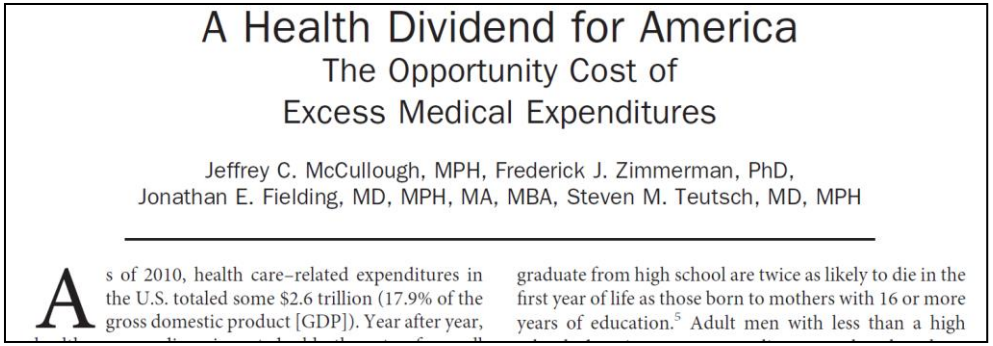
5. Engage Stakeholders

- Address competing business interests:
  - Industries that profit from the status quo
  - Industries that cannot afford the status quo



6. Reframe the Argument

- Make the business case for corporate America and elected officials
- Engage the public
- Use communication



A Health Dividend for America
The Opportunity Cost of
Excess Medical Expenditures

Jeffrey C. McCullough, MPH, Frederick J. Zimmerman, PhD,
Jonathan E. Fielding, MD, MPH, MA, MBA, Steven M. Teutsch, MD, MPH

As of 2010, health care–related expenditures in the U.S. totaled some $2.6 trillion (17.9% of the gross domestic product [GDP]). Year after year, graduate from high school are twice as likely to die in the first year of life as those born to mothers with 16 or more years of education.[5] Adult men with less than a high

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