

# The Impact of Alzheimer's Disease

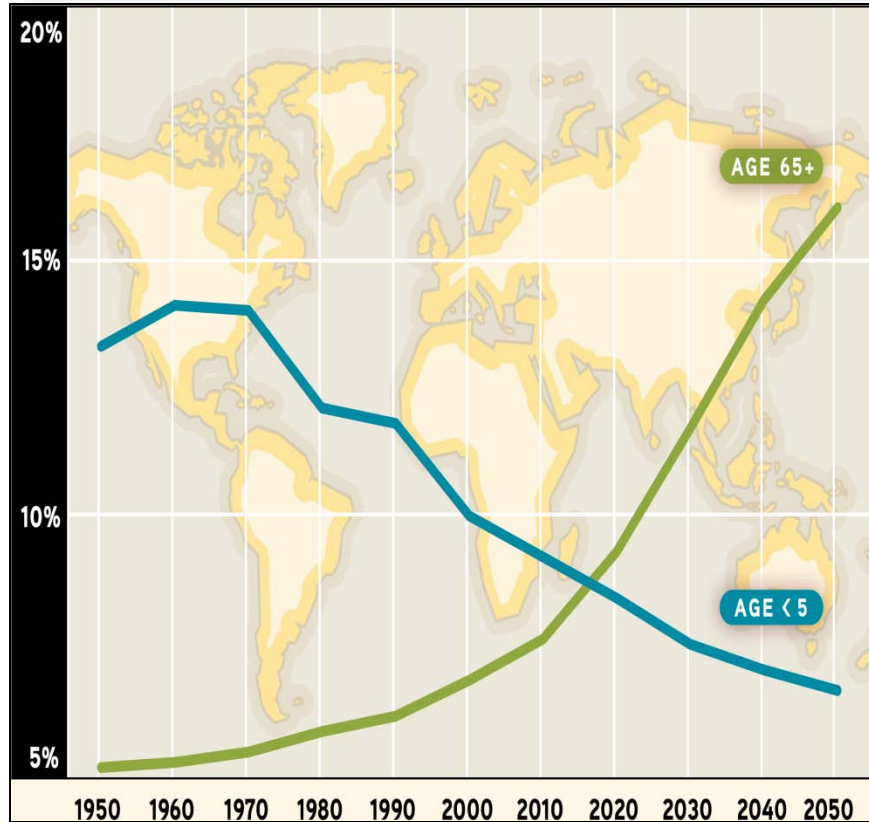
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**National Academy of Social Insurance  
27<sup>th</sup> Annual Policy Conference  
Medicare and Medicaid: The Next 50 Years**

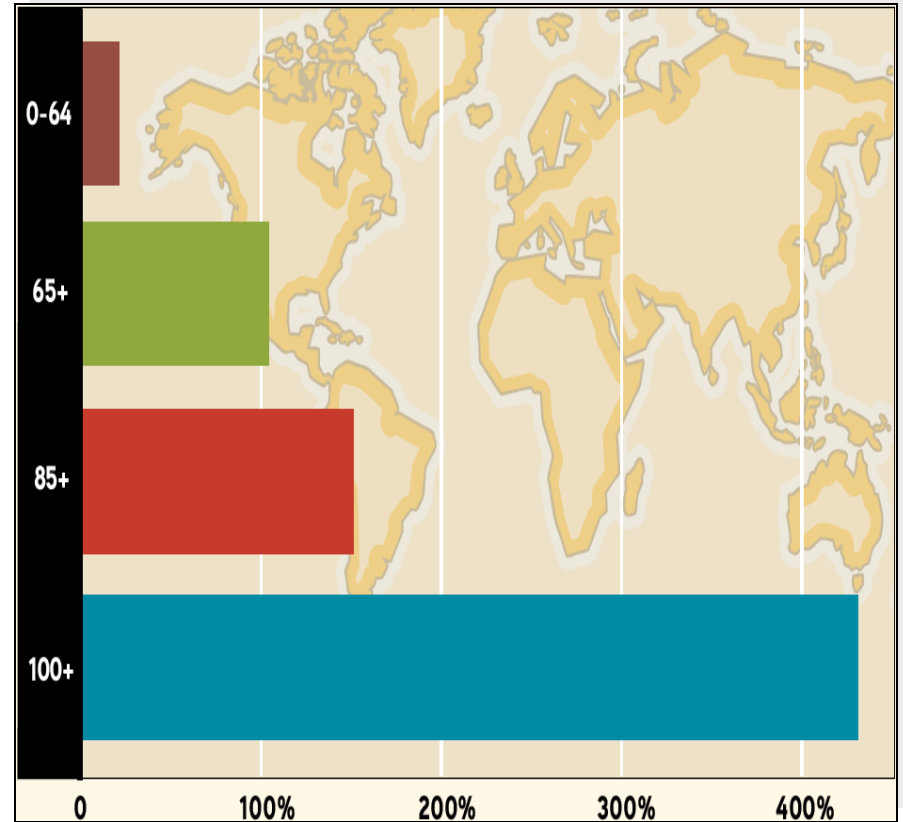
Richard J. Hodes, M.D.  
Director  
National Institute on Aging  
January 29<sup>th</sup>, 2015



## YOUNG CHILDREN AND OLDER PEOPLE AS A PERCENTAGE OF GLOBAL POPULATION



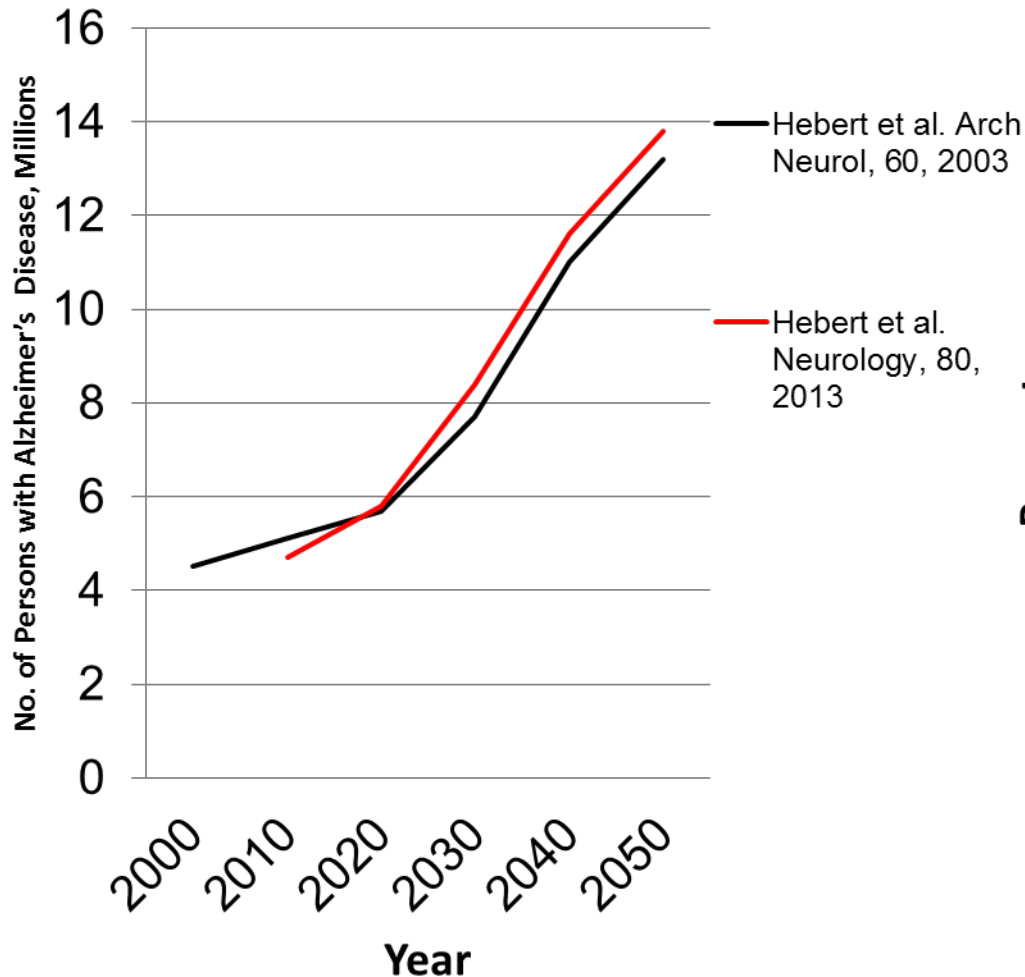
## PROJECTED INCREASE IN GLOBAL POPULATION BETWEEN 2005 and 2030, BY AGE



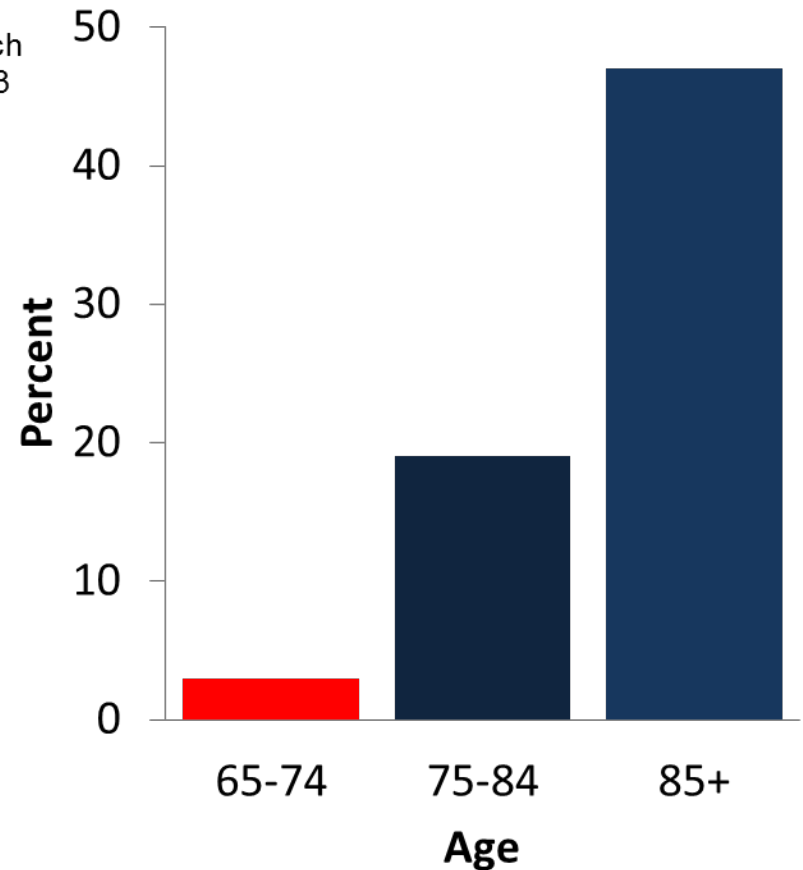
United Nation Department of Economic and Social Affairs, Population Division. *World Population Prospects. The 2004 Revision*. New York: United Nations, 2005 in *Why Population Aging Matters: A Global Perspective* at [www.nia.nih.gov/ResearchInformation/ExtramuralPrograms/BehavioralAndSocialResearch/GlobalAging.htm](http://www.nia.nih.gov/ResearchInformation/ExtramuralPrograms/BehavioralAndSocialResearch/GlobalAging.htm)

# Prevalence of Probable Alzheimer's Disease

## Number of Persons in US with AD (millions)



## Percent of Persons with AD by Age



Evans, et al. *JAMA*, 262, 1989

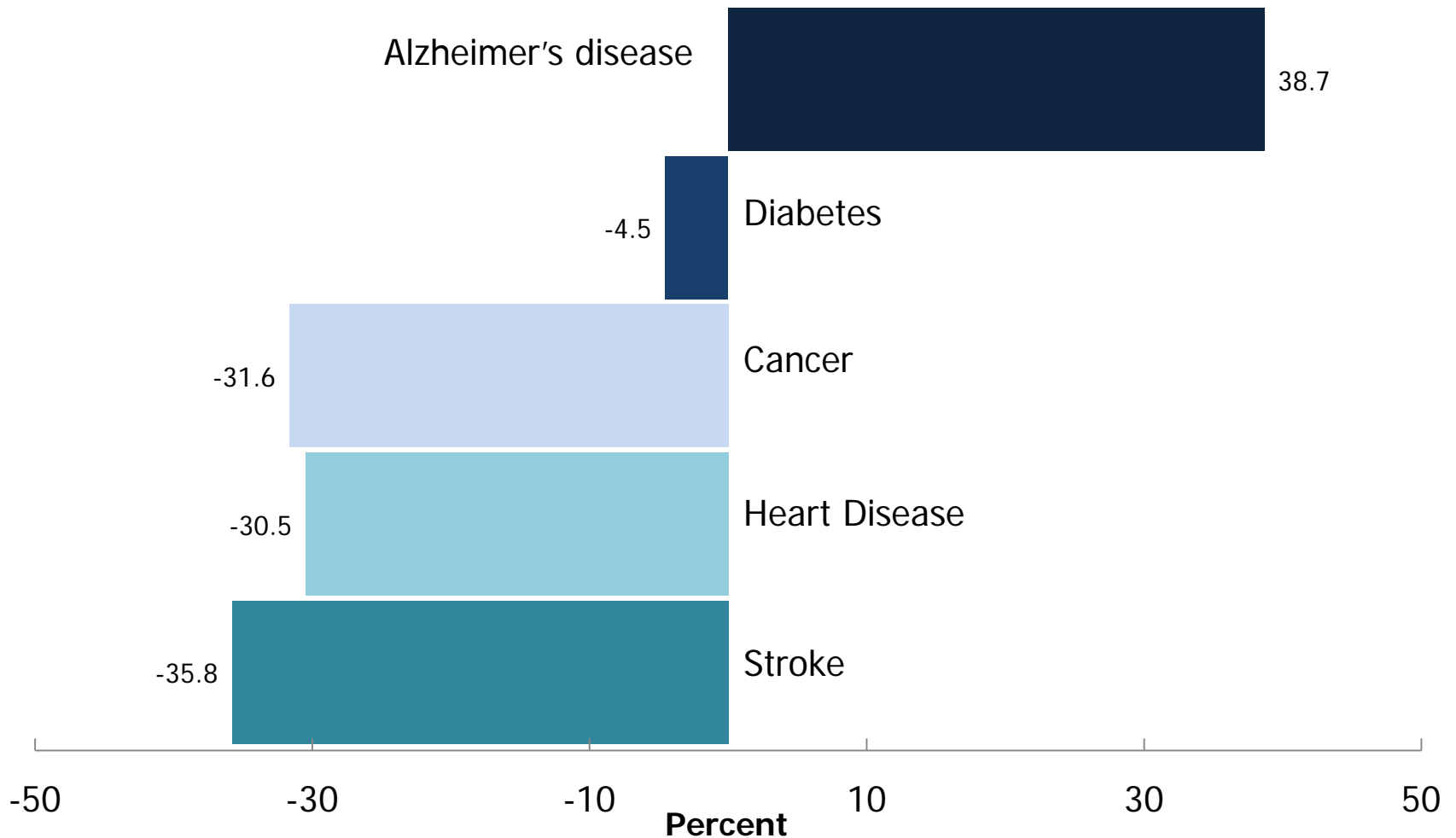
# Leading Causes of Death, Adults 65+ Years, 2010

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Rank	Cause of Death
1	Heart disease
2	Cancer
3	Chronic lower respiratory diseases
4	Stroke
<b>5</b>	<b>Alzheimer's disease</b>
6	Diabetes
7	Influenza and pneumonia
8	Kidney disease
9	Accidents (unintentional injuries)
10	Septicemia

# Percent Change in Age-Adjusted Death Rates Between 2000 and 2010

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NOTES: Data are for all ages and are age-adjusted.

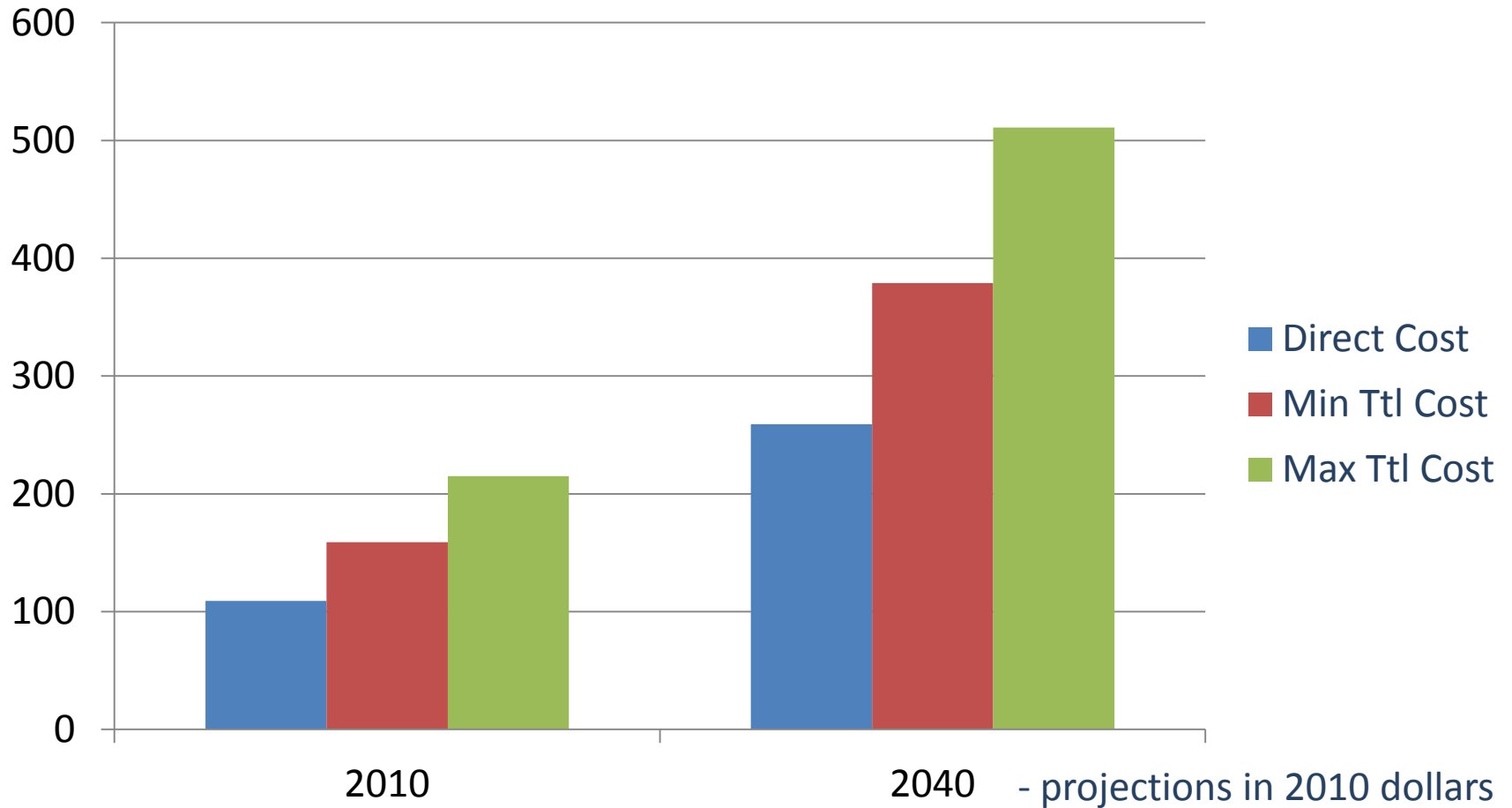
SOURCE: Tejada-Vera B. Mortality from Alzheimer's disease in the United States: Data for 2000 and 2010. NCHS data brief, no 116.

Hyattsville, MD: National Center for Health Statistics. 2013.

# The Monetary Costs of Dementia in the U.S.

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\$s in Billions



Hurd, MD et al. (2013) *N Engl J Med* 368(14): 1326–1334.

# Cost of Care

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- Fewer than 1/5 of older people have enough personal resources to live in a nursing home for more than 3 years, and nearly 2/3 cannot afford 1 year.
- Home and community-based services for long-term care are becoming increasingly popular; Medicaid funding for these services increased from 13% of total funding in 1990 to 43% in 2007.
- NIA-funded Health and Retirement Study data suggest that a significant percentage of older Americans engage in caregiving:
  - Among individuals aged 65-74, 37.8 percent provided caregiving
  - Among individuals aged 75 and older, 19.2 percent provided caregiving
  - An estimated value of these unpaid activities was \$83.4 billion in 2002

# Cost Impact of AD Prevention

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- A breakthrough in 2015 that delayed the age of onset of AD by five years would reduce total costs immediately.
- By 2020, total costs to all payers for the care of people with the condition would be *\$50 billion less* than would be expected without the breakthrough.
- By 2050, the reduction in total costs to all payers would be *\$447 billion*.
- Reductions in Medicare costs would account for almost half of the decrease in costs to all payers.

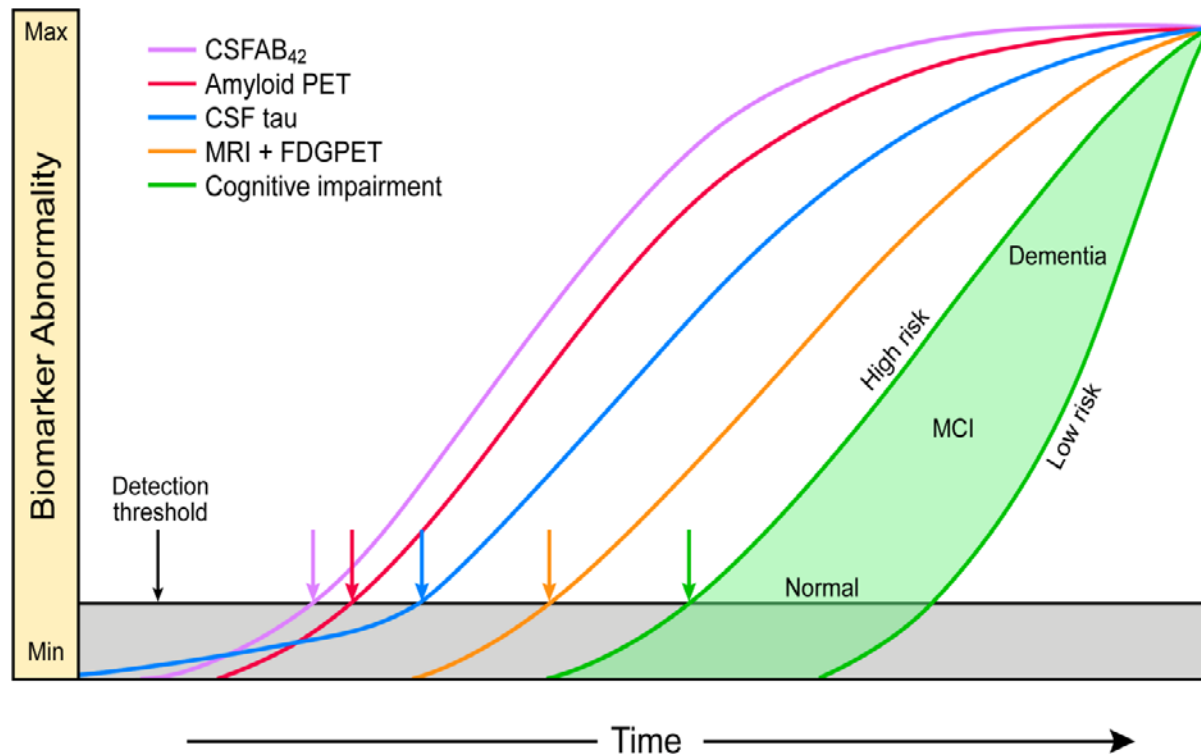


# Declining dementia rates?

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- Evidence from US and Europe suggests dementia rates may be declining.
- *National Long-term Care Survey*: Prevalence decline persons  $\geq 65$  years of age (5.7% in 1982 vs. 2.9% in 1999)
- *Health & Retirement Study*: Prevalence decline among persons  $\geq 70$  years of age (12.2% in 1993 vs. 8.7% in 2002)
- Possible reasons for the decline: greater educational levels and economic well-being; improvements in general health.
- US may be in a sweet spot where dementia rates are falling before they rise due to obesity and diabetes epidemics.
- Further study is needed to monitor trends.

# Tracking Alzheimer's pathophysiology – a model of dynamic biomarkers

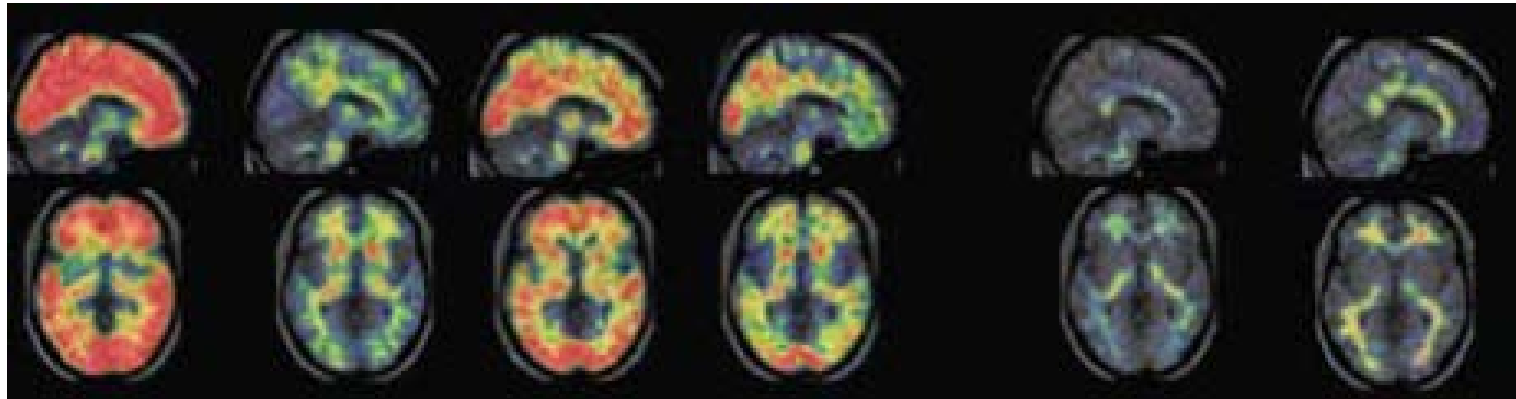


# Amyloid PET Scans in *Presymptomatic* Early-Onset Alzheimer's Disease

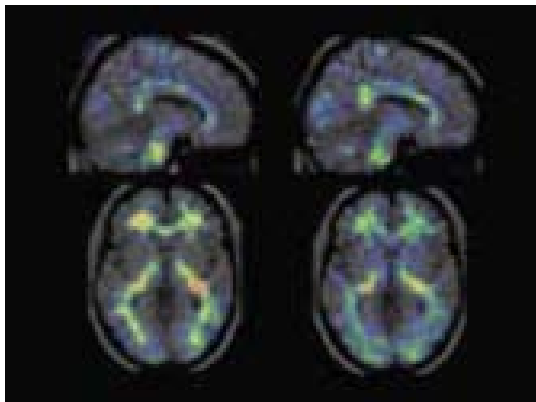
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**Gene Carriers**

**Non-Carriers**



**Age 35-39 Years**



**Age 25-29 Years**

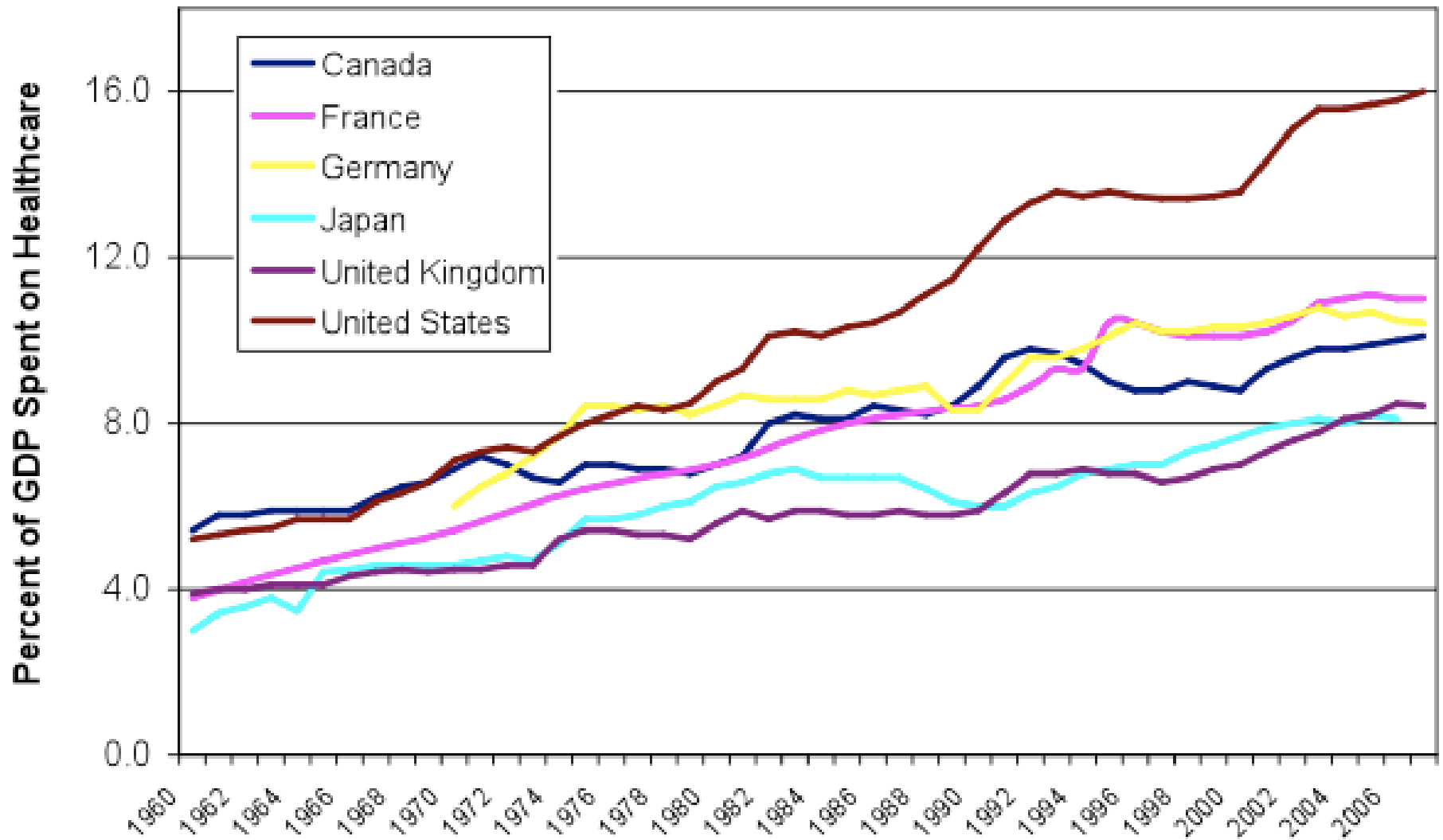
## **Colombian Kindred**

- N = 5000 living individuals from ~ 25 families
- 1500 with the *E280A (Glu280Ala) Presenilin1* mutation
- Autosomal dominant, 100% penetrance
- Median age of MCI = 44 years, dementia = 49 years

Double-blind, placebo-controlled trial for up to 60 months  
- crenezumab 300 mg SC every 2 weeks

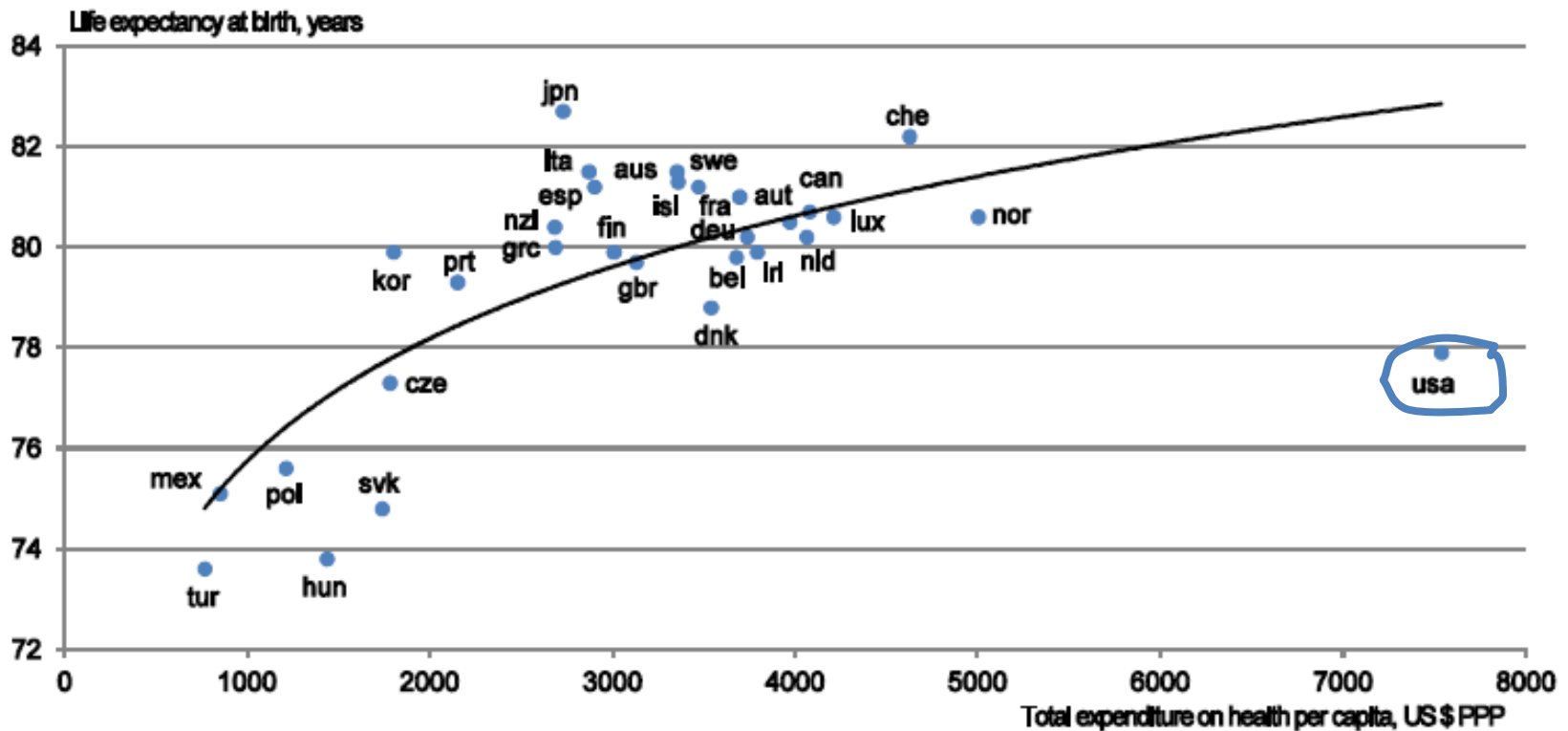
# Health sector spending as % of GDP

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# An efficiency problem ...spending much more but not getting much health as a result

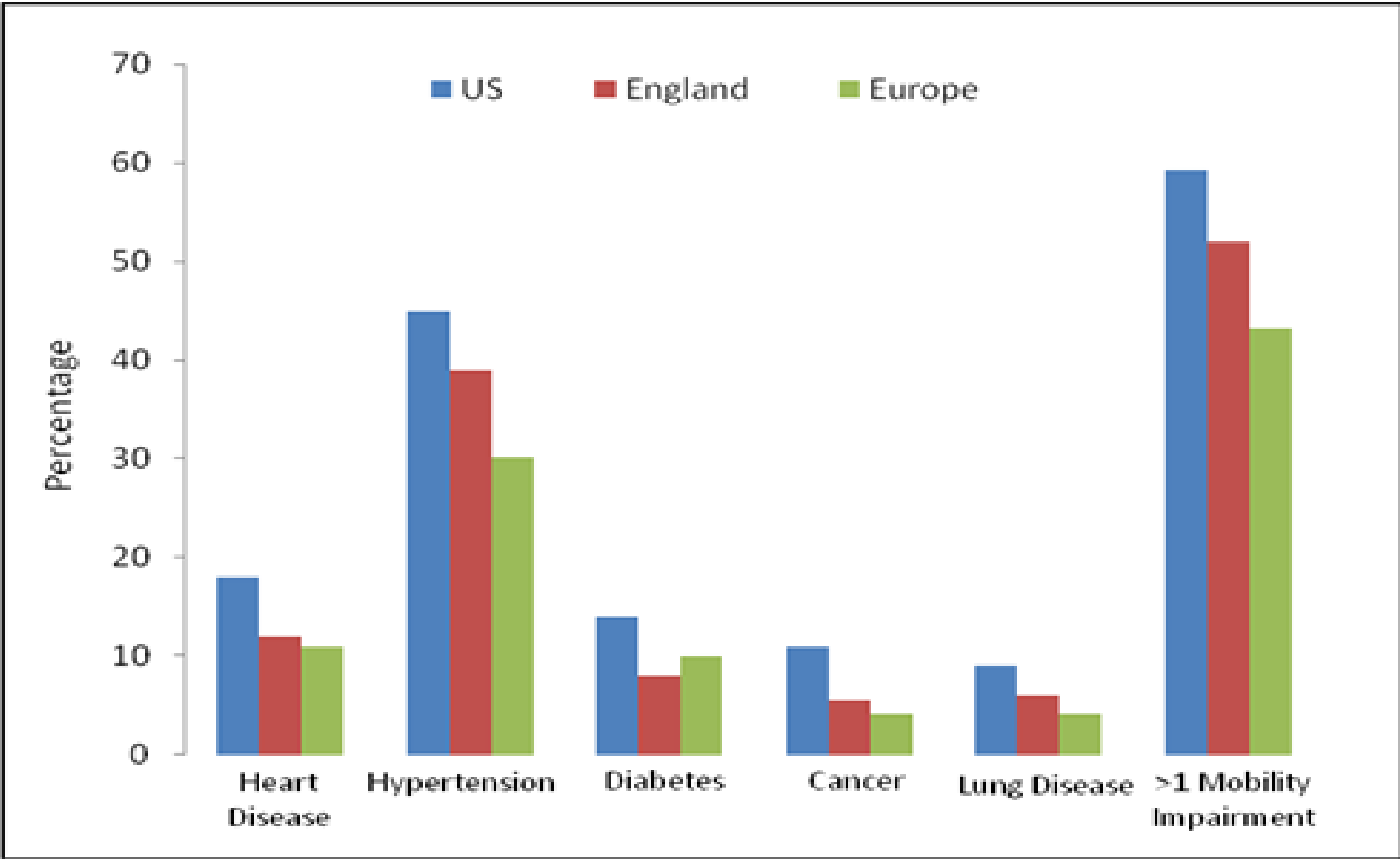
Figure 1. There are large differences in life expectancy and health care spending across OECD countries 2008<sup>1</sup>



1. Or latest year available.

Source: OECD Health Data 2010.

# Prevalence of Chronic Disease and Disability among People Aged 50-74 in the US, England, and 10 Other European Nations: 2004



Source: Adapted from Avendano, Glymour, Banks, and Mackenbach, 2009.

# The explanation is not population diversity in the US

