March 2016

The Healthcare Landscape

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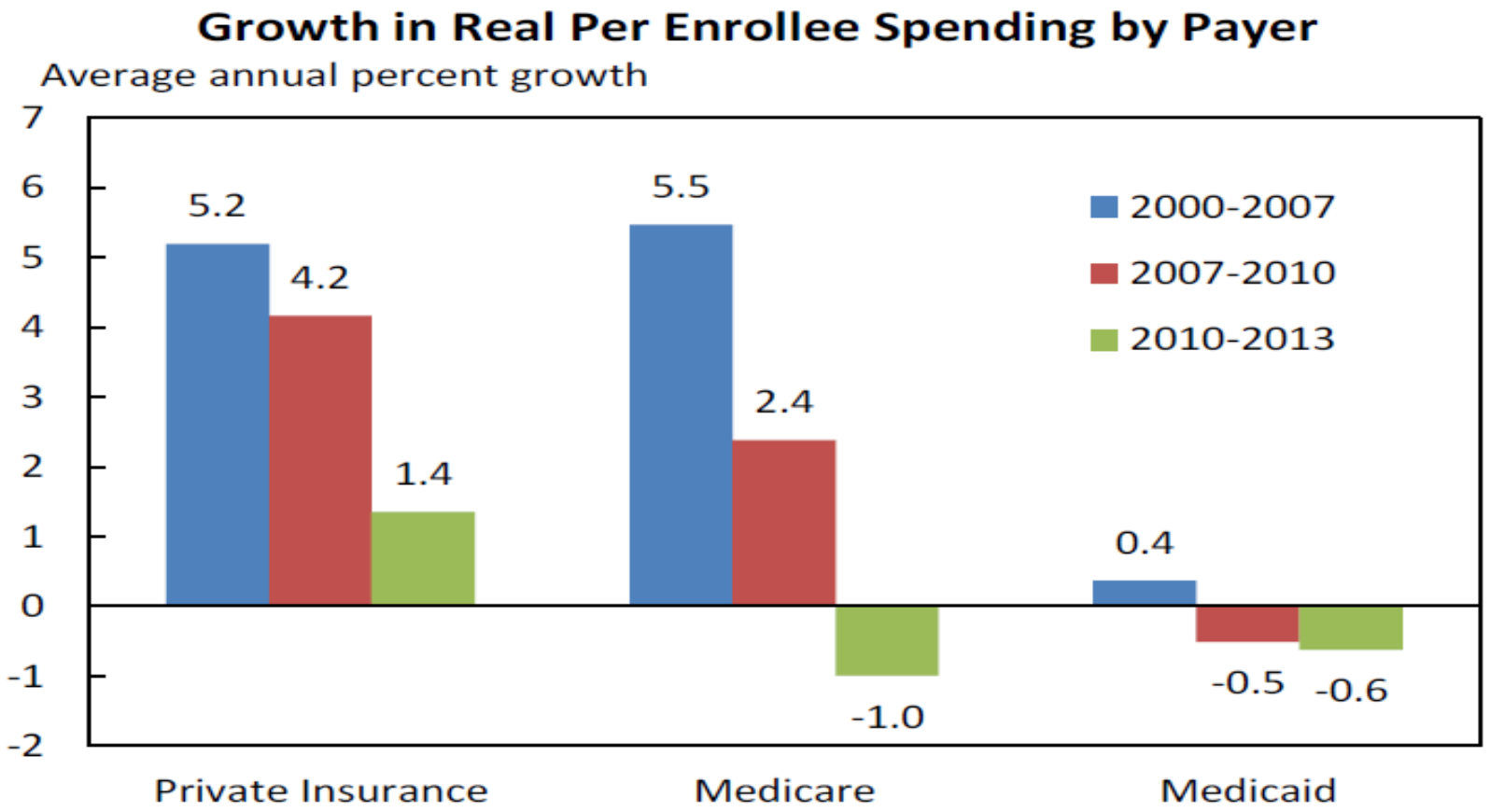
Cliff notes

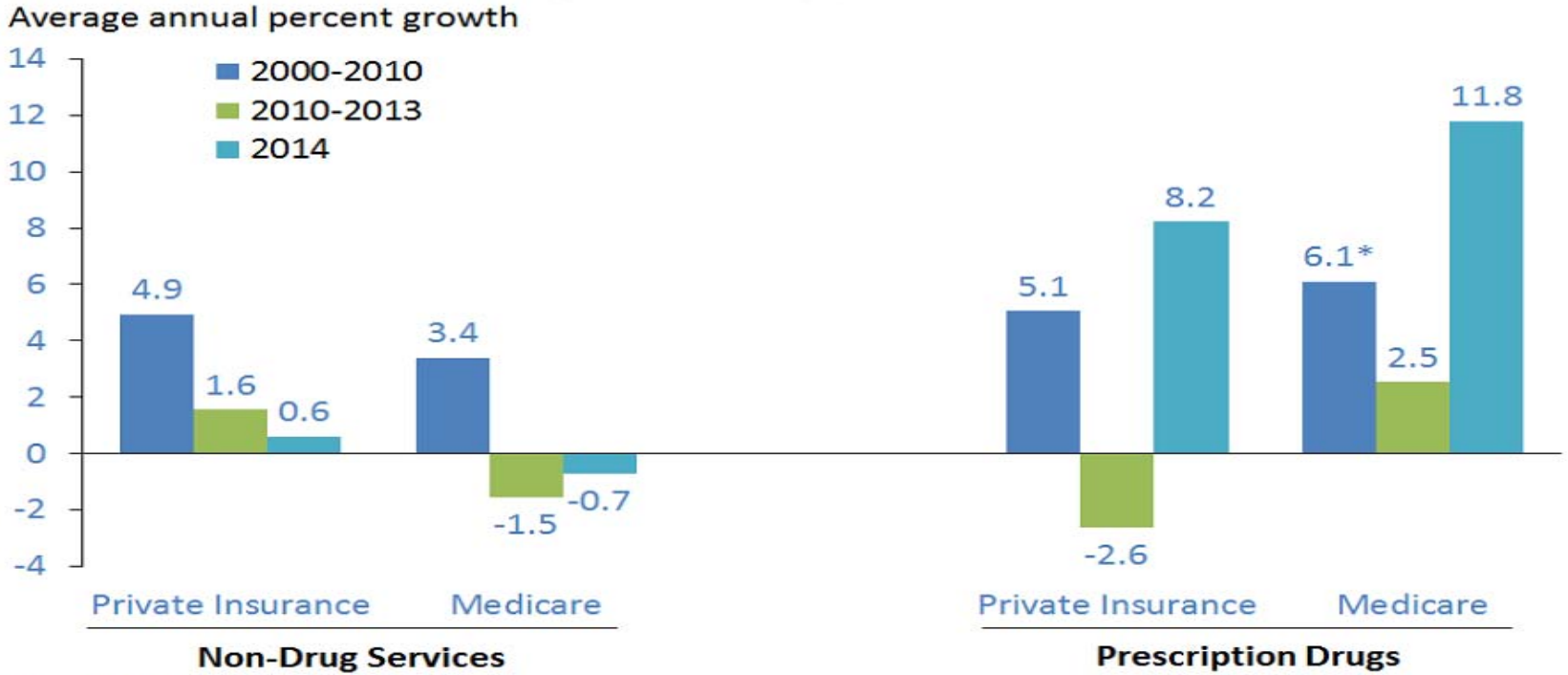
- Causes of recent health cost deceleration appear to be substantially different in ESI vs. Medicare
- Focus on post-acute care?
- Life expectancy inequality is rising sharply. How much of it is due to prolonged exposure to stress?
- Placebo effects are large and deserve more scrutiny and study
- Physician behavior as important topic
  - If costs are concentrated and insurance will (properly) always cover high costs, need to get at what happens in those high cost settings

RECENT DECELERATION



Source: CEA, 2015

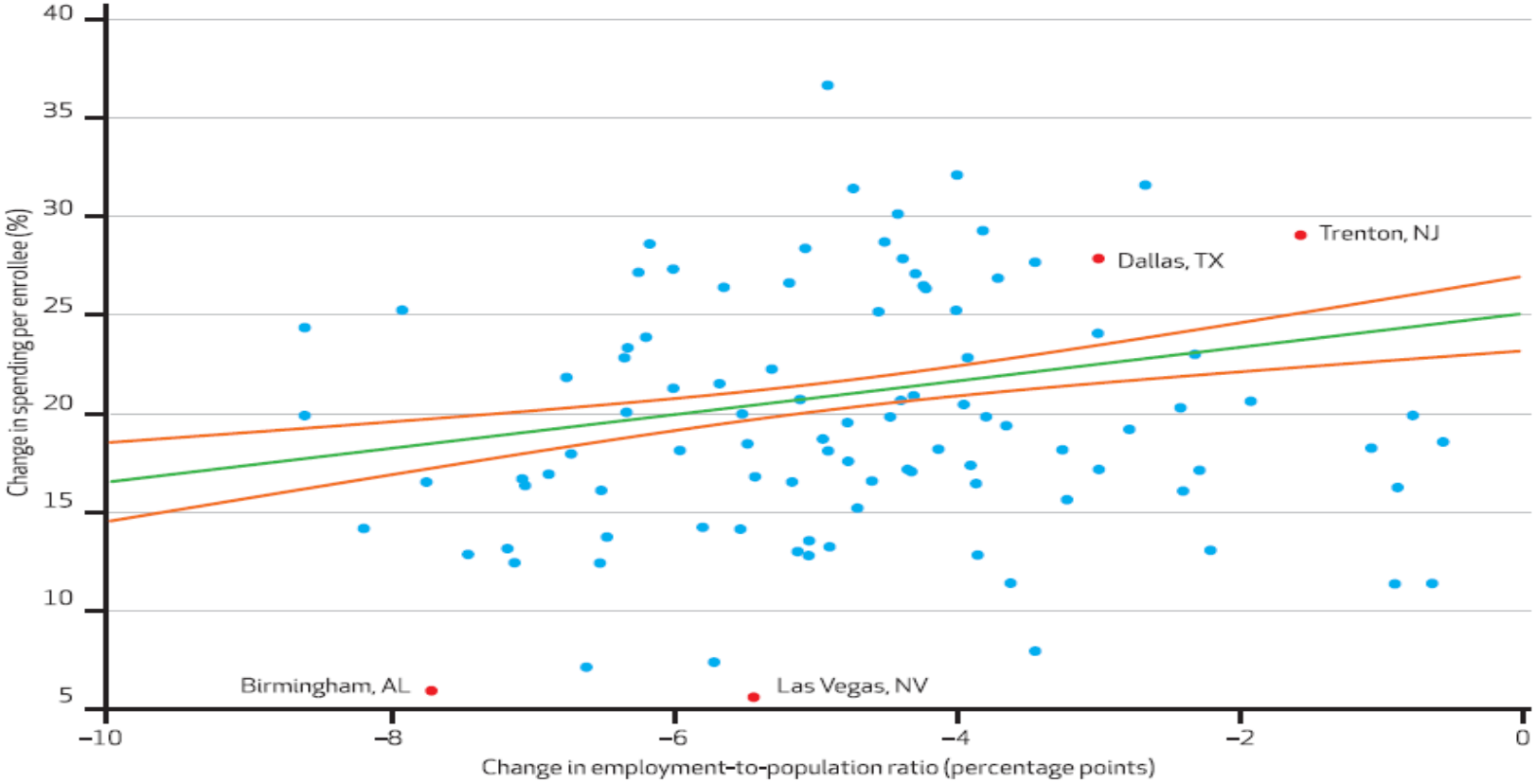
Growth in Real Per-Enrollee Spending by Payer and Type of Service



Source: CMS; BEA; CEA calculations.

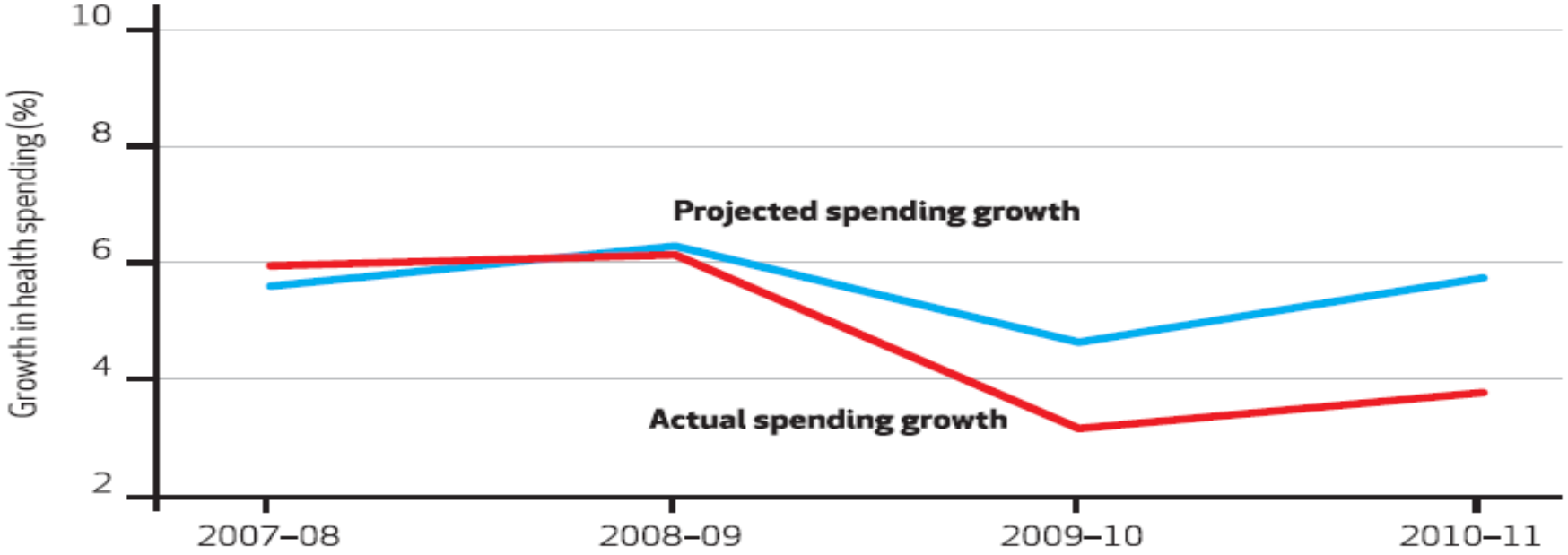
* Growth rate reflects the period from 2006 through 2010 since Medicare did not cover prescription drugs before 2006.

Effect Of Changes In The Employment-To-Population Ratio, January 2008–January 2010, On Changes In Per Capita Health Spending, 2007–11

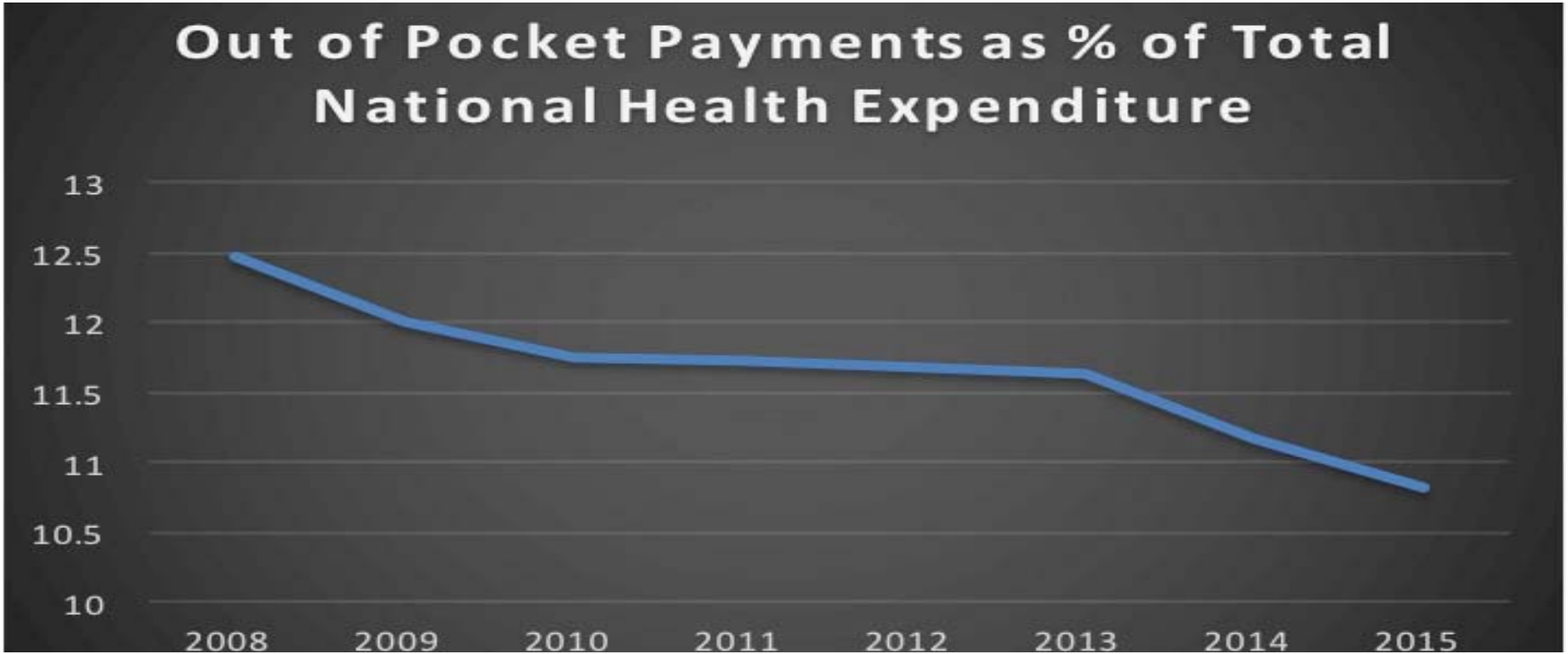


Source: Dranove, Garthwaite, and Ody, 2014

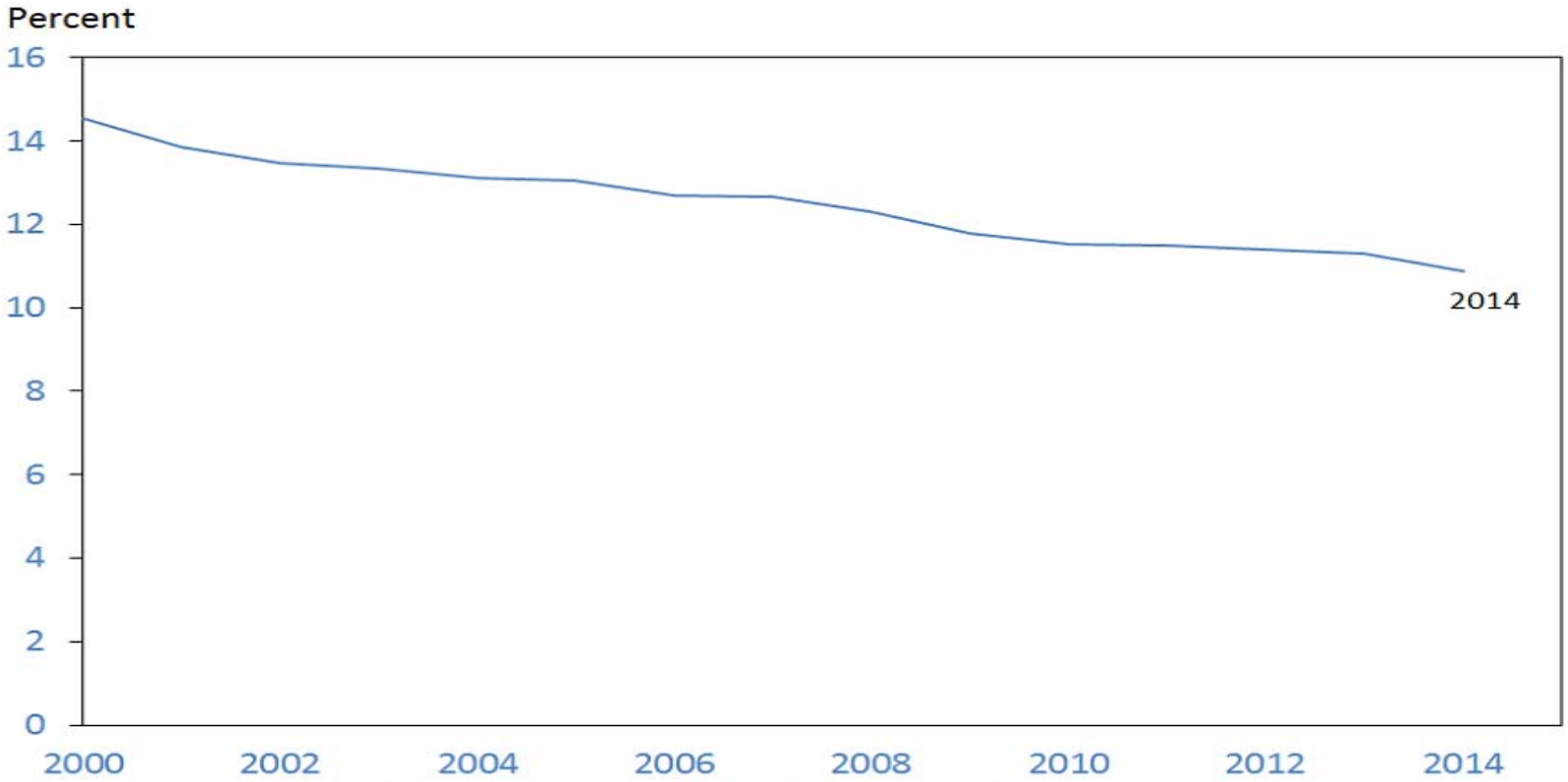
Actual Change In Per Capita Health Spending And Projected Change From One Year To The Next, Holding The Employment-To-Population Ratio Constant, 2007–11



Source: Dranove, Garthwaite, and Ody, 2014

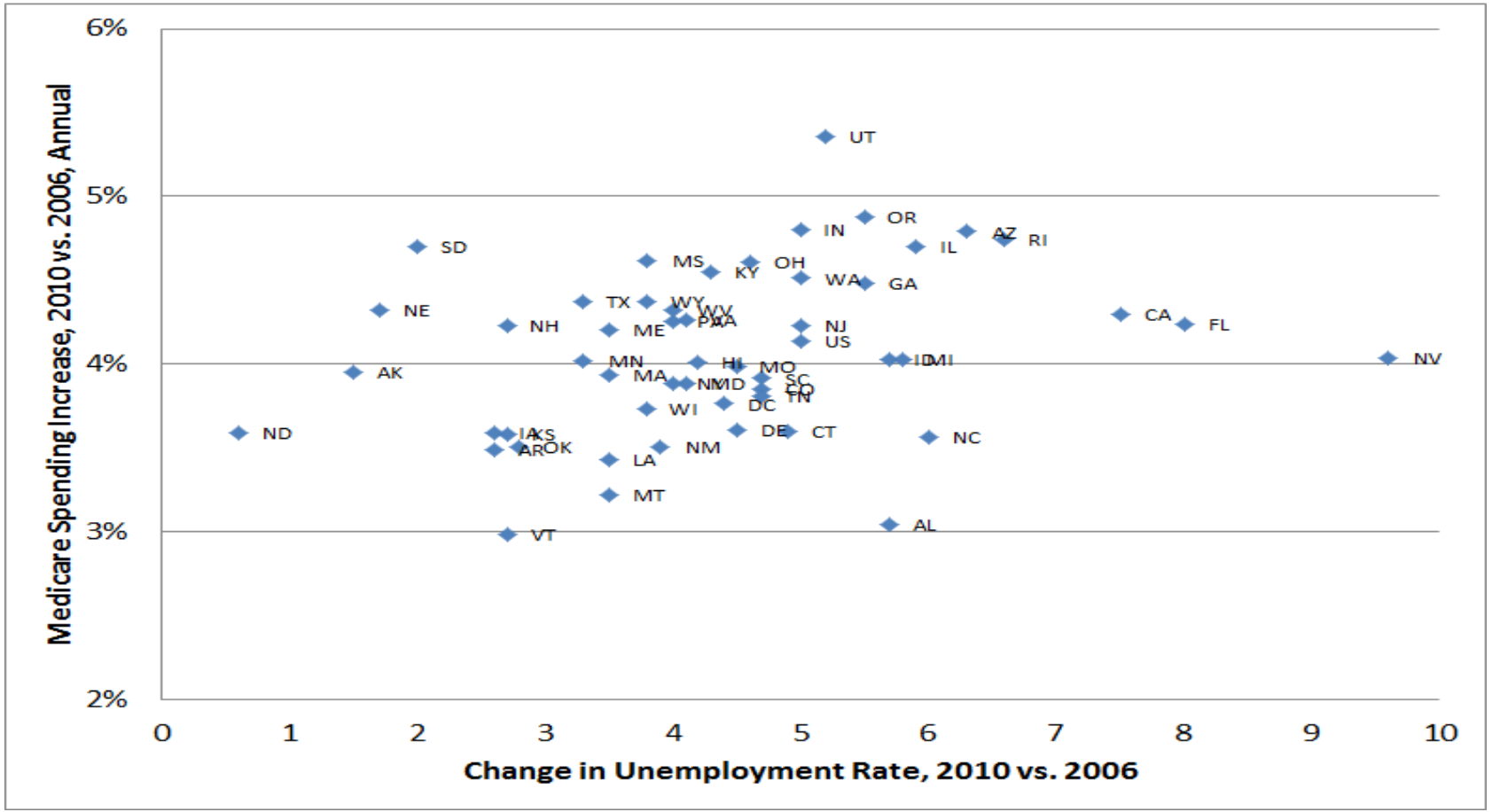

Out of Pocket Payments as % of Total National Health Expenditure
13
12.5
12
11.5
11
10.5
10
2008
2009
2010
2011
2012
2013
2014
2015

Out-of-Pocket Share of Health Care Spending, 2000-2014

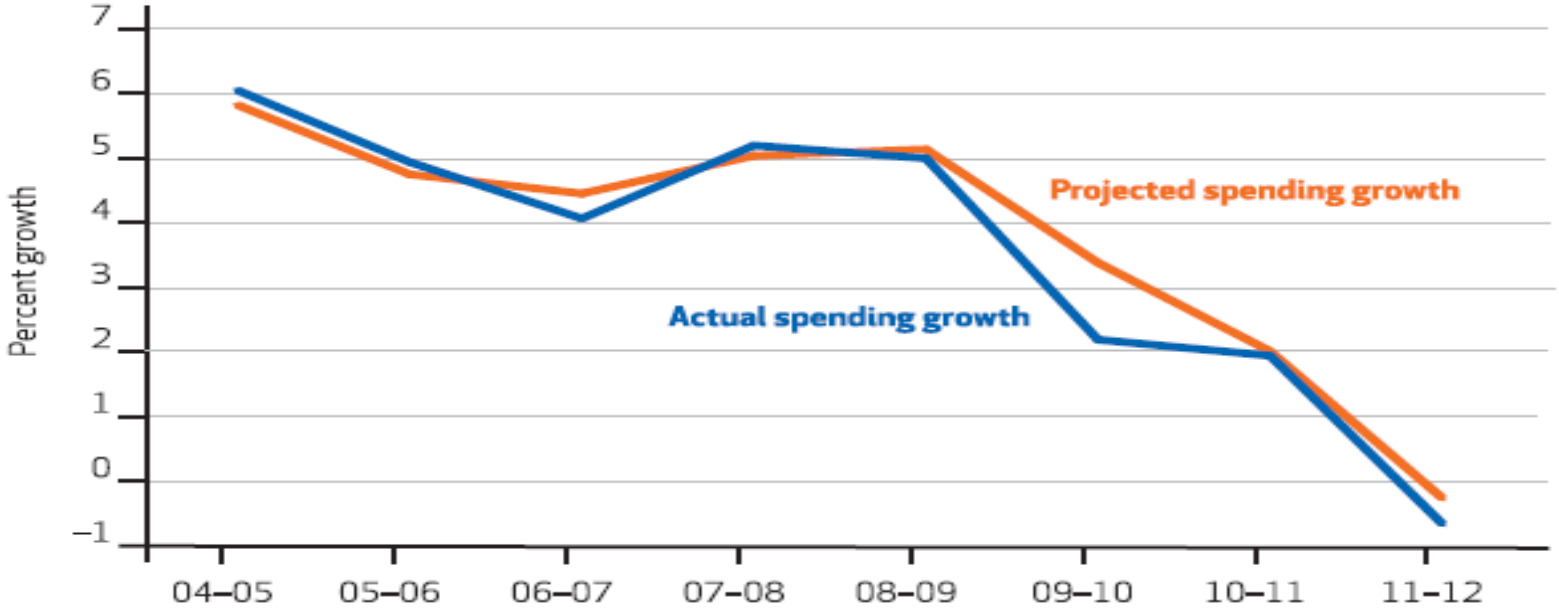


Source: National Health Expenditure Accounts, CMS Office of the Actuary; CEA calculations.

State Medicare Spending Increase vs. Change in Unemployment Rate

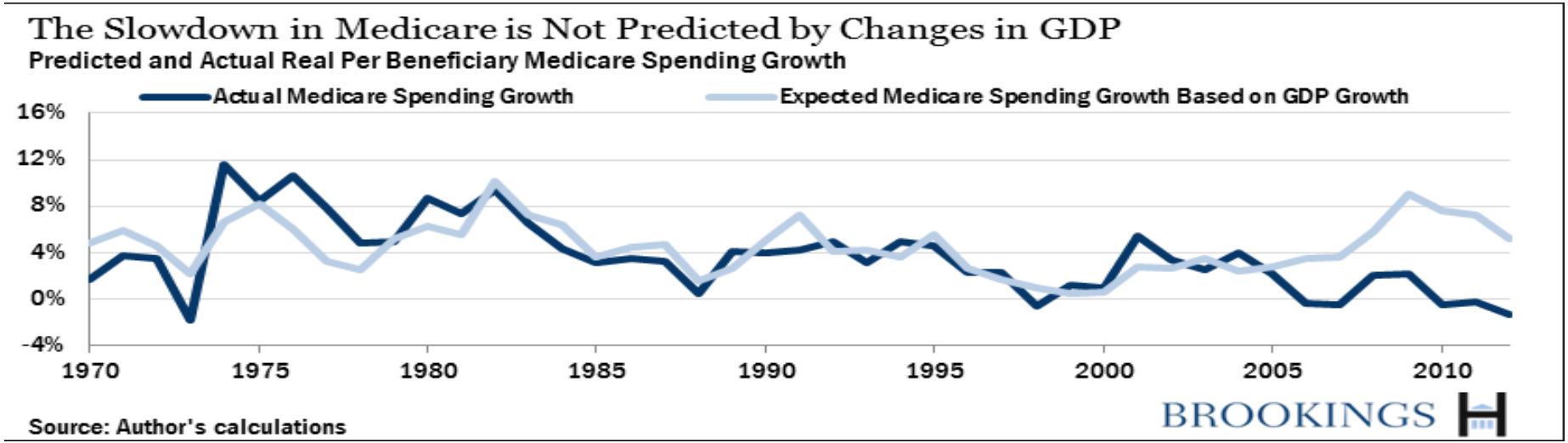


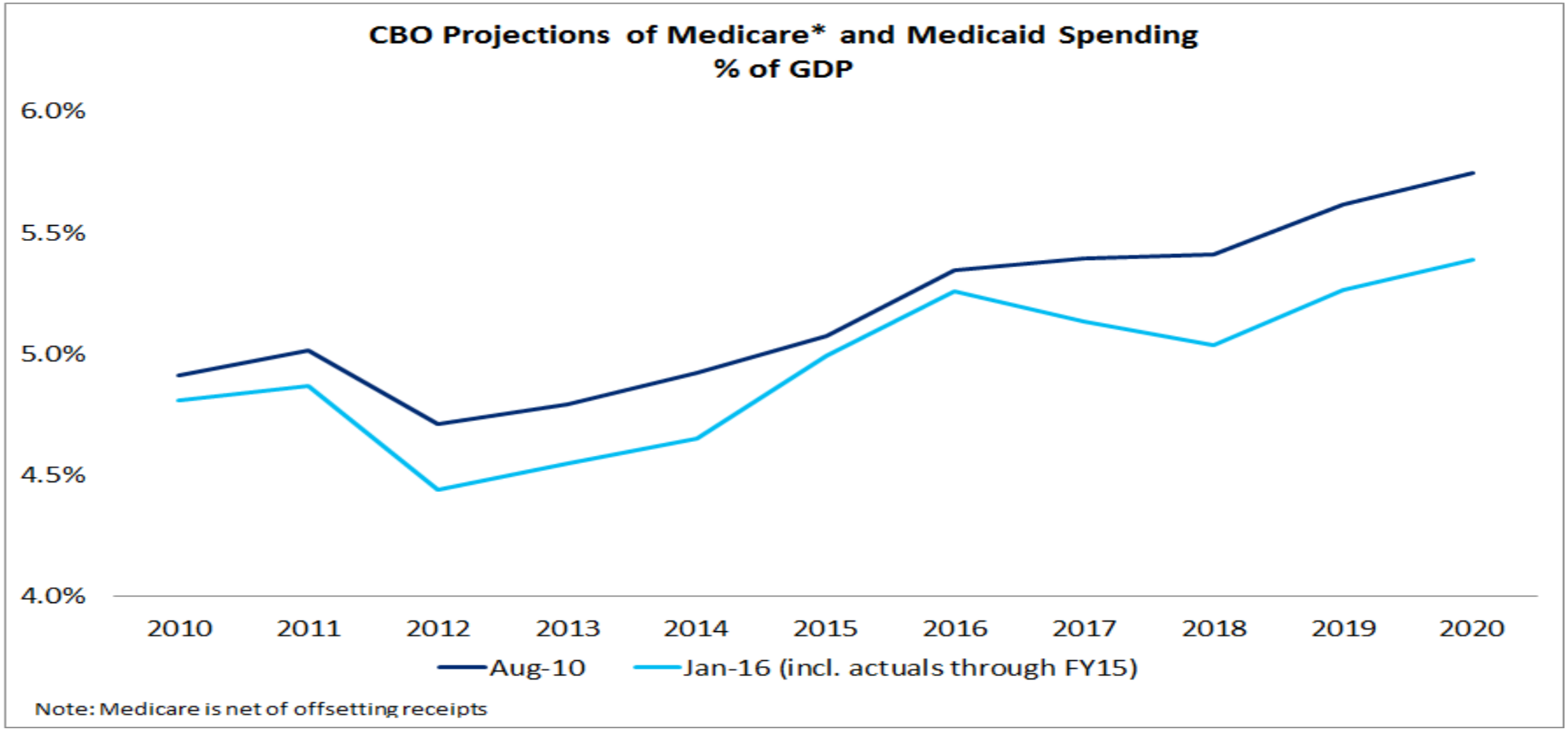
Actual And Counterfactual Annual Growth Rates In Mean Spending For Fee-For-Service Medicare, 2014–12



Source: Dranove et al., 2015

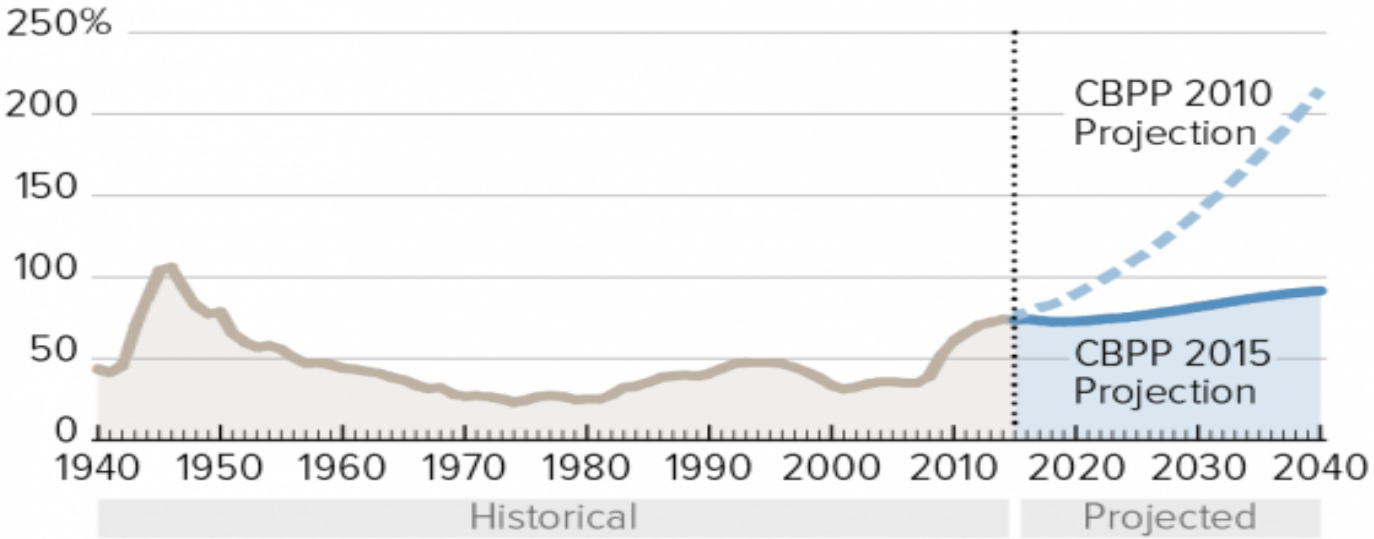
Medicare is different….




CBO Projections of Medicare* and Medicaid Spending
% of GDP
6.0%
5.5%
5.0%
4.5%
4.0%
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Aug-10
Jan-16 (incl. actuals through FY15)
Note: Medicare is net of offsetting receipts

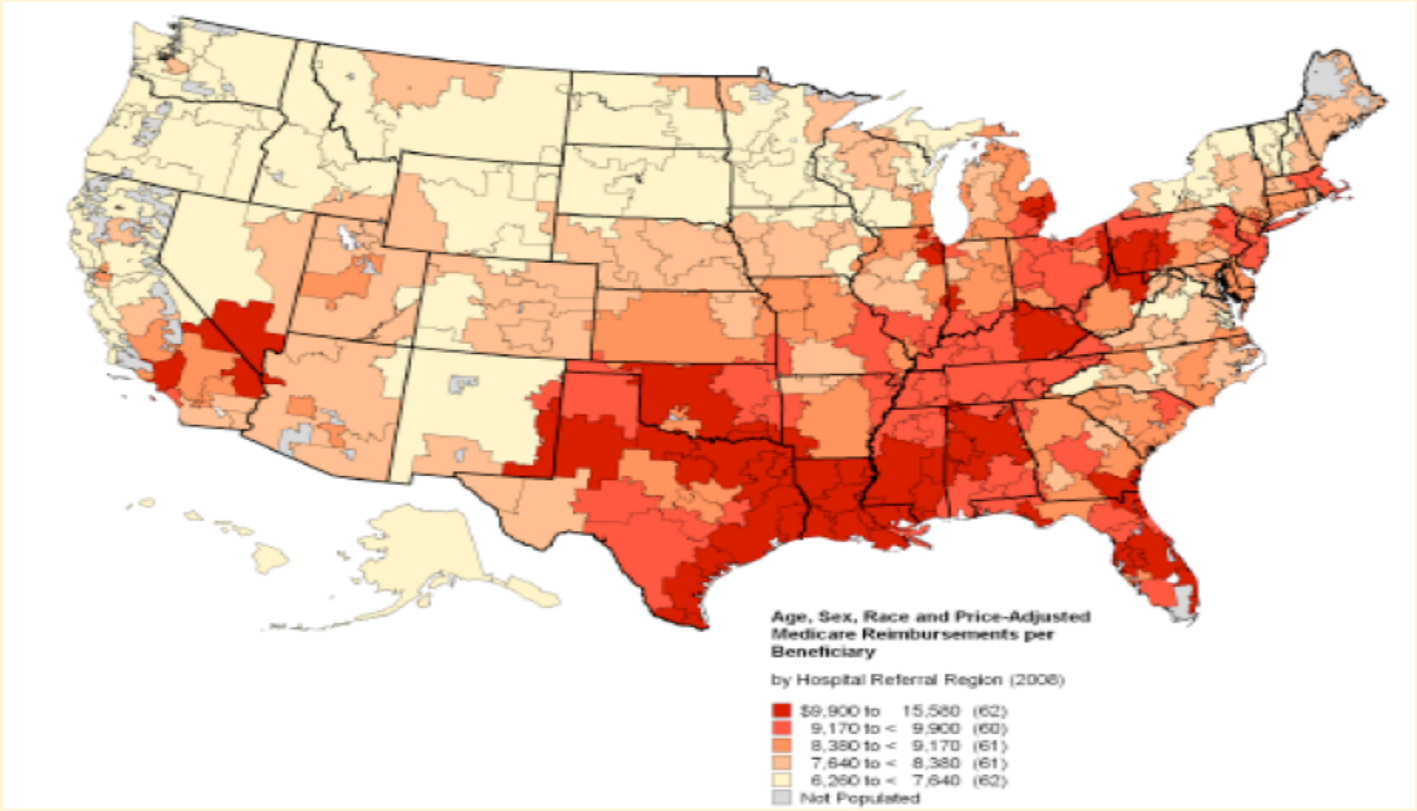
Debt-to-GDP Ratio Virtually Flat Until Early 2020s, Then Rises Gradually

Debt held by the public as a percent of GDP, 1940-2040



Source: Historical data from the Office of Management and Budget; projections from CBPP based on data from Congressional Budget Office, Social Security and Medicare Trustees, and Joint Committee on Taxation.

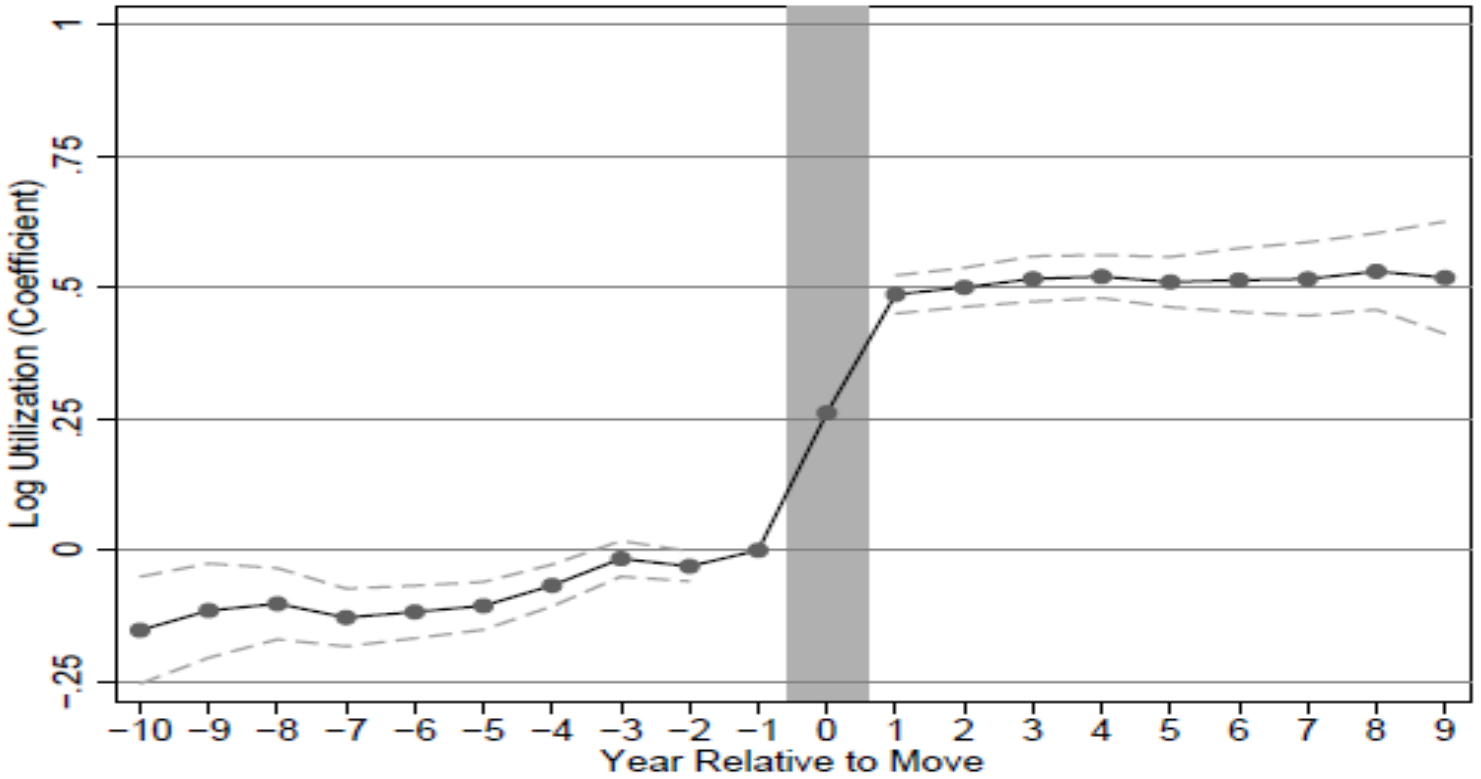
Dartmouth Institute Map of Price Adjusted Medicare PMPM Spending by HRR (2008)



Source: Institute of Medicine

Finkelstein, Gentzkow, and Williams, Sources of Geographic Variation in Health Care: Evidence from Patient Migration

Figure 6: Event-Study



Variation in Post Acute Care Services

Proportion of Variance Attributable to Each Medicare Service Category

	Adjusted Total Medicare Spending	
	Remaining Variance	Reduction in Variance (%)*
Variation in Total Medicare Spending	6,974	—
If No Variation in Post-Acute Care Only	1,864	73
If No Variation in Acute Care Only	5,085	27
If No Variation in Either Post-Acute or Acute	780	89
If No Variation in Prescription Drugs	6,374	9
If No Variation in Diagnostic Tests	5,986	14
If No Variation in Procedures	6,020	14
If No Variation in Emergency Department Visits/Ambulance Use	6,972	0
If No Variation in Other	6,882	1

NOTE: Total Medicare spending and each component are input-price- and risk-adjusted. Each row shows the reduction in variance from eliminating only the variation in that service, with the exception of the acute and post-acute care rows.
*The individual reductions sum to more than 100 percent because of covariance terms.

Source: Institute of Medicine

“Uncovering Waste in U.S. Healthcare” by Doyle et al

“We find that assignment to hospitals whose patients receive large amounts of care over the three months following a health emergency do not have meaningfully better survival outcomes compared to hospitals whose patients receive less…patients assigned to hospitals with high levels of inpatient spending are more likely to survive to one year, while those assigned to hospitals with high levels of outpatient spending are less likely to do so. This adverse effect of outpatient spending is predominately driven by spending at skilled nursing facilities (SNF) following hospitalization…patients quasi-randomized to hospitals with high rates of SNF discharge have poorer outcomes, as well as higher downstream spending once conditioning on initial hospital spending.”

Source: Doyle et al 2015

NAS: LIFE EXPECTANCY GRADIENT

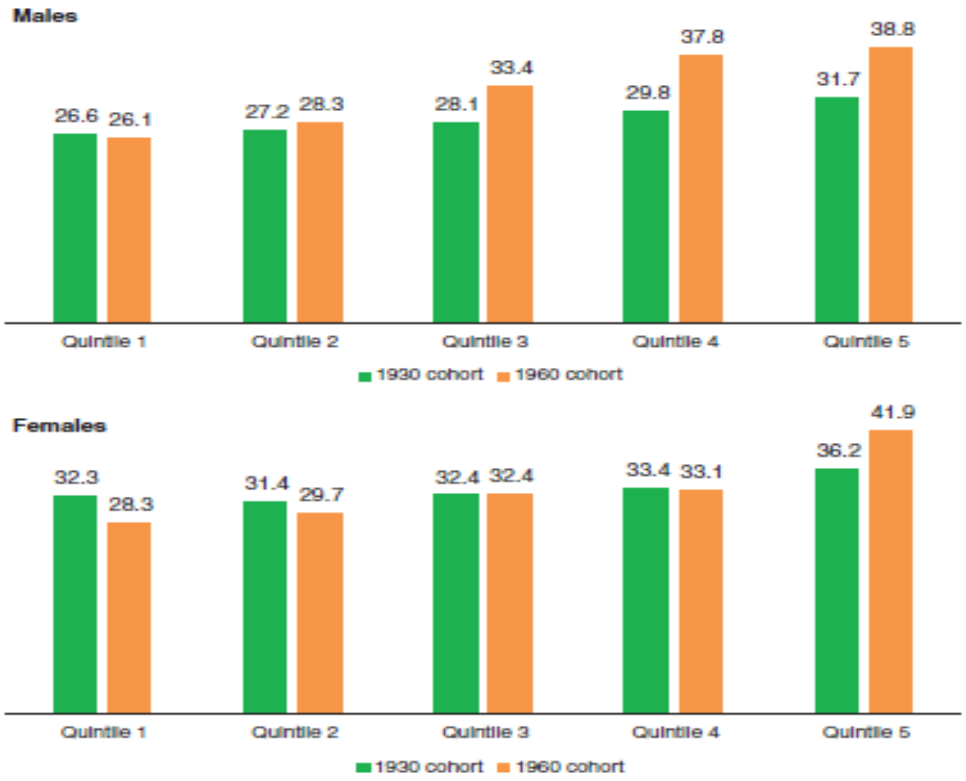


FIGURE 3-2 Estimated and projected life expectancy at age 50 for males and females born in 1930 and 1960, by income quintile.
SOURCE: Committee generated from Health and Retirement Study data.

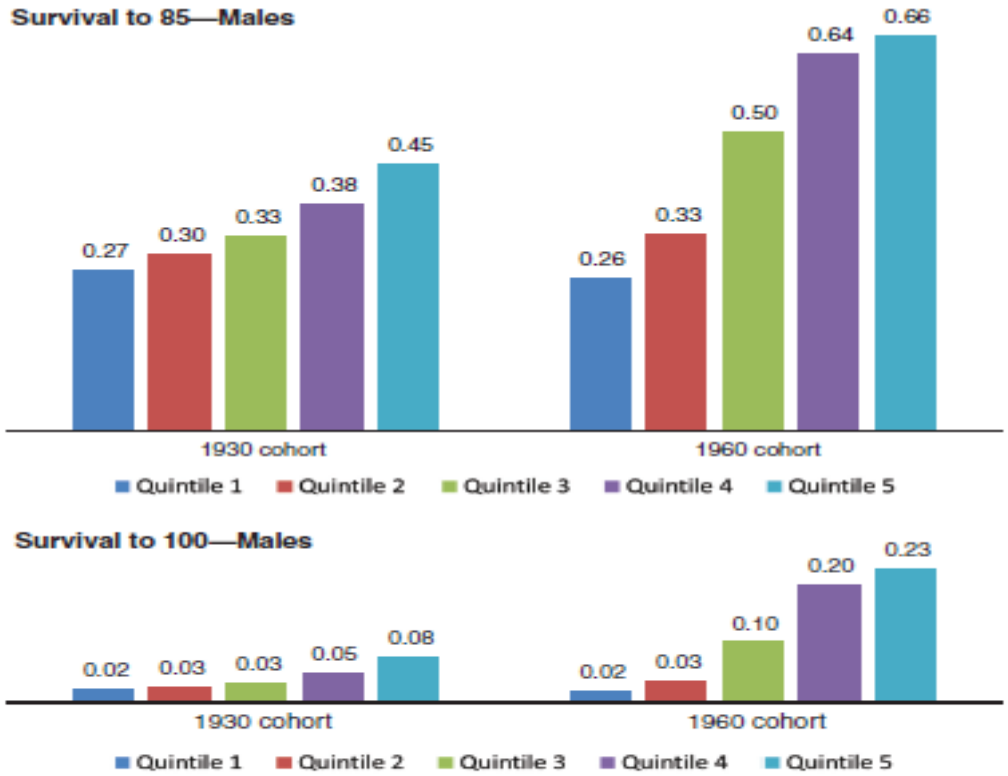


FIGURE 3-3 Proportions of males and females reaching age 50 who survive to ages 85 and 100, by birth cohort and income quintile.
SOURCE: Committee generated from Health and Retirement Study data.

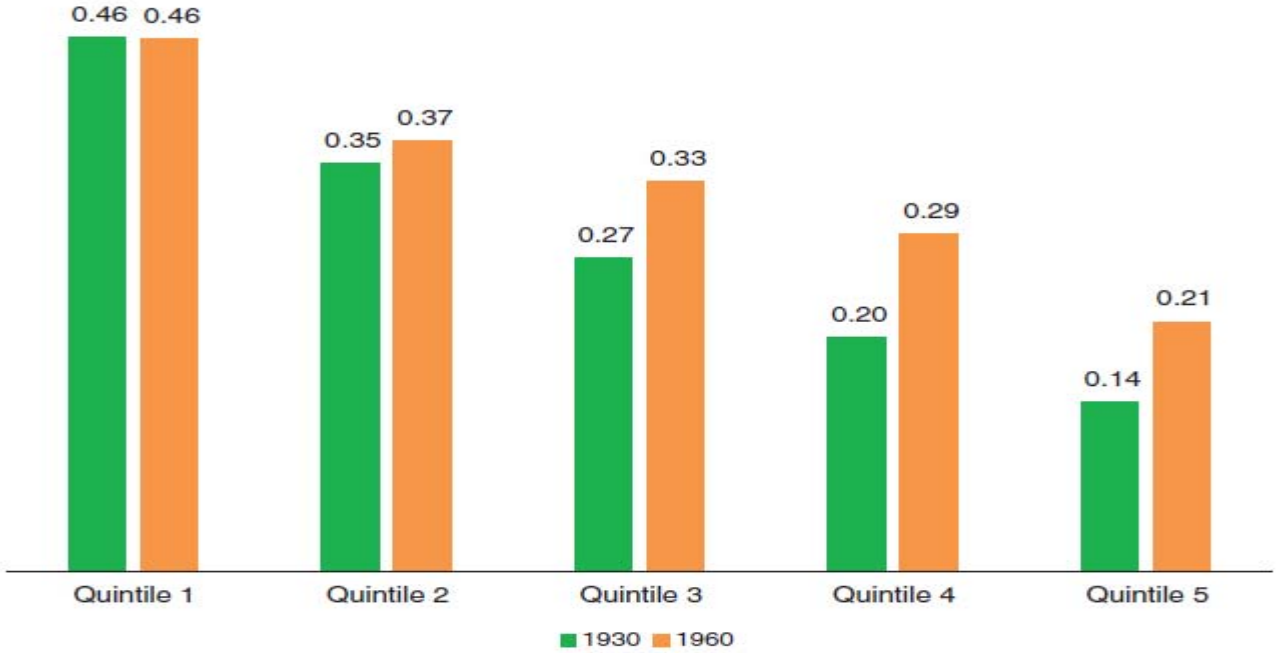


FIGURE 4-23 Total net benefits as share of inclusive wealth as of age 50 for males. SOURCE: Committee generated using Health and Retirement Study data and cohort assumptions.

	Generally happy/unhappy (n/n)		OR (99% CI)
Serious illness at baseline	With illness	Without illness	
Cancer	44 481/9579	654 583/136 797	0·953 (0·924–0·982)
Heart disease	49 035/13 329	650 029/133 047	0·784 (0·763–0·806)
Stroke	11 703/3501	687 361/142 875	0·748 (0·710–0·787)
Chronic obstructive lung disease	4924/1902	694 140/144 474	0·668 (0·621–0·718)
Current treatment at baseline	Treated	Not treated	
High blood pressure	153 825/34 249	545 239/112 127	0·928 (0·911–0·945)
Diabetes	22 070/5854	676 994/140 522	0·863 (0·829–0·898)
Asthma	49 919/13 104	649 145/133 272	0·848 (0·825–0·871)
Arthritis	79 848/22 729	619 216/123 647	0·763 (0·747–0·780)
Depression or anxiety	29 285/25 628	669 779/120 748	0·224 (0·218–0·229)
Self-rated health at baseline	Fair or poor	Excellent or good	
Fair or poor	125 393/62 859	541 004/76 505	0·298 (0·293–0·303)

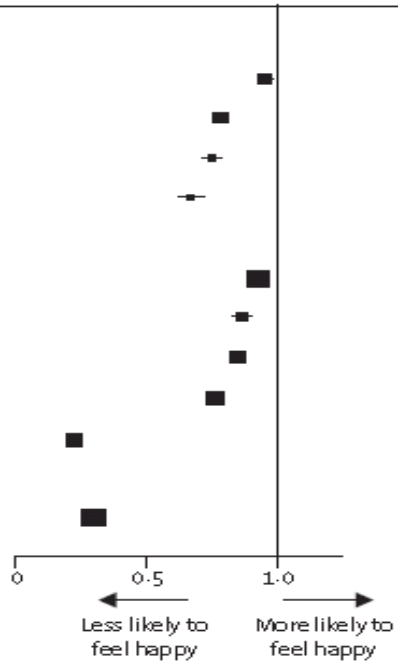


Figure 2: **Correlates of being generally happy—relevance of various indices of health at baseline**
Analysis for whole population (N=845 440), including women later excluded for life-threatening health disorders. ORs are adjusted for age, region, area deprivation, body-mass index, qualifications, strenuous exercise, smoking, alcohol, living with a partner, parity, participation in group activities, and sleep duration. OR=odds ratio.

Source: Liu et al, 2015

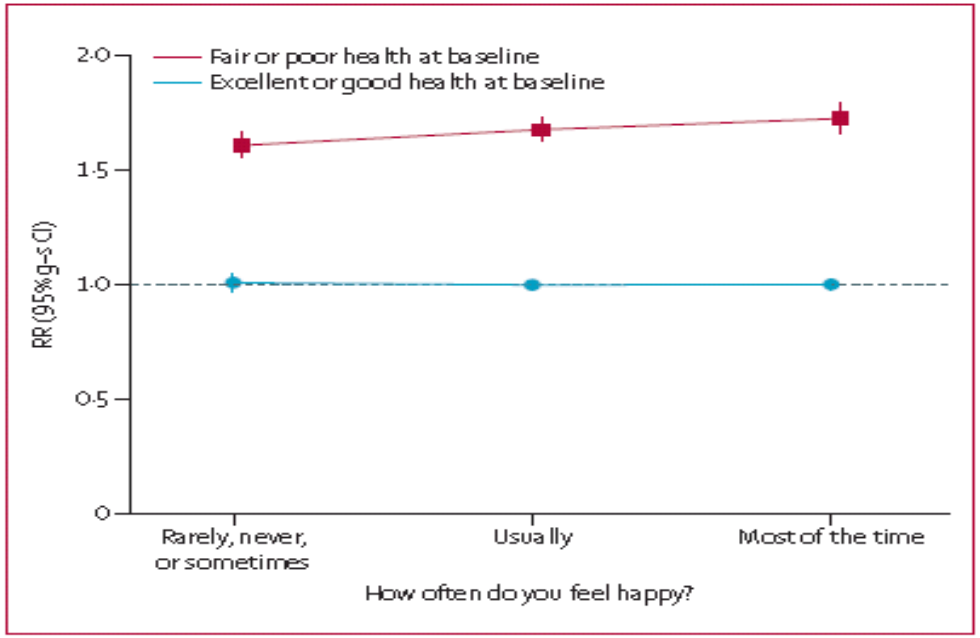


Figure 3: **RR of all-cause mortality by self-rated health and happiness**
Includes 719 671 women (31 531 deaths). Excludes women with cancer, heart disease, stroke, or chronic obstructive airways disease at baseline. RRs are adjusted for age, region, area deprivation, body-mass index, qualifications, strenuous exercise, smoking, alcohol, living with a partner, parity, participation in group activities, and sleep duration. Women who reported being in good or excellent health and happy most of the time are the reference group (RR=1·0). RR=rate ratio. g-s CI=group-specific confidence interval.

Source: Liu et al, 2015

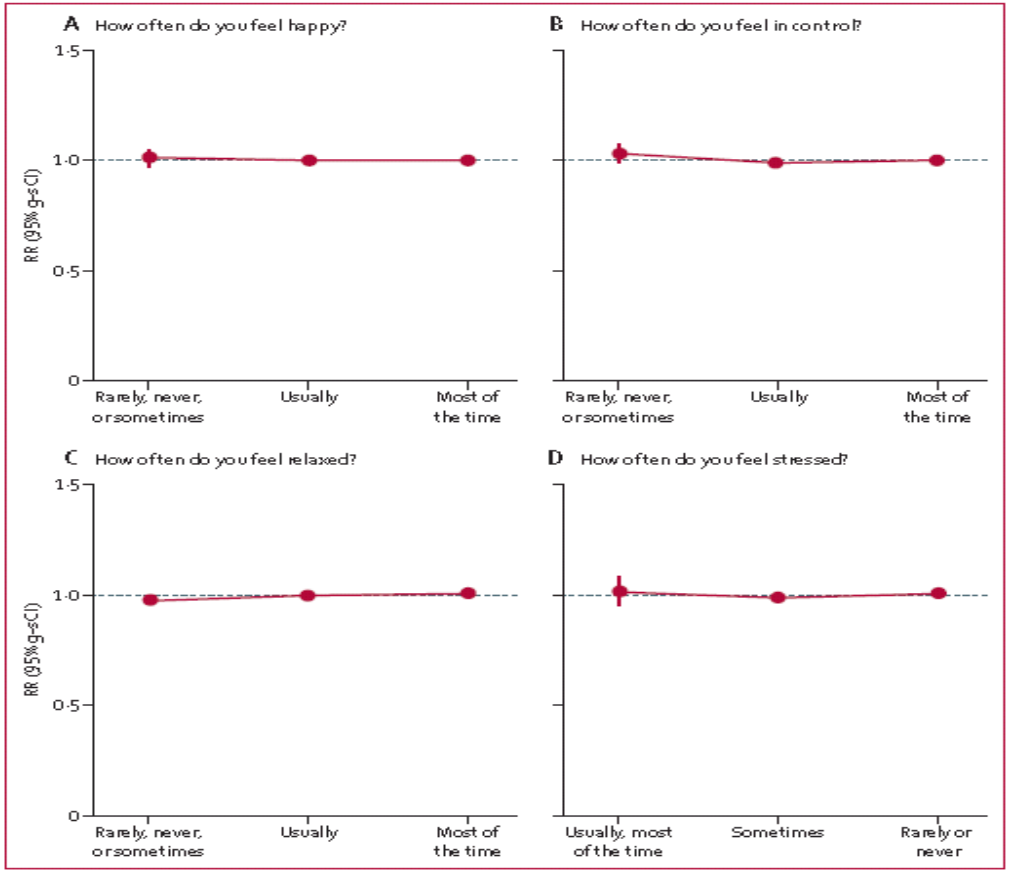


Figure 5: All-cause mortality by happiness and other measures of wellbeing in women who rated their health as good or excellent at baseline

Source: Liu et al, 2015

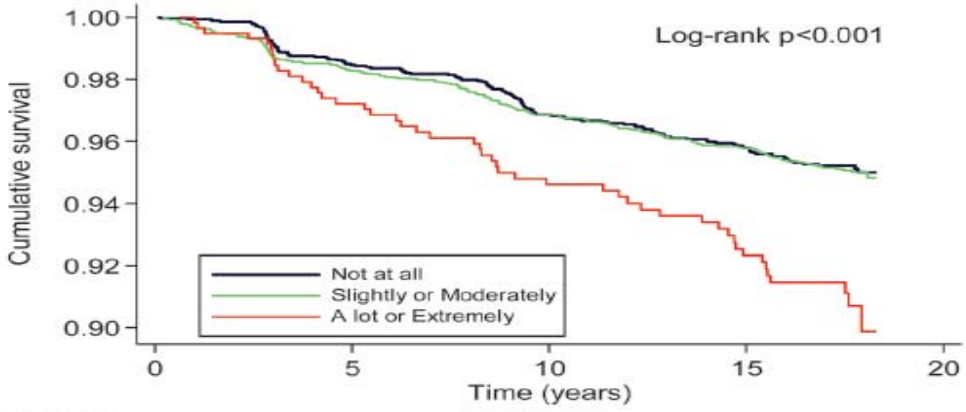


Figure 1 Unadjusted Kaplan–Meier survival curves showing the association between perceived impact of stress and incident CHD.

Source: Nabi et al, 2013

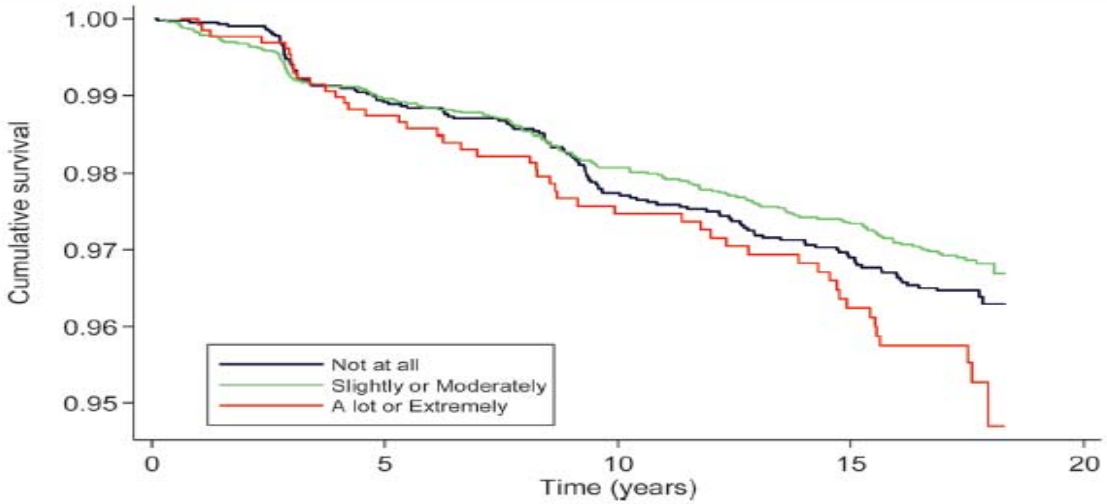
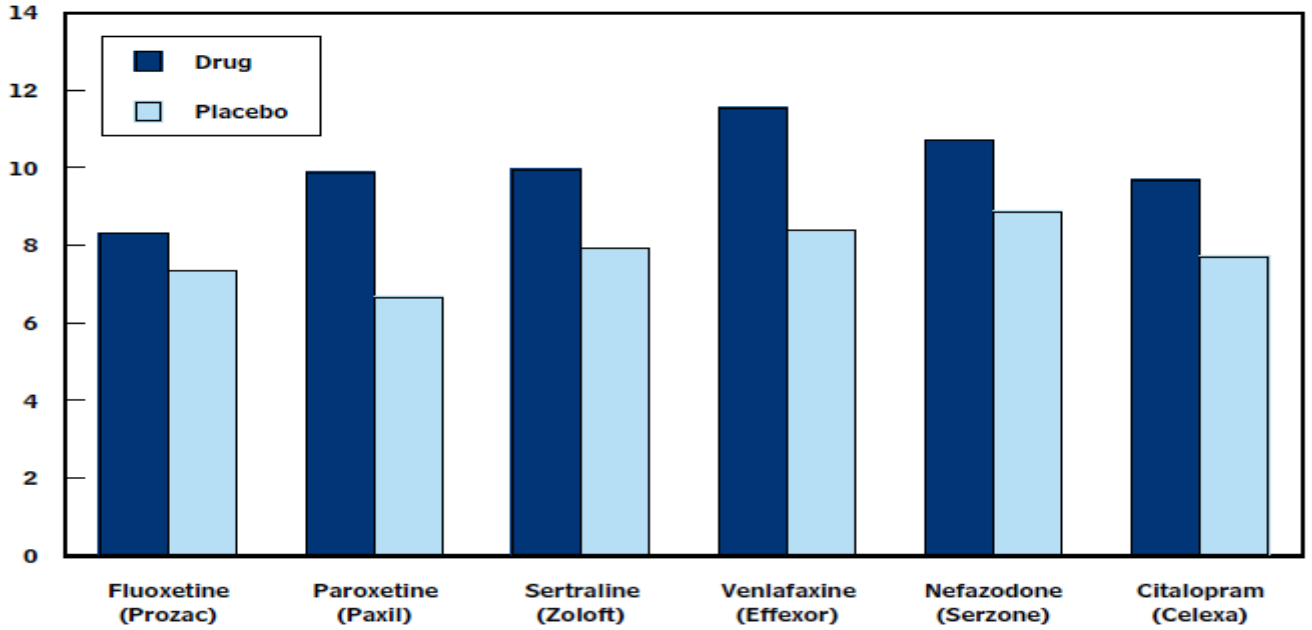


Figure 2 Kaplan–Meier survival curves showing the association between perceived impact of stress and incident CHD adjusted for sociodemographics, health behaviours, biological cardiovascular disease risk factors, self-rated health, negative affect, psychological distress, social support, and perceived levels of stress.

Source: Nabi et al, 2013

PLACEBOS

The Placebo Effect: Mean Improvement on Hamilton Depression Scale, vs. Common Antidepressants



Source: Kirsch (2002).

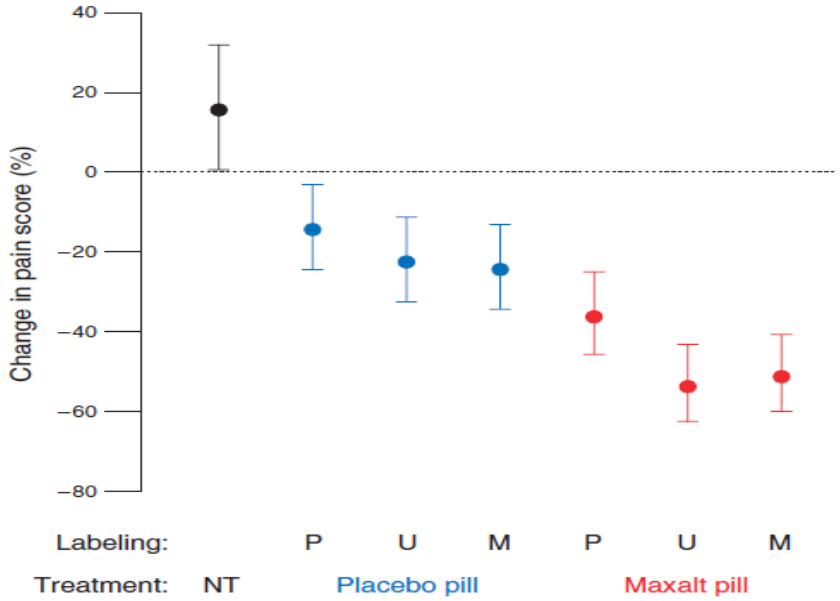


Fig. 3. Changes in headache intensity as a percentage of the 30-min pain score. The data are estimates for the seven experimental conditions, with 95% CIs, from the generalized linear mixed model (table S8). The estimates for the three types of information (labeling) are grouped according to whether the treatment was a placebo pill (blue) or a Maxalt pill (red). The within-subjects design of this study allowed each subject to serve as his or her own control, which substantially increased statistical power. Consequently, 95% CIs cannot be interpreted in the same manner as in a typical between-subjects study. Thus, two groups can differ significantly even when the mean for one group falls within the 95% CI for the other group. NT, no treatment; P, "placebo" label; U, unspecified "Maxalt or placebo" label; M, "Maxalt" label.

Source: Kam-Hansen, 2014

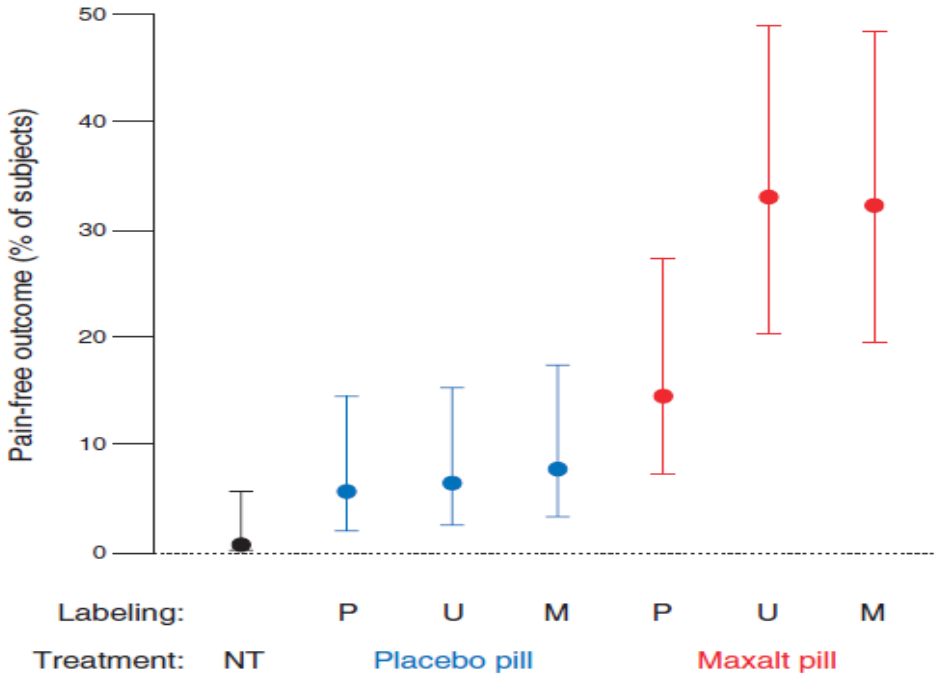
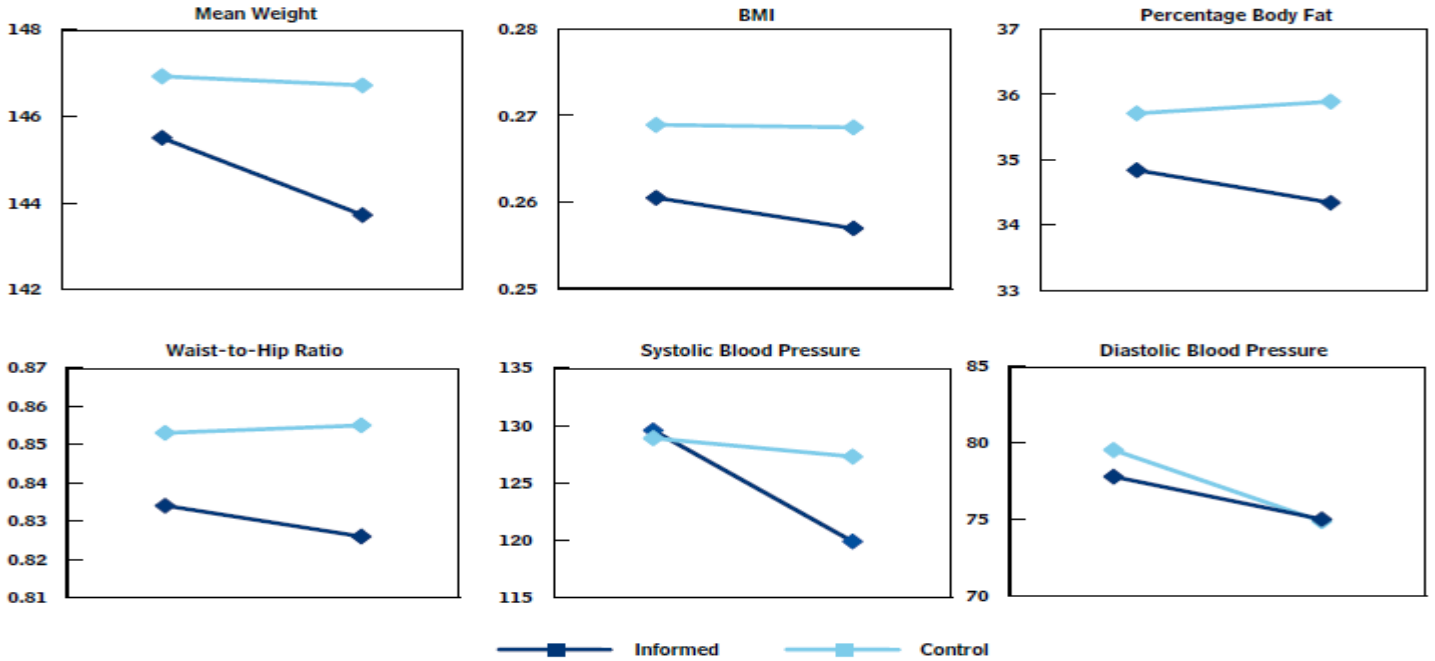


Fig. 4. Percentage of subjects who reported being pain-free 2.5 hours after onset of headache. The data are estimates for the seven experimental conditions, with 95% CIs, from the mixed-effects logistic regression model (table S13). The estimates for the three types of information (labeling) are grouped according to whether the treatment was a placebo pill (blue) or a Maxalt pill (red). NT, no treatment; P, "placebo" label; U, unspecified "Maxalt or placebo" label; M, "Maxalt" label.

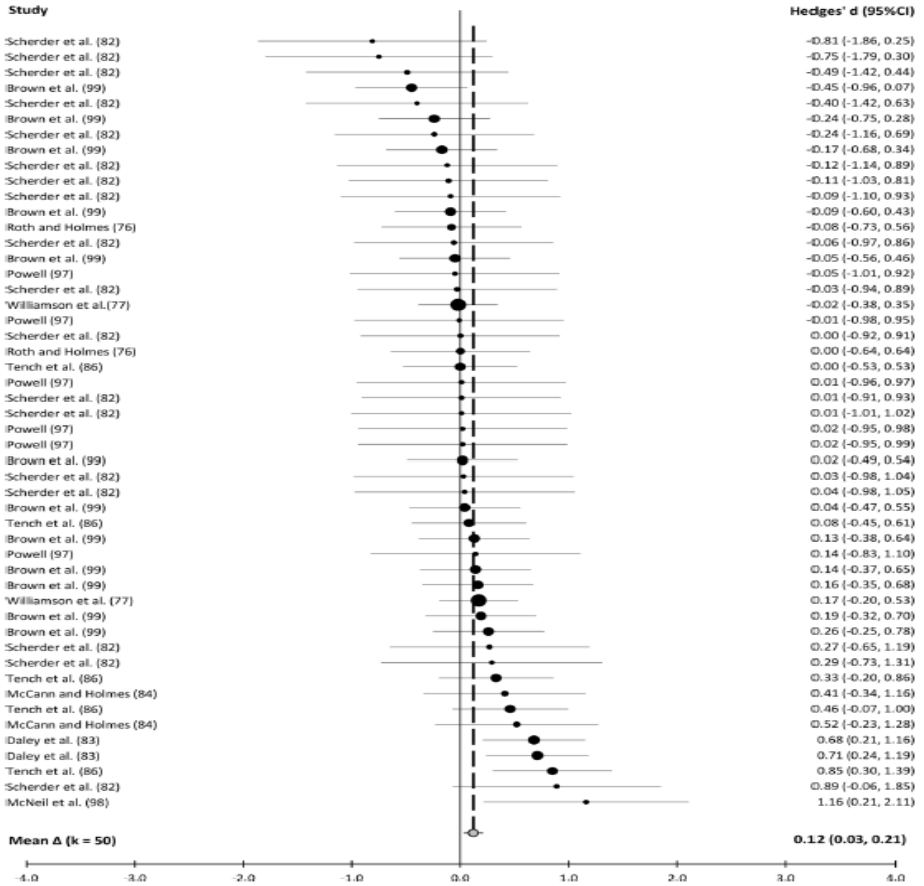
Source: Kam-Hansen, 2014

The Placebo Effect: Fitness Outcomes from "Perceived" Exercise



Source: Crum and Langer (2007).

Fig. 2 Forest plot of Hedges' *d* effect size for placebo compared with control ($k = 50$). Positive values favor placebo, and negative values favor control. *Each row* represents an individual effect that was extracted from a given study. *The broken vertical line* represents the mean effect size prior to adjusting for nesting effects. *CI* confidence interval, *k* number of effects

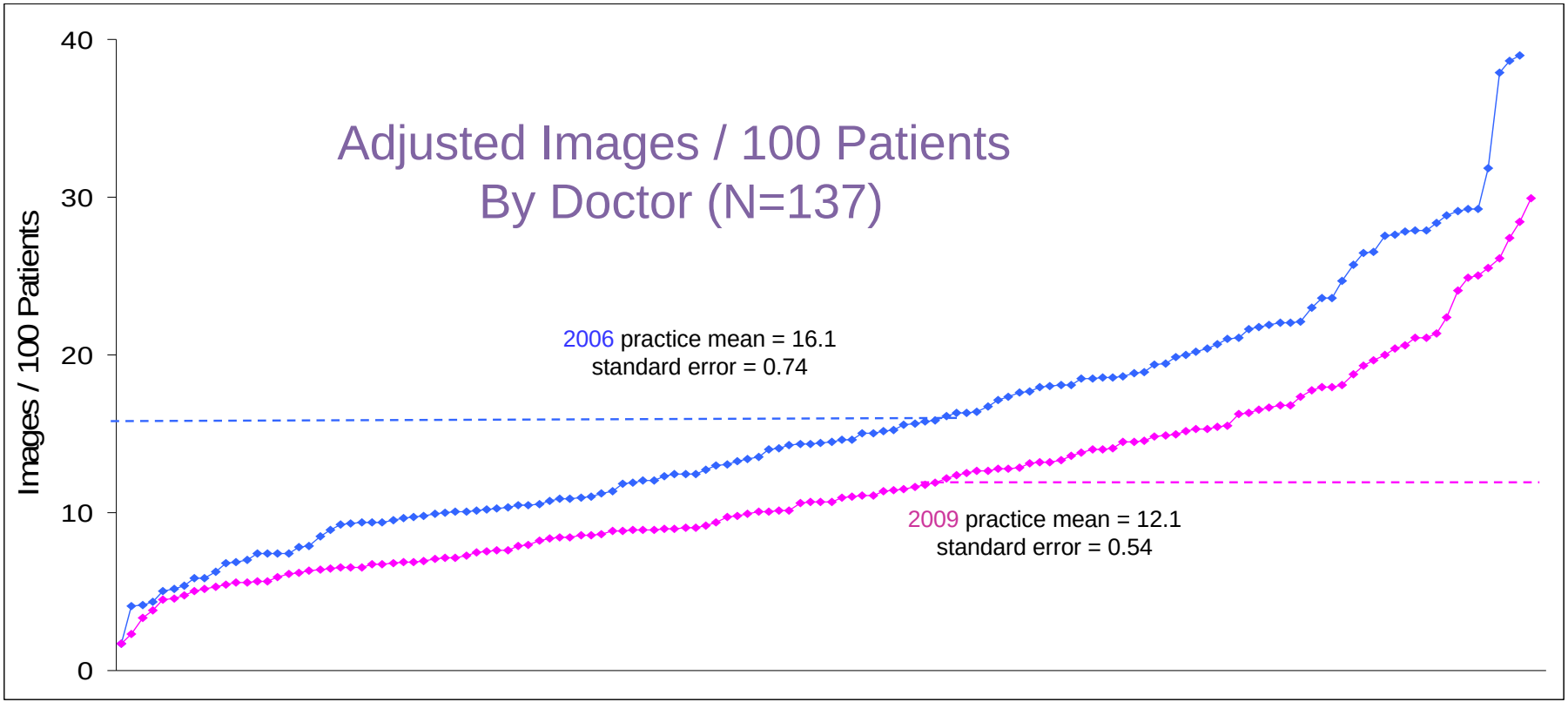


Source: Lindheimer, O'Connor, and Dishman, 2015

PHYSICIANS

Under new payment models, focus on narrowing clinical variation

Mass General, Outpatient Imaging: Before and After



Doctors sorted by low to high (left-right) in each year