

# The Performance of the US Health Care System: What's Right, What's Wrong and What (If Anything) Can Fix It?

Robert Town

University of Texas-Austin / NBER

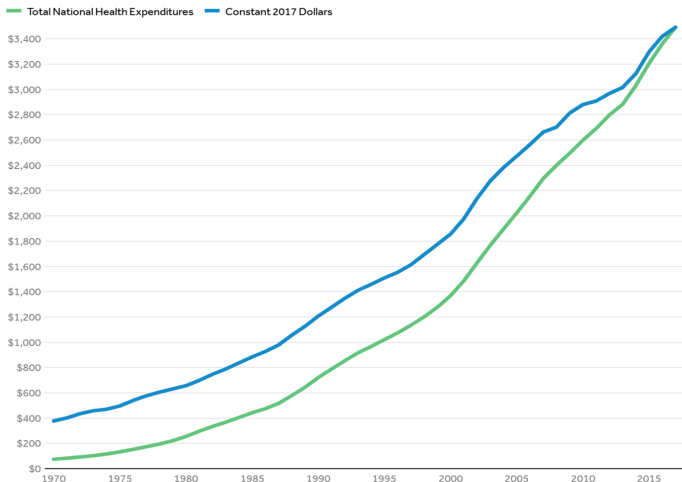
October 10, 2019

# Goal of the Talk

- Well-known that the US health care system underperforms
- Health policy is front and center in the Democratic primaries
- Goal of the Talk: Level set by discussing the evidence on the dimensions of underperformance and its underlying causes
- Conclude by examining the likely impact of Democratic proposals
  - What problems do they address and at what costs?

# We Spend an Enormous Amount on Health Care

Total national health expenditures, US \$ Billions, 1970-2017

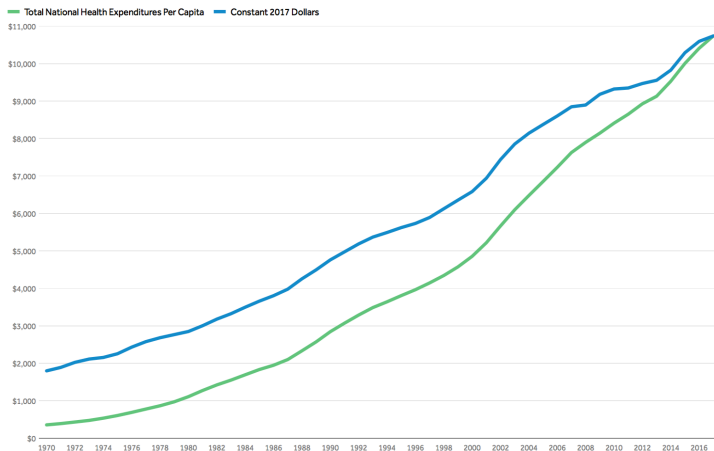


Source: Kaiser Family Foundation analysis of National Health Expenditure (NHE) data  
• [Get the data](#) • [PNG](#)

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# Implies that Per-Capita Expenditure is Equal to a Buying Good Used Car Every Year

Total national health expenditures, US \$ per capita, 1970-2017

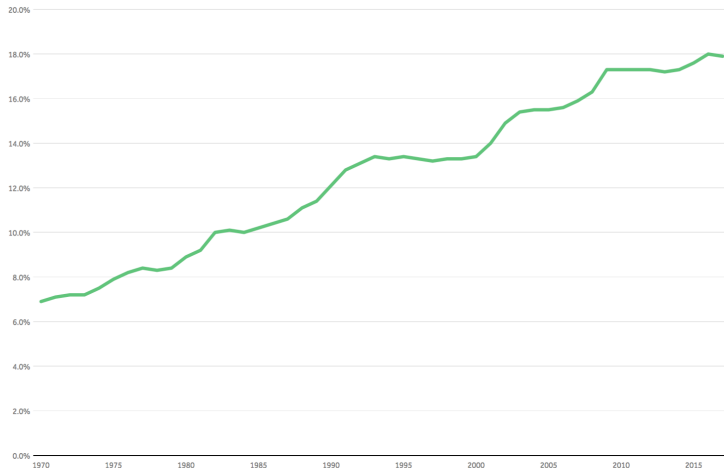


Source: Kaiser Family Foundation analysis of National Health Expenditure (NHE) data • [Get the data](#) • PNG

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# As Percentage of GDP, Health Care Spending has Grown Dramatically

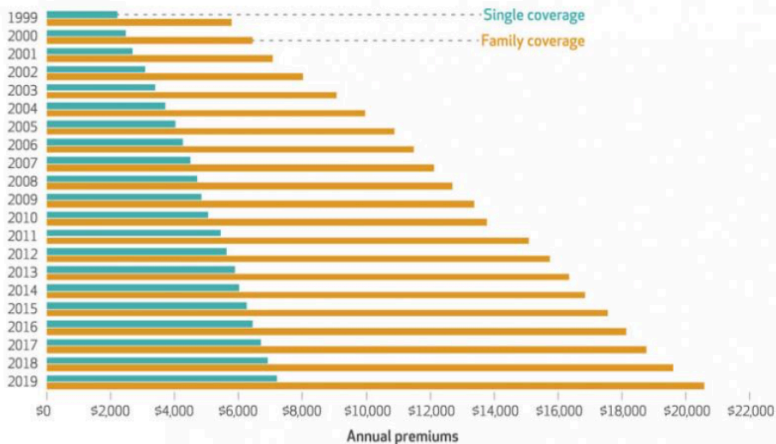
Total national health expenditures as a percent of Gross Domestic Product, 1970-2017



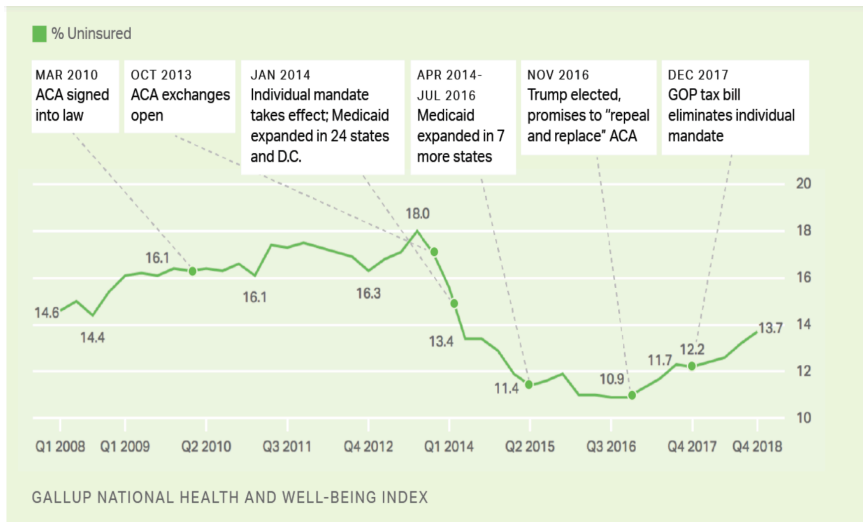
Source: Kaiser Family Foundation analysis of National Health Expenditure (NHE) data • [Get the data](#) • PNG

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# Directly Impacts Premiums

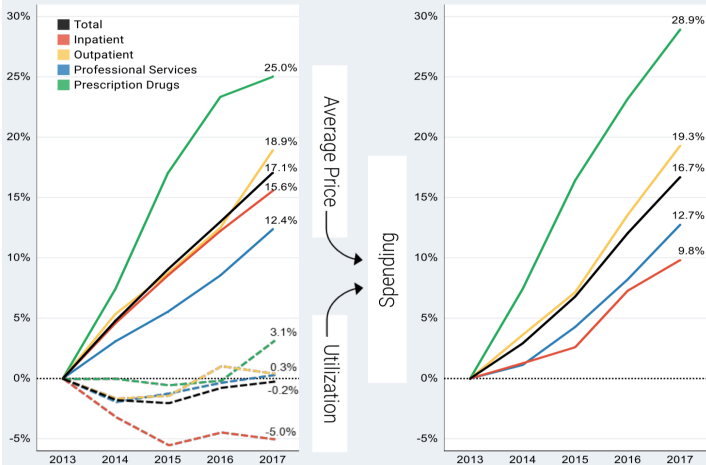


# Uninsured Rates are High



Total Expenditure =  $P \times Q$ . Is it Price or Quantity or both?

Figure 2: Cumulative Change in Spending per Person, Utilization, and Average Price since 2013



Source: HCCI (2019)

# Or, as Observed in 2003

HEALTH SPENDING

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## It's The Prices, Stupid: Why The United States Is So Different From Other Countries

Higher health spending but lower use of health services adds up to much higher prices in the United States than in any other OECD country.

by Gerard F. Anderson, Uwe E. Reinhardt, Peter S. Hussey, and Varduhi Petrosyan

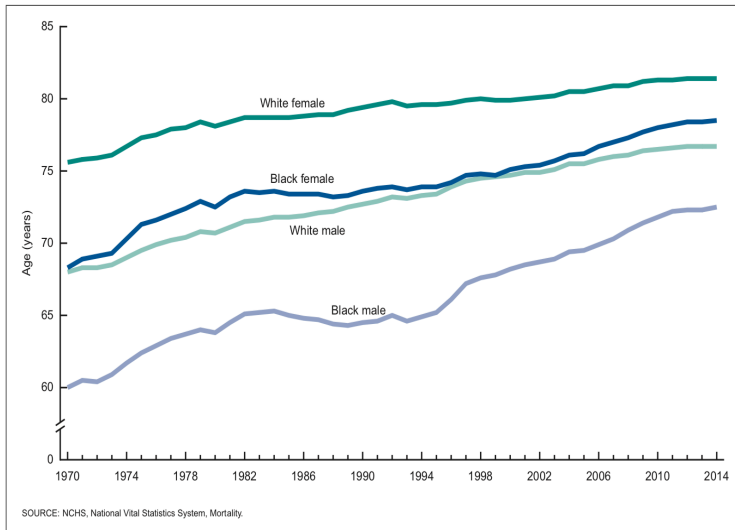
**PROLOGUE:** In Fall 1986 *Health Affairs* published the first of nearly two decades' worth of reports summarizing the state of health care spending in industrialized countries that are members of the Organization for Economic Cooperation and Development (OECD). In that first report, featuring 1984 data, the United States led the way in per capita health care spending at \$1,637, nearly double the OECD mean of \$871 (in purchasing power parities based on the U.S. dollar). In the latest offering, featuring data from 2000, the situation is much the same, although the absolute numbers are much higher (U.S. per capita spending of \$4,631, compared with an OECD median of \$1,983).

Over the years the OECD has refined its methodology to improve the comparability of data from vastly different health care systems. The analysis published in *Health Affairs* has greatly expanded from those early reports to examine underlying trends in spending differentials and to examine what the different countries get for their health care dollar in terms of population health indicators. In the current report, the authors look in depth at factors contributing to higher health care prices in the United States, which they contend are responsible for much of the difference between the U.S. spending levels and those of the other countries.

# Is High (and Increasing) Health Care Spending Necessarily Bad?

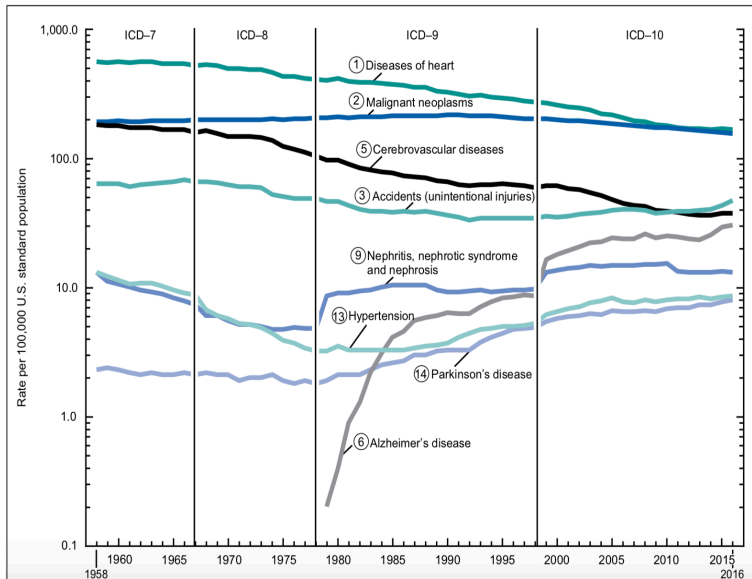
- Not necessarily
- Depends on what benefits come with the increase in health care expenditures

# Life Expectancy Has Been Increasing

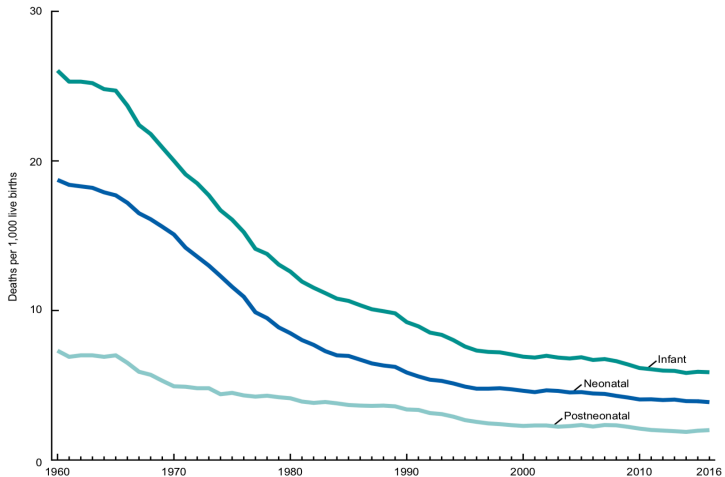


**Figure 1. Life expectancy at birth, by race and sex: United States, 1970–2014**

# US Cause of Death Trends



# Infant Mortality Declines Important in Explaining Life Expectancy Increases

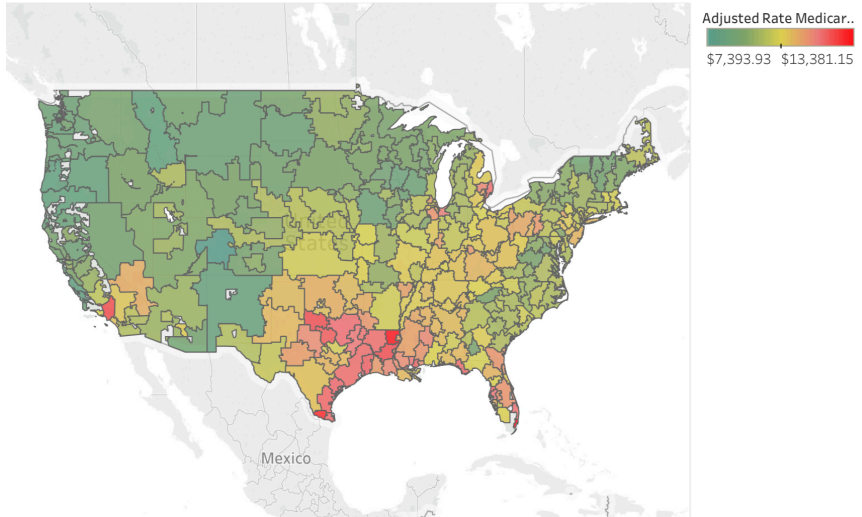


NOTE: Rates are infant (under 1 year), neonatal (under 28 days), and postneonatal (28 days–11 months) deaths per 1,000 live births in specified group.  
SOURCE: NCHS, National Vital Statistics System, Mortality.

# Does the Reductions in Mortality offset the Increase in Health Expenditures?

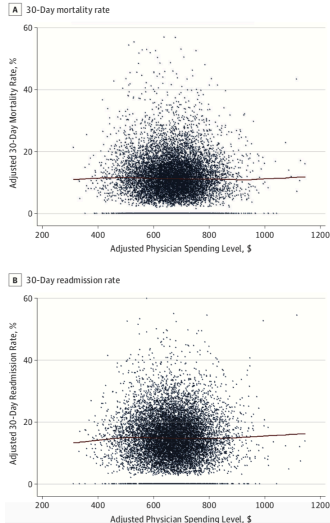
- Increase in life expectancy over last decade is 10 months
- Back of the envelope calculation suggests ROI in health spending is roughly between 0 and 6%
- Implies that providers/medtech/insurers appropriating most of the gains from innovation

# Large Variation in Medicare Per-Capita Expenditures Across Geography: Dartmouth Atlas Results



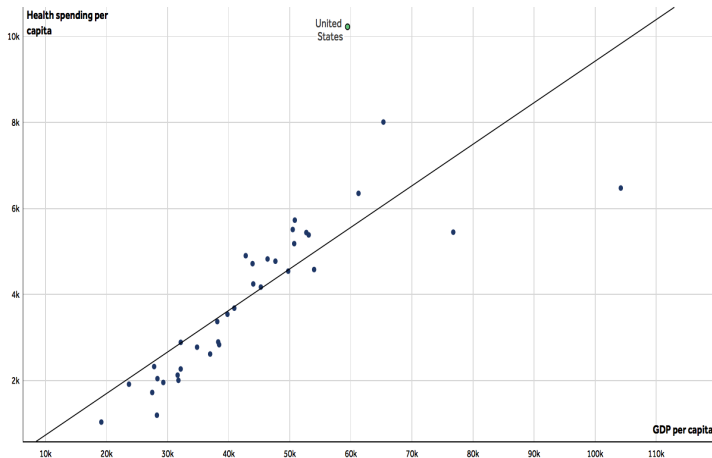
# Variation in Expenditures Is Not Correlated with Better Outcomes (Tsunga, et al. (2017))

Figure 2. Association Between Adjusted Physician-Level Spending and Patient Outcomes Among Hospitalist Physicians



# Comparison to Other Countries

GDP per capita and health consumption spending per capita, 2017 (U.S. dollars, PPP adjusted)



Source: KFF analysis of data from National Health Expenditure Accounts and OECD • [Get the data](#) • [PNG](#)

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# OECD Health Outcomes Comparisons

Figure 4. Population Health

Rank (highest to lowest)	1	2	3	4	5	6	7	8	9	10	11	Mean
<b>Determinants of health</b>												
Smoking, % of population aged ≥15 y who smoke daily	France 22.4	Germany 20.9	CHE 20.4	NLD 19	Japan 18.2	Denmark 17	UK 16.1	Canada 14	Australia 12.4	US 11.4	Sweden 11.2	16.6
Alcohol consumption, L per capita in population aged ≥15 y	France 11.9	Germany 11	Australia 9.7	UK 9.5	CHE 9.5	Denmark 9.4	US 8.8	Canada 8.1	NLD 8	Sweden 7.2	Japan 7.2	9.1
Obese or overweight, % of population aged ≥15 y	US 70.1	Australia 63.4	UK 62.9	Canada 60.3	Germany 60	France 49	Sweden 48.3 <sup>a</sup>	NLD 47.4 <sup>a</sup>	Denmark 47.4 <sup>a</sup>	CHE 41 <sup>a</sup>	Japan 23.8	55.6
<b>Life expectancy</b>												
Life expectancy in total population at birth, mean, y	Japan 83.9	CHE 83	Australia 82.5	France 82.4	Sweden 82.3	Canada 81.7	NLD 81.6	UK 81	Denmark 80.8	Germany 80.7	US 78.8	81.7
Health-adjusted life expectancy, mean, y	Japan 74.9	CHE 73.1	France 72.6	Canada 72.3	NLD 72.2	Sweden 72	Australia 71.9	UK 71.4	Germany 71.3	Denmark 71.2	US 69.1	72
Life expectancy for women aged ≥40 y, mean, y	Japan 47.7	France 46.4	CHE 45.8	Australia 45.4	Sweden 44.8	Canada 44.8	Germany 43.9	NLD 43.9	UK 43.7	Denmark 43.4	US 42.6	44.8
Life expectancy for men aged ≥40 y, mean, y	CHE 42	Japan 41.8	Australia 41.7	Sweden 41.5	Canada 41.1	NLD 40.8	France 40.6	UK 40.5	Denmark 39.8	Germany 39.4	US 38.7	40.7
<b>Maternal and infant health</b>												
Maternal mortality, deaths per 100 000 live births	US 26.4	UK 9.2	Germany 9	France 7.8	Canada 7.3	NLD 6.7	Japan 6.4	CHE 5.8	Australia 5.5	Sweden 4.4	Denmark 4.2	8.4
Infant mortality, deaths per 1000 live births	US 5.8	Canada 5.1	UK 3.9	CHE 3.9	France 3.8	Denmark 3.7	Germany 3.3	Australia 3.2	Sweden 2.5	NLD 2.5	Japan 2.1	3.6
Neonatal mortality, deaths per 1000 live births	US 4	Canada 3.2	CHE 3.1	Denmark 3	UK 2.7	France 2.6	NLD 2.5	Germany 2.3	Australia 2.3	Sweden 1.7	Japan 0.9	2.6
Neonatal mortality, deaths per 1000 live births excluding <1000 g	Denmark 2.09	NLD 1.96	UK 1.77	Canada 1.63	US 1.61	Sweden 1.56	Germany 1.49	France NA	CHE NA	Japan NA	Australia NA	1.7
Low birth weight, % of total live births	Japan 9.5	US 8.1	UK 6.9	Germany 6.6	NLD 6.5	Australia 6.4	Canada 6.3	France 6.2	Denmark 5	Sweden 4.4	CHE NA	6.6

# OECD Workforce Comparisons

Figure 5. Workforce and Structural Capacity

Rank (highest to lowest)	1	2	3	4	5	6	7	8	9	10	11	Mean
<b>Practicing workforce</b>												
Overall physicians per 1000 population	CHE 4.3	Sweden 4.2	Germany 4.1	Denmark 3.6	NLD 3.5	Australia 3.5	France 3.1	US 2.6	Canada 2.6	Japan 2.4	UK 2.1	3.3
Primary care physicians, % of total	France 54	CHE 48	Canada 48	NLD 47	UK 45	Germany 45	Australia 45	US 43	Japan 43	Sweden 33	Denmark 22	43
Specialists, % of total	Denmark 78	Sweden 67	US 57	Japan 57	UK 55	Germany 55	Australia 55	NLD 53	CHE 52	Canada 52	France 46	57
Nurses per 1000 population	CHE 17.4	Denmark 16.3	Germany 13	NLD 12.1	Australia 11.5	Sweden 11.2	US 11.1	Japan 10.5	Canada 9.5	France 9.4	UK 8.2	11.8
<b>Workforce remuneration, US \$</b>												
Generalist physicians	US 218173	Germany 154126	Canada 146286	UK 134671	Japan 124558 <sup>a</sup>	France 111769	NLD 109586	Australia 108564	Sweden 86607	CHE NA	Denmark NA	133723
Specialist physicians	US 316000	Australia 202291	NLD 191995	Canada 188260	Germany 181243	UK 171987	France 153180	Denmark 140505	Japan <sup>a</sup>	Sweden 98452	CHE NA	182657
Nurses	US 74160	NLD 65082	Australia 64357	Denmark 58891	Canada 55349	Germany 53668	UK 49894	Japan 44712	France 42492	CHE NA	Sweden NA	51795
Non-health-specific annual wage, mean <sup>b</sup>	US 60154	CHE 60124	NLD 52833	Denmark 52580	Australia 52063	Canada 48403	Germany 46389	France 42992	UK 42835	Sweden 42816	Japan 39113	49118
Ratio of generalist remuneration to mean wage	US 3.6	Germany 3.3	UK 3.1	Canada 3.0	France 2.6	NLD 2.1	Australia 2.1	Sweden 2	CHE NA	Denmark NA	Japan NA	2.7
Ratio of specialists remuneration to mean wage	US 5.3	Germany 3.9	Canada 3.9	Australia 3.8	France 3.6	NLD 3.6	UK 3.4	Denmark 2.6	Sweden 2.3	CHE NA	Japan NA	3.7
Ratio of nurse remuneration to mean wage	Australia 1.24	US 1.23	NLD 1.23	UK 1.16	Germany 1.16	Canada 1.14	Japan 1.14	Denmark 1.12	France 0.99	Sweden NA	CHE NA	1.1
<b>Equipment per 1 million population</b>												
Magnetic resonance imaging units	Japan 51.7	US 38.1	Germany 30.5	Australia 14.7	NLD 12.9	France 12.6	Canada 8.9	UK 7.2	Sweden NA	CHE NA	Denmark NA	22
Computed tomography units	Japan 107.2	Australia 56.1	US 41	Denmark 37.1	CHE 36.1	Germany 35.3	France 16.6	NLD 13.3	Canada 12.7	UK 9.5	Sweden NA	36.5
Mammography machine units	US 43.3	Japan 33	CHE 28.3	Australia 23	UK 21	Canada 17.3	Denmark 14.2	France 7.5	Germany NA	Sweden NA	NLD NA	23.5
<b>Beds</b>												
Hospital beds per 1000 population	Japan 13.2	Germany 8.2	France 6.1	CHE 4.6	Australia 3.8	NLD 3.3	US 2.8	UK 2.7	Denmark 2.7	Canada 2.7	Sweden 2.5	4.8
Long-term beds per 1000 population aged ≥65 y	Sweden 70.6	CHE 67.6	NLD 65.5	France 59	Australia 54	Canada 53.7	Germany 53.1	UK 49.5	Denmark 48.9	US 38.8	Japan 35.1	54.2

# OECD Access and Quality Comparisons

Figure 10. Access and Quality

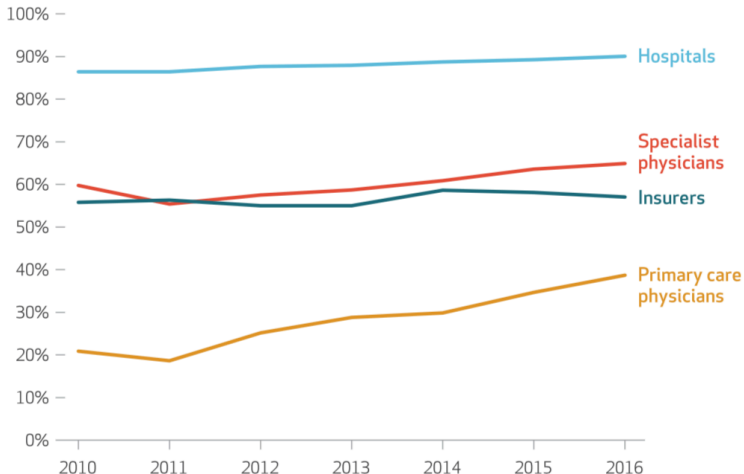
Rank (highest to lowest)	1	2	3	4	5	6	7	8	9	10	11	Mean
<b>Access, %</b>												
Able to get same- or next-day appointment <sup>a</sup>	NLD 77	Australia 67	UK 57	France 56	Germany 53	US 51	Sweden 49	Canada 43	CHE NA	Denmark NA	Japan NA	57
2-mo Wait time to see specialist	Canada 39	UK 19	Sweden 19	Australia 13	CHE 9	NLD 7	US 6	France 4	Germany 3	Denmark NA	Japan NA	13
Adequate time with regular (primary) physician	Germany 88	UK 86	NLD 85	CHE 84	Australia 83	US 81	Canada 79	Sweden 78	France NA	Denmark NA	Japan NA	83
<b>Perceptions, %</b>												
System works well	Germany 60	CHE 58	France 54	UK 44	Sweden 44	Australia 44	Canada 35	US 19	NLD NA	Denmark NA	Japan NA	45
Fundamental changes needed	Canada 55	US 53	UK 46	Sweden 46	Australia 46	France 41	Germany 37	CHE 37	NLD NA	Denmark NA	Japan NA	45
Complete rebuild of health system needed	US 23	Sweden 10	Canada 9	UK 7	France 4	Australia 4	Germany 3	CHE 3	NLD NA	Denmark NA	Japan NA	8
<b>Prevention</b>												
Measles immunization, % of children	Sweden 98	Japan 98	Germany 97	NLD 96	UK 93	CHE 93	Australia 93	US 92	France 91	Denmark 91	Canada 90	94
Breast cancer screening, % of women aged 50-69 y <sup>b</sup>	Denmark 84	US 81	NLD 79	UK 76	Sweden 75	Canada 72	Germany 71	Australia 55	France 52	CHE 47	Japan 41	67
<b>Clinical outcomes</b>												
30-d Stroke mortality per 1000 patients <sup>c</sup>	Canada 10	Sweden 9.6	Australia 9.3	UK 9.2	France 7.9	CHE 6.9	Germany 6.4	US 4.2	NLD NA	Denmark NA	Japan NA	7.9
30-d Mortality per 1000 patients with acute myocardial infarction	Germany 8.7	Sweden 8.3	CHE 7.7	UK 7.6	France 7.2	Canada 6.7	US 5.5	Australia 4.1	NLD NA	Denmark NA	Japan NA	7
Foreign body left per 100 000 discharges	CHE 12.3	Canada 8.6	Australia 8.6	France 6.2	UK 6.1	Germany 5.5	Sweden 4.6	US 4.1	NLD NA	Denmark NA	Japan NA	7
Obstetric trauma without instrument per 100 deliveries	Canada 3.1	UK 2.8	Sweden 2.8	CHE 2.6	Denmark 2.6	NLD 2.5	Australia 2.4	Germany 2.1	US 1.5	France 0.6	Japan NA	2.3
<b>Avoidable hospitalizations</b>												
Diabetes hospitalizations per 100 000 population <sup>d</sup>	Germany 218.3	US 191	Japan 162.3	France 150.6	Australia 141.1	Denmark 113.4	Sweden 96	Canada 93.7	UK 72.8	CHE 72.6	NLD 69.8	125.6
Diabetes hospitalizations as a ratio of population with diabetes <sup>e</sup>	Japan 2.80	Australia 2.80	Germany 2.40	US 2	Sweden 1.90	Denmark 1.80	UK 1.70	Canada 1.30	France 1.20	NLD 1.20	CHE 1.20	2.00
Asthma hospitalizations per 100 000 population <sup>f</sup>	US 89.7	UK 71	Australia 64.8	Denmark 50.6	NLD 36	Japan 34.7	France 29.6	Germany 28.7	CHE 27.5	Sweden 19	Canada 14.6	42.4
Asthma hospitalizations as a ratio of population with asthma <sup>g</sup>	US 1.20	UK 1.00	France 0.80	Denmark 0.80	Germany 0.70	NLD 0.70	Australia 0.60	CHE 0.40	Sweden 0.30	Japan 0.30	Canada 0.20	0.70

# Why are Prices So Much Higher in US?

- OCED provider reimbursement rates are highly regulated
- US privately insured reimbursement rates are determined by negotiations between insurers and providers
- Prices primarily determined by relative *bargaining leverage*
- Leverage depends upon both provider and insurer market structure – how competitive is the market?
- Provider incentives (“agency”) also lead to inefficient utilization – difficult to generate payment incentives that induces providers to always do the right thing at the right time in the right place

# US Provider Markets are Concentrated

**Percentages of Metropolitan Statistical Areas (MSAs) whose Herfindahl-Hirschman Index (HHI) was above 2,500 for hospitals, physician organizations, and health insurers, 2010–16**



# How To Increase the Performance of the Health Care Sector?

- 5 approaches to improving health care system performance:
  - ① Create more provider competition and/or introduce more provider price regulation
  - ② Reduce delivery of low value care
    - Difficult to set up such a system that providers would prefer to the current system
  - ③ Increase the productivity of care/medtech where benefits are primarily captured by patients
  - ④ Expand public programs for uninsured
  - ⑤ Improve population health
- Meaningfully improving health sector performance likely requires reducing provider income

# Democratic Presidential Proposals

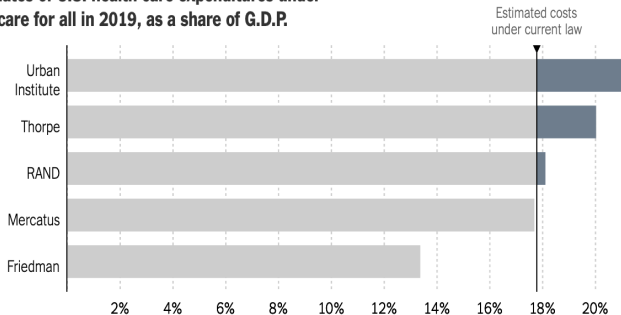
- Cottage industry of health policy interventions:
  - Accountable care organizations, electronic medical records, bundled payments, value-based payments, pay-for-performance, etc
- Most of these have had little to no impact
- Democratic health reform proposals
  - Public Option
    - Offer a plan that looks like Traditional Medicare – and price it at approximately cost
    - Expand Affordable Care Act provisions
  - Medicare-For-All
    - Enroll all eligible US residents in an enhanced Medicare plan
    - Mostly eliminate private health insurance
    - Pay providers at Medicare rates (which may have to adjust)
    - Medicare reimbursements approximately 70% of commercial insurance reimbursements

# Democratic Presidential Proposals

Impact of Democratic Healthcare Proposals		
Impact	Public Option	Medicare-for-All
Competition and/or price regulation	<b>Modest</b>	<b>Yes, but not to current Medicare Rates</b>
Reduce low value care	<b>No</b>	<b>No</b>
Impact on technological change	<b>Modest</b>	<b>Unclear</b>
Improve Population Health	<b>No</b>	<b>No</b>
Impact on Uninsurance	<b>Modest to Significant</b>	<b>Eliminate</b>
Disruption	<b>Little</b>	<b>Large</b>
Medical Care Industry Response	<b>Negative</b>	<b>Going to War!</b>

# Medicare-for-All Projected Costs

**Estimates of U.S. health care expenditures under Medicare for all in 2019, as a share of G.D.P.**



# Summary

- US health system problems are many fold but the cost problem is central and first-order
- Solutions that do not address the underlying prices of health care will not meaningfully impact the cost problem
- Even Medicare-For-All likely will not fully address the cost issue
- What about Medicare-Advantage-For-All?

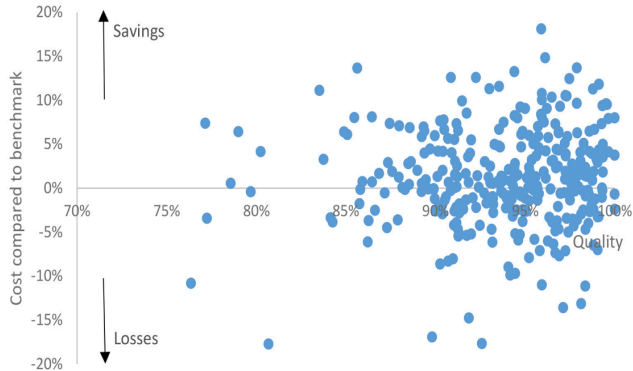
# The Performance of Interventions to Improve US Health Care Sector Performance

- A cottage industry has emerged to address health care system inefficiencies
- Examine 3 important initiatives:
  - Accountable Care Organizations (Medicare Shared Saving Program)
  - Health Information Technology (e.g. EMRs)
  - Managed Care
- Return to the recent trend in health care costs shift

# Accountable Care Organizations

- ACOs are organizations that are formed and tasked with managing the care of assigned patients – payments to the organization are tied to quality and cost metrics
- Generally, savings are split between the payer and the ACO
- Medicare, Medicaid, and Private ACOs
- The Affordable Care Act authorized a Medicare ACO demonstration (Medicare Shared Savings Program)
- Cost and quality improvements were modest and it was revenue negative from Medicare's perspective

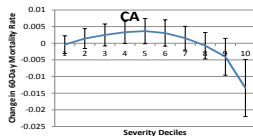
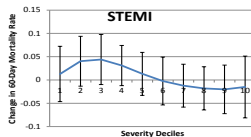
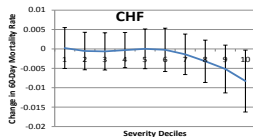
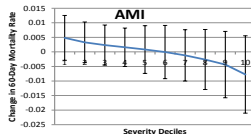
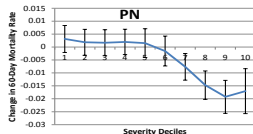
# Medicare Shared Savings Demonstration Results



# Health Information Technology

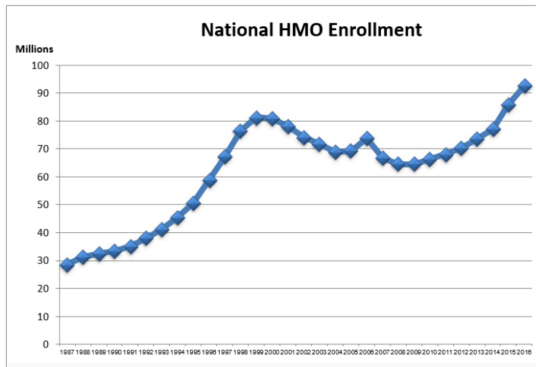
- Paper records were very common in health care sector until early-2000
- Lots of potential efficiencies from having a centralized, electronic store of medical information (reduce duplication of tests, promote best practices, flag at-risk patients, identify drug/drug interactions, etc)
- The turn of the century saw an increased diffusion of HIT in hospitals (e.g. EMRs, CPOE, PACS, eMAR)
- McCullough, Parente and Town (2015) analyze hospital adoption of HIT on patient outcomes

# Impact of HIT on Patient Outcomes



# Rise of Managed Care

- From 1993 through 1999, personal health care price growth averaged 2.5 percent – much lower than any other period



# Why Did 2 out of 3 of these Programs Fail to Achieve Significant Cost Reductions / Quality Improvements?

- ACOs focused on the MD incentive contract alone – the easy way to make \$ in these settings is to game risk-adjustment not invest in cost reduction/quality improvement
- HIT affects information acquisition cost and access but does not address bargaining power or incentive problems
- Managed care addresses both bargaining power and contract form – Providers hated it (and it lead to a hospital merger wave) and the cost benefits are opaque to patients

# To Summarize: Or, as Observed in 2019

## COSTS & SPENDING

By Gerard F. Anderson, Peter Hussey, and Varduhi Petrosyan

### It's Still The Prices, Stupid: Why The US Spends So Much On Health Care, And A Tribute To Uwe Reinhardt

**ABSTRACT** A 2003 article titled “It’s the Prices, Stupid,” and coauthored by the three of us and the recently deceased Uwe Reinhardt found that the sizable differences in health spending between the US and other countries were explained mainly by health care prices. As a tribute to him, we used Organization for Economic Cooperation and Development (OECD) Health Statistics to update these analyses and review critiques of the original article. The conclusion that prices are the primary reason why the US spends more on health care than any other country remains valid, despite health policy reforms and health systems restructuring that have occurred in the US and other industrialized countries since the 2003 article’s publication. On key measures of health care resources per capita (hospital beds, physicians, and nurses), the US still provides significantly fewer resources compared to the OECD median country. Since the US is not consuming greater resources than other countries, the most logical factor is the higher prices paid in the US. Because the differential between what the public and private sectors pay for medical services has grown significantly in the past fifteen years, US policy makers should focus on prices in the private sector.

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**Gerard F. Anderson**  
(ganderson@jhu.edu) is a  
professor in the Department  
of Health Policy and  
Management and the  
Department of International  
Health, Johns Hopkins  
Bloomberg School of Public  
Health, in Baltimore,  
Maryland.

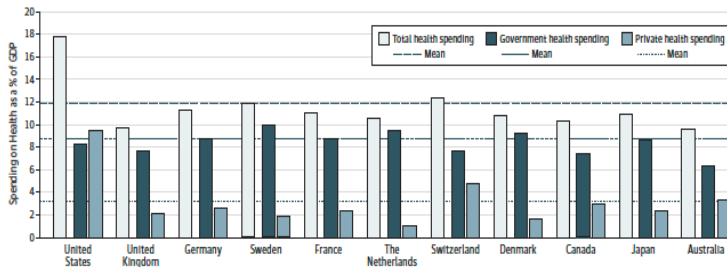
**Peter Hussey** is vice president  
and director, Health Care, at  
the RAND Corporation in  
Boston, Massachusetts.

**Varduhi Petrosyan** is a  
professor and dean in the  
Turpanjan School of Public  
Health, American University of  
Armenia, in Yerevan.

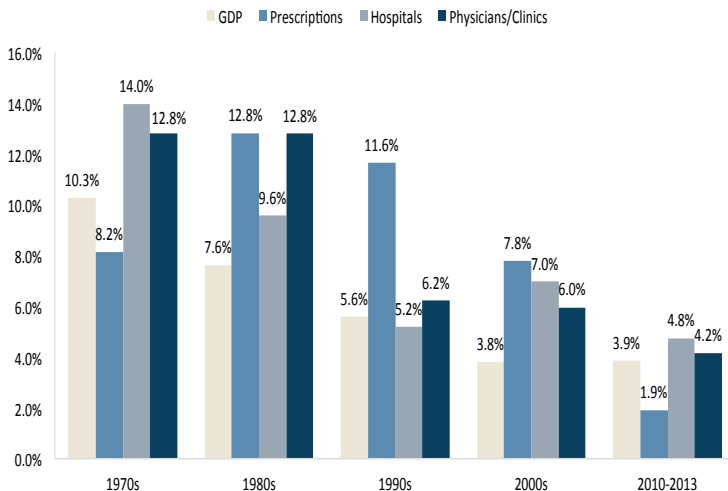
## Additional Slides

# OECD GDP Spending on Health

Figure 2. Health Spending as a Percentage of Gross Domestic Product



# Growth Rates of Expenditures by Source Over Time



# OECD Utilization Comparisons

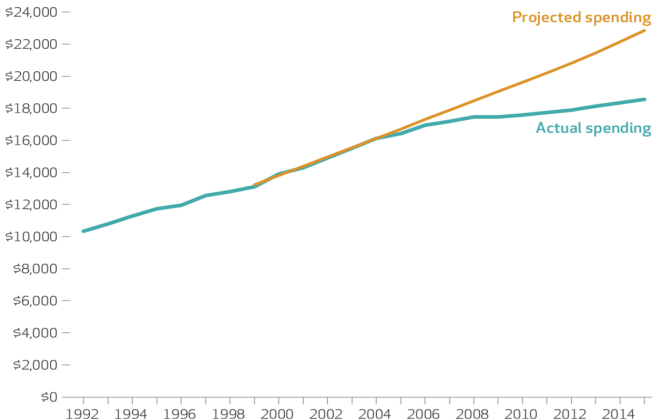
Figure 7. Utilization

Rank (highest to lowest)	1	2	3	4	5	6	7	8	9	10	11	Mean
Discharges per 100 000 population												
Acute myocardial infarction	Germany 287	Sweden 273	CHE 223	Australia 196	Canada 193	US 192	NLD 175	Denmark 174	UK 160	France 124	Japan 89	190
Mental and behavioral	Germany 1719	CHE 1182	Sweden 1068	Denmark 892	Australia 856	US 679	Canada 629	France 368	Japan 319	UK 269	NLD 119	736
Pneumonia	Denmark 567	UK 459	Sweden 432	Germany 380	Japan 378	US 365	Australia 338	France 271	CHE 269	NLD 224	Canada 187	352
Chronic obstructive pulmonary disease	Germany 352	Australia 286	UK 251	Canada 241	Denmark 234	US 230	Sweden 186	NLD 161	CHE 142	France 138	Japan 45	206
Examinations per 1000 population												
Magnetic resonance imaging	Germany 131	US 118	Japan 112	France 105	Denmark 82	CHE 70	Canada 56	UK 53	NLD 52	Australia 41	Sweden NA	82
Computed tomography	US 245	Japan 231	France 197	Denmark 162	Canada 153	Germany 144	Australia 120	CHE 100	NLD 81	UK 79	Sweden NA	151
Surgical procedures												
Total hip replacement per 100 000 population	CHE 292	Germany 283	Denmark 237	France 236	Sweden 234	NLD 216	US 204	UK 183	Australia 171	Canada 136	Japan 90	207
Total knee replacement per 100 000 population	US 226	Germany 190	Australia 180	CHE 176	Denmark 168	Canada 166	France 145	UK 141	Sweden 124	NLD 118	Japan NA	163
Hysterectomy per 100 000 women	Germany 301	CHE 291	US 266	Australia 262	Canada 232	Denmark 197	Sweden 186	France 182	NLD 167	UK 161	Japan NA	225
Cesarean delivery per 100 live births	US 33	CHE 33	Australia 32	Germany 31	Canada 26	UK 23	France 21	Denmark 21	Japan 18	Sweden 17	NLD 16	25
Cataract surgery per 100 000 population	France 1207	US 1110	Canada 1060	Australia 1060	Denmark 1037	Sweden 1029	Germany 1027	NLD 1005	UK 736	CHE 438	Japan NA	971
Cardiovascular procedures per 100 000 population												
Coronary artery bypass graft surgery	US 79	Denmark 73	NLD 69	Germany 64	Canada 58	Australia 54	Sweden 31	France 29	UK 26	CHE NA	Japan NA	54
Coronary angioplasty	France 393	US 248	NLD 248	France 237	Sweden 205	Japan 193	Denmark 190	Australia 172	Canada 157	UK 128	CHE NA	217
Length of stay per capita, mean, d												
Normal delivery	Japan 4.7	France 4.1	CHE 3.6	Germany 2.9	Denmark 2.7	Australia 2.7	Sweden 2.3	US 2	NLD 1.9	Canada 1.6	UK 1.5	2.8
Acute myocardial infarction	Germany 10.3	CHE 7.3	UK 7.1	France 6	NLD 5.6	Canada 5.5	US 5.4	Australia 5.4	Sweden 4.7	Denmark 3.9	Japan NA	6.1

# But the Trend Is Flattening for the Elderly

## EXHIBIT 1

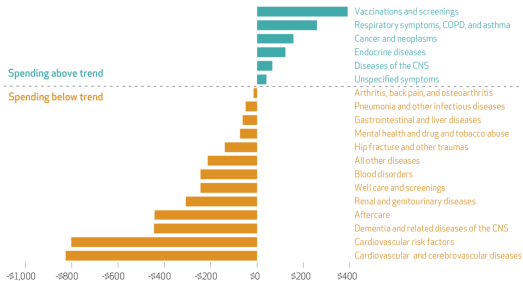
Real per capita health care spending for the elderly, 1992-2015



Source: Cutler et al. (2019)

# Bending the Trend for the Elderly

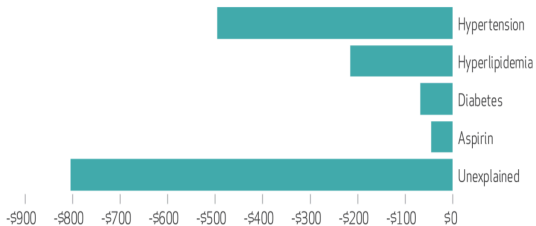
Per capita spending slowdown by major medical condition, 1999–2012



Source: Cutler et al. (2019)

# Bending the Trend for the Elderly

**Impact of medications to treat various cardiovascular diseases and risk factors on overall spending for cardiovascular disease, 1999-2012**



Source: Cutler et al. (2019)

# OECD Pharma Comparisons

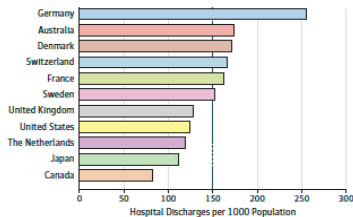
Figure 9. Pharmaceuticals

Rank (highest to lowest)	1	2	3	4	5	6	7	8	9	10	11	Mean
Total spending per capita, US \$	US 1443	CHE 939	Japan 837	UK 779	France 697	Denmark 675	Germany 667	Canada 613	Sweden 566	Australia 560	NLD 466	749
Retail pharmaceutical spending per capita, US \$	US 1026	CHE 776	Canada 587	Denmark 573	France 541	Sweden 501	Germany 480	Japan 443	UK 383	Australia 346	NLD 292	541
Prices, US \$ per mo <sup>a</sup>												
Crestor (cholesterol)	US 86	Germany 41	Canada 32	Japan 29	UK 26	France 20	Australia 9	Sweden NA	NLD NA	CHE NA	Denmark NA	35
Lantus (diabetes)	US 186	Canada 67	UK 64	Japan 64	Germany 61	Australia 54	France 47	Sweden NA	NLD NA	CHE NA	Denmark NA	78
Advair (asthma)	US 155	Canada 74	Japan 51	Germany 38	France 35	Australia 29	UK NA	Sweden NA	NLD NA	CHE NA	Denmark NA	64
Humira (rheumatoid arthritis)	US 2505	Germany 1749	Australia 1243	Canada 1164	UK 1158	France 982	Japan 980	Sweden NA	NLD NA	CHE NA	Denmark NA	1436
New chemical entities, No. <sup>b</sup>	US 111	CHE 26	Japan 18	UK 16	Germany 12	France 11	Sweden NA	NLD NA	Denmark NA	Canada NA	Australia NA	NA
Pharmaceutical expenditure by financing type, % of total spending												
Public spending	France 80	Germany 75	Japan 71	UK 66	NLD 65	Sweden 52	Australia 49	CHE 43	Denmark 43	Canada 36	US 34	56
Private insurance	US 36	Canada 30	CHE 8	Denmark 8	Germany 7	NLD 2	France 1	Japan 1	UK 0	Sweden 0	Australia 0	8
Private out-of-pocket spending	CHE 51	Denmark 51	Australia 50	Sweden 48	UK 36	Canada 34	NLD 33	US 30	Japan 28	France 19	Germany 18	36
Share of generics, % of total <sup>c</sup>												
Volume	US 84	UK 83	Germany 80	France 70	Canada 70	Japan 56	CHE 54	Denmark 54	Sweden 44	Australia 30	NLD 17	58
Value	Germany 37	UK 33	Japan 33	Canada 29	US 28	France 16	NLD 16	Sweden 15	Australia 15	CHE 14	Denmark 14	23
Antibiotic prescribing, defined daily doses per 1000 population <sup>d</sup>	France 29.9	Australia 28.3	Canada 25	US 24	UK 20.1	Denmark 16.6	Germany 14.4	Sweden 12.9	NLD 10.7	CHE NA	Japan NA	20.2

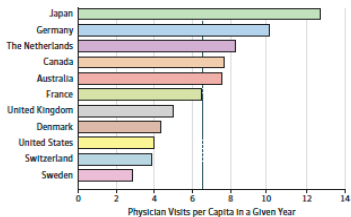
# OECD Utilization Comparisons

Figure 8. Performance on Key Measures of Utilization

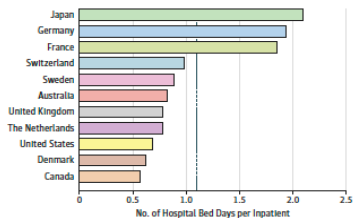
**A** Hospital discharges



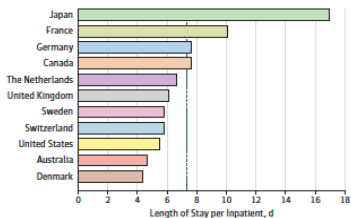
**B** Consultations<sup>a</sup>



**C** Hospital bed days



**D** All-cause length of stay

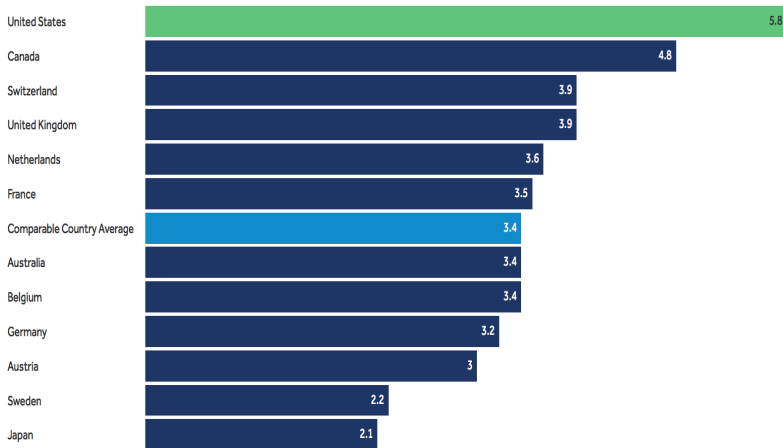


The vertical dashed lines indicate mean values.

<sup>a</sup> Consultations is the mean number of consultations or visits with a physician per person per year in all care delivery settings.

# US v OECD Infant Mortality

Infant mortality per 1,000 live births, 2014



Comparable countries are defined as those with above median GDP and above median GDP per capita in at least one of the past 10 years. Canada data estimated from 2012.