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Measuring the U.S. Health Care System: A Cross-National Comparison

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Abstract: The Organization for Economic Cooperation and Development (OECD) tracks and reports annually on more than 1,200 health system measures across 30 industrialized countries, ranging from population health status and nonmedical determinants of health to health care resources and utilization. Based on analysis of OECD health data from 2008, the United States continues to differ markedly from other countries on a number of health system measures. The U.S. has a comparatively low number of hospital beds and physicians per capita, and patients in the U.S. have fewer hospital and physician visits than most other countries. At the same time, spending per hospital visit is highest in the U.S., and American patients are among the most likely to receive procedures requiring complex technology. The nation now ranks in the bottom quartile in life expectancy among OECD countries and has seen the smallest improvement in this metric over the past 20 years.

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OVERVIEW

Findings from cross-national comparisons of health care systems can inform public policy, highlight areas where nations could improve, and yield benchmarks for high performance. The Organization for Economic Cooperation and Development (OECD) tracks and reports annually on more than 1,200 health system measures across 30 industrialized countries, ranging from population health status and non-medical determinants of health to health care resources and utilization. Since 1998, The Commonwealth Fund has sponsored an analysis of cross-national health systems based on OECD health data to place the performance of the U.S. health system in an international context and derive lessons for the nation's health care leaders and policymakers.

Based on analysis of OECD health data from 2008, the United States continues to differ markedly from other countries on a number of health system measures.¹ Health care spending in the U.S. in 2006 was significantly higher than in other industrialized countries, both per capita and as a percentage of gross domestic

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product (GDP). The U.S. has a comparatively low number of hospital beds and physicians per capita, and patients in the U.S. have fewer hospital and physician visits than most other countries. At the same time, spending per hospital visit is highest in the U.S., and American patients are among the most likely to receive procedures requiring complex technology. The nation now ranks in the bottom quartile in life expectancy among OECD countries and has seen the smallest improvement in this metric over the past 20 years. According to one recent analysis, the U.S. had the highest rate of mortality amenable to health care among 19 OECD countries in 2002–03.²

KEY FINDINGS

The comparative findings that follow are for 2006, although OECD data for 2004 and 2005 were used in a few instances, as is indicated in the exhibits. When data from those years were not available, no data are presented. All currency amounts are listed in U.S. dollars (USD) and adjusted for national differences in cost of living.

The U.S. Has the Highest Level of Health Care Spending

- Health care spending per capita in the U.S. in 2006 (\$6,714) was more than twice the median per capita expenditure of the 30 OECD industrialized countries (\$2,880), and 50 percent greater than Norway (\$4,520), the second-highest spending country (Exhibits 1 and 2).
- Health care expenditures constituted 15.3 percent of GDP in the U.S., while in other OECD countries it was generally less than 10 percent and did not exceed 11.3 percent.
- Public health care spending per capita in the U.S. (\$3,074) exceeded total health care spending per capita in half of the other OECD countries, and yet public programs in the U.S. covered only 27 percent of the population.³
- Per capita spending in the U.S. on outpatient care (\$3,011) was almost four times higher than the

OECD median (\$759) and almost three times higher than any other OECD country.

- Per capita spending in the U.S. on pharmaceuticals (\$843) was higher than any other OECD country, although pharmaceutical spending accounted for a lower share of total health expenditures in the U.S. (12.6%) than the OECD median (16.6%).

The U.S. Has Relatively Few Physicians and Physician Visits

- On a per capita basis, there were fewer practicing physicians in the U.S.—2.4 per 1,000 population—than most other OECD countries (Exhibit 3). The median was 3.3 physicians.
- The average number of physician visits per capita in the U.S. (4.0) was lower than the OECD median (6.4) and lower than all but four of the 25 countries that reported on this measure.

Hospital Stays in the U.S. Are Less Frequent and Shorter, but More Expensive

- The number of hospital discharges per 1,000 population in the U.S. (119) was in the bottom quartile among OECD countries and much lower than the OECD median of 162 (Exhibit 3).
- The U.S. had among the fewest acute care hospital beds per capita (2.7 per 1,000 population) among OECD countries (median was 3.4).
- The average length of stay for acute care hospitalizations in the U.S. (5.6 days) was one day shorter than the OECD median (6.6 days).
- Spending per hospital discharge in the U.S. (\$17,126) was 2.5 times higher than the OECD median (\$6,867) and almost 50 percent higher than the Netherlands, the second-most-expensive OECD country (\$11,522).

Exhibit 1. Health Spending in Organization for Economic Cooperation and Development (OECD) Countries, 2006

	Total Health Spending		Public Health Care Spending per Capita	Outpatient Care Spending per Capita	Pharmaceutical Spending	
	Per Capita	% of GDP			Per Capita	% of Total Health Spending
Australia	\$2,999 ^a	8.8% ^a	\$2,011 ^a	\$947 ^a	\$426 ^a	14.2% ^a
Austria	\$3,606	10.1%	\$2,748	\$895	\$449	12.4%
Belgium	\$3,488	10.4%	— ^c	\$637	\$584	16.8%
Canada	\$3,678	10.0%	\$2,591	\$920	\$639	17.4%
Czech Republic	\$1,490	6.8%	\$1,309	\$345	\$349	23.4%
Denmark	\$3,349	9.5%	— ^c	\$841	\$286	8.5%
Finland	\$2,668	8.2%	\$2,027	\$690	\$389	14.6%
France	\$3,449	11.1%	\$2,750	\$603	\$564	16.4%
Germany	\$3,371	10.6%	\$2,591	\$744	\$500	14.8%
Greece	\$2,483	9.1%	\$1,529	— ^c	\$438	17.6%
Hungary	\$1,504	8.3%	\$1,066	\$301	\$466	31.0%
Iceland	\$3,340	9.1%	\$2,738	\$826	\$439	13.1%
Ireland	\$3,082	7.5%	\$2,413	— ^c	— ^c	— ^c
Italy	\$2,614	9.0%	\$2,018	\$788	\$524	20.0%
Japan	\$2,474 ^a	8.2% ^a	\$2,046 ^a	\$788 ^a	\$489 ^a	19.8% ^a
Korea	\$1,480	6.4%	\$815	\$493	\$381	25.8%
Luxembourg	\$4,303	7.3%	\$3,910	\$1,018 ^a	\$349 ^a	8.4% ^a
Mexico	\$794	6.6%	\$351	\$249	\$182	22.9%
Netherlands	\$3,391	9.3%	— ^c	— ^c	— ^c	— ^c
New Zealand	\$2,448	9.3%	\$1,906	\$599	\$303	12.4%
Norway	\$4,520	8.7%	\$3,780	\$830	\$384	8.5%
Poland	\$910	6.2%	\$636	\$170	\$248	27.2%
Portugal	\$2,120	10.2%	\$1,495	\$679	\$451	21.3%
Slovak Republic	\$1,130 ^a	7.1% ^a	\$840 ^a	\$192 ^a	\$360 ^a	31.9% ^a
Spain	\$2,458	8.4%	\$1,751	\$759	\$533	21.7%
Sweden	\$3,202	9.2%	\$2,615	\$1,084	\$426	13.3%
Switzerland	\$4,311	11.3%	\$2,597	\$1,166 ^a	\$427 ^a	10.5% ^a
Turkey	\$591 ^a	5.7% ^a	\$422 ^a	n/a	n/a	n/a
United Kingdom	\$2,760	8.4%	\$2,408	— ^c	— ^c	— ^c
United States	\$6,714	15.3%	\$3,074	\$3,011	\$843	12.6%
OECD Median	\$2,880	8.9%	\$2,027	\$759	\$433	16.6%

Notes: All currency amounts are adjusted for differences in cost of living.

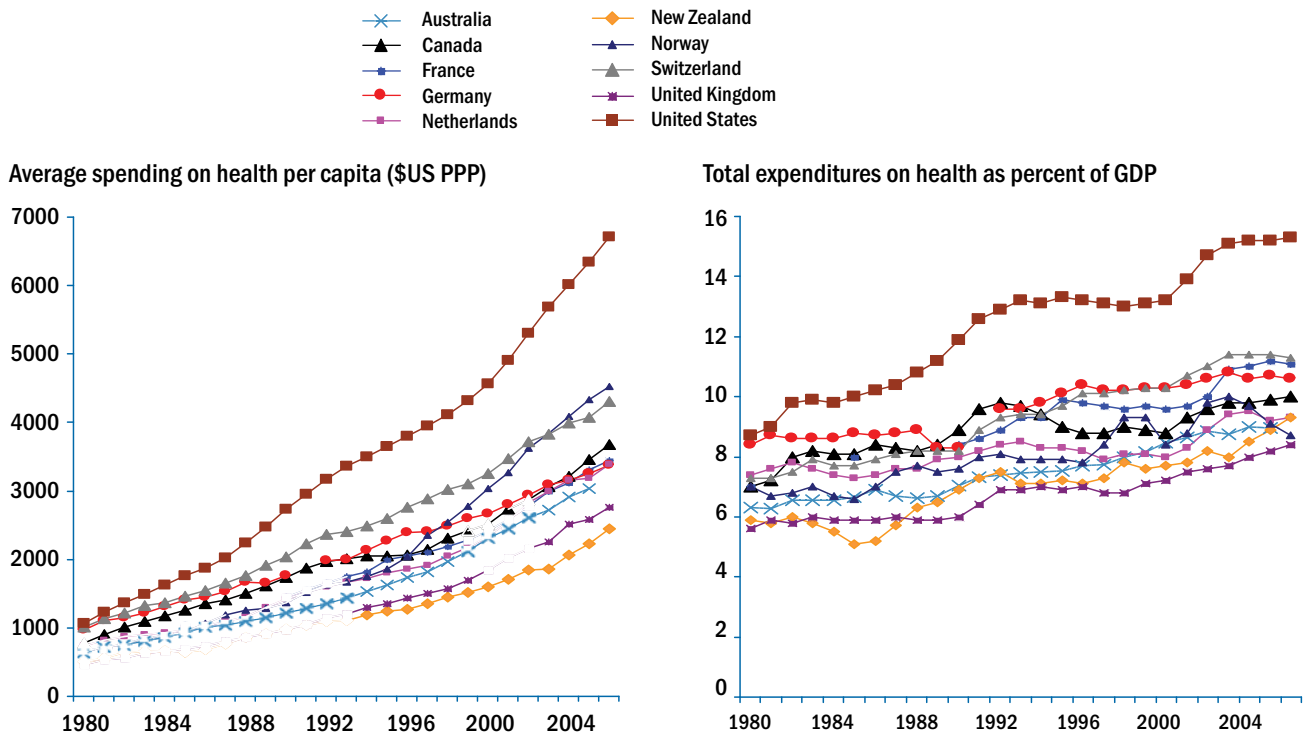
^a 2005

^b 2004

^c Data not available for 2006, 2005 or 2004

Source: Organization for Economic Cooperation and Development, *OECD Health Data, 2008* (Paris: OECD, June 2008).

Exhibit 2. International Comparison of Spending on Health, 1980–2006



Source: Organization for Economic Cooperation and Development, *OECD Health Data*, 2008 (Paris: OECD, June 2008).

High-Tech Medical Procedures Are Performed at High Rates in the U.S.

- Sophisticated imaging technology was comparatively prevalent in the U.S., with 33.9 computed tomography (CT) scanners and 26.5 magnetic resonance imaging (MRI) units per million population, compared with 14.8 CT scanners and 7.7 MRI units in the OECD median (Exhibit 4). Only two countries (Australia and Belgium) had more CT scanners per capita than the U.S., and only one country (Japan) had more MRI units.
- For inpatient medical procedures involving sophisticated technology, the U.S. was far above the OECD median for four procedures for which data are available. The U.S. had the highest rate among all countries for percutaneous coronary interventions (angioplasty and stenting), the second-highest rates of knee replacements and of patients undergoing dialysis treatment, and the fourth-highest rate of cardiac catheterizations (Exhibit 4).⁴

- Several countries other than the U.S. showed comparatively high rates of imaging and procedures involving sophisticated technology. Germany in particular had high rates of cardiac catheterization, percutaneous coronary interventions, and patients undergoing dialysis. Japan had the highest number of MRI units per million population and highest rate of patients undergoing dialysis.

Mortality

- Life expectancy at birth in the U.S. was 77.8 years, placing the nation in the bottom quartile among the 30 OECD countries in 2006 (Exhibit 5). Ten countries had life expectancies at birth of over 80 years.
- The U.S. had the smallest increase in life expectancy among all OECD countries from 1986 to 2006—3.1 years, compared with the median of 4.7 years.

Exhibit 3. Physicians and Hospitals in OECD Countries, 2006

	Physicians		Hospitals			
	Number of Practicing Physicians per 1,000 Population	Average Number of Physician Visits per Capita	Hospital Discharges per 1,000 Population	Number of Acute Care Hospital Beds per 1,000 Population	Average Length of Stay for Acute Care	Hospital Spending per Discharge
Australia	2.8 ^a	6.1	162 ^a	3.5 ^a	6.0 ^a	\$6,993 ^a
Austria	3.6	6.7	278 ^a	6.1	5.8	— ^c
Belgium	4.0	7.5 ^a	174 ^a	4.3	7.7 ^a	\$6,741 ^a
Canada	2.1	5.9 ^a	87 ^a	2.8 ^a	7.2 ^a	\$11,093 ^a
Czech Republic	3.6	12.9	204	5.4	7.8	\$3,304
Denmark	3.6 ^b	7.5 ^b	171	3.1 ^a	3.5 ^a	\$8,369
Finland	2.7	4.3	196	3.1	4.8 ^a	\$4,731
France	3.4	6.4	284	3.7	5.4	\$4,333
Germany	3.5	7.0 ^b	202	6.2	8.5	\$4,852
Greece	5.0 ^a	— ^c	184 ^b	3.9 ^a	5.7 ^b	— ^c
Hungary	3.0	12.9	256 ^a	5.5	6.1	\$1,850 ^a
Iceland	3.7	6.3	160	— ^c	5.5	— ^c
Ireland	2.9	— ^c	137	2.8 ^a	6.6 ^a	— ^c
Italy	3.7	7.0 ^a	141 ^a	3.3	6.7 ^a	— ^c
Japan	2.1	13.7 ^a	106 ^a	8.2	19.2	\$11,181 ^a
Korea	1.7	11.8 ^a	132 ^a	6.8	n/a	\$3,278 ^a
Luxembourg	2.8	6.0	172	4.6	7.4	\$10,528 ^a
Mexico	1.9	2.5 ^b	55	1.0	3.9	\$4,837
Netherlands	3.8	5.6	104 ^a	3.0	6.6	\$11,522 ^a
New Zealand	2.3	— ^c	138 ^b	— ^c	— ^c	\$4,935 ^b
Norway	3.7	— ^c	177	3.0	5.0	\$8,780 ^a
Poland	2.2	6.6	184	4.7	6.1	\$1,438
Portugal	3.4 ^a	3.9 ^a	104	3.0 ^a	7.1 ^a	\$7,109
Slovak Republic	3.1 ^b	10.4	199	4.9	7.2	\$1,539 ^a
Spain	3.6	8.1	107	2.5 ^a	6.7 ^a	\$8,591
Sweden	3.5 ^a	2.8	162	2.2	4.6	\$8,631
Switzerland	3.8	— ^c	161	3.5	8.2	\$8,888 ^a
Turkey	1.6	3.1 ^b	85 ^b	2.5	n/a	\$2,842 ^b
United Kingdom	2.5	5.1	125	2.2	7.5	— ^c
United States	2.4	4.0 ^a	119 ^a	2.7	5.6	\$17,126 ^a
<i>OECD Median</i>	<i>3.3</i>	<i>6.4</i>	<i>162</i>	<i>3.4</i>	<i>6.6</i>	<i>\$6,867</i>

^a 2005^b 2004^c Data not available for 2006, 2005 or 2004Source: Organization for Economic Cooperation and Development, *OECD Health Data, 2008* (Paris: OECD, June 2008).

Exhibit 4. Technologically Advanced Equipment and Procedures in OECD Countries, 2006

	Advanced Medical Technology (per Million Population)		Inpatient Medical Procedures Involving Sophisticated Technology (per 100,000 Population)			
	CT Scanners	MRI Units	Cardiac Catheterization	Percutaneous Coronary Intervention (PTCA or Stenting)	Knee Replacement	Patients Undergoing Dialysis
Australia	51.1 ^a	4.9	333 ^a	168 ^a	144 ^a	45
Austria	29.8	16.8	595 ^a	— ^c	187 ^a	47
Belgium	39.8	7.1	518 ^a	427 ^a	152 ^a	60 ^a
Canada	12.0	6.2	196 ^a	138 ^a	130 ^a	63
Czech Republic	13.1	3.8	— ^c	207 ^a	— ^c	57
Denmark	15.8	10.2 ^b	32 ^a	194 ^a	106 ^a	47 ^a
Finland	14.8	15.2	30	152	188	29
France	10.0	5.3	— ^c	— ^c	95 ^{b,d}	59
Germany	16.7	7.7	979	353	121 ^{b,d}	80
Greece	25.8 ^a	13.2 ^a	— ^c	— ^c	— ^c	75 ^b
Hungary	7.2	2.6	388 ^a	326 ^a	55 ^a	54 ^a
Iceland	26.3	19.7	316	200	100	17
Ireland	12.8	9.7	170	93	43	35
Italy	27.7 ^a	15.0 ^a	89 ^a	345 ^a	82 ^a	71 ^a
Japan	— ^c	40.1 ^a	— ^c	— ^c	— ^c	207
Korea	33.7	13.6	— ^c	— ^c	56	74 ^b
Luxembourg	28.3	10.9	347	194	150	47
Mexico	3.6	1.4	8	2	3	43
Netherlands	8.2 ^a	6.6 ^a	202 ^a	— ^c	131 ^a	32 ^a
New Zealand	12.1 ^b	— ^c	— ^c	102	90	48
Norway	— ^c	— ^c	— ^c	247 ^a	— ^c	— ^c
Poland	9.2	1.9	4	216	— ^c	— ^c
Portugal	25.8	5.8	173	83	48	84 ^a
Slovak Republic	12.1	4.5	— ^c	— ^c	— ^c	54
Spain	13.9	8.8	163	227	97	49
Sweden	— ^c	— ^c	11	173 ^a	115	— ^c
Switzerland	18.7	14.0	134	113	158	— ^c
Turkey	7.8	3.5	— ^c	— ^c	— ^c	46 ^a
United Kingdom	7.6	5.6	6	101	118	39
United States	33.9	26.5	434 ^b	434 ^b	176 ^b	114 ^a
<i>OECD Median</i>	14.8	7.7	173	194	115	51

^a 2005^b 2004^c Data not available for 2006, 2005 or 2004^d Source: McKinsey & Company, Accounting for the Cost of Health Care in the United States, 2007Source: Organization for Economic Cooperation and Development, *OECD Health Data, 2008* (Paris: OECD, June 2008).

- According to an analysis of mortality and population data from the World Health Organization, the U.S. had the highest rate of mortality amenable to health care among 19 OECD countries in 2002–03.⁵ The U.S. had an age-standardized death rate of 109.7 per 100,000 population; France had the lowest rate, at 64.8.

DISCUSSION

Previous cross-national analyses of OECD data have examined a number of explanations for why the U.S. has higher health spending per capita. These include administrative complexity, the aging of the population, the practice of “defensive medicine” under threat of malpractice litigation, chronic disease burden, health care supply and utilization rates, access to care, and resource allocation.⁶

These studies have consistently shown that, despite higher spending, the U.S. has, on many measures, lower health care utilization rates than most other OECD countries. The 2006 OECD data reveal similar findings—for example, in the high costs and low frequency associated with hospital discharges in the U.S. Some of these differences in average cost per discharge may be attributable to differences in patient case mix, the composition of the goods and services going into the treatment of a given medical condition, the prices paid by the hospitals for these goods and services, and the relative efficiency of hospitals. Furthermore, the administrative complexity in the U.S. health care system requires that American hospitals employ far larger staffs to handle billing requirements. While these issues require further investigation, one important difference may be the availability and use of technology in hospitals and other settings. U.S. providers have more access to expensive, high-tech medical technology in the treatment of patients and seem to perform more medical procedures involving sophisticated technology than do providers in other OECD countries.

Likewise, outpatient expenditures in the U.S. are also substantially higher than those in other OECD countries. One factor that could explain this large difference is that in the U.S., many expensive procedures are performed in outpatient settings, in contrast to most OECD countries, where they are more likely to be inpatient-based. For example, analysis of Medicare data shows that approximately half of beneficiaries receiving cardiac catheterization procedures, percutaneous transluminal coronary angioplasty, coronary bypass procedures, and knee replacements obtained them in outpatient settings.⁷ This heavy reliance on outpatient settings for medical procedures has two potentially negative consequences. First, it may be more difficult to ensure quality in the use of these technologies in the less tightly regulated ambulatory setting. Second, there is evidence that when physicians have a direct or indirect financial interest in outpatient facilities, the volume of these procedures tends to rise significantly.⁸

CONCLUSION

Once again the United States has the highest level of spending among all OECD countries. While Americans have comparably few doctor visits and hospital days, their total expenditures are twice as high per capita as those of people in most other industrialized countries. One possible factor may be the proliferation of technologically advanced equipment and procedures. Yet despite this enormous investment, the U.S. has failed to achieve improvements in life expectancy comparable to its peers. This gap between the investment and what is delivered in return suggests health services in the U.S. are less effectively deployed or come at a higher price.

Exhibit 5. Mortality in OECD Countries, 2006

	Life Expectancy From Birth ^a (Years)			Change 1986–2006	Mortality Amenable to Health Care ^f (Age-Standardized Death Rates per 100,000)	
	Females	Males	Total		1998–99	2002–03
Australia	83.5	78.7	81.1	5.0	88.0	71.3
Austria	82.7	77.1	79.9	5.6	108.9	84.5
Belgium	82.3	76.6	79.5	4.7	— ^g	— ^g
Canada	82.7 ^b	78.0 ^b	80.4 ^b	3.9 ^d	88.9	76.8
Czech Republic	79.9	73.5	76.7	5.6		
Denmark	80.7	76.1	78.4	3.6	113.0	100.8
Finland	83.1	75.9	79.5	4.7	116.2	93.3
France	84.4	77.3	80.9	5.3	75.6	64.8
Germany	82.4	77.2	79.8	5.2	106.2	90.1
Greece	82.0	77.1	79.6	3.2	97.3	84.3
Hungary	77.4	69.0	73.2	3.9		
Iceland	83.0	79.4	81.2	3.3	— ^g	— ^g
Ireland	82.1	77.3	79.7	6.1	134.4	103.4
Italy	83.8 ^c	77.9 ^c	80.9 ^c	5.9 ^e	88.8	74.0
Japan	85.8	79.0	82.4	4.3	81.4	71.2
Korea	82.4	75.7	79.1	9.8		
Luxembourg	81.9	76.8	79.4	4.7	— ^g	— ^g
Mexico	78.1	73.2	75.7	5.8		
Netherlands	81.9	77.6	79.8	3.4	96.9	81.9
New Zealand	81.9	77.9	79.9	5.8	114.5	95.6
Norway	82.9	78.2	80.6	4.1	98.6	79.8
Poland	79.6	70.9	75.3	4.3		
Portugal	82.3	75.5	78.9	5.5		
Slovak Republic	78.2	70.4	74.3	3.2		
Spain	84.4	77.7	81.1	4.4	84.3	73.8
Sweden	82.9	78.7	80.8	3.8	88.4	82.1
Switzerland	84.2	79.2	81.7	4.6	— ^g	— ^g
Turkey	74.0	69.1	71.6	8.4		
United Kingdom	81.1 ^b	77.1 ^b	79.1 ^b	4.4 ^d	130.0	102.8
United States	80.4 ^b	75.2 ^b	77.8 ^b	3.1 ^d	114.7	109.7
<i>OECD Median</i>	82.3	77.1	79.7	4.7	— ^g	— ^g

^a Source: Organization for Economic Cooperation and Development, OECD Health Data 2008, June 08

^b 2005

^c 2004

^d 1985-2005

^e 1984-2004

^f Countries' age-standardized death rates before age 75; includes ischemic heart disease, diabetes, stroke, and bacterial infections.

^g Data not available

Source: E. Nolte and C. M. McKee, "Measuring the Health of Nations: Updating an Earlier Analysis," *Health Affairs*, Jan./Feb. 2008 27(1): 58–71.

NOTES

- ¹ Organization for Economic Cooperation and Development, *OECD Health Data, 2008* (Paris: OECD, June 2008).
- ² E. Nolte and C. M. McKee, “[Measuring the Health of Nations: Updating an Earlier Analysis](#),” *Health Affairs*, Jan./Feb. 2008 27(1):58–71.
- ³ U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement (Suitland, Md.: U.S. Census Bureau, 2007).
- ⁴ *OECD Health Data, 2008* also reported on the number of coronary bypasses per 100,000 population, but the U.S. methodology was incompatible with the methodologies in the other OECD countries.
- ⁵ Nolte and McKee, “[Measuring the Health of Nations](#),” 2008.
- ⁶ G. F. Anderson, B. K. Frogner, and U. E. Reinhardt, “[Health Spending in OECD Countries in 2004: An Update](#),” *Health Affairs*, Sept./Oct. 2007 26(5):1481–89; G. F. Anderson, P. S. Hussey, B. K. Frogner et al., “[Health Spending in the United States and the Rest of the Industrialized World](#),” *Health Affairs*, July/Aug. 2005 24(4):903–14; U. E. Reinhardt, P. S. Hussey, and G. F. Anderson, “U.S. Health Care Spending in an International Context,” *Health Affairs*, May/June 2004 23(3):10–25; G. F. Anderson, U. E. Reinhardt, P. S. Hussey et al., “It’s the Prices, Stupid: Why the United States Is So Different from Other Countries,” *Health Affairs*, May/June 2003 22(3):89–105; U. E. Reinhardt, P. S. Hussey, and G. F. Anderson, “Cross-National Comparisons of Health Systems Using OECD Data, 1999,” *Health Affairs*, May/June 2002 21(3):169–81; G. F. Anderson and P. S. Hussey, “Comparing Health System Performance in OECD Countries,” *Health Affairs*, May/June 2001 20(3):219–32; G. F. Anderson, J. Hurst, P. S. Hussey et al., “Health Spending and Outcomes: Trends in OECD Countries, 1960–1998,” *Health Affairs*, May/June 2000 19(3):150–57; and G. F. Anderson and J. P. Poullier, “Health Spending, Access, and Outcomes: Trends in Industrialized Countries,” *Health Affairs*, May/June 1999 18(3):178–92.
- ⁷ We analyzed the data from the 2006 Medicare 5% Sample for all fee-for-service beneficiaries with Part A and B coverage who lived in the United States and were over age 65. The 5% Sample is a nationally representative sample of Medicare beneficiaries.
- ⁸ B. E. Kouri, R. G. Parsons, and H. R. Alpert, “Physician Self-Referral for Diagnostic Imaging: Review of the Empiric Literature,” *American Journal of Roentgenology*, Oct. 2002 179(4):843–50; and D. C. Levin and V. M. Rao, “Turf Wars in Radiology: The Overutilization of Imaging Resulting from Self-Referral,” *Journal of the American College of Radiology*, March 2004 1(3):169–72.

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