Expenditure and Outputs in the Irish Health System: A Cross Country Comparison
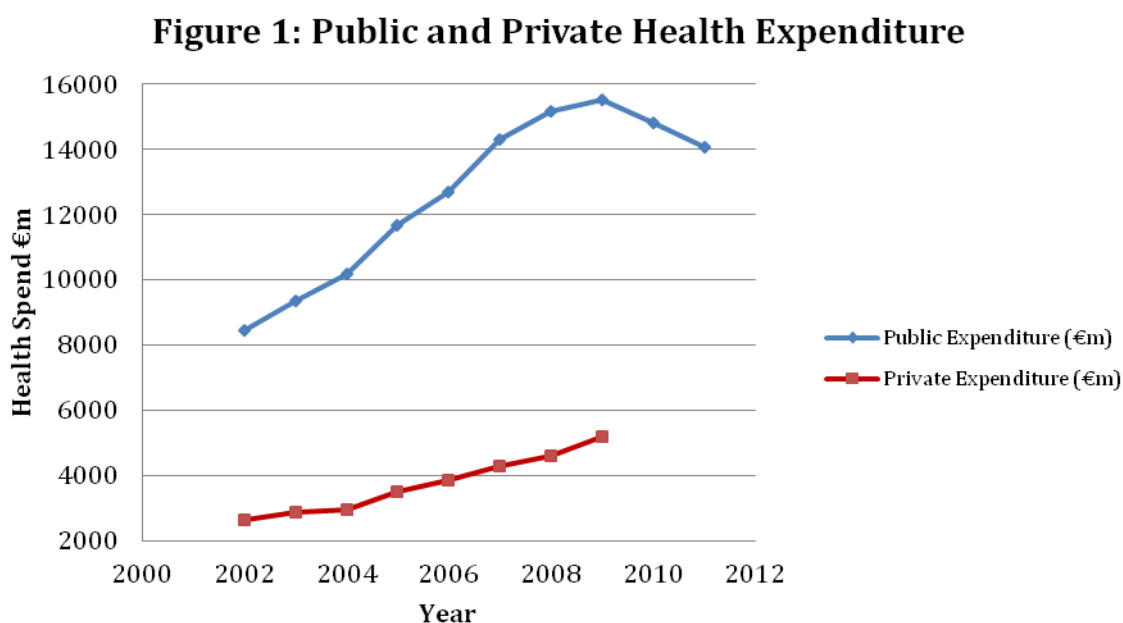
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Overview

This document analyzes expenditure and outputs in the Irish health system and compares Ireland to other OECD countries. In viewing cross country comparisons of health data, it is important to take into account different age demographics as older populations, in general, require more expenditure on health care. There are significant differences in age demographics across OECD countries, with Ireland having one of the youngest populations. As such, we use a simple demographic adjustment to make the cross country data more comparable.

Overview of Health Expenditure in Ireland

Total health care expenditure in Ireland is split into two areas,

1. Public health spending which is financed by taxation (including PRSI)

2. Private health spending which includes payments to private health insurers as well as out of pocket expenses such as payments for GP visits.

Public expenditure on health accounts for the vast majority of total health care spending in Ireland. Over the period 2002-2009, public health spending made up, on average, 76.5 percent of total health expenditure[1]. Figure 1 below shows the trend in nominal public and private health expenditure from 2002-2011.

Figure 1: Public and Private Health Expenditure

Source: Department of Health Statistics,
http://www.dohc.ie/statistics/key_trends/health_service_expenditure/health_service_expenditure.html
Private Expenditure data goes up to 2009

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[1] This figure comes from the latest OECD health data,
http://www.oecd.org/document/60/0,3746,en_2649_33929_2085200_1_1_1_1,00.html

Age Demographics

Ireland has the sixth youngest population out of the 34 OECD countries as measured by the proportion of over 65's. In Ireland, 11.1 percent of the population is over 65 compared to the OECD average of 14.9 percent. Japan has the highest proportion of over 65's at 22.7 percent. Germany and Italy are the two oldest countries in Europe with over 65's making up 20.5 and 20.4 percent of their populations respectively.

The age demographic adjustment involves normalizing each country's proportion of over 65's to the OECD average of 14.9 percent. The adjustment factor is obtained by dividing the OECD average by the individual country's proportion. This number is then multiplied by the expenditure and output data to give the demographically adjusted figure. For example, the adjustment factor in Ireland equals 1.34 (see table 1 below). If, for example, we want to adjust total public health spending as a percentage of GNP, we multiply the unadjusted figure of 7.7 by the adjustment factor of 1.34. This gives an adjusted figure of 10.4 percent (see table 2).

The demographic adjustment is simplistic as it assumes that health spending in each country increases at the same rate as the proportion of over 65's increases. Nonetheless it is useful in making the data more comparable.

Table 1: Proportion of Over 65's in Population

Country	Proportion of Over 65's	Demographic Adjustment Factor	Rank (Oldest Populations)
Japan	22.7	0.66	1
Germany	20.5	0.73	2
Italy	20.4	0.73	3
Greece	18.8	0.79	4
Sweden	17.9	0.83	5
Portugal	17.8	0.84	6
Austria	17.5	0.85	7
Switzerland	17.2	0.87	8
Belgium	17.1	0.87	9
Estonia	17.0	0.88	10
Finland	16.9	0.88	11
France	16.7	0.89	12
Spain	16.7	0.89	13
Hungary	16.5	0.90	14
Slovenia	16.2	0.92	15
Denmark	16.1	0.93	16
United Kingdom	15.8	0.94	17
Netherlands	15.2	0.98	18
Czech Republic	15.0	0.99	19
Norway	14.8	1.01	20
Luxembourg	14.0	1.06	21
Canada	13.9	1.07	22
Poland	13.5	1.10	23
Australia	13.3	1.12	24
United States	13.0	1.15	25
New Zealand	12.8	1.16	26
Slovak Republic	12.2	1.22	27
Iceland	11.8	1.26	28
Ireland	**11.1**	**1.34**	**29**
Korea	10.7	1.39	30
Israel	9.8	1.52	31
Chile	8.8	1.69	32
Turkey	7.6	1.96	33
Mexico	5.8	2.57	34
OECD Average	**14.9**		

Source: OECD Health at a Glance, 2011.

Notes: Demographic Adjustment Factor is obtained by dividing the OECD average of 14.9 by each country's proportion of over 65's. Calculations are the author's.

Health Expenditure in the OECD

Table 2 below shows public health spending as a percentage of GDP for the 34 OECD

countries. Note that for Ireland, we use GNP as the denominator[2].

Table 2: Public Health Expenditure as a Percentage of GDP for OECD Countries

Country	Public Health Exp Unadjusted (%GDP)	Rank (Unadjusted)	Adjusted Public Health Expenditure (%GDP)	Rank (Adjusted)
Ireland	7.7	13	**10.4**	**1**
Netherlands	10.3	1	**10.1**	**2**
New Zealand	8.4	6	**9.8**	**3**
United States	8.5	5	**9.7**	**4**
Iceland	7.5	15	**9.4**	**5**
Denmark	9.5	2	**8.7**	**6**
Turkey	4.5	31	**8.7**	**7**
Canada	8.1	8	**8.7**	**8**
Norway	8.0	9	**8.1**	**9**
France	8.9	3	**8.0**	**10**
Mexico	2.9	34	**7.5**	**11**
United Kingdom	8.0	10	**7.5**	**12**
Israel	4.8	30	**7.3**	**13**
Austria	8.4	7	**7.1**	**14**
Slovak Republic	5.8	26	**7.1**	**15**
Luxembourg	6.6	20	**7.1**	**16**
Australia	6.2	24	**7.0**	**17**
Belgium	7.9	11	**6.9**	**18**
Chile	3.9	33	**6.5**	**19**
Germany	8.9	4	**6.5**	**20**
Sweden	7.8	12	**6.5**	**21**
Switzerland	7.4	16	**6.4**	**22**
Spain	7.1	18	**6.3**	**23**
Czech Republic	6.3	23	**6.2**	**24**
Slovenia	6.6	22	**6.0**	**25**
Portugal	7.0	19	**5.9**	**26**
Finland	6.6	21	**5.8**	**27**
Korea	4.1	32	**5.8**	**28**
Poland	5.0	28	**5.5**	**29**
Italy	7.4	17	**5.4**	**30**
Japan	7.7	14	**5.0**	**31**
Greece	6.1	25	**4.8**	**32**
Hungary	5.1	27	**4.6**	**33**
Estonia	5.0	29	**4.4**	**34**

Source: OECD Health Data 2012. Notes: Age demographic adjustments are author's own calculations. The denominator for Ireland is GNP.

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[2] For a discussion on the benefits of using GNP instead of GDP for Ireland see www.publicpolicy.ie/wp-content/uploads/International-Comparisons-of-Taxation-and-Public-Spending-and-GNP-GDP.pdf

The unadjusted data ranks Ireland 13th out of 34 in terms of public health spending. After the demographic adjustment is carried out, Ireland moves up the rankings significantly ending up in first place. Tables 3 and 4 provide details on private health spending and total health spending respectively. We see that Ireland's adjusted total health expenditure is the third highest out of the 34 OECD countries.

Table 3: Private Health Expenditure as a Percentage of GDP for OECD Countries

Country	Private Health Exp Unadjusted (%GDP)	Private Health Exp % GDP Unadjusted Rank	Adjusted Private Health Expenditure (%GDP)	Adjusted Rank
United States	9.1	1	10.4	1
Mexico	3.3	8	8.4	2
Chile	4.1	2	7.0	3
Israel	3.1	10	4.7	4
Ireland	3.4	6	4.5	5
Korea	3.0	11	4.1	6
Slovak Republic	3.2	9	3.9	7
Canada	3.3	7	3.5	8
Switzerland	4.0	4	3.4	9
Greece	4.1	3	3.3	10
Turkey	1.6	29	3.2	11
Australia	2.9	12	3.2	12
Portugal	3.7	5	3.1	13
Hungary	2.7	13	2.5	14
France	2.7	15	2.4	15
Iceland	1.8	25	2.3	16
Spain	2.5	18	2.3	17
Slovenia	2.4	19	2.3	18
Belgium	2.6	17	2.2	19
Austria	2.6	16	2.2	20
Poland	2.0	21	2.2	21
Finland	2.3	20	2.0	22
New Zealand	1.7	27	2.0	23
Germany	2.7	14	2.0	24
Netherlands	1.7	26	1.7	25
Denmark	1.7	28	1.5	26
United Kingdom	1.6	30	1.5	27
Sweden	1.8	24	1.5	28
Italy	1.9	22	1.4	29
Norway	1.4	31	1.4	30
Luxembourg	1.3	33	1.3	31
Japan	1.9	23	1.2	32
Czech Republic	1.2	34	1.2	33
Estonia	1.3	32	1.2	34

Source: OECD Health Data 2012.
Notes: Age demographic adjustments are author's own calculations. The denominator for Ireland is GNP.

Table 4: Total Health Expenditure as a Percentage of GDP for OECD Countries

Country	Total Unadjusted Health Expenditure (%GDP)	Unadjusted Rank	Adjusted Health Expenditure (%GDP)	Adjusted Rank
United States	17.6	1	**20.2**	**1**
Mexico	6.2	33	**15.9**	**2**
Ireland	**11.1**	**7**	**14.9**	**3**
Chile	8	25	**13.5**	**4**
Canada	11.4	5	**12.2**	**5**
Israel	7.9	26	**12.0**	**6**
Turkey	6.1	34	**12.0**	**7**
Netherlands	12	2	**11.8**	**8**
New Zealand	10.1	13	**11.8**	**9**
Iceland	9.3	19	**11.7**	**10**
Slovak Republic	9	22	**11.0**	**11**
France	11.6	3	**10.3**	**12**
Denmark	11.1	8	**10.3**	**13**
Australia	9.1	21	**10.2**	**14**
Korea	7.1	30	**9.9**	**15**
Switzerland	11.4	6	**9.9**	**16**
Norway	9.4	18	**9.5**	**17**
Austria	11	9	**9.4**	**18**
Belgium	10.5	11	**9.1**	**19**
United Kingdom	9.6	14	**9.1**	**20**
Portugal	10.7	10	**9.0**	**21**
Spain	9.6	15	**8.6**	**22**
Germany	11.6	4	**8.4**	**23**
Luxembourg	7.9	27	**8.4**	**24**
Slovenia	9	23	**8.3**	**25**
Greece	10.2	12	**8.1**	**26**
Sweden	9.6	16	**8.0**	**27**
Finland	8.9	24	**7.8**	**28**
Poland	7	31	**7.7**	**29**
Czech Republic	7.5	29	**7.5**	**30**
Hungary	7.8	28	**7.0**	**31**
Italy	9.3	20	**6.8**	**32**
Japan	9.5	17	**6.2**	**33**
Estonia	6.3	32	**5.5**	**34**

Source: OECD Health Data 2012.

Notes: Age demographic adjustments are author's own calculations. The denominator for Ireland is GNP.

Outputs and Availability of Medical Resources

We can attempt to gauge whether value for money is being achieved in the health system by looking at how much a country spends on health care compared to its output and availability of medical resources (as in Rovere and Skinner, 2012). We have seen that Ireland's total adjusted health expenditure is the third highest in the OECD. We now examine medical resources to see if this high level of spending corresponds with similarly high levels of output. Table 5 summarizes the performance of the Irish health system using ten key areas of medical output. All rankings in table 5 are adjusted for age demographics. Detailed tables on each area of output are given in the appendix.

Ireland's highest rank in terms of medical output is the number of nurses per one thousand of the population, ranking second out of 34 countries. However, caution is called for when comparing the number of nurses across the OECD as there are three different definitions used. For example, in Ireland, the data refers to the number of professionally active nurses whereas in some other countries the data refers either to practicing nurses only or nurses who are licensed to practice[3] (see table A1 of the appendix). Ireland also ranks well in terms of the number of physicians (5th out of 34), the availability of psychiatric beds (6th out of 33) and the number of MRI units (7th out of 27).

At first glance, the data suggests that Ireland has a low number of hospital beds (19th out of 34) and acute care beds (17th out of 33). However, the thrust of health policy in Ireland is focused towards developing primary care services in the community which will allow people to receive care outside the hospital. As of June 2012, there were 485 primary care teams in operation throughout the country, with a

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[3] The same applies with the number of physicians per 1,000 population (see table A2)

view to increasing this number to 485 by the end of 2012[4]. These primary care teams are teams of health professionals who work together to provide care in the community. The adjusted data also shows that the number of hospital beds available in Ireland is on par with the Netherlands which is considered to be one of the highest performing health systems in Europe[5].

As shown in table 5, the two areas where Ireland ranks lowest are coronary bypasses (22nd out of 31) and knee replacements (24th out of 28).

Table 5: Ireland's rank on expenditure compared to its rank on indicators of output of medical resources among OECD countries.

Expenditure / Medical Output Indicators	Adjusted Rank
Total Health Spending (% GDP)	3rd (out of 34)
Indicators of Output and Availability of Medical Resources	
Number of Nurses (per 1,000 Population)	2nd (out of 34)
Physicians (per 1,000 Population)	5th (out of 34)
Psychiatric Beds (per 1,000 Population)	6th (out of 33)
MRI Units (per million Population)	7th (out of 27)
CT Scanners (per million Population)	14th (out of 32)
Acute Care Beds (per 1,000 Population)	17th (out of 33)
Hip Replacement (per 100,000 Population)	19th (out of 32)
Hospital Beds (per 1,000 Population)	19th (out of 34)
Coronary Bypass (per 100,000 Population)	22nd (out of 31)
Knee Replacement (per 100,000 Population)	24th (out of 28)

Source: OECD Health Data 2012.
Notes: Age demographic adjustments are author's own calculations. The denominator for Ireland is GNP.

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[4] See http://www.hse.ie/eng/services/Find_a_Service/PrimaryCare/
[5] See http://www.healthpowerhouse.com/files/Report-EHCI-2012.pdf for a ranking of national health systems in Europe.

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Appendix

Table A1: Nurses per 1,000 Population

Country	Nurses per 1000 population (Unadjusted)	Unadjusted Rank	Adjusted Nurses per 1000 Population	Adjusted Rank
Iceland [1]	14.5	5	**18.4**	**1**
Ireland[2]	**13.1**	**7**	**17.5**	**2**
Luxembourg [1]	16.3	1	**17.4**	**3**
Norway [1]	14.4	6	**14.5**	**4**
Denmark [1]	15.4	3	**14.3**	**5**
Switzerland [1]	16.0	2	**13.9**	**6**
Belgium [3]	15.1	4	**13.1**	**7**
United States [2]	11.0	10	**12.6**	**8**
New Zealand [1]	10.0	13	**11.7**	**9**
Australia [1]	10.1	12	**11.3**	**10**
Canada [1]	9.3	16	**10.0**	**11**
Sweden [1]	11.0	9	**9.2**	**12**
United Kingdom [1]	9.6	14	**9.1**	**13**
Finland [1]	9.6	15	**8.4**	**14**
Netherlands [1]	8.4	18	**8.2**	**15**
Germany [1]	11.3	8	**8.2**	**16**
Czech Republic [1]	8.1	20	**8.0**	**17**
France [2]	8.5	17	**7.5**	**18**
Slovenia [1]	8.2	19	**7.5**	**19**
Slovak Republic [2]	6.0	25	**7.4**	**20**
Israel [1]	4.8	29	**7.2**	**21**
Japan [1]	10.1	11	**6.6**	**22**
Austria [1]	7.7	21	**6.5**	**23**
Korea [1]	4.6	30	**6.4**	**24**
Mexico [1]	2.5	32	**6.4**	**25**
Poland [1]	5.3	27	**5.8**	**26**
Hungary [1]	6.2	23	**5.6**	**27**
Estonia [1]	6.1	24	**5.4**	**28**
Portugal [2]	5.7	26	**4.7**	**29**
Italy [3]	6.3	22	**4.6**	**30**
Spain [1]	4.9	28	**4.4**	**31**
Turkey [2]	1.6	33	**3.1**	**32**
Greece [2]	3.3	31	**2.6**	**33**
Chile [3]	1.5	34	**2.6**	**34**

Source: OECD Health Data 2012.

1. Data refer to practising nurses. Practising nurses are defined as those providing care directly to patients

2. Data refer to professionally active nurses. They include practising nurses plus other nurses working in the health sector as managers, educators, researchers, etc. (adding another 5-10% of nurses).

3. Data refer to all nurses who are licensed to practice.

Age demographic adjustments are author's own calculations

Table A2: Physicians per 1,000 Population

Country	Physicians per 1000 Population (Unadjusted)	Unadjusted Rank	Adjusted Physicians per 1000 Population	Adjusted Rank
Israel[1]	3.5	12	**5.3**	**1**
Mexico[1]	2.0	31	**5.2**	**2**
Greece[2]	6.1	1	**4.9**	**3**
Iceland[1]	3.6	10	**4.5**	**4**
Ireland[2]	**3.1**	**18**	**4.2**	**5**
Norway[1]	4.1	3	**4.1**	**6**
Slovak Republic[2]	3.3	14	**4.1**	**7**
Austria[1]	4.8	2	**4.1**	**8**
Czech Republic[1]	3.6	11	**3.6**	**9**
Australia[1]	3.1	19	**3.5**	**10**
Spain[1]	3.8	7	**3.4**	**11**
Turkey[2]	1.7	33	**3.3**	**12**
Switzerland[1]	3.8	5	**3.3**	**13**
Denmark[1]	3.5	13	**3.2**	**14**
Portugal[3]	3.8	4	**3.2**	**15**
Sweden[1]	3.8	6	**3.2**	**16**
New Zealand[1]	2.6	25	**3.0**	**17**
Luxembourg[1]	2.8	23	**2.9**	**18**
France[2]	3.3	16	**2.9**	**19**
Finland[2]	3.3	15	**2.9**	**20**
Netherlands[2]	2.9	21	**2.9**	**21**
Estonia[1]	3.2	17	**2.8**	**22**
United States[1]	2.4	26	**2.8**	**23**
Korea[1]	2.0	32	**2.8**	**24**
Germany[1]	3.7	8	**2.7**	**25**
Italy[1]	3.7	9	**2.7**	**26**
Hungary[1]	2.9	22	**2.6**	**27**
United Kingdom[1]	2.7	24	**2.6**	**28**
Belgium[1]	2.9	20	**2.5**	**29**
Canada[2]	2.4	28	**2.5**	**30**
Chile[3]	1.4	34	**2.4**	**31**
Poland[1]	2.2	30	**2.4**	**32**
Slovenia[1]	2.4	27	**2.2**	**33**
Japan[1]	2.2	29	**1.5**	**34**

Source: OECD Health Data 2012.

1. Data refer to practising physicians. Practising physicians are defined as those providing care directly to patients.

2. Data refer to professionally active physicians. They include practising physicians plus other physicians working in the health sector as managers, educators, researchers, etc. (adding another 5-10% of doctors).

3. Data refer to all physicians who are licensed to practice.

Age demographic adjustments are author's own calculations

Table A3: Psychiatric Care Beds per 1,000 Population

Country	Psychiatric Care Beds per 1000 (Unadjusted)	Unadjusted Rank	Adjusted Psychiatric Care Beds per 1000 Population	Adjusted Rank
Japan	2.7	1	**1.8**	**1**
Belgium	1.8	2	**1.5**	**2**
Netherlands	1.4	3	**1.4**	**3**
Korea	0.9	6	**1.3**	**4**
Czech Republic	1.0	4	**1.0**	**5**
Ireland	**0.7**	**14**	**1.0**	**6**
Slovak Republic	0.8	11	**1.0**	**7**
Luxembourg	0.9	8	**0.9**	**8**
Switzerland	1.0	5	**0.8**	**9**
Norway	0.8	9	**0.8**	**10**
France	0.9	7	**0.8**	**11**
Poland	0.6	16	**0.7**	**12**
Israel	0.5	23	**0.7**	**13**
Austria	0.8	12	**0.7**	**14**
Finland	0.8	13	**0.7**	**15**
Greece	0.8	10	**0.6**	**16**
Slovenia	0.7	15	**0.6**	**17**
Denmark	0.6	18	**0.5**	**18**
United Kingdom	0.5	20	**0.5**	**19**
Portugal	0.6	17	**0.5**	**20**
Estonia	0.5	19	**0.5**	**21**
Canada	0.4	25	**0.4**	**22**
Australia	0.4	26	**0.4**	**23**
Sweden	0.5	22	**0.4**	**24**
Spain	0.4	24	**0.4**	**25**
Germany	0.5	21	**0.4**	**26**
Hungary	0.3	27	**0.3**	**27**
Chile	0.2	30	**0.3**	**28**
United States	0.3	28	**0.3**	**29**
New Zealand	0.2	29	**0.3**	**30**
Turkey	0.1	32	**0.1**	**31**
Mexico	0.0	33	**0.1**	**32**
Italy	0.1	31	**0.1**	**33**

Source: OECD Health Data 2012.
Notes: Age demographic adjustments are author's own calculations.

Table A4: MRI Units per Million Population

Country	MRI Units per Million Population (Unadjusted)	Unadjusted Rank	Adjusted MRI Units per Million Population	Adjusted Rank
United States	31.6	2	**36.2**	**1**
Japan	43.1	1	**28.3**	**2**
Iceland	22.0	5	**27.8**	**3**
Korea	19.9	6	**27.8**	**4**
Turkey	9.5	18	**18.7**	**5**
Greece	22.6	3	**17.9**	**6**
Ireland	**12.5**	**12**	**16.8**	**7**
Finland	18.7	7	**16.4**	**8**
Italy	22.4	4	**16.3**	**9**
Austria	18.6	8	**15.8**	**10**
Switzerland	17.8	9	**15.4**	**11**
Luxembourg	13.8	11	**14.7**	**12**
Denmark	15.4	10	**14.2**	**13**
New Zealand	10.5	16	**12.3**	**14**
Netherlands	12.2	13	**12.0**	**15**
Spain	10.7	14	**9.5**	**16**
Belgium	10.7	15	**9.3**	**17**
Canada	8.2	20	**8.8**	**18**
Slovak Republic	6.8	23	**8.3**	**19**
Portugal	9.2	19	**7.7**	**20**
Germany	10.3	17	**7.5**	**21**
Estonia	8.2	21	**7.2**	**22**
Chile	4.1	29	**7.0**	**23**
Australia	5.6	26	**6.3**	**24**
Czech Republic	6.3	24	**6.2**	**25**
France	7.0	22	**6.2**	**26**
United Kingdom	5.9	25	**5.5**	**27**
Poland	4.7	27	**5.2**	**28**
Mexico	2.0	32	**5.0**	**29**
Slovenia	4.4	28	**4.1**	**30**
Israel	2.0	31	**3.0**	**31**
Hungary	3.0	30	**2.7**	**32**

Source: OECD Health Data 2012.

Notes: Age demographic adjustments are author's own calculations.

Table A5: CT Scanners per Million Population

Country	CT Scanners per Million Population (Unadjusted)	Unadjusted Rank	Adjusted CT Scanners per Million Population	Adjusted Rank
Japan	97.3	1	**63.8**	1
Korea	35.3	5	**49.1**	2
Australia	42.8	2	**48.0**	3
Iceland	37.7	4	**47.7**	4
United States	40.7	3	**46.6**	5
Switzerland	32.6	7	**28.2**	6
Luxembourg	25.6	12	**27.3**	7
Greece	34.3	6	**27.2**	8
Denmark	27.6	10	**25.5**	9
Austria	29.8	9	**25.4**	10
Turkey	12.4	25	**24.3**	11
Italy	31.6	8	**23.1**	12
Portugal	27.4	11	**22.9**	13
Ireland	**15.6**	**16**	**21.0**	**14**
Finland	21.1	13	**18.6**	15
New Zealand	15.6	17	**18.1**	16
Chile	10.2	28	**17.3**	17
Slovak Republic	13.8	22	**16.9**	18
Poland	14.3	20	**15.8**	19
Canada	14.2	21	**15.2**	20
Czech Republic	14.5	19	**14.4**	21
Israel	9.2	29	**14.0**	22
Estonia	15.7	15	**13.7**	23
Spain	15.0	18	**13.3**	24
Germany	17.7	14	**12.9**	25
Mexico	4.8	32	**12.4**	26
Netherlands	12.3	26	**12.1**	27
Slovenia	12.7	24	**11.7**	28
Belgium	13.2	23	**11.5**	29
France	11.8	27	**10.5**	30
United Kingdom	8.2	30	**7.7**	31
Hungary	7.3	31	**6.6**	32

Source: OECD Health Data 2012.

Notes: Age demographic adjustments are author's own calculations.

Table A6: Acute Care Beds per 1,000 Population

Country	Acute Care Beds per 1000 Population (Unadjusted)	Unadjusted Rank	Adjusted Acute Care Beds per 1000 Population	Adjusted Rank
Korea	5.5	3	**7.7**	**1**
Slovak Republic	4.7	6	**5.8**	**2**
Japan	8.1	1	**5.3**	**3**
Czech Republic	4.9	5	**4.8**	**4**
Poland	4.4	7	**4.8**	**5**
Turkey	2.4	23	**4.8**	**6**
Austria	5.5	4	**4.7**	**7**
Luxembourg	4.2	8	**4.4**	**8**
Germany	5.7	2	**4.1**	**9**
Mexico	1.6	33	**4.1**	**10**
Australia	3.4	15	**3.8**	**11**
Hungary	4.1	9	**3.7**	**12**
Belgium	4.1	10	**3.6**	**13**
Slovenia	3.7	12	**3.4**	**14**
Greece	4.1	11	**3.2**	**15**
France	3.5	14	**3.1**	**16**
Ireland	**2.3**	**26**	**3.1**	**17**
Estonia	3.5	13	**3.0**	**18**
Chile	1.8	30	**3.0**	**19**
United States	2.6	21	**3.0**	**20**
Netherlands	3.0	17	**3.0**	**21**
Israel	1.9	29	**2.9**	**22**
Switzerland	3.1	16	**2.7**	**23**
Denmark	2.9	18	**2.7**	**24**
Norway	2.4	24	**2.4**	**25**
New Zealand	2.0	28	**2.3**	**26**
Portugal	2.8	20	**2.3**	**27**
United Kingdom	2.4	25	**2.2**	**28**
Spain	2.5	22	**2.2**	**29**
Italy	2.8	19	**2.1**	**30**
Canada	1.7	32	**1.9**	**31**
Sweden	2.0	27	**1.7**	**32**
Finland	1.8	31	**1.6**	**33**

Source: OECD Health Data 2012.

Notes: Age demographic adjustments are author's own calculations.

Table A7: Hip Replacements per 100,000 Population

Country	Hip Replacements per 100,000 Population (Unadjusted)	Unadjusted Rank	Adjusted Hip Replacements per 100,000 Population	Adjusted Rank
Switzerland	286.7	2	**248.4**	**1**
Luxembourg	221.6	8	**235.8**	**2**
Norway	232.0	5	**233.6**	**3**
Iceland	172.6	15	**217.9**	**4**
Germany	295.7	1	**214.9**	**5**
United States	183.9	14	**210.8**	**6**
Belgium	240.0	3	**209.1**	**7**
Netherlands	213.1	10	**208.9**	**8**
Denmark	221.8	7	**205.3**	**9**
Austria	237.8	4	**202.5**	**10**
France	223.8	6	**199.7**	**11**
United Kingdom	193.6	12	**182.6**	**12**
Slovenia	193.7	11	**178.2**	**13**
Sweden	214.0	9	**178.1**	**14**
New Zealand	148.5	19	**172.9**	**15**
Australia	154.3	17	**172.9**	**16**
Finland	188.2	13	**165.9**	**17**
Czech Republic	166.4	16	**165.3**	**18**
Ireland	**117.1**	**22**	**157.2**	**19**
Canada	122.5	21	**131.3**	**20**
Greece	139.8	20	**110.8**	**21**
Italy	150.0	18	**109.6**	**22**
Slovak Republic	78.1	27	**95.4**	**23**
Hungary	99.4	23	**89.8**	**24**
Spain	92.6	24	**82.6**	**25**
Israel	51.4	28	**78.1**	**26**
Estonia	87.6	26	**76.8**	**27**
Portugal	87.8	25	**73.5**	**28**
Poland	43.5	29	**48.0**	**29**
Chile	18.7	30	**31.7**	**30**
Korea	16.9	31	**23.5**	**31**
Mexico	7.5	32	**19.3**	**32**

Source: OECD Health Data 2012.
Notes: Age demographic adjustments are author's own calculations.

Table A8: Hospital Beds per 1,000 Population

Country	Hospital Beds per 1000 Population (Unadjusted)	Unadjusted Rank	Adjusted Hospital Beds per 1000 Population	Adjusted Rank
Korea	8.8	2	**12.2**	**1**
Japan	13.6	1	**8.9**	**2**
Slovak Republic	6.4	10	**7.8**	**3**
Iceland	5.8	12	**7.3**	**4**
Poland	6.6	7	**7.3**	**5**
Czech Republic	7.0	6	**7.0**	**6**
Austria	7.6	4	**6.5**	**7**
Hungary	7.2	5	**6.5**	**8**
Germany	8.3	3	**6.0**	**9**
France	6.4	9	**5.7**	**10**
Luxembourg	5.4	13	**5.7**	**11**
Belgium	6.4	8	**5.6**	**12**
Finland	5.9	11	**5.2**	**13**
Israel	3.3	23	**5.0**	**14**
Turkey	2.5	32	**4.9**	**15**
Estonia	5.3	14	**4.7**	**16**
Netherlands	4.7	17	**4.6**	**17**
Switzerland	5.0	15	**4.3**	**18**
Ireland	**3.1**	**27**	**4.2**	**19**
Mexico	1.6	34	**4.2**	**20**
Slovenia	4.6	18	**4.2**	**21**
Australia	3.7	19	**4.2**	**22**
Greece	4.9	16	**3.8**	**23**
United States	3.1	28	**3.5**	**24**
Chile	2.0	33	**3.5**	**25**
Canada	3.2	25	**3.4**	**26**
Norway	3.3	24	**3.3**	**27**
Denmark	3.5	21	**3.2**	**28**
New Zealand	2.7	30	**3.2**	**29**
Spain	3.2	26	**2.8**	**30**
Portugal	3.4	22	**2.8**	**31**
United Kingdom	3.0	29	**2.8**	**32**
Italy	3.5	20	**2.6**	**33**
Sweden	2.7	31	**2.3**	**34**

Source: OECD Health Data 2012.
Notes: Age demographic adjustments are author's own calculations.

Table A9: Coronary Bypass per 100,000 Population

Country	Coronary Bypass per 100,000 Population (Unadjusted)	Unadjusted Rank	Adjusted Coronary Bypass per 100,000 Population	Adjusted Rank
Belgium	131.4	1	**114.5**	**1**
United States	79.5	3	**91.1**	**2**
New Zealand	77	4	**89.6**	**3**
Germany	119.9	2	**87.1**	**4**
Australia	69.9	7	**78.3**	**5**
Iceland	59.2	10	**74.8**	**6**
Israel	47.3	17	**71.9**	**7**
Norway	70.2	6	**70.7**	**8**
Canada	63.4	9	**68.0**	**9**
Denmark	71.1	5	**65.8**	**10**
Slovenia	66	8	**60.7**	**11**
Luxembourg	54.4	13	**57.9**	**12**
Netherlands	58.4	11	**57.2**	**13**
Czech Republic	56.2	12	**55.8**	**14**
Estonia	53.3	14	**46.7**	**15**
Finland	52.9	15	**46.6**	**16**
Poland	38	21	**41.9**	**17**
Austria	47.6	16	**40.5**	**18**
United Kingdom	40.1	19	**37.8**	**19**
Sweden	45	18	**37.5**	**20**
Portugal	39.7	20	**33.2**	**21**
Ireland	**23.5**	**27**	**31.5**	**22**
Slovak Republic	24.9	26	**30.4**	**23**
Hungary	32.3	22	**29.2**	**24**
France	30.2	25	**26.9**	**25**
Switzerland	30.6	24	**26.5**	**26**
Italy	32	23	**23.4**	**27**
Chile	10.4	29	**17.6**	**28**
Spain	17.6	28	**15.7**	**29**
Korea	7.2	30	**10.0**	**30**
Mexico	3.3	31	**8.5**	**31**

Source: OECD Health Data 2012.

Notes: Age demographic adjustments are author's own calculations.

Table A10: Knee Replacements per 100,000 Population

Country	Knee Replacements per 100,000 Population (Unadjusted)	Unadjusted Rank	Adjusted Knee Replacements per 100,000 Population	Adjusted Rank
United States	212.5	2	**243.6**	**1**
Australia	157.9	9	**176.9**	**2**
Switzerland	200	3	**173.3**	**3**
Luxembourg	160.2	8	**170.5**	**4**
Iceland	131.6	12	**166.2**	**5**
Denmark	173.3	6	**160.4**	**6**
Austria	187.5	4	**159.6**	**7**
Finland	178	5	**156.9**	**8**
Germany	212.5	1	**154.5**	**9**
Canada	143.3	10	**153.6**	**10**
Belgium	167.7	7	**146.1**	**11**
Korea	97.8	20	**136.2**	**12**
United Kingdom	140.9	11	**132.9**	**13**
Netherlands	124.3	14	**121.8**	**14**
New Zealand	101.8	18	**118.5**	**15**
Czech Republic	111.1	16	**110.4**	**16**
France	118.8	15	**106.0**	**17**
Sweden	126.8	13	**105.5**	**18**
Spain	102.3	17	**91.3**	**19**
Slovenia	93	21	**85.5**	**20**
Norway	75.1	22	**75.6**	**21**
Italy	99.8	19	**72.9**	**22**
Israel	46.7	24	**71.0**	**23**
Ireland	**41.8**	**26**	**56.1**	**24**
Portugal	61.7	23	**51.6**	**25**
Hungary	45.2	25	**40.8**	**26**
Mexico	3.4	28	**8.7**	**27**
Chile	5.1	27	**8.6**	**28**

Source: OECD Health Data 2012.

Notes: Age demographic adjustments are author's own calculations.