

INTERNATIONAL COMPARISONS OF HEALTH OUTCOMES

FEBRUARY 2011

Background

One of the main arguments used by the Government for implementing health sector reform is the poor performance of the NHS in comparison with other European countries. The NHS White Paper *'Equity & Excellence: Liberating the NHS'* states that:

"The NHS has achieved relatively poor outcomes in some areas. For example, rates of mortality amenable to healthcare¹, rates of mortality from some respiratory diseases and some cancers², and some measures of stroke³, have been amongst the worst in the developed world⁴."

The BMA response to the NHS Outcomes Framework consultation questioned this approach pointing out that *"international comparisons are difficult to quantify, sometimes simply due to concepts of illness and different cultures of diagnosis."*

There is wide variation in the content of papers exploring international comparisons of health outcomes. While some reports focus on projecting costs, mortality rates, life expectancies and indicators, other reports focus on the 'perceptions' of the public and/or international differences in health policies.

Recent debate in the media has also queried the Government's use of evidence to support their argument. Nolte & McKee commented in *The Guardian* that their evidence showed that while the UK death rates from conditions amenable to healthcare were high, they were falling faster than in other countries. They also emphasised that the main message from their research was that death rates amenable to healthcare in the US, a much more competitive system of healthcare provision, were improving at a much lower rate than the UK. John Appleby, Chief Economist at the King's Fund, writing in the *BMJ*, recently questioned Andrew Lansley's use of evidence to back the argument that NHS reform is needed to address poor health outcomes in comparison with Europe.⁵

Mortality rates are a crude measure for comparing national healthcare systems given that healthcare is only a moderate predictor of overall mortality within the context of the broader socioeconomic determinants of health. Appleby points to the downward trend in deaths from myocardial infarction as an example which can be largely influenced by population behavioural factors. This makes it particularly difficult to draw conclusions that connect health outcomes with healthcare spending.

Appleby cites arguments from Cancer Research UK (CRUK) suggesting that some of the evidence from the EUROCARE, cancer epidemiology research project on survival of European cancer patients' studies should be used with caution.⁶ CRUK pointed out that cancer statistics are not collected in the same way in all European countries. The UK includes 100 per cent of cases in statistical evidence, but some countries do not cover the whole population which can bias survival rates.⁷

An important point to note, made by Appleby and others, is that the UK has improved vastly over recent years and is set to overtake other countries on some indicators. Last year the King's Fund published a paper examining NHS performance from 1997-2010. The study found significant improvements in clinical

¹ Nolte, E., McKee, C.M, *Measuring the Health of Nations: analysis of mortality amenable to healthcare*. *BMJ* 327:1129; (2003)

² EUROCARE-4, www.eurocare.it

³ OECD *In-hospital case-fatality rates within 30 days after admission for ischemic stroke*. (2007)

⁴ OECD, *Health at a Glance 2009*. (2009).

⁵ <http://www.bmj.com/cgi/doi/10.1136/bmj.d566>

⁶ www.eurocare.it/

⁷ <http://info.cancerresearchuk.org/news/archive/cancernews/2009-03-25-cancer-cure-rates-improving-in-europe>

effectiveness in relation to cancer, cardiovascular disease and mental health (the three areas responsible for the majority of spending in the NHS).⁸

The majority of data referenced in this BMA briefing paper refers to data published by the OECD dating back to 2006 (the most recent international health data available). Whilst the UK compares favourably internationally for clinical outcomes in some areas of OECD comparisons; stroke, prostate cancer, and diabetes amongst adults, the UK's mortality rates for breast cancer, lung cancer, ischemic heart disease and CHD are still higher than all OECD countries on average.

In contrast, the 2010 Commonwealth Fund survey⁹ of patients and primary care physicians from seven countries ranked the UK as the second highest performer on health care for quality, access, efficiency, equity and healthy lives. The UK compares positively against six other countries on health system performance on effective care, cost-related access problems and efficiency; however, the UK's performance on long healthy productive lives and patient-centred care is comparatively poor to other countries.

Summary of statistical analysis:

- Circulatory diseases remain the most common cause of death in the UK, with Coronary Heart Disease being the overall biggest killer. Although rates of circulatory diseases and specifically CHD have declined within the UK over the last 25 years, the UK CHD rate still remains higher than that in most other western European countries.
- In 2006, the UK recorded higher mortality rates for ischemic heart disease compared to the OECD average.
- Stroke is a significant cause of mortality in all OECD countries, accounting for about 9 per cent of all deaths in 2006. Cerebrovascular disease is the second leading cause of mortality in the UK, although for some decades there has been a decline in the cerebrovascular mortality rate. The UK's mortality rates for strokes are lower than the OECD average.
- Cancer is the second leading cause of mortality in OECD countries (after diseases of the circulatory-system), accounting for 27 per cent of all deaths on average in 2006. The UK has below average mortality rates for cancer compared to all OECD countries for males; however, for females, the UK has higher than average mortality rates for cancer compared to all OECD countries. This trend is reflected for lung cancer mortality rates in the UK; the mortality rate for lung cancer for males in the UK is slightly below the OECD average and the mortality rate for lung cancer in the UK for females is slightly higher than the OECD average. Mortality rates for breast cancer within the UK are significantly higher than the OECD average. The mortality rates for prostate cancer in the UK are also slightly higher than the average rate across all OECD countries.
- The UK was expected to have lower than average incidences of diabetes amongst adults aged 20-79 years (less than 5 per cent) in 2010; however, there is concern that type 1 diabetes is developing at an earlier age in the UK among children.
- Life expectancy at age 65 for females in the UK is in line with the OECD average at 20.2 years and life expectancy at age 65 for males is slightly higher than the OECD average. The average life expectancy at birth for males in the UK is slightly higher than the OECD average and the average life expectancy for females is at a similar level to the OECD average.

⁸ Thorlby R, Maybin J (eds). *A high-performing NHS? A review of progress 1997-2010*. Kings Fund, April 2010. http://www.kingsfund.org.uk/publications/a_highperforming_nh.html. (Accessed 6 February 2011)

⁹ Davis, K, Schoen C, Strmiki K. *Mirror, Mirror on the Wall. How the Performance of the US HealthCare System Compares Internationally, 2010 Update*. The Commonwealth Fund. June 2010. http://www.commonwealthfund.org/~media/Files/Publications/Fund%20Report/2010/Jun/1400_Davis_Mirror_Mirror_on_the_wall_2010.pdf. (Accessed 14 February 2011)

Health outcomes

Mortality from Circulatory diseases

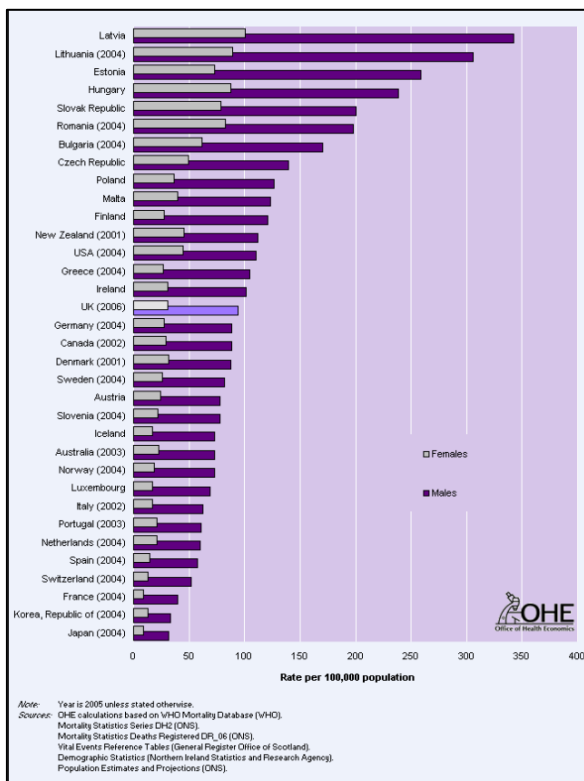
Circulatory diseases remain the most common cause of death in the UK, with the CHD rate being higher than for most countries in Europe. Deaths from diseases of the circulatory system, including hypertensive disease, coronary heart disease and cerebrovascular disease, have seen a dramatic decrease of 59.7 per cent in the UK since 1980. Despite this, 198,287 deaths, 34.7 per cent of all deaths registered in the UK in 2006, were due to diseases of the circulatory system. They cover a range of diseases related to the circulatory system, including ischemic heart disease (known as IHD, or heart attack) and cerebrovascular disease (or stroke). Together, IHD and stroke comprise two-thirds of all cardiovascular deaths, and caused one-quarter of all deaths in OECD countries in 2006.

Among circulatory diseases, coronary heart disease (CHD) is the single leading cause of death for both sexes in the UK, accounting for 94,707 deaths in 2006 and representing 16.6 per cent of all mortality. The rate of deaths from CHD in the UK has declined over the past 25 years, primarily due to improvements in lifestyles (such as a reduction in the rate of smoking) and in treatments (such as increased use of thrombolytics).

In 1980 the rate of deaths due to CHD stood at 314 per 100,000 population, but by 2006 this rate had declined to 137. Despite this decrease, the UK CHD rate still remains higher than that in most other western European countries. (Figure 1)

Within the UK, Scotland consistently has the highest age standardised rate of mortality from CHD, followed by Northern Ireland, then England and Wales.

Figure 1 - Age standardised mortality rates from coronary heart disease, men and women ages 15-74, in selected OECD and EU countries, circa 2005

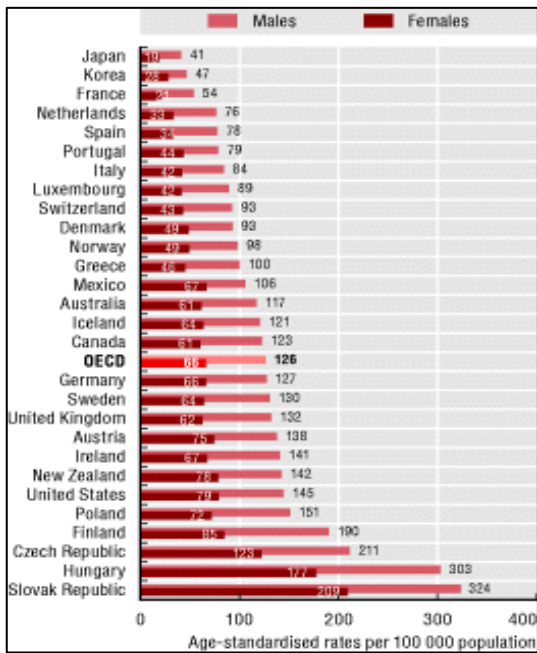


Source: <http://www.ohecompendium.org/index.cfm>

Mortality from IHD varies considerably across OECD countries. Central and eastern European countries report the highest IHD mortality rates. Since 1980, IHD mortality rates have declined in nearly all OECD countries; however, death rates are consistently higher for men than for women in all countries. On average across OECD countries, IHD mortality rates in 2006 were nearly two times greater for men than for women.

The UK has above average mortality rates for IHD for males (137 per 100,000) compared to all OECD countries (126 per 100,000); however, for females, the UK has lower than average mortality rates for IHD compared to all OECD countries (62 per 100,000 compared to 66 per 100,000). (Figure 2)

Figure 2 - Ischemic heart disease, mortality rates, 2006 (or latest year available)

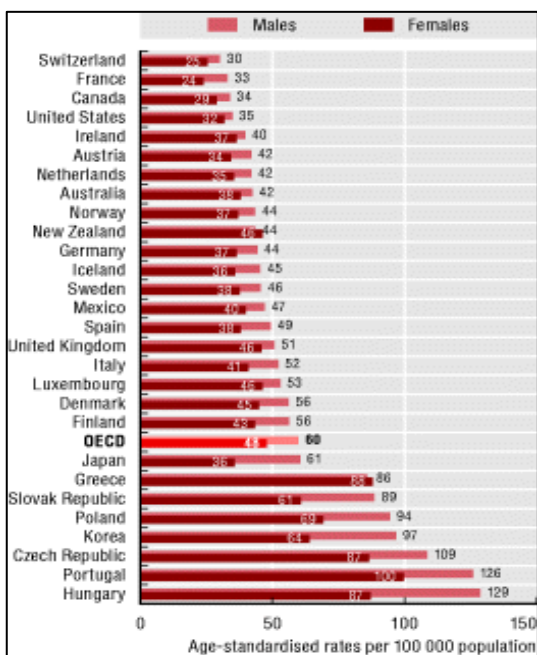


Source: http://www.oecd-ilibrary.org/sites/health_glance-2009-en/01/04/index.html?contentType=/ns/StatisticalPublication/ns/Chapter&itemId=/content/chapter/health_glance-2009-6-en&containerItemid=/content/serial/19991312&accessItemids=&mimeType=text/html

Stroke is another significant cause of mortality in OECD countries, accounting for about 9 per cent of all deaths in 2006. Cerebrovascular disease (mainly strokes), killed 21,312 men and 33,869 women in the UK in 2006, and is the second leading cause of mortality in the UK, although for some decades there has been a decline in the cerebrovascular mortality rate. (Figure 3)

The mortality rate in 2006 for cerebrovascular disease in Scotland was higher than in England and Wales and Northern Ireland. Looking at trends over time, stroke mortality has decreased in all OECD countries (except Poland) since 1980.

Figure 3 - Stroke, mortality rates, 2006 (or latest year available)



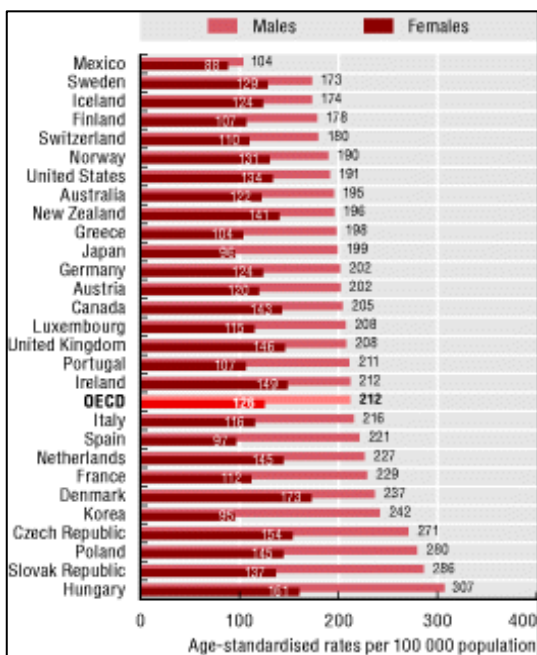
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Mortality from cancer

Cancer is the second leading cause of mortality in OECD countries (after diseases of the circulatory-system), accounting for 27 per cent of all deaths on average in 2006. Death rates from all types of cancer for males and females have declined at least slightly in most OECD countries since 1985, although the decline has been more modest than for cardio-vascular diseases, explaining why cancer accounts now for a larger share of all deaths.

In the UK in 2005, there were 154,567 deaths due to cancer and 1.2 million in the EU 27 countries combined. The UK has below average mortality rates for cancer for males (208 per 100,000) compared to all OECD countries (212 per 100,000); however, for females, the UK has higher than average mortality rates for cancer compared to all OECD countries (146 per 100,000 compared to 125 per 100,000). (Figure 4)

Figure 4 - All cancers, mortality rates, males and females, 2006 (or latest year available)

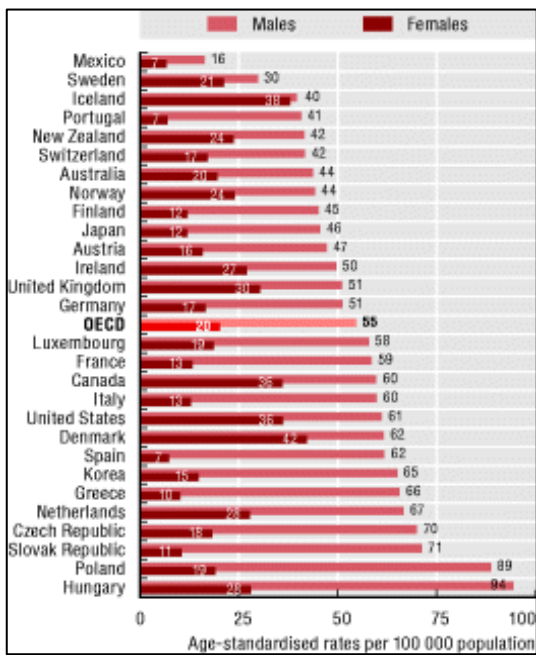


Source: http://www.oecd-ilibrary.org/sites/health_glance-2009-en/01/05/index.html?contentType=ns/Chapter/ns/StatisticalPublication&itemId=/content/chapter/health_glance-2009-7-en&containerItemid=/content/serial/19991312&accessItemids=&mimeType=text/html

Lung cancer

Lung cancer still accounts for the greatest number of cancer deaths among men in all OECD countries (except Mexico and Sweden), while it is also one of the main causes of cancer mortality among women. The mortality rate for lung cancer for males in the UK is 208 compared to 212 per 100,000 in all OECD countries, with the mortality rate for lung cancer in the UK for females being 30 compared to 20 per 100,000 in all OECD countries. (Figure 5)

Figure 5 - Lung cancers, mortality rates, males and females, 2006 (or latest year available)



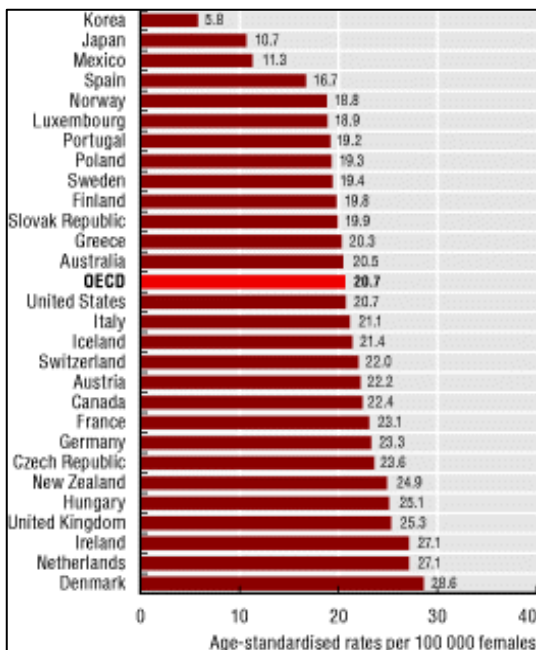
Source: http://www.oecd-ilibrary.org/sites/health_glance-2009-en/01/05/index.html?contentType=/ns/Chapter/ns/StatisticalPublication&itemId=/content/chapter/health_glance-2009-7-en&containerItemId=/content/serial/19991312&accessItemIds=&mimeType=text/html

Breast cancer

Breast cancer is the most common form of cancer among women in all OECD countries (IARC, 2004). It accounts for 30 per cent or more of cancer incidence among women, and 15 per cent to 20 per cent of cancer deaths. Mortality rates for breast cancer within the UK are much higher than the OECD average (25.3 per 100,000 in the UK compared to 20.7 per 100,000 compared to all OECD countries).

While there has been an increase in measured incidence rates of breast cancer over the past decade, death rates have declined or remained stable, indicating increases in survival rates due to earlier diagnosis and/or better treatments. (Figure 6)

Figure 6 - Breast cancers, mortality rates, females, 2006 (or latest year available)



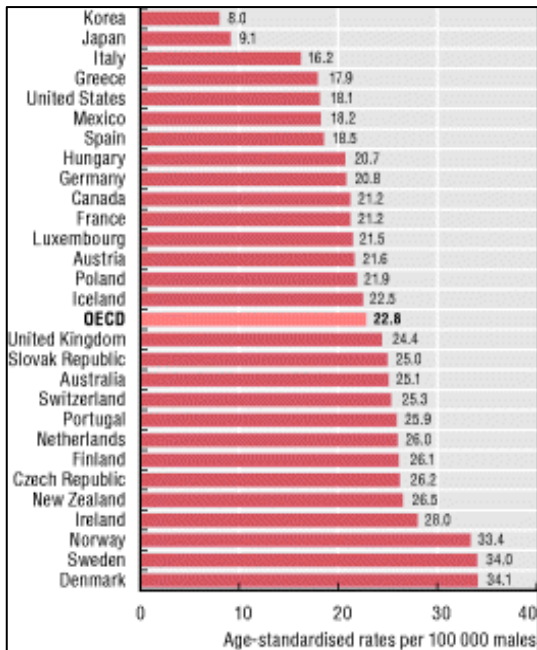
Source: http://www.oecd-ilibrary.org/sites/health_glance-2009-en/01/05/index.html?contentType=/ns/Chapter/ns/StatisticalPublication&itemId=/content/chapter/health_glance-2009-7-en&containerItemId=/content/serial/19991312&accessItemIds=&mimeType=text/html

Prostate cancer

Prostate cancer has become the most commonly occurring cancer among men in many OECD countries, particularly for those aged over 65 years of age, although death rates from prostate cancer remain lower than for lung cancer in all countries. The rise in the reported incidence of prostate cancer in many countries during the 1990s and 2000s is largely due to the greater use of prostate-specific antigen (PSA) diagnostic tests.

The mortality rates for prostate cancer in the UK are slightly higher than the average rate across all OECD countries (24.4 per 100,000 compared to 22.8 per 100,000 respectively). (Figure 7)

Figure 7 -Prostate cancers, mortality rates, males, 2006 (or latest year available)



Source: http://www.oecd-ilibrary.org/sites/health_glance-2009-en/01/05/index.html?contentType=/ns/Chapter/ns/StatisticalPublication&itemId=/content/chapter/health_glance-2009-7-en&containerItemId=/content/serial/19991312&accessItemIds=&mimeType=text/html

Diabetes prevalence and incidence

Diabetes was the principal cause of death of more than 300,000 persons in OECD countries in 2007, and is the fourth or fifth leading cause of death in most developed countries. However, only a minority of persons with diabetes die from diseases uniquely related to the condition. In addition, about 50 per cent of persons with diabetes die of cardiovascular disease, and 10-20 per cent of renal failure (IDF, 2006).

Diabetes is increasing rapidly in every part of the world, to the extent that it has now assumed epidemic proportions. Estimates suggest that more than 6 per cent of the population aged 20-79 years in OECD countries, or 83 million people, will have diabetes in 2010. Almost half of diabetic adults are aged less than 60 years. If left unchecked, the number of people with diabetes in OECD countries will reach almost 100 million in less than 20 years (IDF, 2006).

Less than 5 per cent of adults aged 20-79 years in Iceland, Norway and the United Kingdom were expected to have diabetes in 2010, according to the International Diabetes Federation. This contrasts with Mexico and the United States, where more than 10 per cent of the population of the same age have the disease. In most OECD countries, between 5 and 9 per cent of the adult population have diabetes. (Figure 8)

Type 1 diabetes accounts for only 10-15 per cent of all diabetes cases. It is the predominant form of the disease in younger age groups in most developed countries. There is evidence that Type 1 diabetes is developing at an earlier age in the UK among children with incidence estimates of Type 1 diabetes for children aged 0-14 years being 24.5 per 100,000 compared to 17.7 per 100,000 across all OECD countries (IDF, 2006). (Figure 9)

Figure 8 - Prevalence estimates of diabetes, adults aged 20-79 years, 2010

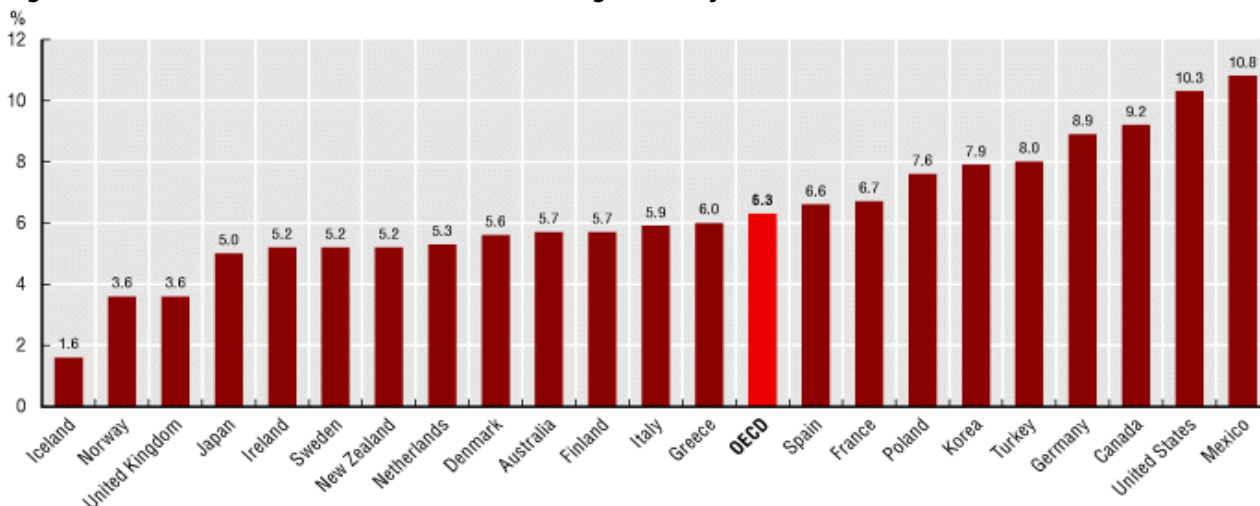
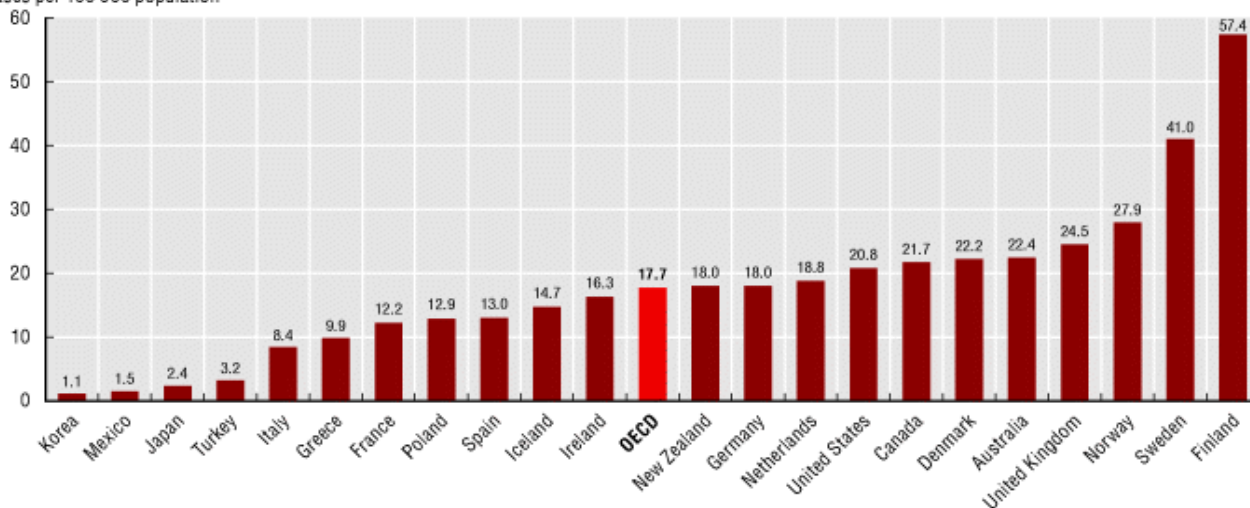


Figure 9 - Incidence estimates of Type 1 diabetes, children aged 0-14 years, 2010

Cases per 100 000 population



Life expectancy

Healthy life expectancy at birth remains approximately 10 years less than life expectancy.

Of the constituent countries of the UK, Wales had the lowest healthy life expectancy for females, standing at 68.3 years of healthy life in 2004; Scotland had the lowest healthy life expectancy in males: 65.6 years. These compare to 67.9 and 70.3 years for males and females in the UK as a whole.

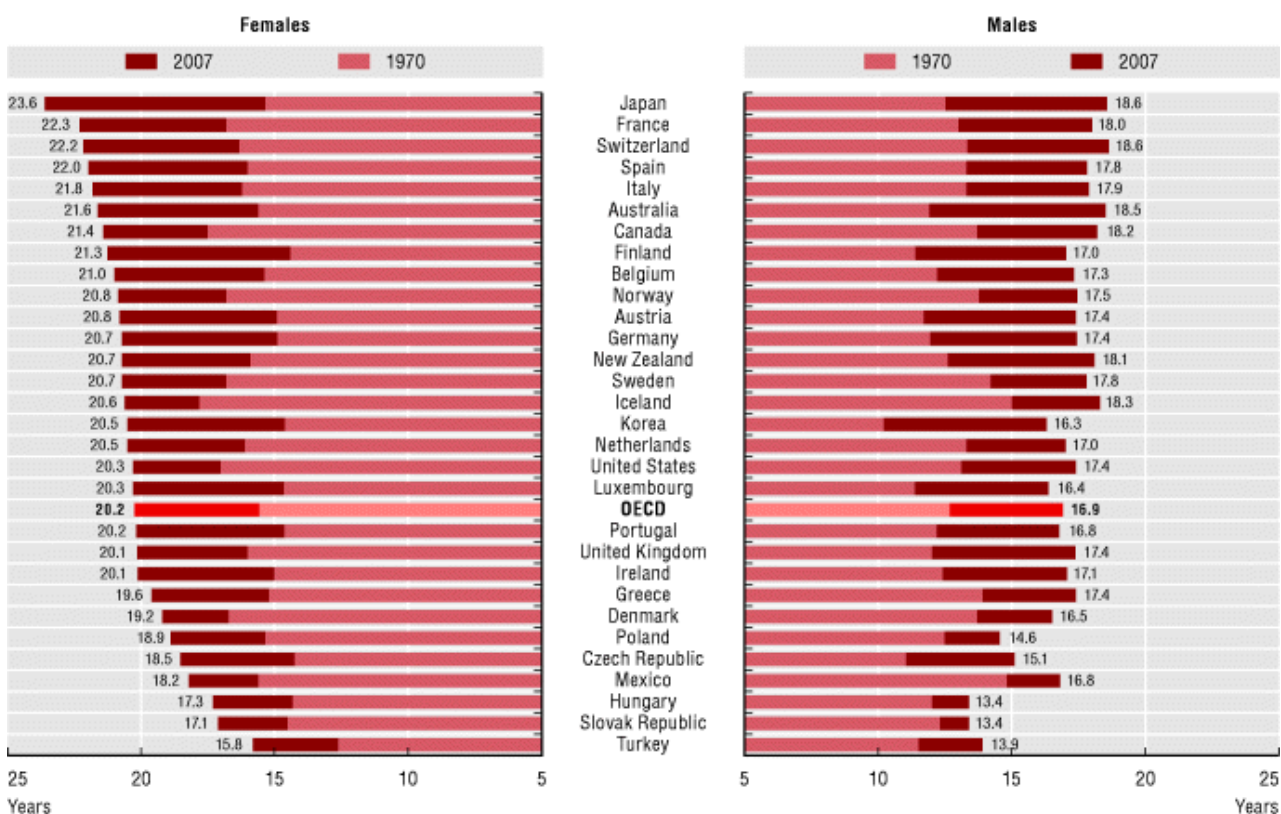
Life expectancy at age 65 has increased significantly among both women and men over the past several decades in all OECD countries. Some of the factors explaining the gains in life expectancy at age 65 include advances in medical care combined with greater access to health care, healthier lifestyles and improved living conditions before and after people reach age 65.

In 2007, life expectancy at age 65 in OECD countries stood, on average, at over 20 years for women and close to 17 years for men. This represents a gain of almost five years for women and four years for men on average across OECD countries since 1970. Hence, the gender gap in life expectancy at age 65 increased slightly in many countries between 1970 and 2007.

Life expectancy at age 65 for females in the UK is in-line with the OECD average at 20.2 years and life expectancy at age 65 for males is slightly higher than the OECD average (17.4 compared to 16.9 years). (Figure 10)

Older persons belonging to lower socio-economic groups have a 30-65 per cent higher risk of almost all chronic diseases than those in more privileged social groups.¹⁰

Figure 10 - Life expectancy at age 65 by gender, 1970 and 2007 (or nearest year available)



Source: http://www.oecd-ilibrary.org/sites/health_glance-2009-en/01/02/index.html?contentType=/ns/StatisticalPublication/ns/Chapter&itemId=/content/chapter/health_glance-2009-4-en&containerItemId=/content/serial/19991312&accessItemIds=&mimeType=text/html
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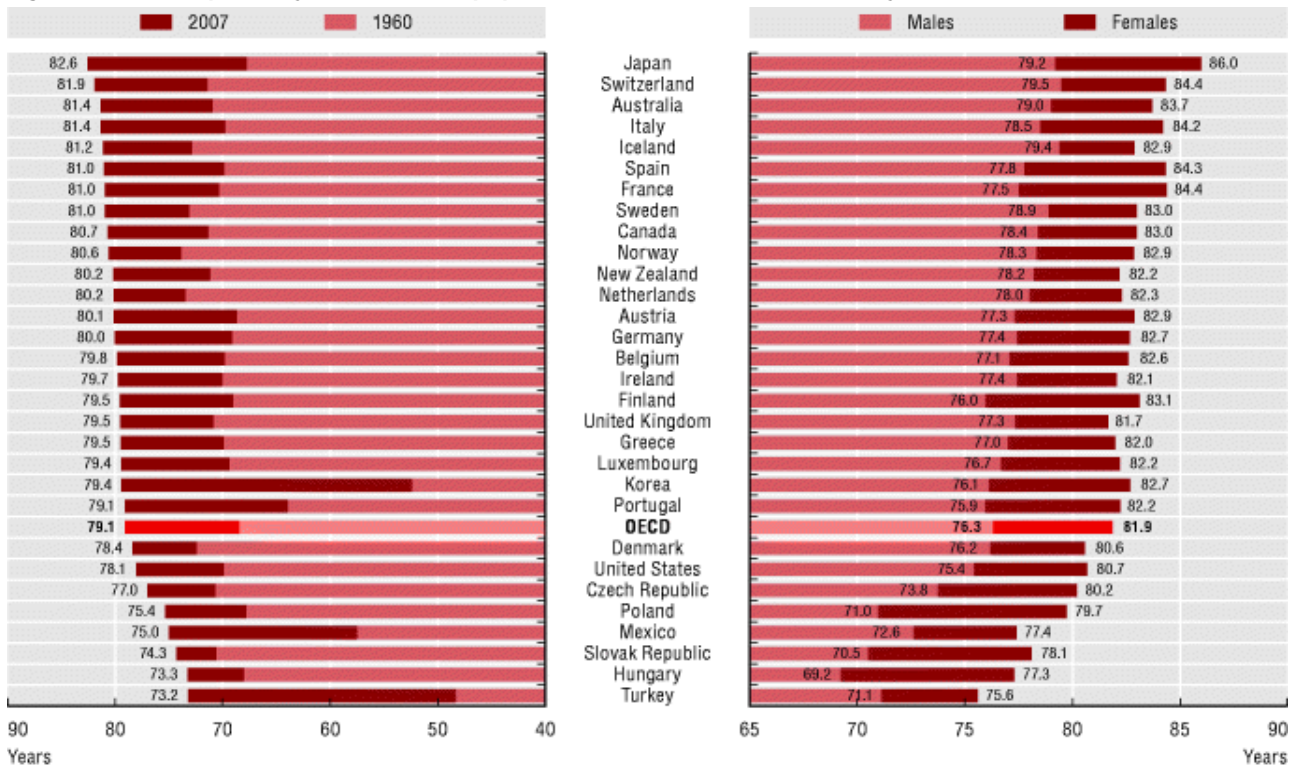
Life expectancy at birth has continued to increase remarkably in OECD countries, reflecting sharp reductions in mortality rates at all ages. These gains in longevity can be attributed to a number of factors, including rising living standards, improved lifestyle and better education, as well as greater access to quality health services. Other factors, such as better nutrition, sanitation and housing also play a role, particularly in countries with developing economies (OECD, 2004).

On average across OECD countries, life expectancy at birth for the whole population reached 79.1 years in 2007, a gain of more than 10 years since 1960. In almost one-half of OECD countries, life expectancy at birth in 2007 exceeded 80 years. Life expectancy at birth for males and females in 2007 in the UK was projected to be 77.3 and 81.7 years respectively. The average life expectancy for males in the UK is slightly higher than the OECD average (76.3 years) with the average life expectancy for females being at a similar level to the OECD average (81.9 years). (Figure 11)

The gender gap in life expectancy stood at 5.6 years on average across OECD countries in 2007, with life expectancy reaching 76.3 years among men and 81.9 years among women, between 1960 and 2007, this gender gap widened on average by about half a year. While the gender gap in life expectancy increased substantially in many countries during the 1960s and the 1970s, it narrowed during the past 25 years, reflecting higher gains in life expectancy among men than among women in most OECD countries.

¹⁰ Wait, S and Harding, E. *The state of ageing and health in Europe*. International Longevity Centre UK and Merck Company Foundation. London: ILC-UK, 2006 http://www.ilcuk.org.uk/files/pdf_pdf_4.pdf (p15). (Accessed 10/02/2011)

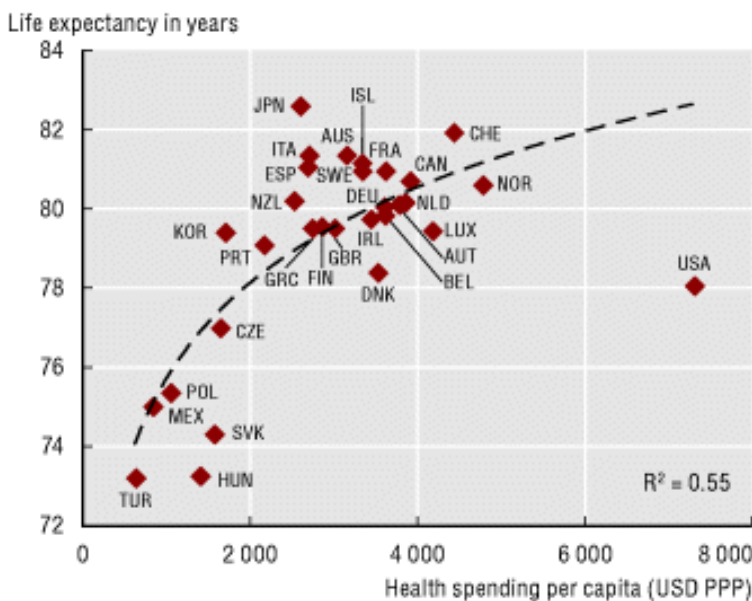
Figure 11 - Life expectancy at birth, total population, 1960 and 2007 (or latest year available)



Source: http://www.oecd-ilibrary.org/sites/health_glance-2009-en/01/01/index.html?contentType=&itemId=/content/chapter/health_glance-2009-3-en&containerItemid=/content/serial/19991312&accessItemids=/content/book/health_glance-2009-en&mimeType=text/html

The figure below shows the relationship between life expectancy at birth and health expenditure per capita across OECD countries. Higher health spending per capita is generally associated with higher life expectancy at birth, although this relationship tends to be less pronounced in countries with higher health spending per capita. (Figure 12)

Figure 12 - Life expectancy at birth and health spending per capita, 2007 (or latest year available)



Source: http://www.oecd-ilibrary.org/sites/health_glance-2009-en/01/01/index.html?contentType=&itemId=/content/chapter/health_glance-2009-3-en&containerItemid=/content/serial/19991312&accessItemids=/content/book/health_glance-2009-en&mimeType=text/html

Health System Performance

The 2010 Commonwealth Fund report¹¹ which surveyed patients and primary care physicians about medical practices and views of their countries' health systems (2007–2009) and health care outcomes suggests that the UK is performing well on health outcomes compared to other countries.

Seven nations were studied; Australia, Canada, Germany, the Netherlands, New Zealand, the United Kingdom, and the United States. The Netherlands ranks first, followed closely by the UK and Australia. (Figure 13)

The indicators of quality were grouped into four categories: effective care, safe care, coordinated care, and patient-centred care.

The UK was ranked as the second best performer for quality care. This could be partly attributed to information systems that are operational in the UK which enhance the ability of physicians to identify and monitor patients with chronic conditions. The UK was ranked in last place for patient centred care; this can be attributed to relatively poor scores for communication with patients and poor scores for engagement and patient preferences. Nonetheless, the UK continues to lead other nations in feedback: nearly all (96 per cent) physicians in the UK receive patient satisfaction data.

The UK was ranked in second place for access. Although in the UK patients have little to no financial burden to access treatment, patients do experience wait times for specialized services. Patients in the Netherlands and Germany ranked most highly as patients have quick access to specialty services and face little out-of-pocket costs.


The UK was ranked first out of seven countries for efficiency. The Commonwealth Fund report determines efficiency by examining total national expenditures on health as a percent of gross domestic product (GDP), as well as the per cent spent on health administration and insurance. The UK performed well on health expenditure as well as preventing readmission and unnecessary visits to emergency departments through appropriate treatment routes.

The UK scored second highest on overall equity, with small differences between lower and higher-income adults on measures such as access to dental treatment, not having to wait more than six days for an appointment and patients not delaying medical treatment due to associated costs.

The UK is ranked six out of seven on performing on the healthcare outcome of long, healthy lives. This dimension was based on outcome indicators such as mortality amenable to health care; deaths that could have been prevented with timely and effective care; infant mortality; and healthy life expectancy.

¹¹ Davis, K, Schoen C, Strmiki K. *Mirror, Mirror on the Wall. How the Performance of the U.S. HealthCare System Compares Internationally, 2010 Update*. The Commonwealth Fund. June 2010. http://www.commonwealthfund.org/~media/Files/Publications/Fund%20Report/2010/Jun/1400_Davis_Mirror_Mirror_on_the_wall_2010.pdf. (Accessed 14 February 2011)

Figure 13 - Seven-Nation Summary Scores on Health System Performance

Country Rankings								
	1.00-2.33							
	2.34-4.66							
	4.67-7.00							
	AUS	CAN	GER	NETH	NZ	UK	US	
OVERALL RANKING (2010)	3	6	4	1	5	2	7	
Quality Care	4	7	5	2	1	3	6	
Effective Care	2	7	6	3	5	1	4	
Safe Care	6	5	3	1	4	2	7	
Coordinated Care	4	5	7	2	1	3	6	
Patient-Centered Care	2	5	3	6	1	7	4	
Access	6.5	5	3	1	4	2	6.5	
Cost-Related Problem	6	3.5	3.5	2	5	1	7	
Timeliness of Care	6	7	2	1	3	4	5	
Efficiency	2	6	5	3	4	1	7	
Equity	4	5	3	1	6	2	7	
Long, Healthy, Productive Lives	1	2	3	4	5	6	7	
Health Expenditures/Capita, 2007	\$3,357	\$3,895	\$3,588	\$3,837*	\$2,454	\$2,992	\$7,290	

Note: * Estimate. Expenditures shown in \$US PPP (purchasing power parity).
 Source: Calculated by The Commonwealth Fund based on 2007 International Health Policy Survey; 2008 International Health Policy Survey of Sicker Adults; 2009 International Health Policy Survey of Primary Care Physicians; Commonwealth Fund Commission on a High Performance Health System National Scorecard; and Organization for Economic Cooperation and Development, OECD Health Data, 2009 (Paris: OECD, Nov. 2009).

For all countries, responses indicate room for improvement on quality care, access, efficiency, equity and long, healthy, productive lives.

Furthermore, any attempt to assess the relative performance of countries has inherent limitations. The rankings within the 2010 Commonwealth Fund report summarise evidence on measures of high performance based on national mortality data and the perceptions and experiences of patients and physicians; however, they do not capture dimensions of effectiveness or efficiency that might be obtained from medical records or administrative data. Patients' and physicians' assessments might be affected by their experiences and expectations, which could differ by country and culture.