



National Audit Office

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COMPTROLLER AND  
AUDITOR GENERAL

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# Healthcare across the UK: A comparison of the NHS in England, Scotland, Wales and Northern Ireland

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National Audit Office

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# Healthcare across the UK: A comparison of the NHS in England, Scotland, Wales and Northern Ireland

Report by the Comptroller and Auditor General

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Amyas Morse  
Comptroller and Auditor General  
National Audit Office

27 June 2012

This report identifies key trends and variations in the delivery of healthcare across the four nations of the UK, and highlights where further examination may help determine those practices that could deliver better value for money.

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Additional documents can be found  
on our website at [www.nao.org.uk/uk-healthcare-2012](http://www.nao.org.uk/uk-healthcare-2012)

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This report can be found on the  
National Audit Office website at  
[www.nao.org.uk/uk-healthcare-2012](http://www.nao.org.uk/uk-healthcare-2012)

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## Key facts

Set out below are data for all four nations for the indicators quoted in the Summary of the report. A more comprehensive set of indicators is discussed in the Summary and presented in the main body of the report.

	England	Scotland	Wales	Northern Ireland
Life expectancy at birth – men, 2008–2010, years	78.6	75.9	77.6	77.1
Life expectancy at birth – women, 2008–2010, years	82.6	80.4	81.8	81.5
Spending per person on health services, 2010-11, £	1,900	2,072	2,017	2,106 <sup>1</sup>
Spending on health services as a percentage of total public spending, 2010-11, %	22.0	20.4	20.3	19.7 <sup>1</sup>
Number of GPs (headcount) per 100,000 people, 2009	70	80	65	65
Average taxable income of GPs, 2009-10, £	109,400	89,500	93,500	91,400
Day cases as percentage of all hospital admissions, 2008-09	41.0	36.4	36.8	41.8
Average hospital length of stay (acute beds only), 2008-09, days	4.3	5.7	6.3	5.5
Number of emergency admissions per 100,000 people, 2009-10	9,994	9,917	11,471	–
(increase since 2000-01, %)	(28)	(9)	(3)	–
Reduction in MRSA infection rates per bed day, 2007-08 to 2010-11, %	67	62	38	43

### NOTES

- 1 The Department of Health, Social Services and Public Safety (Northern Ireland) will be seeking to have the published data for health spending in 2010-11 re-stated. The Department considers that spending on health services per person was £1,975 in 2010-11 and that Northern Ireland devoted 18.5 per cent of public spending to health.
- 2 Notes on comparability are included in the main body of the report with full sources included in the detailed methodology, available at: [www.nao.org.uk/uk-healthcare-2012](http://www.nao.org.uk/uk-healthcare-2012)

# Summary

**1** Since 1999, responsibility for health services has been devolved to the administrations in Scotland, Wales and Northern Ireland. The administrations have powers to choose how much money to spend on health services, what their policy priorities should be, and how services should be delivered, as the UK Government does for England. This report compares the four nations of the UK by setting out comparable data, where available, on health outcomes and spending, and on the delivery and performance of the health services.

**2** The work for the report was carried out in collaboration with the Wales Audit Office and the Northern Ireland Audit Office, and we are grateful for the contribution they made. We are also grateful for the advice and assistance of Audit Scotland during the course of our work.

**3** The report identifies the extent to which variances exist between the four nations and where further examination may help determine those practices that could deliver better value for money. To set any differences between the nations in context and to provide additional comparators for Scotland, Wales and Northern Ireland – in terms of similar population size and characteristics – we also report certain data for the nine English regions.

**4** We did not investigate systematically the reasons behind any variations in performance, although we have carried out more detailed analysis in a number of areas. We also suggest possible explanations for some of the variations. Our methodology is summarised in Appendix One, with further details available at [www.nao.org.uk/uk-healthcare-2012](http://www.nao.org.uk/uk-healthcare-2012).

**5** **Figure 1** overleaf sets out the indicators we would have liked to use to compare the health services of the four nations. However, much of the data collected by national statistics authorities are not directly comparable, with the data for some measures either not consistently collected across the nations or not available for certain years. We were therefore not able to use all our preferred indicators or to present them over a consistent time period. Where comparable data were not available we present alternative indicators for which data are consistently collected across the nations. While most of the figures we report have been previously published in comparable formats, we have not audited the data collection processes or validated the figures.

**Figure 1**  
Indicators for comparing the health services

	<b>Preferred indicators</b>	<b>Key data issues</b>	<b>Actual indicators reported</b>
<b>Health outcomes</b>	Composite measure of population health.	Difficulty in measuring some aspects of health and weighting between the different elements.	Life expectancy. Mortality rates.
<b>Health spending</b>	Health spending per person by care setting (e.g. hospital, primary care).  Percentage of public spending devoted to health.	No consistent approach to disaggregating spending data by care setting.	Total health spending per person.  Percentage of public spending devoted to health.
<b>Cost and volume of health service resources</b>	Unit costs of paying for staff and other resources.  Number of resources per person.	Limited comparable data in some areas of non-staff costs.  No data on some staff, e.g. practice nurses.	Average GP and dentist income. Cost per prescription item.  Number of GPs, dentists and selected hospital staff per person.
<b>Efficiency and productivity in the use of health service resources</b>	Amount of activity (e.g. GP consultations, hospital admissions) produced by resources.  Composite measure of productivity, i.e. indicator of total resources and total quality-adjusted activity.	Limited activity data for primary and community care.  Sensitivity to weighting the quality measures and the different units of inputs or outputs.  Data not available for all four nations.	Survey data on the estimated number of patients seen by GPs.  Combined measure of hospital activity per medical staff.  Data on the efficient use of hospital beds (day cases, lengths of stay).
<b>Quality and effectiveness of healthcare</b>	Measures of health gain attributable to the healthcare provided (e.g. change in quality of life).	Attribution of any health gain to health services.  No comparable data currently available on some key measures of primary and hospital care quality (e.g. hospital readmissions and patient satisfaction).	Performance against Quality and Outcomes Framework indicators.  Emergency admission rates.  Hospital waiting times.  Healthcare associated infection rates.

Source: National Audit Office



## Health outcomes

**6** There are significant differences in health outcomes across the UK. For example, in 2008–2010, average life expectancy at birth varied for men from 75.9 in Scotland to 78.6 in England, and for women from 80.4 in Scotland to 82.6 in England. Similar disparities were also evident in healthy life expectancy and in ‘standardised mortality ratios’, which take account of the make-up of each nation’s population in terms of age and gender. However, such measures of outcomes largely reflect general standards of public health – and therefore the need for healthcare – rather than the performance and effectiveness of the health services.

## Spending on health services

**7** Spending on health services in the UK has more than doubled in cash terms in the last decade, growing from £53 billion in 2000-01 to £120 billion in 2010-11 (equivalent to an increase of around 80 per cent in real terms). The rate of increase has been broadly consistent across the four nations but levels of spending per person on health services continue to vary. Published data for 2010-11 showed that England had the lowest spending per person on health services (£1,900).

**8** As well as reflecting how well health services are delivered, the variations in health outcomes and spending, between the nations and over time, are affected by differences in:

- the health needs of the nations’ populations, which are affected by demographic, geographic and behavioural factors; and
- the priority given to health, compared with other devolved services.

## Population health needs

**9** Many factors affect population health needs and the demand for healthcare, including the level of ill-health, the age and socio-economic profile of the population, and behavioural factors, such as diet and smoking. No one nation had the greatest level of health need against all the individual indicators we examined. However, exploratory work, commissioned for this report, to calculate a consolidated measure of need combining a range of indicators suggested that there are substantial differences in average health need per person between the nations. On the basis of the data available, average need was estimated as highest in Northern Ireland and lowest in England.

## Policy and funding priorities

**10** Each nation has its own government department to develop and implement the health policy and priorities of its government. Health priorities have varied across the nations, and within nations, over time, although there has been overlap in key areas such as public health, waiting times and cancer services. Comparisons of outcomes and performance between the nations need to be viewed in the context of differences in priorities. For instance, nations that prioritise, and commit more funding to, public health campaigns may expect to see any impact on health outcomes only in the longer term.

**11** The administrations in the four nations are free to choose how much of their overall budget to devote to health. Since 2005-06, the proportion spent on health by each of the four nations has remained fairly constant. England has consistently devoted the highest proportion of total public spending to health services (22.0 per cent in 2010-11), with Northern Ireland the lowest.

## Health service delivery and performance

### Organisation of health services

**12** Except in Northern Ireland, where a single organisation purchases services for the whole population, the majority of health services are organised at a local level. In the last decade there has been notable divergence in policy and performance management between the nations, particularly in the use of competition between healthcare providers. Since devolution, the commissioners and providers of health services have been reintegrated in Scotland and Wales, thus removing the internal market. In contrast, the internal market remains in Northern Ireland and the role of competition has increased in England.

### Cost and volume of health service resources

**13** Staff costs account for around two-thirds of spending on health services. Most NHS hospital staff in the UK are employed through similar nationally negotiated contracts, so there is little difference in pay bands. There has been, however, more marked variation in the pay of dentists and in particular of GPs, who derive their earnings from the income of their practice. In 2009-10, the average taxable income of GPs ranged from £89,500 in Scotland to £109,400 in England. Some of this variation is likely to result from differences in the size of patient registers and the income practices receive for providing additional services.

**14** In line with the rise in funding, levels of health service resources, such as staff and capital spending, have also increased over the last ten years. Scotland has consistently had the most GPs per person, with 80 GPs per 100,000 people in 2009 (measured by headcount) compared with 65 in both Wales and Northern Ireland. Based on the most recent data, for 2009, Scotland also had the highest number per person of medical hospital staff and of nursing, midwifery and health visiting staff. Northern Ireland had the most non-clinical hospital staff per person.

## Efficiency and productivity in the use of health service resources

**15** There are no routinely published, comparable indicators that measure all aspects of efficiency or productivity in the four nations in either primary or hospital care. We therefore looked at a number of individual measures relating to the efficient use of (a) the healthcare workforce (activity per staff member) and (b) hospital beds (day case rates and hospital lengths of stay). It should be stressed that these measures do not account for any differences in the complexity or quality of the care provided.

**16** In the absence of routinely collected comparable data on the number of patients seen by GPs, we report findings from a 2009 survey. GPs in Wales estimated seeing more patients per week on average than their counterparts in the other nations, with GPs in Scotland seeing the fewest. Within hospitals, activity levels per medical staff member were highest in England and lowest in Scotland in 2008-09.

**17** Northern Ireland treated the highest proportion of all hospital admissions as day cases in 2008-09 (41.8 per cent). In the same year, average hospital lengths of stay varied from 4.3 days in England to 6.3 days in Wales. Further analysis of two specific areas of hospital care – births and hip replacements – indicated that, even after adjusting for differences in patient characteristics and case-mix (such as the proportion of complicated procedures), there was significant variation in hospital lengths of stay within nations. This suggests that there is scope for improved efficiency.

## Quality and effectiveness of healthcare

**18** We analysed data from the Quality and Outcomes Framework, an incentive scheme for GP practices, to assess aspects of the quality of primary care provided in four disease areas – coronary heart disease, stroke, hypertension, and diabetes. GP practices in Scotland and Northern Ireland generally scored better in 2010-11 than those in England and Wales. The variation between the nations was less than in the previous year.

**19** The rate of emergency admissions, where patients require unplanned hospital treatment, is also an indicator of the quality of primary and community care. Emergency admissions per person were higher in all four nations in 2009-10 than in 2000-01, with the increase greatest in England (28 per cent). Wales had the highest rate of emergency admissions in 2009-10 (11,471 per 100,000 people). Comparable data were not available for Northern Ireland.

**20** Reducing waiting times for accident and emergency services and elective hospital care has been a priority across the UK, and the length of time patients wait for key hospital procedures has fallen in all four nations since 2005-06. For six common procedures, waiting times in 2009-10 were shorter in Scotland and England than in Wales and Northern Ireland. However, the targets/performance standards used vary in how they are framed, which makes it difficult to compare performance. England was the only nation to achieve its accident and emergency performance standard in 2010-11. England and Scotland were the only nations to achieve their performance standards for elective hospital care in full in 2011.

**21** There has been a considerable decrease in levels of key healthcare associated infections in all four nations in recent years. For instance, from 2007-08 to 2010-11, MRSA rates decreased by between 67 per cent in England and 38 per cent in Wales. There was also a reduction in the number of deaths caused by *Clostridium difficile* during the same period.

### **Concluding comments**

**22** The health departments in the four nations are charged with securing value for money for the significant amounts of public money that they spend. We publish this report at a time when health services across the UK are under increasing pressure to use resources more productively. Funding is becoming tighter and ageing populations, and advances in drugs and technology, contribute to continued growth in the demand for healthcare.

**23** We found limited availability and consistency of data across the four nations, restricting the extent to which meaningful comparisons can be made between the health services of the UK. For this reason, and without a single overarching measure of performance, we cannot draw conclusions about which health service is achieving the best value for money. Where comparative data are available, we found that no one nation has been consistently more economic, efficient or effective across the indicators we considered.

**24** The shared history and similarities between the four health services mean they offer a natural starting point to better understand the factors that affect value for money and the impact of divergent health policies and systems on performance. We consider there would be value in the four health departments carrying out further comparative work to evaluate the variation in, and understand the drivers of, value for money. To take this work forward, the health departments would need to:

- confirm that there is a desire at a national level to compare performance with a view to learning lessons and identifying good practice;
- agree the specific indicators that would provide the most insight;
- establish what data would be required to make comparisons and identify how to collect and collate these data proportionately and cost-effectively; and
- use the comparisons as a starting point to draw out key factors that drive performance and value for money.

**25** To take account of the difference in population needs and patient characteristics, any systematic evaluation of variation needs to be based on consistently collected, patient-level data. For our work, we undertook exploratory analysis of two specific areas of hospital care across the four nations, showing that such comparative methodologies are possible where suitable data exists. Health departments would need, however, to undertake further work to:

- understand the differences in how existing routinely collected data are recorded and any bias this may introduce; and
- agree other areas of healthcare for which consistent, comparable patient-level data could be collected and made readily available.

# Part One

## Health outcomes and spending

**1.1** This part of the report covers health outcomes and spending in the four nations of the UK. Any differences between the nations need to be set in the context of the make-up of their populations and their underlying health needs. Data on these factors are also set out in this part.

### Health outcomes

**1.2** Life expectancy, standardised mortality ratios and infant mortality rates are key measures of health outcomes. Life expectancy at birth varies significantly between the nations. Average life expectancy was between two and three years higher in England than in Scotland in 2008-2010, for men and women (**Figure 2**). There is similar variation between the nations in healthy life expectancy – the number of years a person can expect to spend in very good or good general health.

**Figure 2**

#### Life expectancy

	England	Scotland	Wales	Northern Ireland
<b>Average life expectancy at birth, 2008–2010</b>				
Men	78.6	75.9	77.6	77.1 <sup>2</sup>
(Minimum – maximum <sup>1</sup> )	(73.6 – 85.1)	(71.6 – 79.4)	(75.4 – 80.8)	(73.9 – 79.4)
Women	82.6	80.4	81.8	81.5 <sup>2</sup>
(Minimum – maximum <sup>1</sup> )	(79.1 – 89.8)	(78.0 – 82.7)	(79.7 – 83.9)	(79.8 – 83.2)
<b>Average healthy life expectancy at birth, 2007–2009<sup>3</sup></b>				
Men	63.5	60.1	62.5 <sup>4</sup>	60.5
Women	65.5	63.5 <sup>4</sup>	62.8 <sup>4</sup>	62.5

#### NOTES

- 1 Minimum and maximum average life expectancy are for local areas within each nation. The size of local areas vary; in larger areas extremes of life expectancy may be masked.
- 2 Life expectancy figures for Northern Ireland are provisional.
- 3 Defined as the number of years an individual can expect to spend in very good or good general health; based on survey data on self-reported health. The figures are not comparable with data previously published by the Office for National Statistics which were based on a different scale for self-reported health.
- 4 Not statistically significantly different from the position for England at the 95 per cent confidence level.

Source: Office for National Statistics. Full sources included in the detailed methodology, available at [www.nao.org.uk/uk-healthcare-2012](http://www.nao.org.uk/uk-healthcare-2012)

**1.3** There was also considerable variation in life expectancy at birth across the English regions. Average life expectancy, for men and women, was highest in the South East (79.7 and 83.5 years respectively) and lowest in the North West (77.0 and 81.1 years). At local area level across the UK, average life expectancy at birth varied by 13.5 years for men (85.1 years in Kensington and Chelsea in London compared with 71.6 years in Glasgow City) and by 11.8 years for women (89.8 years compared with 78.0 years for the same areas).

**1.4** Differences in mortality rates across the four nations remain evident after adjusting for some of the variation in population demographics. ‘Standardised mortality ratios’ account for differences in the age and gender of the populations, with scores over 100 (the UK average) indicating more deaths than expected. In 2008, the standardised mortality ratio in Scotland was 117, higher than in the rest of the UK (Northern Ireland: 107; Wales: 103; and England: 98).<sup>1</sup> These relative differences in standardised mortality ratios have remained more or less unchanged since 2000.

**1.5** Infant mortality rates (children dying before the age of one, per thousand live births) have fallen in England, Scotland and Wales since 2000, with the rate of decline greatest in Scotland (**Figure 3** overleaf). Infant mortality rates were 35 per cent lower in Scotland than in Northern Ireland in 2010 (3.7 compared with 5.7 deaths per thousand births). Across the English regions, the South West had the lowest infant mortality rate (3.2 deaths per thousand births), with the West Midlands the highest (5.5 deaths per thousand births).

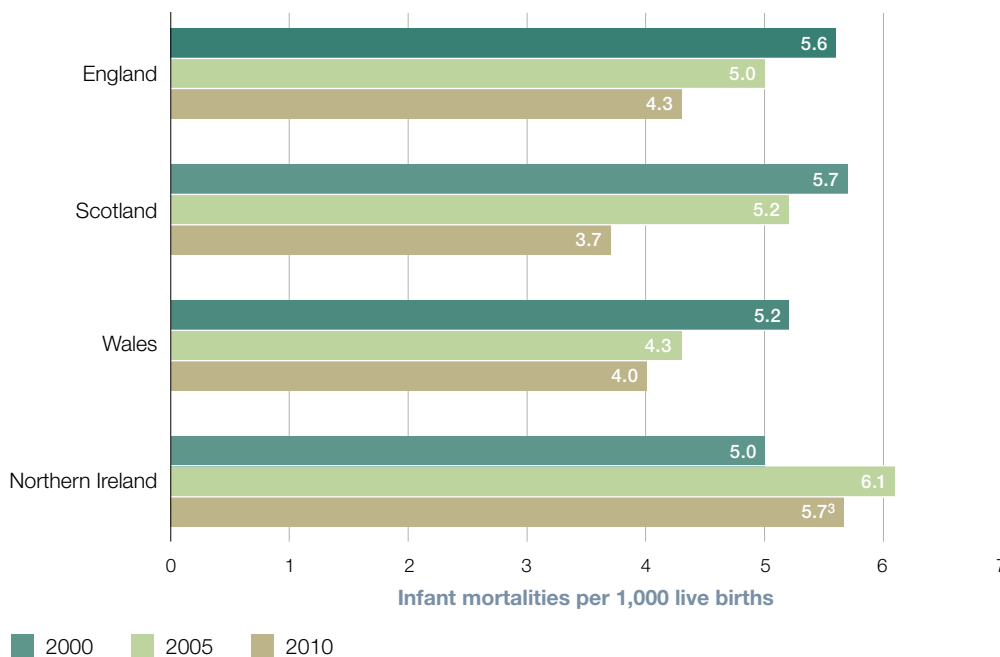
## Spending on health services

**1.6** Total spending on the NHS<sup>2</sup> across the UK has more than doubled in cash terms in the last decade, growing from £53 billion in 2000-01 to £120 billion in 2010-11 (equivalent to an increase of around 80 per cent in real terms). Per person spending on health services increased at a similar rate over this period (**Figure 4** on page 15).

**1.7** Looking forward, according to government spending plans, Wales is predicting the lowest increase per person over the four years to 2014-15 – remaining almost constant in cash terms and equating to an average annual fall of 2.3 per cent in real terms. In comparison, real terms spending is expected to fall by, on average, 0.6 per cent per year in Scotland and by 0.4 per cent per year in Northern Ireland, and to remain the same in England per year, between 2010-11 and 2014-15.

<sup>1</sup> The data for England and Wales cover residents of those nations only; the data for Scotland and Northern Ireland cover both residents and non-residents. Source: Office for National Statistics.

<sup>2</sup> For simplicity, in this report we use the term NHS for all four nations, although health services in Northern Ireland are provided under the organisational name Health and Social Care.

**Figure 3**Infant mortalities per 1,000 live births,<sup>1,2</sup> 2000, 2005 and 2010**NOTES**

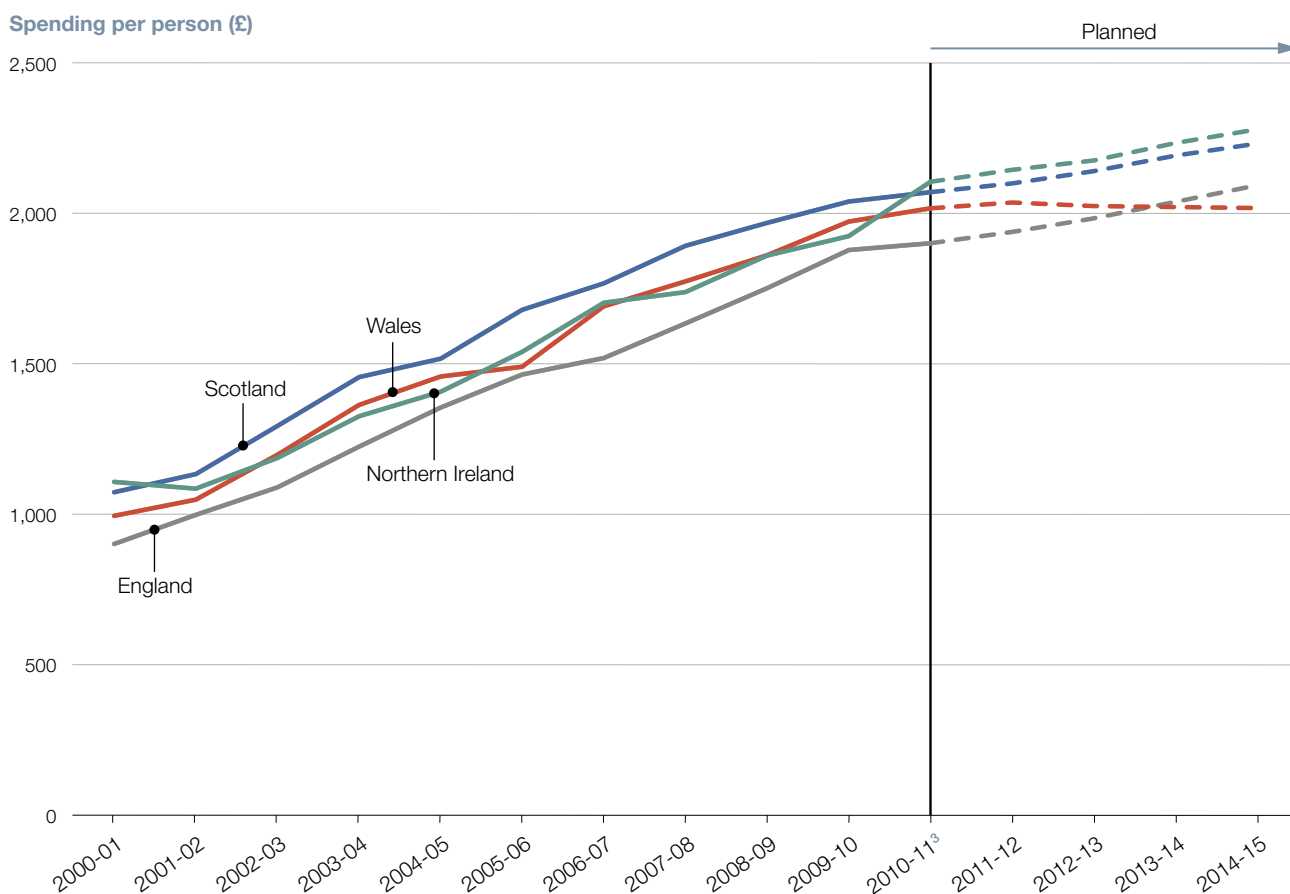
- 1 As the number of births in Northern Ireland is relatively small, the mortality rates are more susceptible to random variation and so can be volatile year-on-year. At the 95 per cent confidence level, the differences between Northern Ireland rates for 2000, 2005 and 2010 are not significant; however, the rate in 2010 was significantly higher in comparison to England, Scotland and Wales.
- 2 Figures are not directly comparable as England and Wales data do not include non-residents whereas Northern Ireland and Scotland data include non-residents.
- 3 Data for Northern Ireland for 2010 are provisional.

Source: Office for National Statistics; Statistics for Wales

**1.8** Published data for 2010-11 showed that England had the lowest spending per person on health services (£1,900) (**Figure 5** on page 16). The variation in spending per person was greater across the English regions than between the nations, with spending in London 16 per cent above the average in England (and 29 per cent higher than in the South East of England). Factors likely to affect the level of spending per person include staff pay and the concentration of teaching and specialist hospitals in particular areas.

**1.9** As we were finalising this report, the Department of Health, Social Services and Public Safety (Northern Ireland) informed us that it considered that the published data for Northern Ireland on spending on health services in 2010-11 were incorrect. The Department considers that spending on health services was lower than that reported due to an error in disaggregating spending between health services and personal social services. Applying the Department's revised figure for spending on health services in 2010-11 would mean that spending per person was £1,975 and that Northern Ireland devoted 18.5 per cent of public spending to health. The Department will be seeking to have the published data for health spending in 2010-11 re-stated.



**Figure 4**Actual and planned spending on health services per person,<sup>1,2</sup> 2000-01 to 2014-15**NOTES**

1 Spending figures for 2000-01 to 2005-06 are not strictly comparable with those for 2006-07 to 2010-11.

2 Existing spending based on total identifiable expenditure on health; the trend in planned spending is derived from government NHS spending plans.

3 The Department of Health, Social Services and Public Safety (Northern Ireland) will be seeking to have the published data for health spending in 2010-11 re-stated. The Department considers that spending on health services per person was £1,975 in 2010-11.

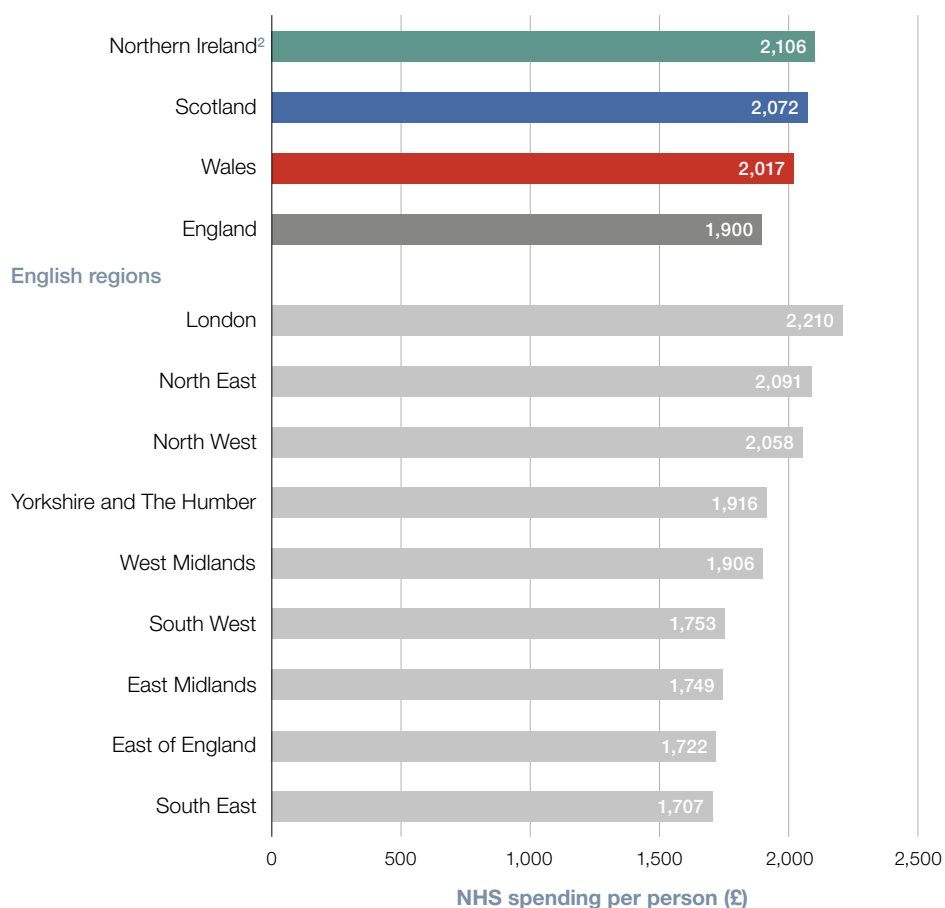
Source: HM Treasury; Scottish Government; Wales Audit Office analysis of Welsh Government data; Northern Ireland Executive

**1.10** The amount of money spent on health services, and the variation between the nations and over time, is affected by differences in:

- the health needs of the nations' populations, partly reflecting demographic and behavioural factors (paragraphs 1.11 to 1.13);
- the priority given to health compared with other services, such as education and transport (paragraphs 1.14 to 1.20); and
- how health services are delivered, including the cost of purchasing resources and their productivity (Part Two of this report).

**Figure 5**

Spending on health services per person, by nation and English region,<sup>1</sup> 2010-11

**NOTES**

1 Figures are for total identifiable spending on health rather than NHS allocations.

2 The Department of Health, Social Services and Public Safety (Northern Ireland) will be seeking to have the published data for health spending in 2010-11 re-stated. The Department considers that spending on health services per person was £1,975 in 2010-11.

Source: HM Treasury

## Population health needs

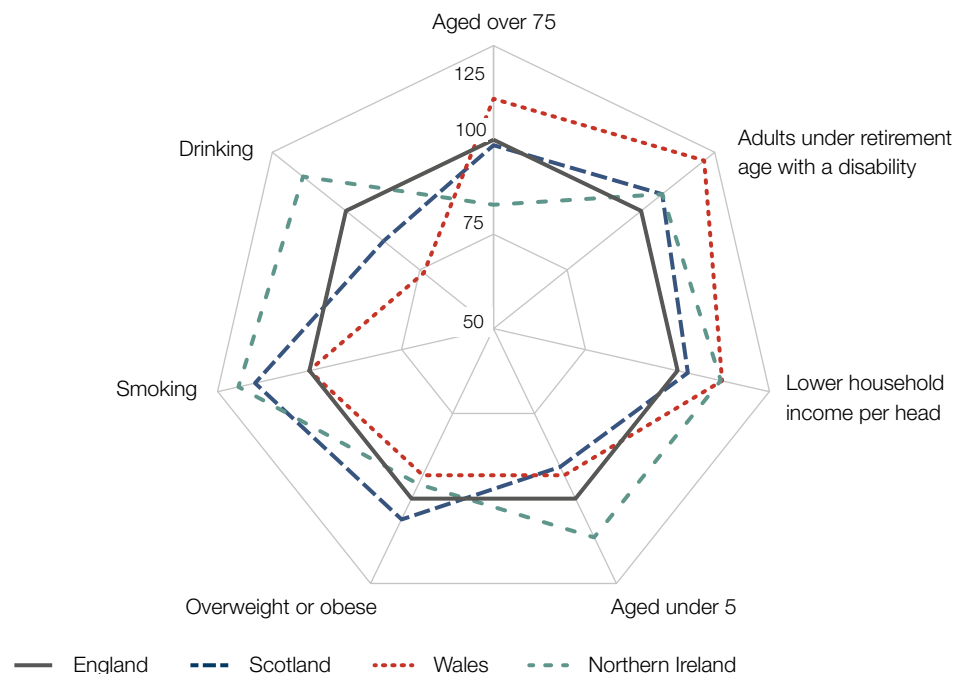
**1.11** Many factors affect population health needs and the demand for healthcare. These factors, which are to some extent interrelated, include:

- the level of ill-health and the incidence of disease and chronic conditions;
- the age and socio-economic profile of the population;
- access to services determined by, for example, the number of people living in rural areas; and
- behavioural factors such as diet, levels of physical activity, alcohol consumption and the number of people who smoke.

**1.12** Comparable data are not available on all the factors that affect health needs. Based on selected indicators where comparable data are available, we found no one nation consistently had the greatest health needs against all the measures. As illustrated in **Figure 6** – where scores further from the centre of the diagram represent higher need – the position is mixed with, for instance, a higher proportion of older people in Wales and higher levels of smoking in Northern Ireland and Scotland.

**Figure 6**

Population and behavioural indicators associated with increased health needs<sup>1,2</sup>



**NOTES**

- 1 The UK average is set at 100 with scores over 100 representing likely need above this UK average. Over four-fifths of the UK's population live in England so its scores are close to the UK average.
- 2 Across the indicators different years (from 2008 to 2011) are used, due to limitations in data availability.

**Indicators**

*Aged over 75 and Aged under 5* – proportion of population aged under five or 75 and over, mid-2010 estimation.

*Adults under retirement age with a disability* – based on men (women) aged 16 to 64 (59) with a disability, 2008-09.

*Household income per head* – gross domestic household income per person, 2009, with scores furthest from the centre representing lower income. Figures are provisional.

*Overweight or obese* – proportion of adults with a body mass index classed as 'overweight or obese', 2008. Data for Northern Ireland are for 2010-11. Data for Wales are measured by a different process.

*Smoking* – proportion of adults self-defined as a current smoker, 2008. Source figures are rounded to nearest percentage point.

*Drinking* – proportion of men (women) with maximum daily alcohol consumption of more than eight (six) units at least once in the last week among adults aged 16 and over, 2008.

Source: Office for National Statistics; Department for Work and Pensions; Department of Health, Social Services and Public Safety (Northern Ireland)

**1.13** We commissioned an exploratory exercise to estimate relative health needs at local level across the four nations.<sup>3</sup> Combining data on a range of factors associated with variations in health needs, including measures of population age, levels of disability and wealth, the analysis suggested that there was substantial difference in health needs between the nations. On the basis of the data available, Northern Ireland was estimated as having the highest average need per person with England the lowest (**Figure 7**). The local areas with the highest and lowest needs were both in England, which accounted for the majority of the areas. Local areas vary in size and in larger areas, in particular, extremes of need may be masked.

**Figure 7**  
Estimation of relative health need per person<sup>1</sup>

	England	Scotland	Wales	Northern Ireland
Average need <sup>2</sup>	0.91	0.98	1.07	1.11
Minimum–maximum need <sup>3,4</sup>	0.63–1.27	0.80–1.16	0.92–1.24	1.00–1.26

**NOTES**

- 1 The figures are relative scores with higher numbers representing higher estimated health needs per person based on data from 2007-08 to 2009-10. Absolute figures are nominal.
- 2 Population weighted mean average; UK average 0.93.
- 3 Minimum and maximum relative need for local health areas within each nation for the period in question (152 primary care trusts in England, 14 health boards in Scotland, 7 health boards in Wales, and 4 health and social care boards in Northern Ireland).
- 4 The size of local health areas vary (see Figure 9); due to less aggregation, smaller areas are more likely to have extremes of need.

Source: Deloitte analysis for National Audit Office

## Policy and funding priorities

**1.14** In 1999, responsibility for certain services, including health, was devolved to Scotland, Wales and Northern Ireland.<sup>4</sup> Each nation has its own government department to develop and implement the health policy and priorities of its government. The *Health and Social Care Directorates* in Scotland, the *Department of Health, Social Services and Children* in Wales, and the *Department of Health, Social Services and Public Safety* in Northern Ireland are each accountable to the elected body in their nation. The *Department of Health* in England is accountable to the UK Parliament.

<sup>3</sup> Further information on this methodology is available at: [www.nao.org.uk/uk-healthcare-2012](http://www.nao.org.uk/uk-healthcare-2012).

<sup>4</sup> The Northern Ireland Assembly has, however, been suspended for long periods, including from October 2002 to May 2007. During these times the UK Parliament regained full responsibility for devolved matters, including health.

### Health policy priorities

**1.15** Health priorities vary across the nations at any one time and within nations over time, although there is overlap in key areas. Public health, waiting times, cancer services and mental health have regularly been priorities in all nations in the last ten years. Comparisons of performance and outcomes between the nations need to be viewed in the context of these variations in priorities. For instance, nations that make public health campaigns a priority, and commit more funding to them, can expect to see the impact on health outcomes only in the longer term.

### Funding priorities

**1.16** Scotland, Wales and Northern Ireland receive block grants from HM Treasury to fund public services.<sup>5</sup> The amount of money provided by HM Treasury is primarily based on historical levels of funding, with annual changes calculated using the 'Barnett Formula', rather than on the basis of current population needs. For public services covered by the Barnett Formula, where there is an increase or decrease in the funding for the relevant government department in England, the three other nations receive the same absolute increase or decrease in per person funding.

**1.17** So, for example, if funding for health services in England increases by £100 per person, the devolved administrations receive an additional £100 per person through the Barnett Formula. The devolved administrations are not, however, obliged to spend the increase in funding on the same purpose as that which triggered the additional payment and are free to allocate money according to their chosen priorities.

**1.18** The administrations in the four nations are free to choose what proportion of their overall budget to devote to health. Since 2005-06, the proportion spent on health by each nation has remained relatively constant at between 18 and 22 per cent of all public spending.<sup>6</sup> Over the last five years, Northern Ireland has had the most variability in health spending from one year to the next. England has consistently had the largest proportion of public spending devoted to health (22.0 per cent in 2010-11) with Northern Ireland the lowest (**Figure 8** overleaf).

**1.19** In addition to funding allocated by the administrations, the NHS can generate income by charging patients, including for prescriptions, dentistry and private practice work. The nations have different charging policies. Only patients in England now pay for prescriptions, although in practice around 90 per cent of prescriptions are free as hospital inpatients, people under 16 or over 59, and those meeting certain other eligibility criteria do not have to pay. In 2010-11, prescription charges raised £450 million for the NHS in England.

<sup>5</sup> Additional funding comes from local revenues and taxes, the European Commission and borrowing by local authorities and other public bodies.

<sup>6</sup> Total public spending in each nation includes spending on some areas that the devolved nations do not control, such as welfare benefits.

**Figure 8**

Public spending on health services, 2010-11

	England	Scotland	Wales	Northern Ireland <sup>1</sup>
<b>Spending on public services</b>				
Total spending per person (£)	8,634	10,165	9,947	10,668
<b>Spending on health services</b>				
<b>Percentage of public spending (%)</b>	<b>22.0</b>	<b>20.4</b>	<b>20.3</b>	<b>19.7</b>
Total spending (£m)	99,249	10,821	6,065	3,790
Spending per person (£)	1,900	2,072	2,017	2,106
Relative spending on health compared to England	100	109	106	111

**NOTE**

1 The Department of Health, Social Services and Public Safety (Northern Ireland) will be seeking to have the published data for health spending in 2010-11 re-stated. The Department considers that spending on health services in 2010-11 was £3,554 million (£1,975 per person, 104 relative to England = 100) and that Northern Ireland devoted 18.5 per cent of public spending to health.

Source: HM Treasury

**1.20** Also in 2010-11, private practice patients treated within NHS hospitals in England generated income of £428 million (0.8 per cent of hospital revenues, compared with 0.4 per cent in Wales and an estimated 0.1 per cent in Scotland and Northern Ireland).<sup>7</sup> A different scheme for dental charges is used in Scotland and Northern Ireland to that in England (where income totalled £617 million in 2010-11) and Wales, and comparable data are not available.

7 Updated from R Harker, *NHS funding and expenditure*, House of Commons Library, April 2012. Hospital revenues exclude income from non-patient care activities.

## Part Two

### Delivery and performance of health services

**2.1** This part of the report covers aspects of the delivery and performance of health services across the four nations of the UK, specifically:

- the organisation of health services;
- the cost and volume of health service resources;
- efficiency and productivity in the use of health service resources; and
- the quality and effectiveness of the healthcare provided.

#### Organisation of health services

**2.2** Across the UK, primary care is predominantly provided by independent NHS contractors, such as GP and dental practices. There are also a variety of providers of specialist secondary services, such as acute and mental health hospitals and ambulance services. The organisation of health services in the four nations is shown in Appendix Two. Except in Northern Ireland, the majority of services are organised at a local (sub-national) level. These local health areas vary in terms of the size of population they cover (**Figure 9**).

#### Figure 9

##### Local health areas

	England <sup>1</sup>	Scotland	Wales	Northern Ireland <sup>2</sup>
<b>Total population in 2010, million</b> (% of UK population)	<b>52.2</b> (83.9)	<b>5.2</b> (8.4)	<b>3.0</b> (4.8)	<b>1.8</b> (2.9)
<b>Number of local health areas</b>	<b>151 primary care trusts</b>	<b>14 health boards</b>	<b>7 health boards</b>	<b>1 health and social care board</b>
Average population covered	350,000	370,000	430,000	1.8 million
Smallest – largest population covered	91,000 – 1.3 million	20,000 – 1.2 million	135,000 – 689,000	n/a

#### NOTES

<sup>1</sup> Under the Health and Social Care Act 2012, primary care trusts in England will be replaced by clinical commissioning groups from April 2013. There are expected to be 212 such groups.

<sup>2</sup> In Northern Ireland, health services are commissioned at a national level by a single organisation.

**2.3** While the structures put in place when the NHS was created in 1948 were similar across the UK, there are now some notable differences caused by:

- the nations' autonomy over some aspects of delivery before 1999, including the integration of health and social care in Northern Ireland in 1974; and
- more substantial policy and performance management divergence since devolution in 1999, in particular in the use of competition between healthcare providers and payment-by-activity reimbursement frameworks.

### Competition in health services

**2.4** The use of competition between healthcare providers, and choice for patients, varies considerably across the UK, reflecting differences in the predominant political ethos of each nation's governments. During the 1990s, separate organisations were given responsibility for planning and purchasing (commissioning) and providing health services across the UK, thereby creating an 'internal market'. This contractual relationship replaced the previous arrangements whereby health authorities both commissioned health services and managed the hospitals that provided the services.

**2.5** Since devolution, the governments in Scotland and Wales have reintegrated the commissioners and providers of health services so that the health boards plan and deliver services. The internal market was removed in 2004 in Scotland and in 2009 in Wales, but remains in Northern Ireland.

**2.6** In England the role of competition has increased in the last decade with, for instance, the private sector having a greater role in providing NHS-funded healthcare. In addition, some hospital trusts in England have been granted greater autonomy through foundation trust status. This gives them more managerial and financial freedom, and makes them directly accountable to the UK Parliament.

### Payment frameworks

**2.7** Since 2004, all four nations have used a voluntary incentive scheme known as the 'Quality and Outcomes Framework' to pay GP practices according to how well they care for their patients. The Framework currently comprises 146 process, activity and outcome measures.

**2.8** Around a quarter of GP practice income across the UK is provided through the Quality and Outcomes Framework. The remainder is based on the size and weighted needs of each practice's patient register. For example, a practice with a large elderly population will get more funding than a practice with a small, younger population, who are assumed to have lower health needs.



**2.9** Hospital and other secondary healthcare providers in Scotland, Wales and Northern Ireland are primarily funded through allocations, which are not directly linked to the cost of specific units of care. Since 2003, England has used an alternative funding framework, known as ‘Payment by Results’, whereby hospitals are reimbursed based on a national price for a given unit of activity. Payment by Results currently provides over half of the income of an average hospital in England. The remainder comes from locally negotiated block contracts with commissioners and other activities such as teaching, training and research.

### Cost and volume of health service resources

**2.10** As spending has risen, health service inputs, including the number of staff, have also increased over the last ten years, although the timing and scale of these increases have varied. Staff costs are estimated to account for around two-thirds of spending on health services. The health departments in the four nations can influence the economy with which resources are purchased in both primary and hospital care by, for example, setting national workforce contracts.

**2.11** This section of the report sets out data on:

- the income and number of GPs and dentists;
- the pay and number of hospital staff; and
- non-staff costs.

No comparable data are available on some key areas such as vacancy rates, which may indicate staff shortages, and the ‘market forces factor’, which measures external cost pressures that affect pay rates.

#### Income and number of GPs and dentists

**2.12** Most providers of primary care are independent contractors, with staff paid from the practice income. There is substantial variation between the nations in the pay levels of dentists and particularly of GPs. In 2009-10, GPs in England received the highest average taxable income of £109,400, 22 per cent higher than GPs in Scotland, who had the lowest reported income (**Figure 10** overleaf). Some of the variations in pay may be explained by the higher funding received by practices with, for instance: larger patient registers (Scotland has the fewest patients per GP); higher external cost pressures arising from local employment conditions; and contracts for providing additional services. The variations could also be due, in part, to the effect of part-time working, which may vary between the nations.

**Figure 10**

Average (mean) taxable income of GPs and dentists, 2009-10

	<b>GPs<sup>1,2</sup></b> <b>(£)</b>	<b>Dentists<sup>2,3</sup></b> <b>(£)</b>
England	109,400	85,300
Scotland	89,500	79,300
Wales	93,500	77,600
Northern Ireland	91,400	86,500

**NOTES**

- 1 Refers to contractor GPs on General Medical Services (GMS) and Personal Medical Services (PMS) contracts in England and Scotland and GMS contracts in Wales and Northern Ireland (where PMS contracts do not exist).
- 2 Figures relate to NHS and private, full and part-time work.
- 3 The data for dentists are for those who have carried out NHS work in 2009-10. Dentists who spend more than 75 per cent of dental time on NHS dentistry have average (mean) taxable incomes in England and Wales of £89,200, in Scotland of £85,600 and in Northern Ireland of £66,400. The contractual arrangements for dentists vary between the nations so income data are not directly comparable.

Source: *The Health and Social Care Information Centre*

**2.13** Across the UK the number of GPs per person increased between 2004 and 2009. The rate of increase varied between the nations, with a higher rise in England (10 per cent) than in Scotland and Wales (5 per cent) and Northern Ireland (3 per cent).<sup>8</sup> These figures are based on headcount and do not account for differences in, and changes to, levels of part-time working.

**2.14** Scotland had the highest number of GPs per person in both 2004 and 2009. This may be explained, in part, by its rurality, with more GPs required in areas of lower population density to ensure similar proximity to services. In 2009, the number of GPs per person in Scotland (measured by headcount) was 23 per cent higher than in Wales and Northern Ireland (80 compared with 65 per 100,000 people). The range between the English regions and the four nations is similar (**Figure 11**). In 2010, Scotland had more dentists than the other nations – 55 per 100,000 people – compared with 49 in Northern Ireland, 44 in Wales and 42 in England.<sup>9</sup>

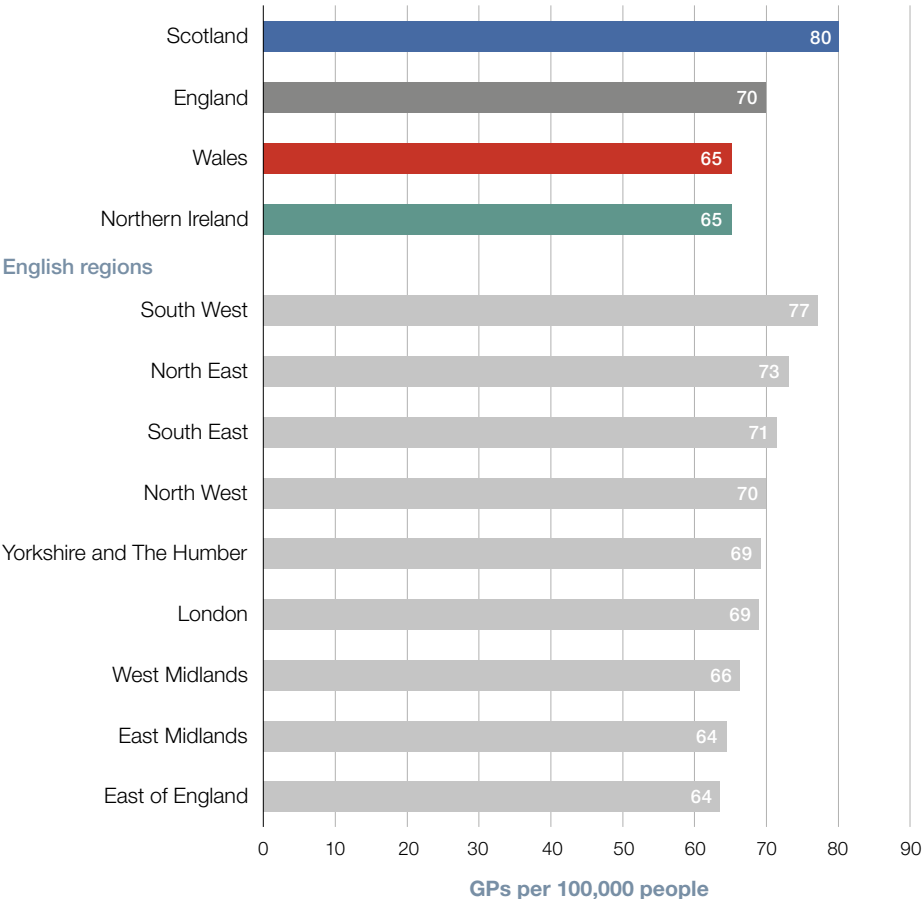
### Pay and number of hospital staff

**2.15** Most NHS hospital staff in the UK are employed through similar nationally negotiated contracts and, as a result, pay bands are similar in all four nations. No comparable data are published on the distribution of staff across these pay bands. In England, foundation trust hospitals are able to modify staff contracts and pay rates, although there is limited evidence of this autonomy being used to date.

<sup>8</sup> The Health and Social Care Information Centre.

<sup>9</sup> Office for National Statistics; Information Services Division Scotland; Northern Ireland Neighbourhood Information Service.

**Figure 11**  
Number of GPs per 100,000 people,<sup>1</sup> by nation and English region, 2009



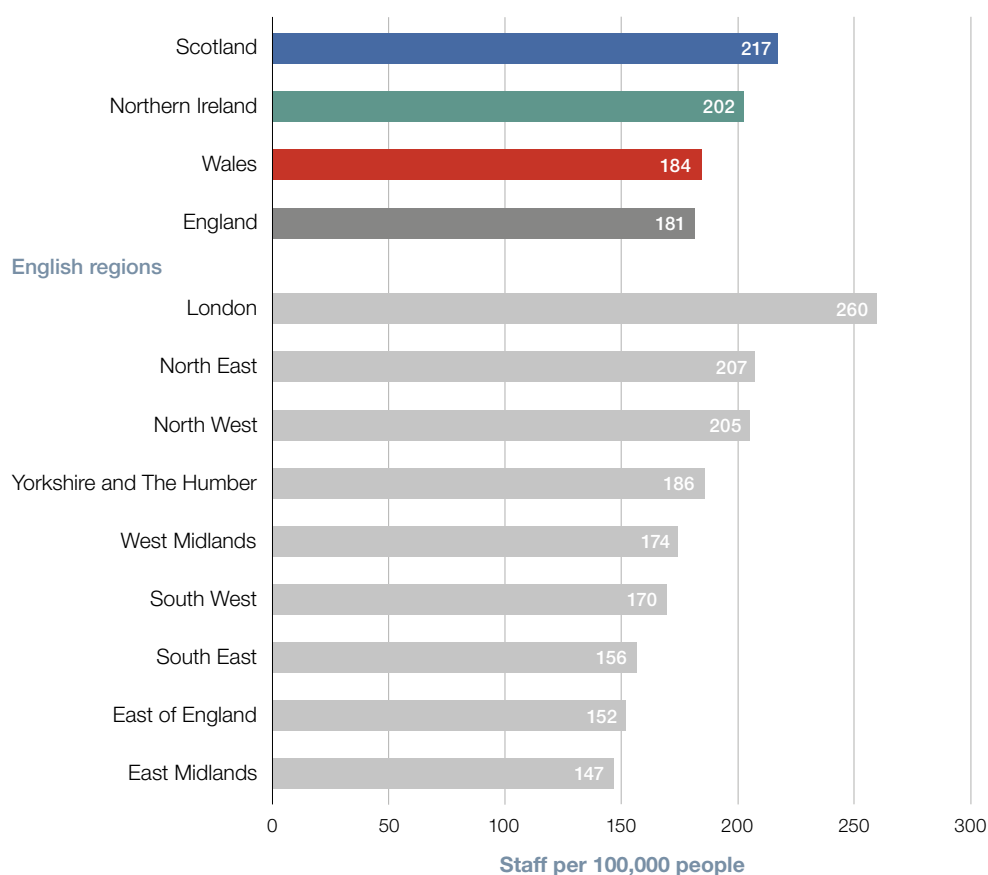
**NOTE**  
1 Staff numbers are headcount and do not account for the effect of part-time working which may vary across the nations and regions. However, the figures exclude retainees (often GPs working part-time after, for example, returning from maternity leave), locums, GPs in training, and those working only in out-of-hours services.

Source: *The Health and Social Care Information Centre; Office for National Statistics*

**2.16** The number of medical hospital staff per 100,000 people increased substantially in each nation in the decade to 2009, although the available data cannot be used to compare the nations over time. This is because the data are not strictly consistent over time due to changes in how staff are categorised. In 2009, the number of medical hospital staff was 20 per cent higher in Scotland than in England (217 compared with 181 staff per 100,000 people). There was a greater range between the English regions, with 260 staff per 100,000 people in London, 77 per cent higher than the 147 staff in the East Midlands. One of the factors likely to affect the number of staff is the concentration of teaching and specialist hospitals in particular areas (**Figure 12**).

**Figure 12**

Number of medical hospital staff per 100,000 people,<sup>1,2,3</sup> by nation and English region,<sup>4</sup> 2009



**NOTES**

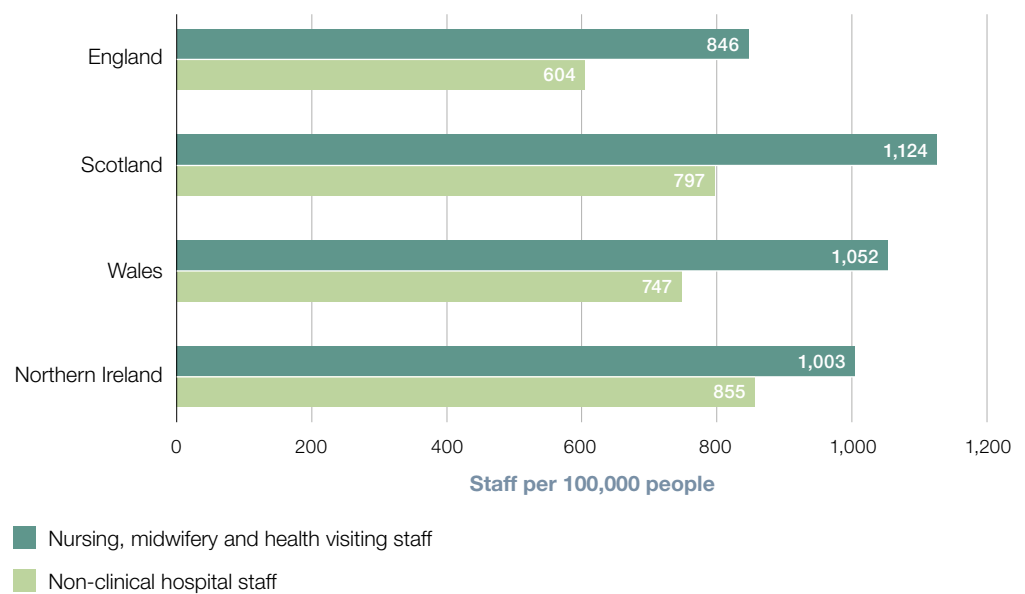
- 1 The NHS Hospital and Community Health Service staff numbers quoted are for directly employed full-time equivalent and include some hospital dental staff, accounting for between 2 per cent (England) and 6 per cent (Scotland) of total medical hospital staff.
- 2 Staff classification can vary between nations and therefore caution should be applied when making comparisons.
- 3 Figures exclude staff in independent sector providers of NHS care, staff in NHS hospitals who are employed by non-NHS organisations, and bank staff; levels of these staff will vary by nation and region.
- 4 Data for the English regions, which aggregate to an average of 186 staff per 100,000 people, are not fully comparable with the national figures.

**2.17** As a result of changes in the way that data are collected, figures for the number of nursing, midwifery and health visiting staff are not comparable between 1999 and 2009. Comparing the nations, Scotland had the highest number of nursing, midwifery and health visiting staff per 100,000 people in both 1999 and 2009, and England the lowest. In 2009, there were 33 per cent more of these staff in Scotland than in England (1,124 compared with 846 staff per 100,000 people) (**Figure 13**).

**2.18** Data for the number of non-clinical hospital workers, such as NHS managers and administrative staff, are also not comparable over time. Comparing the nations, the number of non-clinical staff in Northern Ireland in 2009 was 42 per cent higher than in England (855 compared with 604 staff per 100,000 people) (Figure 13).

**Figure 13**

Number of nursing, midwifery and health visiting staff and non-clinical hospital staff per 100,000 people,<sup>1,2,3</sup> 2009



**NOTES**

- 1 The NHS Hospital and Community Health Service staff numbers quoted are for directly employed full-time equivalent. Staff classification can vary between nations and therefore caution should be applied when making comparisons.
- 2 Non-clinical staff includes senior management, administrative, estates, domestic and catering, general payments and staff with other miscellaneous occupations.
- 3 Figures exclude staff in independent sector providers of NHS care, staff in NHS hospitals who are employed by non-NHS organisations, and bank staff; levels of these staff will vary by nation.

Source: Office for National Statistics

## Non-staff costs

**2.19** Non-staff costs are estimated to account for around one third of NHS spending in the UK. Comparable data on such costs are limited, but information is available on capital spending – on land, buildings and equipment – which represents around 5 per cent of spending. Levels of capital spending vary considerably from one year to the next. However, between 2003-04 and 2010-11, Northern Ireland had the highest aggregate levels of capital spending at £98 per person, compared with £84 in Scotland, £80 in Wales, and £70 in England.<sup>10</sup>

**2.20** Limited comparable information is available on the cost of purchasing drugs and healthcare consumables, such as syringes and other medical supplies. Data on the cost of prescription items in 2009 indicate that the cost of purchasing drugs varied considerably between the nations. The cost per item was £3.70 higher in Northern Ireland than in Wales, where £8.61 per item was the cheapest across the nations (**Figure 14**). The variations in cost may be caused, in part, by differences in the drugs prescribed. However, when we examined the costs of a group of commonly prescribed drugs, the cost per item still varied between the nations, with the cost lowest in Wales.<sup>11</sup>

**2.21** The number of prescription items per person in Wales in 2009 was the highest at 22.5 items per person, almost six prescription items more than in Scotland. Some of the variation may be due to differences in prescribing practices with the average number of doses per prescription item potentially differing between the nations (Figure 14).

**Figure 14**  
Prescription items: number per person and cost per item, 2009

	Average number of prescription items per person <sup>1</sup>	Average cost per prescription item <sup>2</sup> (£)
England	17.1	9.64
Scotland	16.6	11.28
Wales	22.5	8.61
Northern Ireland	18.9	12.31

### NOTES

- 1 Figures relate to NHS prescription items dispensed by community pharmacies, appliance contractors (appliance suppliers in Scotland and in Northern Ireland) and dispensing doctors, and prescriptions submitted by prescribing doctors for items personally administered, known as stock orders in Scotland and Northern Ireland.
- 2 Refers to net ingredient cost: the cost of medicines before any discounts and does not include any dispensing costs or fees. This is known as gross ingredient cost in Scotland and ingredient cost in Northern Ireland.

Source: Office for National Statistics

<sup>10</sup> HM Treasury.

<sup>11</sup> Data not available for Northern Ireland.

## Efficiency and productivity in the use of health service resources

**2.22** There are currently no routinely published, comparable measures of efficiency or productivity for the four nations for either primary or hospital care. The Office for National Statistics does publish a measure of healthcare productivity for the UK. This is defined as the ratio of the volume of resources going into the health services (inputs) and the quantity of healthcare provided (outputs) adjusted for some aspects of quality. The measure covered only England when it was first published but now includes data for the whole of the UK, although the data for Scotland, Wales and Northern Ireland are less complete than for England.<sup>12</sup> Using this measure suggests that productivity has remained almost constant with an average annual decrease of 0.1 per cent between 2000 and 2009.<sup>13</sup>

**2.23** The Office for National Statistics productivity measure is not disaggregated by nation or region so comparisons of performance cannot be made. Therefore, without a comparable aggregate measure, we had to assess efficiency within primary and hospital care in the four nations by presenting data on specific aspects of performance. It should be stressed that such measures do not take account of the complexity or quality of the healthcare provided.

**2.24** This section of the report sets out data on:

- whether staff are utilised efficiently; and
- using hospital beds more efficiently.

The measures of efficiency presented do not cover certain aspects of healthcare, such as community care, since no comparable activity data are available in these areas. England and Northern Ireland produce a measure of hospital efficiency (known as a 'reference cost index'), based on the costs of producing certain units of care. However, these are not comparable and do not cover all of the health services provided.

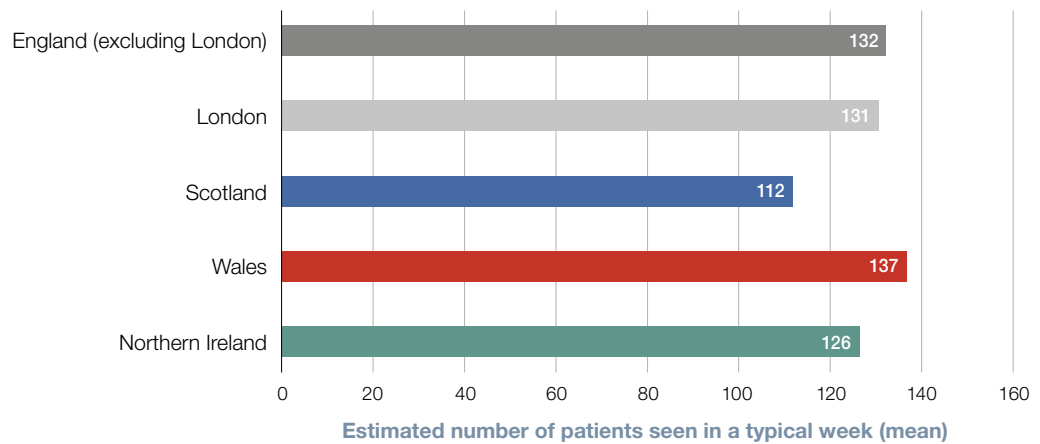
### Utilising staff efficiently

**2.25** A measure of efficiency within primary care is the number of patients seen by GPs. In the absence of routinely collected comparable data, we report findings from a 2009 survey. GPs in Wales typically spent an estimated 70 per cent of their time on face-to-face contacts with patients, compared with 68 per cent in England, 67 per cent in Northern Ireland and 65 per cent in Scotland.<sup>14</sup> Although GPs in Wales also reported that they worked slightly fewer hours than their counterparts in the other nations, overall they estimated seeing more patients per week on average (137), with GPs in Scotland seeing the fewest (112) (**Figure 15** overleaf). These differences in activity may, at least partly, reflect the differences in the number of GPs per person (as shown in Figure 11). The survey did not take account of the complexity or quality of the consultations.

<sup>12</sup> For example, the quality adjustments are based on data only from England.

<sup>13</sup> Office for National Statistics, *Public service output, inputs and productivity: healthcare*, March 2011.

<sup>14</sup> Commonwealth Fund survey based on 1,062 responses from GPs in the UK, with 576 in England (including 186 in London), 197 in Scotland, 158 in Wales and 131 in Northern Ireland.

**Figure 15**Estimated number of patients seen per GP in a typical week,<sup>1,2</sup> 2009**NOTES**

1 Staff numbers are headcount and do not account for the effect of part-time working which may vary across the nations.

2 Data for London were collected separately to the rest of England and, therefore, London appears separately.

Source: Aston Business School

**2.26** We also reviewed efficiency within hospitals using a measure of activity per medical staff member. Activity levels were calculated by combining the number of outpatient, inpatient and day case admissions based on the estimated average costs for each type of activity. This measure, which does not take account of the complexity or quality of care or differences in the grade-mix of staff, suggests that levels of activity per staff in 2008-09 were highest in England and lowest in Scotland (**Figure 16**).

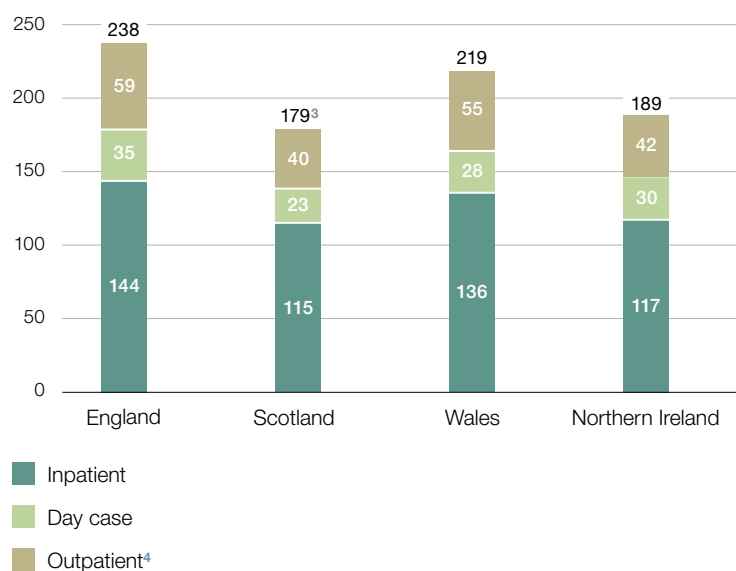
### Using hospital beds more efficiently

**2.27** As well as securing greater efficiency by increasing activity levels per staff member, the NHS can make more efficient use of hospital beds. For example, hospitals can reduce lengths of stay and conduct more activity as day cases, provided there is no clinical reason to keep a patient in hospital.



**Figure 16**Hospital activity per medical staff,<sup>1,2</sup> 2008-09

Cost-weighted activity per hospital medical staff member (£000s)

**NOTES**

- 1 Cost-weighted activity index, covering Hospital and Community Health Services including hospital inpatient, day case and outpatient episodes. Weighting based on estimated average cost for inpatient, day case and outpatient activity published in 2008-09 English reference cost data.
- 2 Detailed notes on the comparability of medical staff numbers are included in Figure 12. Figures include activity from, but exclude staff in, independent and private sector providers of NHS care. Levels of independent and private sector involvement vary by nation (estimated at around 1 to 2 per cent of hospital services in England in 2008-09), with higher involvement likely to inflate performance against this measure.
- 3 Total activity differs from the sum of the three constituent activities due to rounding.
- 4 Outpatient activity excludes non-consultant led services, the levels of which will vary between the nations.

Source: Office for National Statistics; Department of Health (England); The Health and Social Care Information Centre; Information Services Division Scotland; Statistics for Wales; Department of Health, Social Services and Public Safety (Northern Ireland)

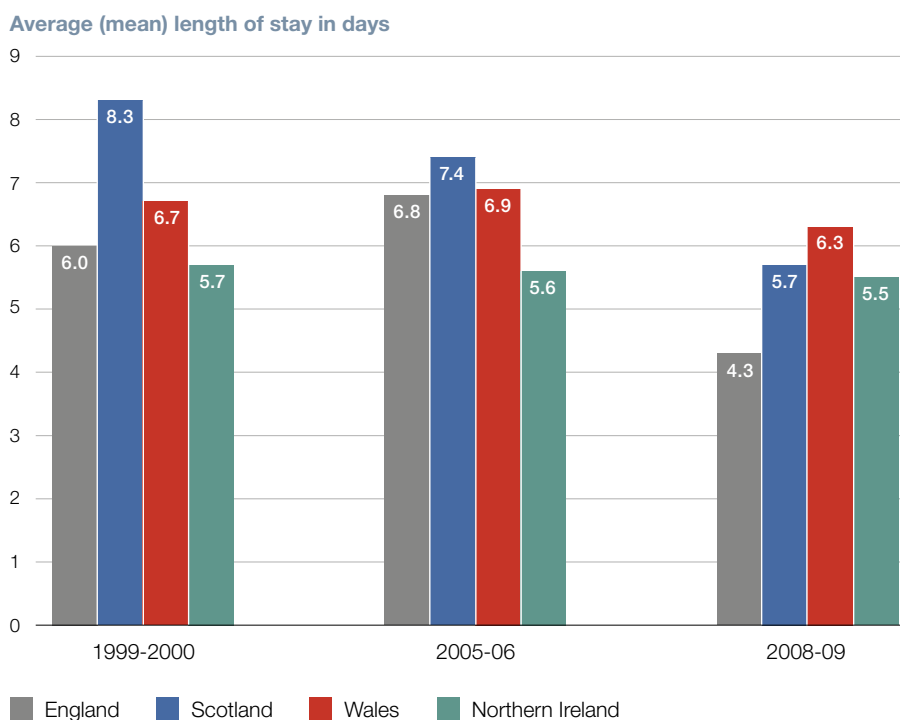
### Reducing hospital lengths of stay

**2.28** Reducing the length of time patients stay in hospital can reduce the cost per treatment as well as improving the quality of experience for patients. Lengths of stay are, however, influenced by the availability of community and social care (for which no comparable data are currently available), as well as by hospital performance. Patients are more likely to have their discharge delayed in areas where appropriate support services are not available.

**2.29** Average lengths of stay have varied across the UK in the last decade. As a result of changes in the way that data are collected, figures are not comparable between years. Comparing the nations, Northern Ireland had the lowest average length of stay for acute hospital care in the first two years we examined. England had the lowest average length of stay in 2008-09, at 4.3 days compared with 6.3 days in Wales, which had the highest (Figure 17).

**Figure 17**

Average hospital lengths of stay,<sup>1</sup> 1999-2000, 2005-06<sup>2</sup> and 2008-09



#### NOTES

- The definitions used for these data changed between years and so data are not directly comparable over time. For instance, 1999-2000 data are for non-psychiatric specialties whereas 2008-09 data are for acute specialties excluding mental illness, learning disability, maternity and geriatric care.
- For 2005-06, Wales and Scotland data relate to acute specialties only, and Northern Ireland data cover the calendar year 2006 and exclude mental health and learning disability programmes of care. England data are for all specialties.

Source: Office for National Statistics

**2.30** To investigate the scope for reducing lengths of stay, we used patient-level data to analyse two specific areas of hospital care – births and hip replacements. Our analysis indicated that, for these two areas of care, Wales generally had lower lengths of stay (shortest for hip replacements, second shortest for births). As well as differences between the nations, there was also substantial variation at hospital or health area level within each nation (**Figure 18** overleaf).

**2.31** The variations in length of stay could not be wholly explained by differences in patient characteristics (such as age and socio-economic status) or case-mix (such as the proportion of complicated procedures). For both births and hip replacements, even after adjusting for these factors, all four nations had hospitals (or health areas) with significantly higher lengths of stay compared with their national average. While some of the variation in length of stay may be due to other factors that were not accounted for, such as the accessibility of post-hospital care, the results do suggest varying performance and, therefore, scope for improved efficiency.

**2.32** We also investigated what factors might be associated with lower lengths of stay. The analysis suggested that hospitals (or health areas) providing higher quality care had, on average, shorter hospital stays. For instance, hospitals with lower lengths of stay tended to have lower death rates and higher patient satisfaction scores.<sup>15</sup>

### **Conducting more activity as day cases**

**2.33** Day cases are planned treatments or operations where the patient occupies a hospital bed for part of the day but returns home on the day of admission. Our preferred approach would have been to compare the nations on the basis of day cases as a proportion of elective (i.e. non-emergency) admissions, but the data currently available are not comparable due to differences in definitions. Examining each individual nation's performance over time showed that the proportion of elective admissions conducted as day cases increased in all nations between 2005-06 and 2009-10.

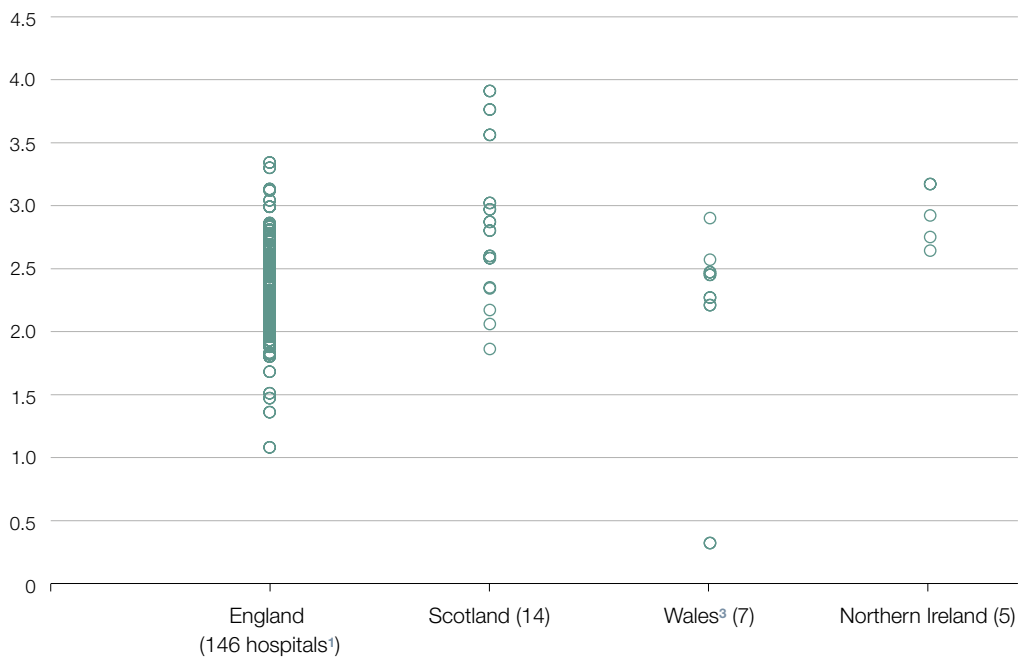
**2.34** Comparable data are available on day cases as a proportion of all acute hospital admissions. In 2008-09, Northern Ireland treated the highest proportion of these admissions as day cases (41.8 per cent) (**Figure 19** on page 35). It should be noted, however, that some healthcare provided as day cases could be delivered more efficiently in outpatient, primary or community care settings; however, no comparable data are available on the transfer of activity from one care setting to another.

<sup>15</sup> The association with patient satisfaction was tested for England only and measured using patient reported outcome measures (PROMs) available at: [www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=1583](http://www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=1583)

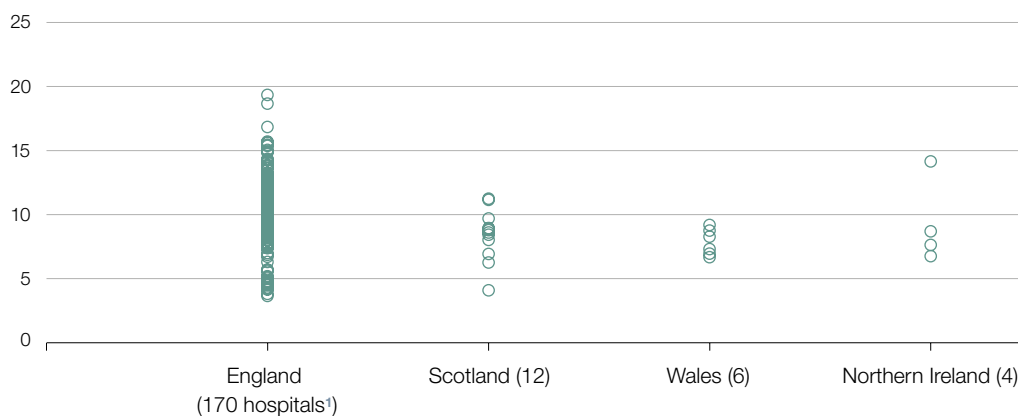
**Figure 18**

Average length of stay for births and hip replacements, by hospital or health area<sup>1</sup> within each nation,<sup>2</sup> 2009-10

**Births – mean length of stay, days**



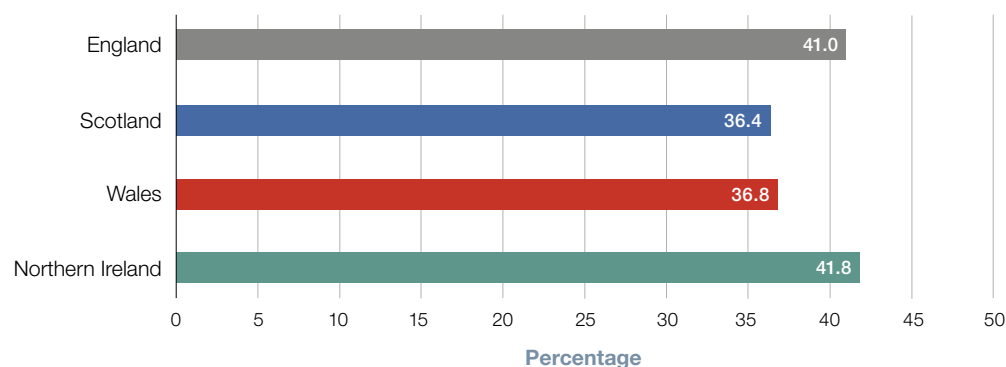
**Hip replacements – mean length of stay, days**



**NOTES**

- 1 Each dot represents a hospital trust, health board or health and social care trust; where more than one hospital have the same performance they may appear as a single dot. Trusts and boards with fewer than 100 cases have been excluded.
- 2 Figures are not adjusted for differences in patient characteristics (e.g. age and proximity to health services after discharge) or case-mix (e.g. complexity of procedure including, for births, mode of delivery).
- 3 The outlier for the Welsh births data is due to the health board not having a district general hospital (so more patients are transferred out, reducing their length of stay) and, to some extent, being small (so more random variation).

Source: Analysis of data provided by The Health and Social Care Information Centre; Information Services Division Scotland; Statistics for Wales; Department of Health, Social Services and Public Safety (Northern Ireland)

**Figure 19**Day cases as a proportion of all acute hospital admissions,<sup>1,2</sup> 2008-09**NOTES**

- 1 Hospital admissions exclude outpatient attendances.
- 2 Independent and private sector provision of NHS care is not included; the levels of such provision vary by nation (estimated at around 1 to 2 per cent of hospital services in England in 2008-09).

Source: Office for National Statistics

**Reducing bed numbers**

**2.35** By conducting more activity as day cases or reducing lengths of stay while maintaining bed occupancy levels, the NHS can reduce the number of beds required to provide the same level of health services and thereby improve efficiency. Across all four nations, bed occupancy rates were similar and did not vary greatly between 2000-01 and 2009-10. Rates were highest in England, at 85 per cent in 2009-10, and similar in the other nations (82 per cent in Northern Ireland, 81 per cent in Wales, and 80 per cent in Scotland).<sup>16</sup>

**2.36** Due to changes in the way that data are collected, figures for the number of available hospital beds are not comparable between years. Comparing the nations, Scotland has consistently had the highest number of beds per 100,000 people (500 in 2008-09) and England the fewest (310) (**Figure 20** overleaf). This may be partly due to the relatively high number of beds for elderly patients in Scotland, compared with elsewhere in the UK. There was less variation between the English regions – a difference of 154 beds per 100,000 people between the North East (409) and the South East (255).<sup>17</sup>

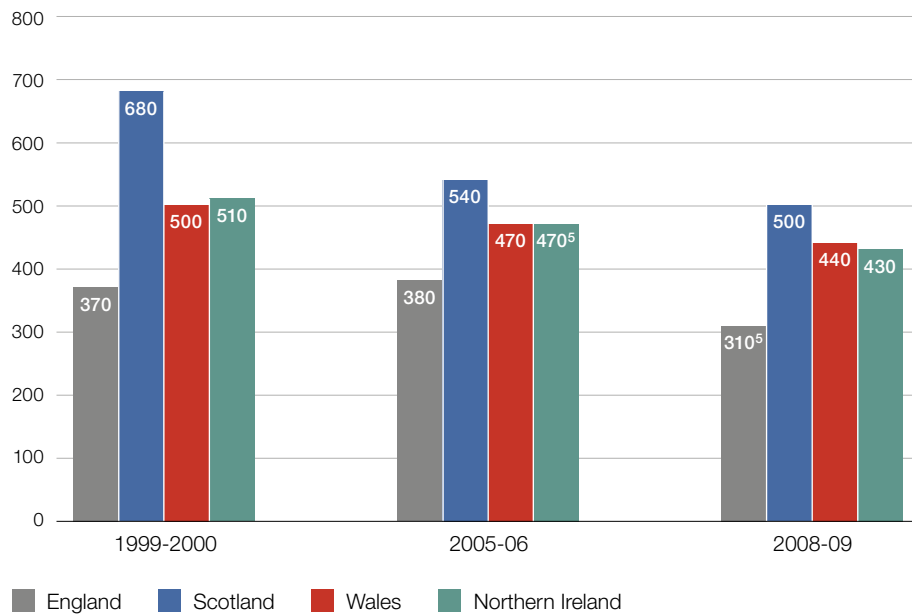
<sup>16</sup> Data are for all specialties. Source: Department of Health (England); Information Services Division Scotland; Statistics for Wales; Department of Health, Social Services and Public Safety (Northern Ireland).

<sup>17</sup> Department of Health (England).

**Figure 20**

Available hospital beds<sup>1</sup> per 100,000 people,<sup>2,3,4</sup> 1999-2000, 2005-06 and 2008-09

**Available hospital beds per 100,000 people**



**NOTES**

- 1 Average daily available beds in which wards are open overnight. Excludes day beds.
- 2 Figures rounded to the nearest 10 beds per 100,000 people.
- 3 The definitions used for these data changed between years and so data are not directly comparable over time.
- 4 Independent and private sector provision of NHS care is not included; the levels of such provision vary by nation (estimated at around 1 to 2 per cent of hospital services in England in 2008-09).
- 5 Excludes cots for healthy new-born babies, except for Northern Ireland in 2005-06 and England in 2008-09.

Source: Office for National Statistics

## Local area efficiency

**2.37** To inform our understanding of differences in the overall efficiency of local health areas,<sup>18</sup> we commissioned some exploratory analysis to investigate whether areas spent more or less than expected. For instance, areas performing better against the indicators of efficiency described above may be more likely to have lower than expected costs.

**2.38** The analysis was developed from an existing methodology<sup>19</sup> and compared actual spending with the expected costs of local services based on indicators of need (see paragraph 1.13). It also included an adjustment for variations in some aspects of quality, including mortality rates, Quality and Outcomes Framework indicators, and hospital lengths of stay. Our analysis was, however, limited to some extent by the lack of consistent data at a local level across the four nations.

**2.39** Although no clear causal relationships could be derived from this initial work, we did identify associations that would merit further exploration. In particular, the results suggested an association between lower-than-expected costs and:

- larger population sizes within the local health area;
- fewer GPs per person;
- a higher proportion of junior (sub-consultant level) doctors in relation to total doctor numbers; and
- higher levels of staff education and training in primary care.

## Quality and effectiveness of healthcare

**2.40** Comparable data on the quality and effectiveness of healthcare are patchy. This section of the report therefore sets out data on particular aspects of quality, specifically:

- for primary care, reported performance against the Quality and Outcomes Framework and the level of emergency admissions; and
- for hospital care, waiting times and healthcare associated infection rates.

No comparable data are currently available for other key measures of quality and effectiveness, such as GP waiting times, hospital readmission rates, patient satisfaction, and health inequalities.

<sup>18</sup> The analysis is based on figures for the existing local health areas during the period analysed, 2007-08 to 2009-10 (152 in England, 14 in Scotland, 7 in Wales and 4 in Northern Ireland).

<sup>19</sup> S Martin and P C Smith, *A comparison of English primary care trusts*, The Health Foundation, 2010. We extended this methodology to include data from 2007-08 to 2009-10, and to cover all four nations.

## Quality of primary care

**2.41** Drawing on data from the Quality and Outcomes Framework (paragraph 2.7), we examined the quality of primary care across four disease areas – coronary heart disease, stroke, hypertension and diabetes.<sup>20</sup> Our analysis showed the following:

- GP practices in Scotland and Northern Ireland generally scored better across the 28 indicators we analysed, outperforming England across all four disease areas. GPs in Wales did not, on average, perform consistently differently from their counterparts in England.
- The quality of primary care, across these disease areas, generally improved in all four nations between 2009-10 and 2010-11. The variation between the nations decreased, with England and Wales getting closer to the performance of Scotland and Northern Ireland.
- The extent of exception reporting – whereby a GP practice can exclude a patient from their scores – varies across the nations and is highest in Scotland. Exception reporting is designed to prevent GP practices being penalised where, for example, patients do not attend for a review or a medication cannot be prescribed due to a contraindication.<sup>21</sup> Taking account of exception reporting, GP practices in Northern Ireland still performed better than in England. However, the performance of GP practices in Scotland was no longer consistently higher.

**2.42** The rate of emergency admissions, where patients require unplanned hospital treatment, is also used as an indicator of the quality and effectiveness of primary care. Not all emergency admissions are avoidable. However, people with higher quality (and better access to) community, primary and social care are less likely to have unplanned hospital admissions as they can receive appropriate and timely care in the community.

**2.43** The number of emergency admissions per 100,000 people has increased in all four nations. Between 2000-01 and 2009-10, the rate of increase was greatest in England – 28 per cent, compared with 9 per cent in Scotland and 3 per cent in Wales. No data were available for Northern Ireland for 2000-01 but emergency admissions increased by 2 per cent between 2005-06 and 2009-10.<sup>22</sup>

**2.44** In 2009-10 the rate of emergency admissions was highest in Wales, at 11,471 per 100,000 people (**Figure 21**). This may be explained, in part, by differences in population demographics. Wales has a higher proportion of older people, who are more likely to be admitted as an emergency. The variation in the rate of emergency admissions was greater between the English regions (58 per cent) than between the nations (39 per cent).

<sup>20</sup> More detailed findings are available at: [www.nao.org.uk/uk-healthcare-2012](http://www.nao.org.uk/uk-healthcare-2012)

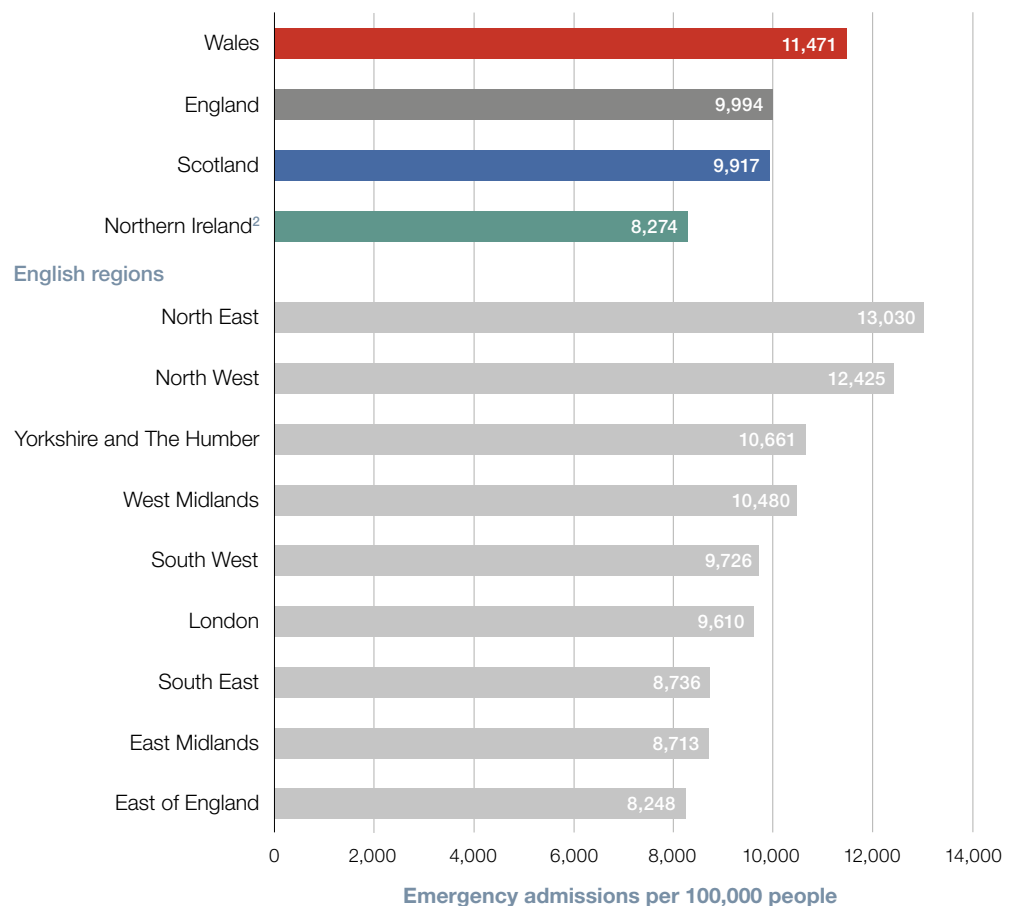
<sup>21</sup> Contraindication defined as a patient condition or factor that serves as a reason to withhold a medication.

<sup>22</sup> The Health and Social Care Information Centre; Information Services Division Scotland; NHS Wales Informatics Service; Department of Health, Social Services and Public Safety (Northern Ireland).



**Figure 21**

Emergency admissions per 100,000 people,<sup>1</sup> by nation and English region, 2009-10

**NOTES**

- 1 The data are taken from different publications; neither the consistency of the collection processes nor the comparability of the figures between nations have been checked.
- 2 Northern Ireland data only include emergency admittances from acute care (and not from GP, hospital transfer, or outpatient clinic) and so is not fully comparable with the other three nations.

Source: *The Health and Social Care Information Centre; Information Services Division Scotland; NHS Wales Informatics Service; Department of Health, Social Services and Public Safety (Northern Ireland)*

**2.45** We carried out more detailed analysis of two specific areas of primary and community care: breast cancer screening and immunisation and vaccination programmes. For breast cancer screening, no one nation performed consistently better across the range of measures we analysed. England had, in general, poorer performance. This was due particularly to lower performance in London where a more transient population is likely to hinder the take-up of screening programmes.

**2.46** In 2010-11, the take-up of flu vaccinations and children's immunisations was highest in Northern Ireland and Scotland. Performance was similar in all four nations for the third area we examined – HPV vaccinations. Across the UK, we found that areas with higher numbers of GPs per person tended to have better uptake of flu vaccination among people older than 65. This suggests a possible benefit of having more primary care resources.

## Quality of hospital care

### Waiting times

**2.47** Analysis across 11 common hospital procedures by the UK Comparative Waiting Times Group (established by the statistics authorities in the four nations) found that the length of time patients wait, from the initial decision to admit to admission for the procedure, has reduced in all four nations since 2005-06. This is against a background of increasing numbers of procedures being carried out. For the six most common of these procedures, performance against the two measures used (the time within which 50 per cent, and 90 per cent, of patients were admitted) was better in Scotland and England than in Wales and Northern Ireland in 2009-10 (**Figure 22**).

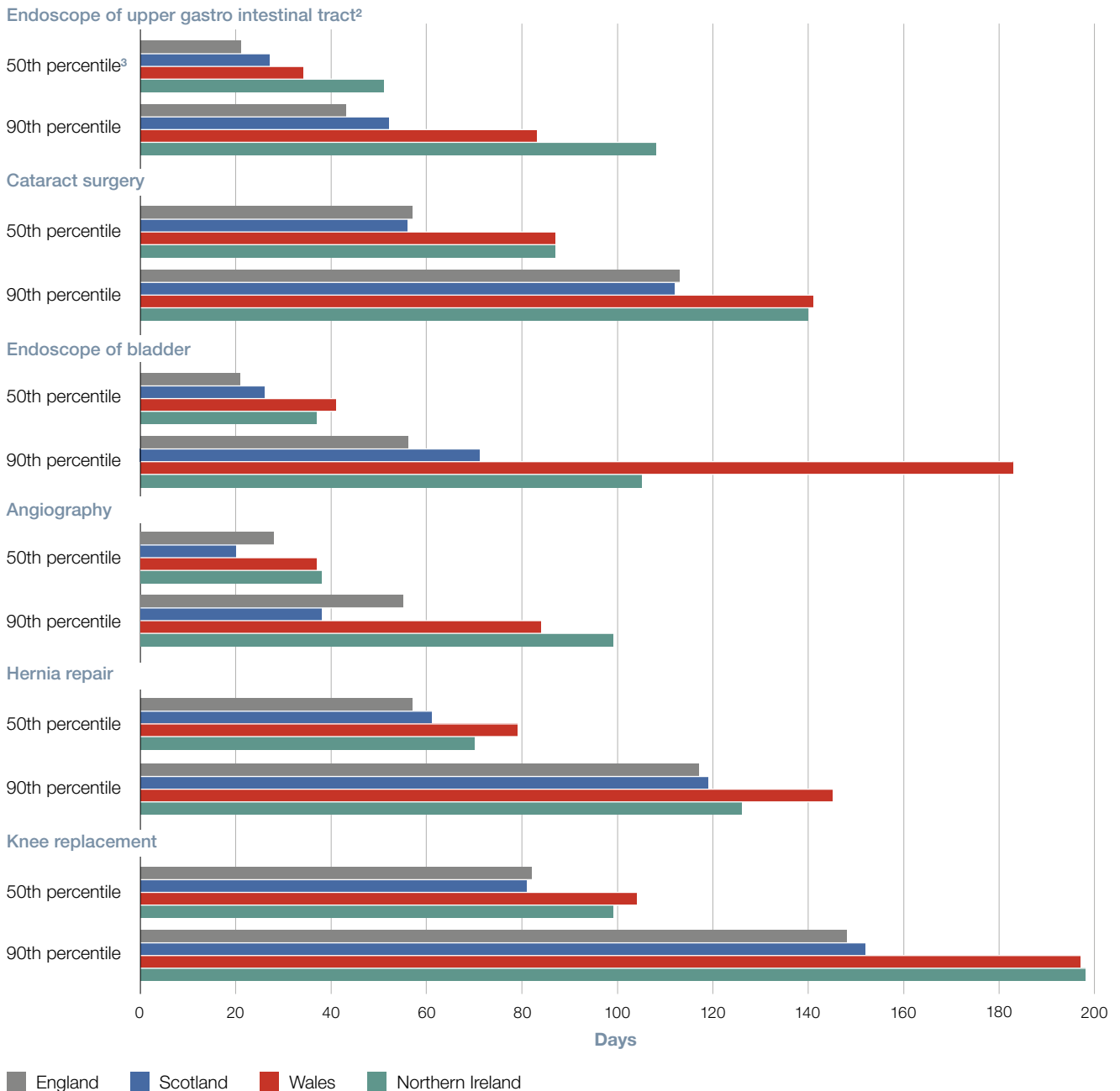
**2.48** All four nations aim to reduce the proportion of patients waiting over a set maximum time in accident and emergency departments and for elective (i.e. non-emergency) procedures. The accident and emergency targets/performance standards are broadly consistent, with all nations aiming for patients to be seen, admitted, transferred or discharged within four hours. England was the only nation to achieve its accident and emergency performance standard in 2010-11 (**Figure 23** on page 42).

**2.49** The waiting time targets/performance standards for elective procedures vary in terms of the time limit for referral to treatment and the required level of achievement. This makes it difficult to compare the nations' performance. England and Scotland were the only nations to achieve their elective performance standards in full in 2011 (**Figure 23**).

### Rates of healthcare associated infections

**2.50** The proportion of patients in hospital, including those in intensive care, with a healthcare associated infection decreased in England, Scotland and Wales between 2005-06 and 2011 (data are yet to be published for Northern Ireland). The surveys suggested that there were statistically significant reductions, of around a third, in both Scotland and Wales. The lowest rates of infection were in Wales (4.3 per cent of patients with a healthcare associated infection) (**Figure 24** on page 43).

**2.51** There have been reductions in two key healthcare associated infections in recent years. MRSA infection rates decreased significantly in all four nations between 2007-08 and 2010-11, ranging from 67 per cent in England to 38 per cent in Wales. There was also a decrease in all nations in the number of deaths with the underlying cause recorded as *Clostridium difficile* in the same period; however, the reduction was not statistically significant in Wales (**Figure 24**).

**Figure 22**Time waited for selected hospital procedures,<sup>1</sup> 2009-10**NOTES**

1 Data relate solely to NHS activity in NHS hospitals. The levels of independent and private provision of NHS care vary by nation (estimated at around 1 to 2 per cent of hospital services in England in 2009-10). Data are based on country of treatment rather than country of residence, and include only patients who have been treated electively and were classified as either waiting list or booked.

2 The procedures are listed in order of number provided within the year with the highest first.

3 The 50th percentile relates to the time in days within which 50 per cent of patients were admitted. The 90th percentile relates to the time within which 90 per cent of patients were admitted.

Source: Office for National Statistics

**Figure 23**

Performance against waiting time targets/performance standards, 2011

Nation	Target/performance standard	Performance <sup>1</sup> (%)	Target/ performance standard achieved?
<b>Accident and emergency (from arrival to admission, transfer or discharge)</b>			
England	95% of patients spend less than four hours	97.4	Yes
Scotland	98% of patients spend less than four hours <sup>2</sup>	96.4 <sup>2</sup>	No
Wales	95% of patients spend less than four hours	88.1	No
Northern Ireland	95% of patients spend less than four hours	82.0	No
<b>Elective procedures (from referral)</b>			
England	90% of patients receive inpatient treatment within 18 weeks	90.5	Yes
England	95% of patients receive first outpatient appointment or diagnostic service within 18 weeks	97.3	Yes
Scotland	90% of patients treated within 18 weeks	92.0 <sup>3</sup>	Yes
Wales	95% (100%) of patients waiting less than 26 (36) weeks for treatment <sup>4</sup>	91.4 (98.0) <sup>4</sup>	No
Northern Ireland	50% (100%) of patients waiting less than 9 (21) weeks to receive first outpatient appointment <sup>4</sup>	52.2 (80.1) <sup>4</sup>	Partly
Northern Ireland	50% (100%) of patients waiting less than 13 (36) weeks to receive inpatient treatment <sup>4</sup>	57.2 (91.1) <sup>4</sup>	Partly

**NOTES**

- 1 Accident and emergency data are for April 2010 to March 2011. Time periods for elective achievement data vary (January to December 2011 for England; December 2011 for Scotland, Wales and Northern Ireland).
- 2 The accident and emergency waiting times in Scotland are measured up to the decision to admit a patient, whereas the period between decision to admit and admission is included for the other three nations.
- 3 Scotland elective data are for December 2011, in line with expected date for meeting the standard.
- 4 In Wales and Northern Ireland, the elective waiting times targets (and reported performance) are for all patients awaiting treatment during that time period, whereas for the England and Scotland they are for patients who have received treatment during that time period. Data for Wales and Northern Ireland are for December 2011.

Source: Department of Health (England); Information Services Division Scotland; Scottish Government; Statistics for Wales; Department of Health, Social Services and Public Safety (Northern Ireland)

**Figure 24**

## Healthcare associated infection rates

	England (%)	Scotland (%)	Wales (%)	Northern Ireland (%)
<b>Prevalence in acute hospitals (all infections)</b>				
Percentage of patients with a healthcare associated infection, 2011 (95% confidence intervals)	6.4 (4.7 – 8.7)	4.9 (4.5 – 5.4)	4.3 (3.8 – 4.8)	- <sup>1</sup>
Reduction since 2005-06	22 <sup>2</sup>	33 <sup>3</sup>	33	- <sup>1</sup>
<b>Prevalence in intensive care units (all infections)</b>				
Percentage of intensive care patients with a healthcare associated infection, 2011	23.4	25.3	12.8	- <sup>1</sup>
Reduction since 2005-06	4	7	54	- <sup>1</sup>
<b>MRSA infection rates<sup>4</sup></b>				
Reduction in MRSA rates per bed day, from 2007-08 to 2010-11	67	62	38	43 <sup>5</sup>
<b>Deaths with underlying cause recorded as <i>Clostridium difficile</i></b>				
Reduction in <i>Clostridium difficile</i> deaths, from 2008 to 2010	59	74	9 <sup>2</sup>	53

**NOTES**

- 1 Data have yet to be published for Northern Ireland.
- 2 Unlike Scotland and Wales, the reduction for England was not statistically significant at the 95 per cent confidence level.
- 3 The reduction for Scotland includes a revision to account for differences in patient exclusion criteria and infection definitions between the two surveys; the unadjusted decrease was 48 per cent. No adjustments are made for the other reductions presented.
- 4 Different definitions are used for MRSA rates across the four nations and, as a result, we only report changes over time.
- 5 MRSA annual rates in Northern Ireland are calculated as an unweighted average across the four quarters within the year.

Source: Health Protection Agency; Hospital Infection Society; Health Protection Scotland; General Register Office for Scotland; Public Health Wales; Welsh Government; HSC Public Health Agency; Northern Ireland Statistics and Research Agency; Office for National Statistics

# Appendix One

## Methodology

The main elements of our fieldwork, conducted between September 2011 and May 2012, are set out below. A more detailed methodology is published online at [www.nao.org.uk/uk-healthcare-2012](http://www.nao.org.uk/uk-healthcare-2012).

---

### Method

Review of literature on UK health comparisons. Key sources of documents included the Office for National Statistics, the Nuffield Trust, the Health Foundation and the King's Fund.

Secondary data collection. We collated and analysed key data on costs, inputs, activity, quality and outcomes across the four nations and, where possible, the English regions. When available, we collected data for 2000, 2005 and 2010 or the nearest years.

In-depth analysis of specialties – primary and community care. We examined delivery structures and performance for two specialties: breast cancer screening and vaccination and immunisation programmes. We collected organisational information from the departments of health and conducted desk-based research on performance.

In-depth analysis of specialties – acute care. We analysed patient-level data for two hospital specialties (hip replacements and obstetrics) to create a hospital-level measure of efficiency based on length of stay and adjusted for patient case-mix. We then looked to see if there were any associations between performance, in terms of efficiency, and organisational factors.

Analysis of practice-level GP data. We used a sample of indicators, based on data from the Quality and Outcomes Framework, categorised into: simple, complex, intermediate outcome, and treatment.

Cost efficiency analysis at local area level. We commissioned exploratory analysis to compare the estimated need at a local level to actual spending, adjusted for some aspects of quality.

### Purpose

To understand:

- the differences in the UK's health structures;
- what comparisons are possible; and
- known issues on data comparability.

To identify key differences and trends across the UK health services. We included data for the English regions to provide additional comparisons.

To gain greater understanding of the causes of variation in performance, including the effect of different performance management regimes and organisational structures.

To gain further insight into the extent, and drivers, of differences in efficiency.

To set out the variation, across the UK nations and English regions, in some aspects of primary care quality.

To understand the extent of variation in need at local area level and factors associated with higher-than-expected spending.

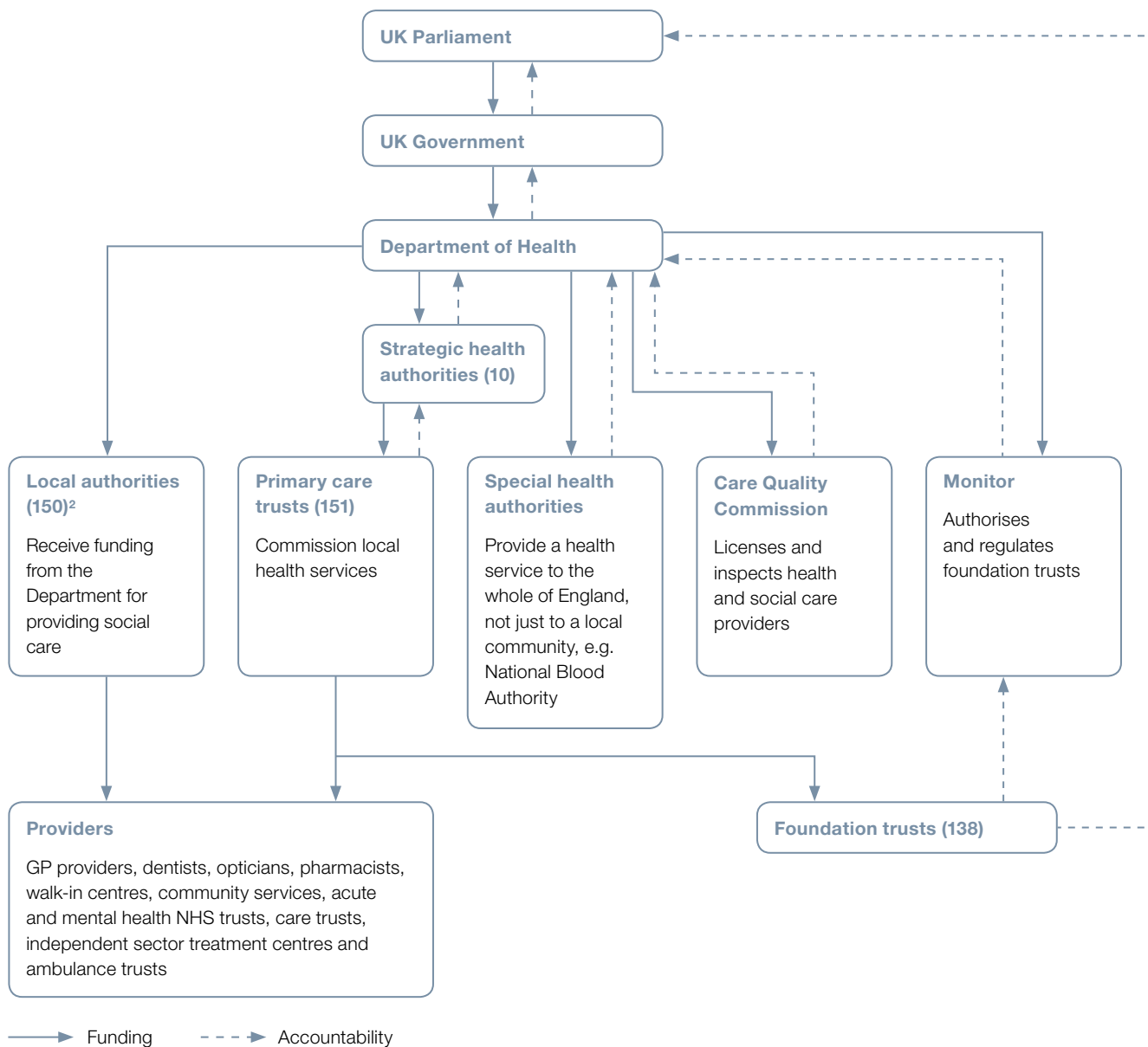
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# Appendix Two

Organisation of health services

Organisation of health services

England<sup>1</sup>



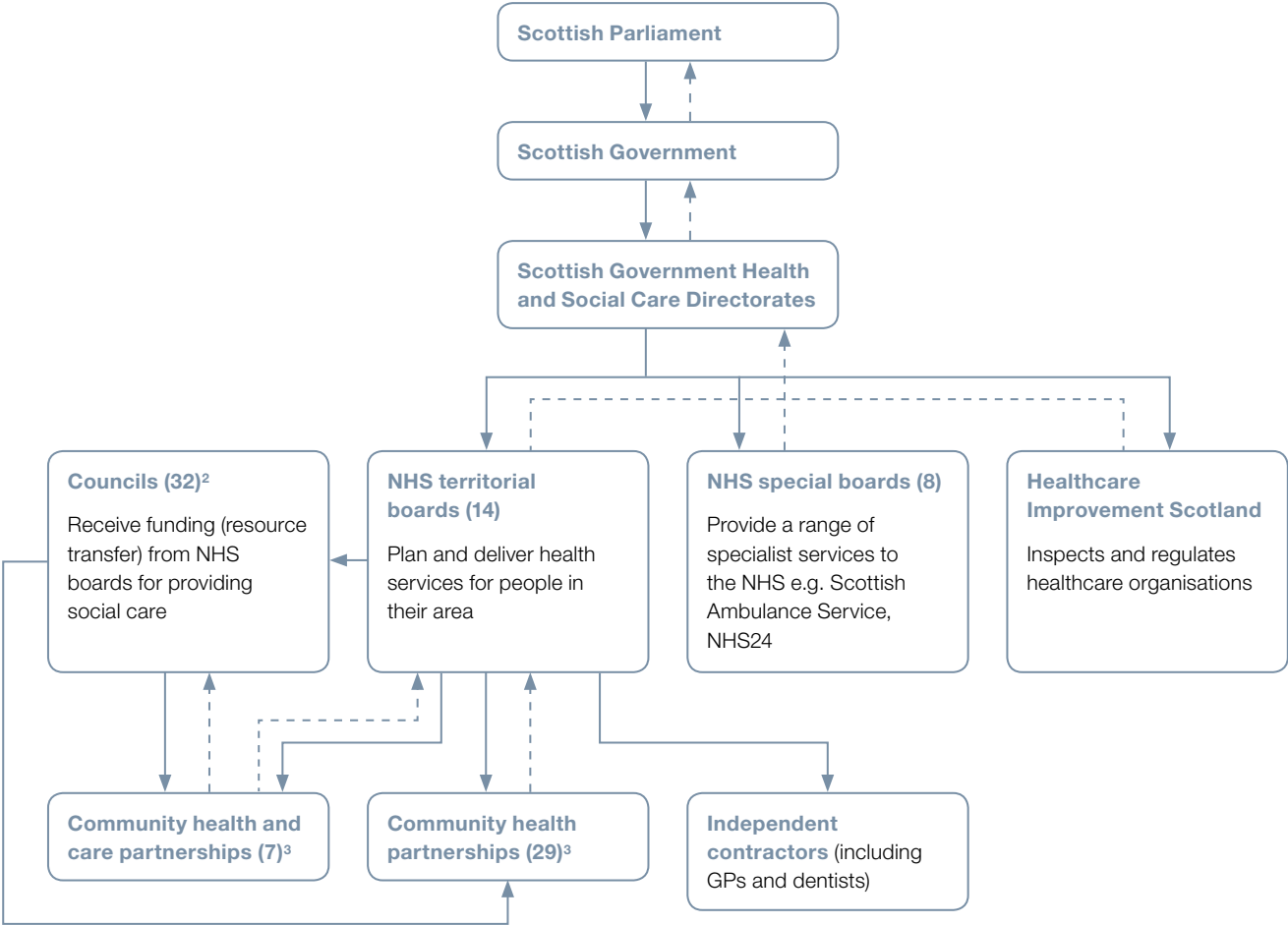
**NOTES**

- 1 The NHS in England is being restructured under the Health and Social Care Act 2012. Strategic health authorities and primary care trusts will be abolished from April 2013, and replaced by the NHS Commissioning Board and clinical commissioning groups.
- 2 The main source of funding for adult social services is the Department for Communities and Local Government.

Source: National Audit Office



**Scotland<sup>1</sup>**



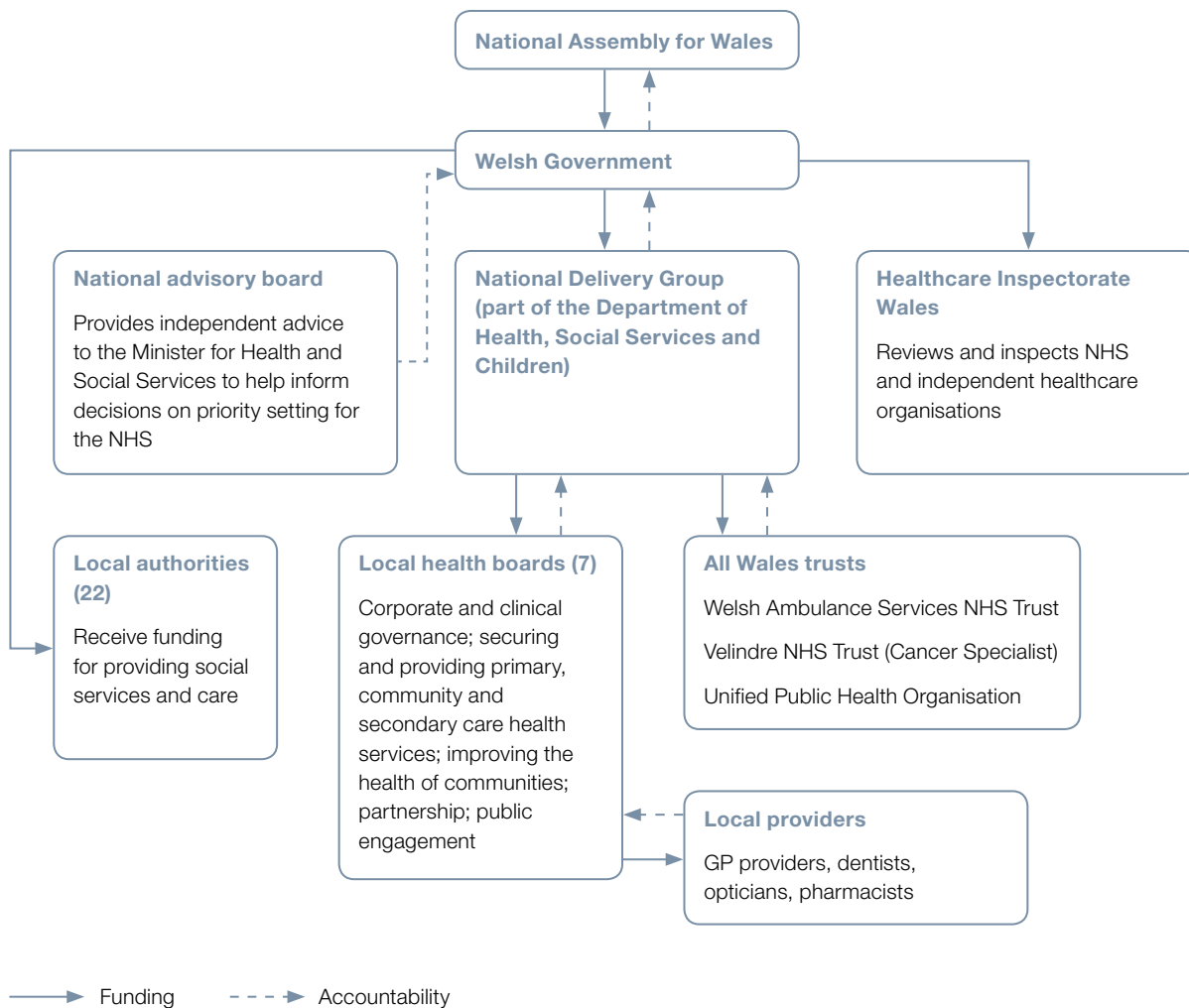
**NOTES**

- 1 The Scottish Government recently announced plans to integrate adult health and social care services.
- 2 The main source of funding for councils is the Scottish Government Communities and Local Government Directorates.
- 3 The number of community health partnerships and community health and care partnerships is subject to change. These figures are as at November 2010, from 'Community health partnerships', Audit Scotland, June 2011.

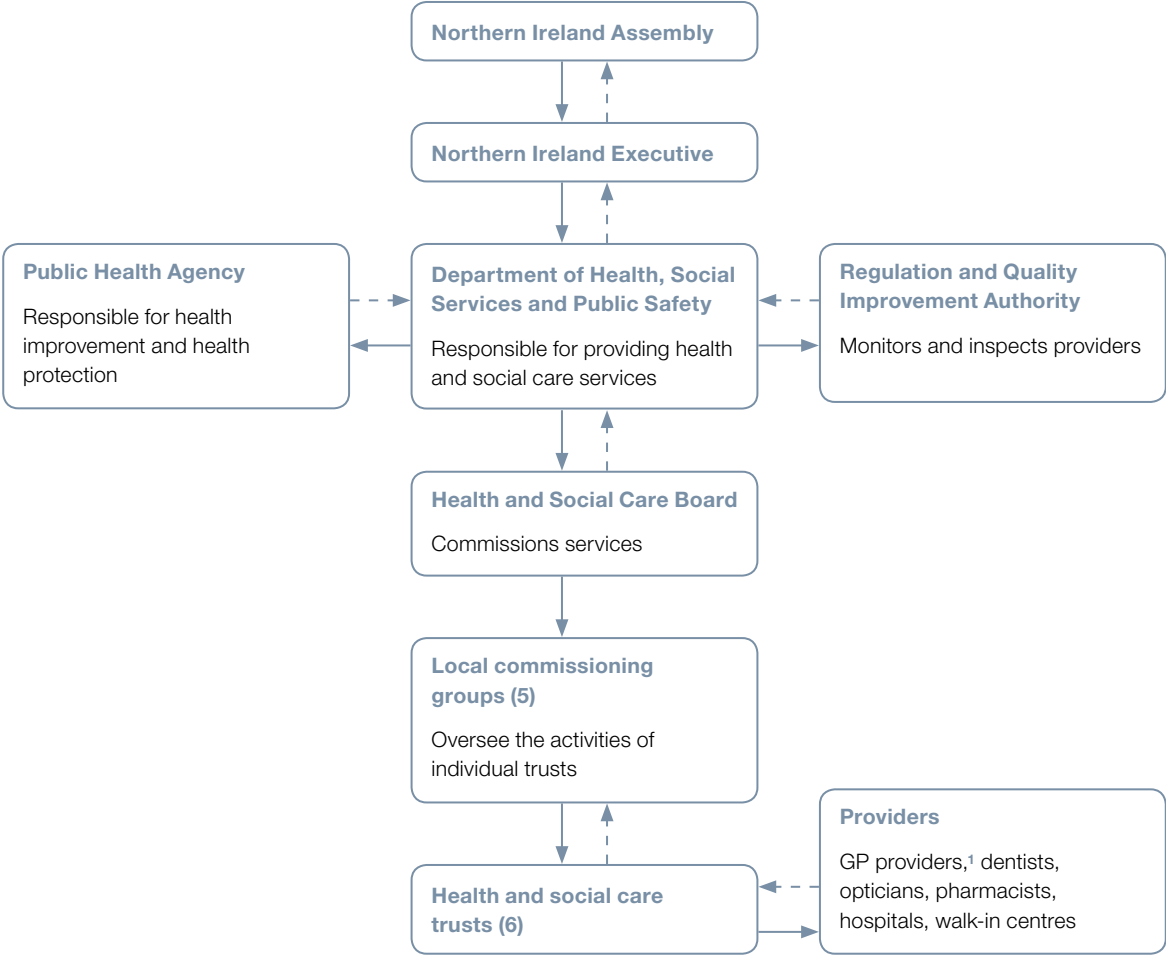
Source: Audit Scotland

Organisation of health services *continued*

**Wales**



**Northern Ireland**



**NOTE**

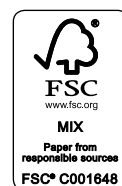
1 GPs in Northern Ireland are contracted directly by the Health and Social Care Board and so they receive funding from, and are directly accountable to, the Board rather than the Health and social care trusts.

Source: Northern Ireland Audit Office









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