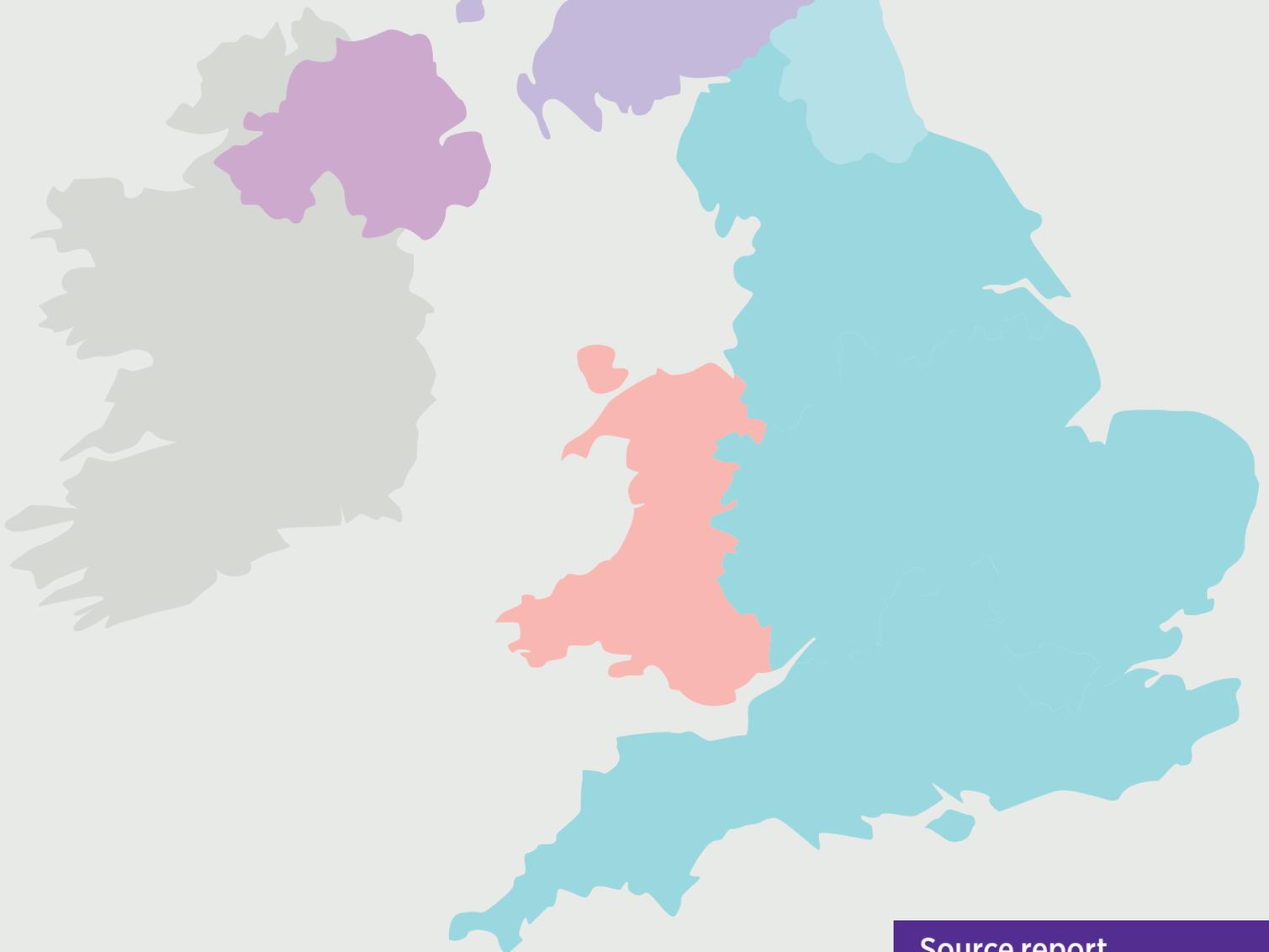


# The four health systems of the United Kingdom: how do they compare?

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## About this research

This report is the fourth in a series dating back to 1999 which looks at how the publicly financed health care systems in the four countries of the UK have fared before and after devolution. The report was commissioned jointly by The Health Foundation and the Nuffield Trust. The research team was led by Nicholas Mays at the London School of Hygiene and Tropical Medicine.

The research looks at how the four national health systems compare and how they have performed in terms of quality and productivity before and after devolution. The research also examines performance in North East England, which is acknowledged to be the region that is most comparable to Wales, Scotland and Northern Ireland in terms of socioeconomic and other indicators.

This report, along with an accompanying summary report, data appendices, digital outputs and a short report on the history of devolution (to be published later in 2014), are available to download free of charge at

[www.nuffieldtrust.org.uk/compare-uk-health](http://www.nuffieldtrust.org.uk/compare-uk-health)

[www.health.org.uk/compareUKhealth](http://www.health.org.uk/compareUKhealth).

### Acknowledgements

We are grateful: to government statisticians in the four countries for guidance on sources of data, highlighting problems of comparability and for checking the data we have used; for comments on the draft report from anonymous referees and from Vernon Bogdanor, Alec Morton and Laura Schang; and for guidance on national clinical audits from Nick Black and on nursing data from Jim Buchan.

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## Foreword

We stand on the verge of potentially fundamental constitutional changes in the UK, with the Referendum on Independence for Scotland in September 2014. Health has been a devolved matter since the late 1990s. Control over each country's health system has resided with each UK nation for 15 years. Against this backdrop, there is great interest in understanding how performance on quality and value for money compares across the UK.

Each country has a tax-funded service with universal coverage, similar values and similar operating principles, offering comprehensive benefits. Yet since devolution, there have been diverging policies for health care, with reorganisations taking place in each country at different times.

For example, in Scotland and Wales the division of purchasing from providing health care was abolished, in 2004 and 2009 respectively; competition between providers is discouraged; free prescription drugs are provided; purchase of NHS-funded care from private hospitals and clinics is discouraged; and, in Scotland only, there is free personal social care for the over-65s. The different countries have also made different choices about overall funding of the health service.

Central performance management occurs in all four countries but to varying strengths. In England there has also been a greater emphasis on developing patient choice, provider competition, and the use of private providers to deliver publicly funded health care; this has been underpinned by a system of regulated prices and a new set of regulatory bodies. The extensive reforms in England brought about by the contentious Health and Social Care Act 2012 were only implemented in April 2013, so it is too early to assess their impact. So too with the effects of any changes resulting from the Francis Reports into events at Mid Staffordshire NHS Foundation Trust.

In Northern Ireland, where the health service has been administratively integrated with social services since 1973, separation of purchasers and providers still exists, but without encouraging provider competition, patient choice or strong performance management.

Despite these differences, there have also been large similarities in goals across the four countries. For example, there has been growing attention given to patient safety, and involving patients and the public in decisions about care. All countries want to develop more coordinated care, and have made efforts to reduce waiting times.

Clearly there are many influences aside from devolution which can affect the overall performance of the UK's health services. These include levels of funding of other parts of the public sector, the quality of management inside key local organisations, wider determinants of health which affect the need for and use of care, and EU laws, for example on workforce matters.

However, it is clear that devolution has resulted in a set of policies for the health services of the four UK countries which are now quite different. A key question is: have these different approaches resulted in any demonstrable change in performance towards better quality and value for money in health care? If so, what might be the lessons?

This is the fourth in a series of reports since 1999 comparing aspects of performance of the health services across the four countries. Some of these were

commissioned by the Nuffield Trust and the Health Foundation; the two health charities have commissioned this latest study, which is the only longitudinal analysis of its kind. Information is analysed from the 1990s up to at least 2010/11 (and in some cases to 2012/13). The latter half of this period saw significant growth in public funding of health services, which only ceased after 2009/10. The full impact of recent austerity and other reforms will need to wait for a future study.

To aid the comparability of Scotland, Wales and Northern Ireland to England, the analysis also includes the North East region of England – an area which is more comparable to Scotland, Wales and Northern Ireland than England, on a number of important characteristics. There is no perfect comparator, but the North East region is better than England as a whole.

While it has become more difficult to compare performance, because of differences in data collection and definitions across the four countries, there is much we can learn from this analysis. The key findings are:

First, there have been improvements across all four countries in population health, with reductions in amenable mortality (deaths which could have been prevented through better health care), which halved over the study period, and increases in life expectancy (adding between three and five years to people's lives). There are no appreciable differences between the four countries in the performance with respect to coverage of the population of breast screening, immunisation levels, and survival following renal replacement.

Second, in broad terms, the resources available – funding and key staff – to the health services in all four countries increased significantly over the period, although Scotland, Wales and Northern Ireland have made explicit choices to spend some of the money available for health care (under the formula for allocating money to them) on other services, such as social care in Scotland. While funds spent in England per head of population remained the lowest, spending per head in the North East rose to a similar level to that of Scotland and Northern Ireland.

Third, crude productivity (based on inpatient admissions per hospital and community health services doctor or dentist) has fallen in the 2000s, in part due to the numbers of these staff rising. However, this is a very crude measure; more sophisticated analyses, which so far have only been done for England and take into account a range of quality measures, suggest that productivity may have increased.

Fourth, there are few conclusive differences in satisfaction levels with health services between the populations of each country.

Finally, there are four differences between the UK countries that stand out:

- Average (median) **waiting times** for common elective procedures fell significantly in Scotland and England until 2009/10, which are now similar to each other, and shorter than in Northern Ireland and Wales; this reflected different centrally set targets. (After 2009/10, there are no data for Northern Ireland.) Waiting times in Wales have been increasing recently. For example, in 2012/13, patients in Wales waited on average about 170 days for a hip or knee replacement compared with about 70 days in England and Scotland. The reasons are unclear, although the decision to cut rather than maintain NHS spending in real terms may have affected them.
- All countries more than halved **amenable mortality** between 1990 and 2010 (the latest date for which comparable data are available). By 2010, the gaps between countries had narrowed in absolute but not relative terms: for example, amenable deaths remained about 20 per cent higher in Scotland than in England.

- In North East England, significant progress in **life expectancy and mortality** has been made. In 1990, overall mortality rates (both amenable and other deaths) were similar in the North East and Scotland, but by 2010 these rates were 15 to 19 per cent higher in Scotland. In 1991, life expectancy in the North East was similar to Scotland, but by 2011 people in the North East were expected to live a full year longer than people in Scotland.
- Despite definitional differences and problems with comparability, it is clear that, over the period studied, **nurse staffing levels** have been lower in England than in the other three countries.

So, the main conclusions from this latest analysis are that, so far, the different policies adopted by each country appear to have made little difference to long-term national trends on most of the indicators that the authors were able to compare. Individual countries can point to marginal differences in performance in one or more areas. This lack of clear-cut differences in performance may be surprising given the extent of debate about differences in structure, provider competition, patient choice and use of non-NHS providers across the four countries.

However, comparing England, Scotland and Wales, in the period of austerity, waiting times for common procedures appear to be lengthening disproportionately in Wales. There was also slightly faster improvement in mortality and life expectancy in the North East of England, in particular relative to its near neighbour Scotland.

The authors' previously published analysis (using data from 1997 to 2006/07, and published by the Nuffield Trust in 2010) reported that the performance of the NHS in England was better than in the other countries across a range of, mostly efficiency, indicators. In this latest analysis, while there are few indicators on which a devolved country does better than England or its North East region, the gap has narrowed, with Scotland in particular improving its performance on waiting times. The previous analysis also showed marked differences in crude productivity between the countries, but much of this proved to be due to definitional differences in the data on staffing that had been supplied by each country and published by the Office for National Statistics (ONS). Further work by ONS and each country on these definitions resulted in adjustments to the data, which led to a revised report in 2011. The current analysis shows that while differences in productivity remain, they appear to be small.

This analysis mainly shows nationally aggregated data. What is clear from the earlier analyses is that, except in relation to those areas covered by national targets, variations in performance of the health service within England are greater across many metrics than variations between England and the other three UK countries. Again, this suggests that, other than target setting, which all countries have adopted to a greater or lesser extent, underlying 'macro' policy shaping the health services is to date less influential on performance than local conditions such as quality of staff, funding, availability of facilities, health needs and historical legacies of inequalities.

Finally, it is disappointing that it is becoming more difficult to compare the performance of the health service across the four countries because of differences in the way that data are collected. We commend the authors for their ongoing efforts to shed light on this issue. After all, having comparable data is crucial to assessing changes in quality and value for money in health care across the UK.

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## Summary

### **Purpose of the report**

Following devolution, the four countries of the UK are now on such different policy paths that it no longer makes sense to talk of a UK National Health Service (NHS). The devolved governments have made different choices about the level of funding devoted to the publicly financed health system, the structure and governance of the system and the benefits available to their residents such as free general medical prescriptions and personal care in Scotland, but not in England. The principal aim of this report is thus to examine this changing 'natural experiment' of devolution between England, Scotland, Wales and Northern Ireland as it affects the health system in each country. This report compares the health outcomes and resources for, and the outputs and performance of, the countries before and after devolution; and also includes North East England (where data are available), which offers a better comparator with the devolved countries than England as a whole. There is no English region that offers a perfect benchmark for the three devolved countries, but the North East is similar to the three devolved countries socioeconomically, in terms of the level of health service spending and in the extent of reliance on non-publicly owned providers.

### **Policy context**

These comparisons have been the subject of three previous studies involving some of the same authors: Dixon and others in 1999, Alvarez-Roseté and others in 2005 and Connolly and others in 2011. The outcomes of this natural experiment, over the period from 1996/97 to 2006/07, were reported in the second and third studies. These found that, with the limited data available, the English regime produced better performance with lower funding per head than the devolved countries in terms of waiting times, and the numbers of people treated as inpatients and outpatients by hospital doctors and nurses, and the response time by ambulances to category A calls.

Since 2006, the policy emphasis in England has shifted back towards the development of provider-based competition and individual patient choice, but with a continuing emphasis on strong performance management. England has seen the most organisational upheaval. In Scotland and Wales, the governments abolished the purchaser/provider split in 2004 and 2009, respectively, and each NHS has returned to an organisational model similar to that before the introduction of the first 'internal market'. In Northern Ireland, the complex and deep-seated structural, political and religious issues meant that devolution was suspended between 2002 and 2007. Its government was slowest to implement policies to end the idea of provider competition after 1997. The current policy seems to be one of retaining a purchaser/provider split, but without encouraging provider competition or emphasising strong performance management.

The three key questions to ask after the initial period of devolution are:

- First, has devolution had made any systematic differential impact on performance?
- Second, comparing England and Scotland, has the new system of performance management in Scotland since 2005 resulted in improved performance of the NHS in Scotland, and how does this compare with that of England?
- Third, have Wales or Northern Ireland been able to improve their performance since 2006 and how does their performance compare with that of England and Scotland?

In this report, we include more information on the quality of care than the three earlier studies. The requirement for indicators to be as comparable as possible over time and across countries limits the availability of data and hence the scope of this report. We have organised our principal findings in terms of the comparability and coverage of the data. We also give recommendations for improving data comparability across the four countries.

## Principal findings

### Where there are comparable data for the four countries

#### Life expectancy at birth

This has increased by between about five and three years for men and women, respectively, in each country from 1991–2011. In 2011, England had the highest life expectancy for males (78.9) and females (82.9), followed by Wales (77.5 and 82.2), Northern Ireland (77.0 and 81.4) and Scotland (76.1 and 80.6). At the start of that period, men and women in North East England had similar life expectancy to Scotland, but by the end of the period, men and women in North East England would have been expected to live about one year longer than men and women in Scotland.

#### Amenable mortality

Amenable mortality is defined as premature death (under age 75) from causes that should not occur in the presence of timely and effective health care, and is a good indicator of quality of care at the system level. Other mortality is based on deaths from other causes. Between 1990 and 2010 the principal changes were as follows.

- Rates of amenable mortality more than halved in both sexes and across all countries. These rates of decline were twice the rates of the decline of other mortality for men and three times the rates for women.
- For both amenable and other mortality for both sexes, England had the lowest rates and Scotland the highest. The amenable mortality rates per 100,000, in 2010, in Scotland and England were for men, 97 and 80; and for women 77 and 64.
- Comparing Scotland with North East England, the rates of decline of amenable mortality were similar for both sexes but the decline in other mortality was about 10 per cent greater for both sexes in North East England. By 2010, in Scotland, rates of amenable mortality for both sexes were about 10 per cent higher than in North East England, and for other mortality, were about 15 and 19 per cent higher for women and men.

### **Health spending per head**

Health spending per head in 2000/01 was lower in England and North East England than any of the devolved countries; but, by 2012/13, North East England had similar spending to that of Scotland and Northern Ireland (about £2,100), which was 10 per cent higher than that of Wales (about £1,900). Increases in spending on each NHS over that period were: 115 per cent in England; 99 per cent in Scotland; 98 per cent in Wales and 92 per cent in Northern Ireland. The extra funding per head in North East England compared with the average for England increased from six per cent greater to 12 per cent more. As the governments of the devolved countries did not increase NHS spending from their block grants as much as England from 2000/01 to 2012/13, we estimate that the sums available to spend on other public services were, in 2012/13, nearly £900 million in Scotland and more than £400 million in Wales and in Northern Ireland. Greer (2004, pp. 87–90) points out that Scotland funded the costs of free personal and nursing care for people aged 65 years and over from these sums. The recent cost of that policy (Timmins, 2013, p. 13) was estimated to be £450 million.

### **General practitioners (GPs) per 1,000 population**

In headcount terms, the supply of GPs was highest in Scotland (0.9 in 2010); and in 2011, the rates were 0.8 in North East England, 0.7 in England, and 0.6 in Wales and Northern Ireland. There was no change in this rate for Wales and Northern Ireland from 1996 to 2011; but over that period there were increases in England and North East England (from 0.6) and Scotland (from 0.8). However, the data on whole-time equivalents (WTEs) show that in 2011 the rates for Scotland were similar to North East England (both about 0.7), with Wales having the lowest rate (0.6).

### **Screening**

The rates for the uptake of screening for breast cancer between the ages of 50 and 70 for 2010/11 were about 70 per cent in the four countries and North East England.

### **Childhood rates of immunisation at age two**

Childhood rates of immunisation for 2011/12 at age two were similar in the devolved countries and North East England, with England having lower rates. For the measles, mumps and rubella (MMR) vaccine, the rates were more than 90 per cent in all four countries and North East England (but below the 95 per cent recommended by the World Health Organization); and above 95 per cent in all devolved countries and North East England for the '5 in 1' vaccine – also known as the DTaP/IPV/Hib vaccine. This is a single injection that protects against five serious childhood diseases: diphtheria, tetanus, whooping cough (pertussis), polio and Hib (Haemophilus influenzae type b). The rates were also over 95 per cent for the Meningitis C vaccine, except for England, where the rate was close to 95 per cent.

### **Rates of vaccination against influenza in the winter**

Influenza vaccination rates varied widely over the two years 2011/12 and 2012/13. Northern Ireland had the highest rates for the general population at risk, but the lowest rate for health care workers.

### **Operation rates per 10,000 for seven common procedures**

Common operation rates varied between 2005/06 and 2011/12, and across the four countries. There were increases in the rates for gall bladder excision, and hip

and knee replacement; and decreases for coronary artery bypass grafts (CABGs), varicose veins (except for an increase in Northern Ireland in 2011/12) and hernia. There were diverging trends in cataract, as there was an increase in England and Scotland, but decreases in Wales and Northern Ireland. Compared to England statistically significant differences were as follows:

- Wales had a lower rate of varicose vein removal, hernia repair and hip replacement.
- Scotland had a higher rate of excision of gall bladder, and a lower rate of varicose vein removal, hernia repair and hip replacement.
- Northern Ireland had a higher rate of varicose vein removal, and a lower rate of hernia repair and hip and knee replacement.

### **Waiting times for common procedures**

There are data on the 50th and 90th percentiles of the distributions of waiting times for six out of the seven common procedures (there are no data on excision of gall bladder). Between 2005/06 and 2009/10, all four countries achieved substantial reductions in median waiting times for most procedures, including a halving of the median wait for hip and knee replacement in England and Scotland. The 90th percentile decreased over the period from 2005/06 to 2012/13 for most of the procedures in England and Scotland (except for CABG surgery in England). In Wales and Northern Ireland, there were dramatic reductions in the 90th percentile from 2005/06 to 2009/10 for all procedures, except for cataract surgery in Wales, which increased. However, since 2009/10 in Wales there have been increases in the 90th percentile for all procedures. There are no data after 2009/10 for Northern Ireland.

### **Survival for patients on renal replacement therapy**

The national renal audit covers all four countries and reports one-year percentage rates of renal replacement survival, 90 days after the incident, by country from 2002–10 (the incident cohort years), adjusted to age 60. These rates have improved in all countries. For 2009/10, the mean rates were about 90 per cent; differences between the countries were not statistically significant.

## **Comparable data for England, Scotland and Wales**

### **Satisfaction**

Satisfaction ('very satisfied' or 'quite satisfied') is reported in the British Social Attitudes (BSA) survey for various aspects of health services, for 2011. The survey does not cover Northern Ireland. The rates of satisfaction for the two questions on the 'the way in which the NHS runs' and on 'the way the NHS's local doctors or GPs run nowadays' were: North East England, 67 per cent and 80 per cent; Wales, 62 per cent and 78 per cent; England, 53 per cent and 76 per cent; and Scotland, 55 per cent and 68 per cent. The rates for two questions on satisfaction with 'attending hospital as an outpatient' and 'being in hospital as inpatient' were: Scotland, 70 per cent and 68 per cent; North East England, 69 and 63 per cent; England, 65 and 55 per cent; and Wales, 66 and 53 per cent.

## **Comparable data for England, Wales and Northern Ireland**

### **Quality of stroke care**

The stroke audit by the Royal College of Physicians of London covers all countries except Scotland. In 2006 and 2010, the percentages of patients who spent more than 90 per cent of their time in a stroke unit were: Northern Ireland, 60 per cent

and 50 per cent; England, 51 per cent and 62 per cent; and Wales, 39 per cent and 37 per cent. There were, however, substantial improvements in the average achievement across nine key indicators of the quality of stroke care in all three countries: in England, from 60 per cent to 83 per cent; in Wales, from 52 per cent to 73 per cent; and in Northern Ireland, from 64 per cent to 74 per cent.

### **MRSA mortality rates**

MRSA mortality rates are based on where Methicillin-Resistant Staphylococcus Aureus (MRSA) infection is mentioned on the death certificate. Data on these rates are available by sex for all countries except Scotland. The reduction in the rates for men (per million), which were about twice that for women, from their peak to 2012 were: in Wales, from 28 (in 2005) to 7.6; in England, from nearly 27 (in 2006) to 3.7; and in Northern Ireland, from 43 (in 2008) to 9.7.

### **Data where comparisons are problematic**

#### **Category A ambulance calls**

Ambulance response rates within eight minutes to what may have been immediately life-threatening emergencies ('category A' calls) improved dramatically in the devolved countries between 2006/07 and 2011/12. In 2006/07, they were about 56 per cent; but by 2011/12 they were 73 per cent for Scotland and Northern Ireland, and 68 per cent for Wales. In England, the percentage was around 75 per cent throughout that period, and above 75 per cent in North East England.

#### **Hospital and community health services (HCHS) medical and dental staff**

This staff group showed the highest rates of increase (in WTEs per 1,000 population) of all staff groups in each country and North East England over the period 1996–2011: the increases were about 70 per cent in England and 50 per cent in the devolved countries. In 2011, the rates of HCHS doctors and dentists per 1,000 population were: England, 1.9; Wales, 1.9; Northern Ireland, 2.0; North East, 2.2; and Scotland, 2.3.

#### **Rates of inpatient admissions per 1,000 population**

From 1999/2000 to 2011/12 there was a small reduction in Wales (from 178 to 174), and increases in Scotland (from 204 to 215) and England (from 154 to 176). The rates in Scotland were close to those for North East England from 2006/07 to 2011/12. For Northern Ireland, the change in definition means that data from before 2005/06 are not comparable with the earlier years. In 2011/12, this rate was 163.

#### **Inpatient admissions per hospital and community health services doctor/dentist**

These rates decreased over the period 1999/2000 to 2011/12 as an inevitable outcome of a rapid increase in the numbers of staff exceeding the increase in numbers of inpatient admissions. In 2002/03, the rate of inpatient admissions per hospital doctor ranged from 111 in Scotland to 125 in Northern Ireland; in 2011/12, the rate was about 90 for the four countries and North East England, except for Northern Ireland: its low rate of 81 may be due to definitional differences.

#### **Hospital waiting times**

Changes over time in the targets or standards set by the different governments mean that it is not possible to examine past trends or compare countries. England, Scotland and Wales measure waiting times from referral to treatment (RTT). In Northern Ireland, there are separate targets for the first outpatient appointment and admission as an inpatient. In March 2013, performance, in each country's own terms, was as follows:

- In England, more than 92 per cent of patients who were admitted to hospital and more than 97 per cent of those who were seen as outpatients only, were admitted or seen within 18 weeks.
- In Scotland, more than 90 per cent of patients who were admitted to hospital, or seen as outpatients only, were admitted or seen within 18 weeks. In March 2013, the NHS in England and in Scotland met their different 18-week RTT targets.
- In Wales, 91.5 and 98.6 per cent were admitted to hospital or seen as outpatients within 26 and 36 weeks, respectively.
- In Northern Ireland, for the first outpatient appointment, 80 and 99 per cent were seen within nine and 21 weeks, respectively; and for inpatients, 69 and 97 per cent were admitted within 13 and 36 weeks, respectively.

## Conclusions

Within the limitations of the performance information available across the four countries over time before and after devolution, it does not appear that the increasing divergence of policies since devolution has been associated with a matching divergence of performance. In addition, there is little sign that one country is consistently moving ahead of the others. In relation to measures such as amenable mortality, the pre-devolution differences seem to have changed relatively little while overall rates of amenable mortality have been falling. During the 2000s, the relative decline in amenable mortality was similar between the four countries. In some other aspects of performance, there are signs of a convergence in performance between the four UK countries, perhaps as a result of cross-border comparison and learning.

As the closest comparator to the four devolved countries, the North East of England is notable for the fact that by spending at Scottish levels it increased its staff and its admission rates while seeing increases in life expectancy and in amenable mortality. However, the North East had a larger improvement in amenable mortality than any of the devolved countries. This suggests greater health care system effectiveness in the North East both before and after devolution, but it is not possible to attribute this to specific English NHS policies.

## Recommendations for improving availability of comparable data across the four countries

Our first recommendation is that there should be better comparative data. This is *not* about curbing the freedoms of governments to pursue different policies. However, it is right to require that data be collected to enable the impacts of different policies to be compared, particularly when these policies appear to be increasingly divergent. Expenditure on collecting data has the obvious opportunity cost of not being available for the care of patients; and this opportunity cost is felt more intensely in periods of austerity. On the other hand, the benefits of collecting data are that, through benchmarking, each country can learn how to both make changes that lead to care of higher quality without increasing costs, and enable savings to be made without impairing quality, for example, by better service integration. Within the devolved countries, unlike in England, the samples may frequently not be large enough for robust benchmarking of specialised services, with questions over their value and opportunity costs. We are not, however, recommending stopping the collection

of these data, but rather increasing their value through making them comparable across the four countries.

Specifically, there should be a minimal set of data that is currently collected but defined so that it is comparable across the four countries, as follows:

- *Expenditure* – in total on health and social services, capable of being disaggregated by types of service (at least distinguishing between hospital and community health services, primary care and social care), and by the principal staff groups (as given below); and on public services by the devolved governments and England.
- *Staff* (in WTE) – hospital medical and dental staff; nursing, midwifery and health visiting staff; direct support to clinical staff; infrastructure staff; and GPs.
- *Hospital activity* – outpatients, day-cases and inpatient admissions.
- *Hospital waiting times* – the percentages waiting more than 18 weeks from referral by a GP to admission as an inpatient, or treatment as a day-case.
- *Ambulance services* – the percentage of category A ambulance calls met within eight minutes.
- *Satisfaction* – percentages reporting satisfaction with the general running of the NHS, inpatient care, outpatient care and GP care.

Second, we recommend that established systems of data collection ought to be extended across all four countries, as follows:

- Although Scotland does conduct its own stroke audit, coverage by the Royal College of Physicians of London (2011) could work towards harmonising the Scottish and the England, Wales and Northern Ireland audit, in order to show the way for other 'national' clinical audits which, over time, could report on a consistent UK-wide basis. This would be invaluable for the smaller specialties where the samples will be small in the devolved countries.
- Systems to provide Patient Reported Outcomes (PROMs) (Health & Social Care Information Centre, nd) collected in England to the other three countries. PROMs measure changes in a patient's health status or health-related quality of life through short, self-completed questionnaires before and after a procedure, and provide an indication of the outcomes or quality of care delivered to NHS patients.
- Surveys of the experiences of hospital and GP patients (NHS Surveys, nd) and staff (Picker Institute Europe, 2013), which have been run in England since the early 2000s.

We appreciate that the collection of data on PROMs and patient experience will entail extra costs in the devolved countries, but it seems increasingly untenable for modern health care systems to continue to run without routinely collecting such data. If these collections were available across the UK they would provide much greater scope for benchmarking than other systems that only routinely collect data to assess quality on whether patients have died or been re-admitted.

Third, as one of the main purposes of the governments in Belfast, Cardiff, Edinburgh and Westminster is the running of devolved services, it can legitimately be argued that proper electoral accountability ought to require data to be published on their comparative performance in running these services.

Our final recommendation relates to future research. While macro-level studies like the current one are important and valuable, and appear to have led to pressure to improve performance in the devolved countries, there is also a need for more granular and contextually relevant studies, for example, comparing similar areas with similar populations in the different countries (for example, on either side of the borders between England and Scotland, and Wales and England), and, in this way, identifying what the increasing differences in system policy mean for patients' and carers' experiences of health care. It should also be possible to shed some light on why health improved more quickly in the North East than in Scotland in the last decade, despite many population and contextual similarities. But, such detailed micro studies ought also to be informed by a larger set of more consistent data. We understand from feedback on an earlier version of this report that there is now some enthusiasm within the different countries for such developments.

A justification by governments in Scotland and Wales for abolishing the purchaser/provider split has been to enable better integrated care. That objective, particularly the integration of health and social services, is common to all four governments and seen as necessary for being better organised to care for an ageing population. However, there have been few controlled studies of integration in the devolved countries; and there are no cross-country studies. The recent review by the Nuffield Trust (2013) of controlled studies of pilots of recent attempts to develop integrated care in England found that none of the schemes had reduced rates of emergency hospital admission. This suggests a substantial agenda for future comparative research on developments in integrated care in England and Scotland, where policy objectives are the same, but the organisational forms and models of governance differ. This could include analyses of large linked individual level datasets for local areas within each country for the purposes of benchmarking, and detailed local studies of areas with similar demographics and socioeconomic circumstances that would include studies of patient experience and costs of specific services in the two countries.

# 1

## Introduction

### Comparing national health system performance across the United Kingdom before devolution

This report is the fourth study in a series comparing the funding and performance of the publicly financed systems of health care in the four countries of the UK. The first, by Dixon and others (1999), used data from 1995/96 before political devolution, when the governance of each system of health care was similar in each country, but there were marked differences in spending per head. The authors observed that in that year, “Scotland received 25 per cent more, Wales nearly 18 per cent extra and Northern Ireland 5 per cent more per head than England” (1999, p. 522). They observed that these differences offered a “natural experiment” to examine the impacts of different levels of funding on “inputs (such as number of staff, number of beds), activity (such as inpatient admission rates) and outcomes (such as waiting times, levels of public satisfaction and the extent of financial stress in hospitals)” (1999, p. 523).

There were two principal findings from this initial study. First, there were limitations in the availability and comparability of the data produced by each system. The authors observed:

There has been no policy initiative to encourage consistent data recording across the NHS in the four countries – rather, diversity seems to have been championed. If national means the United Kingdom, there does not seem to be a national NHS. In many respects, therefore, devolution is a fact before the event. (Dixon and others, 1999, p. 524)

Second, given these limitations, the greatest pressure to be productive appeared to be being exerted on providers in England, and that “doctors and nurses in Scotland, Wales and Northern Ireland seem to be under less pressure (or are less productive) than their counterparts in England” (1999, p. 525).

### Comparing national health system performance across the United Kingdom after devolution

The legislation that created the devolved governments in the countries of Scotland, Wales and Northern Ireland (which this report calls ‘the devolved countries’) took effect in 1999. Powers were transferred to the Scottish Parliament and Welsh Assembly on 1 July 1999, and to the Northern Ireland Assembly on 2 December 1999. The second and third studies (Alvarez-Roseté and others, 2005; Connolly and others, 2011) compared the funding and performance of the systems of health care in the four countries of the UK before and after devolution. The second study used data from 1995/96 and 2002/03; and the third added data for 2006/07 and reported comparisons of the four countries with North East England, which was argued to be a better comparator for the devolved countries than England as a whole. These later studies, like the study by Dixon and others (1999), found that the sets of data that were comparable were very limited

– and if anything, devolution seemed to have resulted in even fewer basic data being collected in a way that enabled meaningful comparisons to be made. There appeared to be no official body empowered to counter this trend. Furthermore, it seemed that no government organisation within the UK took a concerted interest in the comparative performance of the different systems of health care. It might have been expected that HM Treasury would use such data to make cross-country comparisons of the performance of public services, given its duty of oversight on the use of public expenditure in each country financed by taxation and borrowing on a UK basis, but this did not seem to be the case. A good example of this relative neglect of cross-country data was the discovery of:

an error in the official statistics for hospital medical and dental staff for Scotland for 2006 as published by the Office for National Statistics (ONS) and checked by officials of the Information Services Division (ISD) of National Services NHS Scotland: the published statistic erroneously included general dental practitioners. (Connolly and others, 2011, p. xiii)

This error appeared in the first edition of our previous report on the four systems, but was corrected and a revised report published (Connolly and others, 2011), which had as its key message that:

no one is responsible for ensuring that fundamental data on staff, activity and performance are collected on a consistent basis. This is because no one undertakes benchmarking of the use of UK taxpayers' money by the governments of the four countries. (2011, p. xiii)

## A changing natural experiment

The three comparative studies also show a shift over time in the nature of the natural experiment taking place across the four countries of the UK. For the first study, systems of governance were similar prior to devolution, but there were substantial differences in funding per head in each country. Prior to devolution, the intended model of governance in all four countries had been one of provider competition. This was tried in each UK country, from 1991, in the form of an 'internal market' with each system organised into purchasers, which were to be funded equitably according to the relative need of their populations; and providers, which were to compete in a process of selective contracting driven by purchasers (Bevan and Skellern, 2011; Le Grand and others, 1998; Secretaries of State for Health, Wales, Northern Ireland and Scotland, 1989). Following devolution, these funding differences have narrowed (in part because Scotland has used its funding for other purposes, including free personal social care; see Chapter 2); but the system of governance in England has diverged from the systems in the other countries and, in particular, from Scotland and Wales. There was limited policy development in Northern Ireland, as devolution was largely stalled until 2007 (O'Neill and others, 2012).

The Labour Government elected in 1997 first abolished the goal of competition in England and Wales, but maintained the division between purchasers and providers (Secretary of State for Health, 1997). In 2000, the Prime Minister of the UK, Tony Blair, made a commitment to a period of unprecedented and sustained increases in funding of the NHS in England, in order to remedy a perceived crisis of underfunding, which had resulted in inadequate investment and staffing, and poor outcomes and quality of care, including long hospital waiting times (Smee, 2005, 2008). As a result, there were substantial increases in funding in England as well as the devolved countries (see Chapter 4). However, only the government in

England linked the increased funding to a radically novel system of performance management (the regime of annual ‘star ratings’ which applied from 2000/01 to 2004/05) (Secretary of State for Health, 2000). This regime was focused on penalising failure by providers to tackle what had been an endemic problem for each health service: namely, long waiting times for access to treatment (Bevan and Hood, 2006; Propper and others, 2008, 2010). Governments in the other countries, having just been empowered by devolution to develop policies that differed from England, did not follow that radical policy. Indeed, there is some evidence that their policies were perceived to reward failure by those working in the health service in Scotland (Farrar and others, 2004; Propper and others, 2008, 2010), Wales (Auditor General for Wales, 2005a, 2005b; Wanless, 2003) and Northern Ireland (Appleby, 2005) – which was exactly what the regime of star ratings had sought to end in the English NHS. From 2002, in England, the government’s policy changed to reintroduce provider competition into its NHS (Mays and others, 2011; Secretary of State for Health, 2002). By 2006, all the main elements of this policy were in operation (after the end of the star ratings regime in 2005). Taken together, they introduced important structural differences compared with the previous internal market (for example, a much greater emphasis on provider autonomy and diversity; see Bevan and Skellern, 2011). In contrast, over the same period, the governments of Scotland and Wales abandoned the policy of provider competition and the purchaser/provider split (Longley and others, 2012; Steel and Cylus, 2012). Northern Ireland retained a purchaser/provider split, but without competition between providers.

## Contribution of the current study

After 15 years of devolution, two distinctively different models of governance have been developed. In England, the policies of the Coalition Government (Secretary of State for Health, 2010; Timmins, 2012) imply that the NHS is acting increasingly as a public insurer, funding commissioners to contract with ‘any qualified’ provider, and with patients empowered to exercise choice in a system in which ‘money follows the patient’. Nigel Edwards (then acting Chief Executive of the NHS Confederation) emphasised the intended shift from the state being responsible for “the day-to-day management of healthcare” to the NHS in England becoming “‘like a regulated industry’ on the lines of telecommunications, water and the energy industries” (Timmins, 2012, p. 78). In contrast, the health services in Scotland and Wales have reverted to being traditional state monopolies run by organisations funded to deliver care to their local populations (Longley and others, 2012; Steel and Cylus, 2012); arguably, this also applies largely to the health care system in Northern Ireland (O’Neill and others, 2012). (This report elaborates on these policy differences in Chapter 2.)

The second (Alvarez-Roseté and others, 2005) and third (Connolly and others, 2011) comparative studies covered the initial period of devolution (up to 2002/03 and 2006/07, respectively), and offered an evaluation of different regimes of performance management: where failure to achieve government targets was penalised in the NHS in England, but not in the devolved countries. These studies found that the outcomes of this natural experiment, based on the limited data that were available, were that providers in the English NHS appeared to be more productive (as was shown in the study before devolution), and had shorter waiting times. As this report explains in Chapter 2, in Scotland, from 2005, following “unfavourable cross-border comparisons... about performance, particularly on waiting times”, the government introduced a “tougher and more sophisticated

approach to performance management in the system of HEAT [Health improvement, Efficiency, Access and Treatment] targets” (Steel and Cylus, 2012, p. 114). This fourth comparative study adds to these earlier studies by reporting data mostly up to 2011/12 – some analyses stop earlier, and others extend into 2013. Hence this new information is of great interest for two kinds of comparisons. First, between England and Scotland: has the new system of performance management resulted in improved performance of the NHS in Scotland, and how does this compare with that of England? Second, for Wales and Northern Ireland: have they been able to improve performance since 2006, and how does their performance compare with that of England and Scotland? This report also gives a stronger indication of changes over time, as it aims to report annual trends (where the data are available) for the four countries and the North East region of England; the three earlier studies reported data for snapshots (in 1995/96, 2002/03 and 2006/07).

A number of studies have examined the impact of devolution in terms of differences in policies, choice by patients, structures, values and accountability across the four systems of health care (Greer, 2004, 2008; Greer and Trench, 2008; Jervis, 2008; Jervis and Plowden, 2003; Peckham and others, 2012; Smith, 2007; Smith and others, 2009). This report draws on that literature to outline these differences, but its original contribution comes from reporting a set of indicators on populations and resourcing, and the performance of systems of health care measured over time, in order to raise questions about the funding, performance, governance and accountability of the governments of each country. The requirement for indicators to be as comparable as possible over time and across countries limits the number and time periods available, and hence the scope of this report, like the previous ones in the series.

Sutherland and Coyle (2009) reported cross-country comparisons at various times (mainly cross-sectionally) of a range of indicators of quality of care, using routinely collected data across six domains of quality:

- effectiveness
- access and timeliness
- capacity
- safety
- patient-centredness
- equity.

Some of these domains overlap with what was reported by Connolly and others (2011). Sutherland and Coyle (2009) also found the following:

- General practices in Scotland and Northern Ireland generally recorded the highest rates for providing care consistent with evidence-based practice.
- The lowest vaccination rates for two-year-olds were in England, and for influenza (for the over-65s) were in Wales.
- All countries faced problems with health care associated infections, in particular for MRSA and *Clostridium difficile* (*C. difficile*).
- Respondents in Scotland were most positive about their quality of care (based on surveys in 2005 and 2006 by the Commonwealth Fund).

Sutherland and Coyle found no systematic pattern across the various domains of quality of care such that one country consistently performed better than the others, except for hospital waiting times, where England performed best.

In this report, more information on the quality of care is included than in our earlier studies, namely on:

- rates of amenable mortality
- MRSA mortality
- survival from renal replacement therapy
- immunisation (of children and the over-75s)
- breast screening rates
- results from the Royal College of Physicians' stroke audit (which covers England, Wales and Northern Ireland).

## Structure of this report

Chapter 2 of this report sets the context for the comparative analysis. It describes the background to, and the nature and arrangements for, political devolution. Chapter 3 outlines the methods of comparative analysis and problems in obtaining comparative data, especially over time, on even such basic measures of performance as outpatient attendances and hospital waiting times. That chapter also discusses the reasons for using North East England as a benchmark for comparison with the devolved countries in Chapters 4 and 5, where we have aimed, as far as possible, to report changes over time. Chapter 4 reports on the limited data that are comparable and collected routinely in each country and Chapter 5 focuses specifically on 'amenable mortality'. This is defined as premature death from causes that should not occur in the presence of timely and effective health care (Nolte and McKee, 2004), and is a widely accepted indicator of quality of care at the system level. Chapter 5 also compares 'other mortality' (derived by subtracting amenable mortality from total mortality), which is likely to be influenced by social and economic factors outside the health care system. The final chapter discusses the findings from these comparisons and their implications for policy and research. In addition, published separately from this report are a summary report (Bevan and others, 2014a); and appendices giving details of the sources of data for Chapter 4 (Bevan and others, 2014b) and additional information on the amenable mortality rates detailed in Chapter 5 (Bevan and others, 2014c). The political devolution context of this empirical study is presented in Bevan (forthcoming), which expands on the material presented in Chapter 2 of this report.

## 2

# Devolution: background, arrangements and their implications

This chapter aims to set the context for the analyses of empirical data that follow. It gives a brief outline of the history behind, and the constitutional arrangements of, devolution. It also outlines, for each of the four countries of the UK, the predominant influences on the policies of their health care systems following devolution, and differences in models of governance. It discusses patient choice between providers, integration of services, funding and user charges. Most of the data in this report are from before the period of public spending austerity that began in 2010. This chapter concludes with a short overview of accounts of reported recent problems, as manifested in Accident & Emergency (A&E) services and quality of care.

There is a fuller account of this overview published separately alongside this report (Bevan, forthcoming), which makes fuller use of the rich source of work by others:

- for England, by Boyle (2011)
- for Scotland, by Steel and Cylus (2012)
- for Wales, by Longley and others (2012)
- for Northern Ireland, by O'Neill and others (2012)
- comparative analysis by Timmins (2013), which draws on those four reports
- by Greer (2004), who compares influences on policies and the policies that emerged in the early years of devolved government of health services in the UK
- by Bogdanor (1999), who analyses the political and constitutional aspects of devolution and shows how unresolved issues in Irish Home Rule have re-emerged decades later in the constitutional settlement of devolution, and
- by Davies (2000), who seeks to counter Anglocentric accounts of the histories of the countries that are part of the UK.

### The four nations before devolution

Devolution followed a long and complicated historical development of conquest, unions and governance arrangements in the UK. The result is one set of policies for public services for the 50 million who live in England, and different policies in each country for the 10 million who live in Scotland, Wales and Northern Ireland. As Tuohy (1999) argued, in her development and application of the concept of 'path dependency' to analyse the systems of health care in Canada, the UK and the USA, the "accidental logics" of history "have shaped national systems at critical moments in time and in the distinctive 'logics' of the systems thus created" (1999, p. 6). Key developments in the formation of the current UK included historical defeats by the English of the Welsh, by the Scottish of the English and, in Northern Ireland, the plantation of Ulster in the 17th century and the movement

against Irish Home Rule in the 1880s (Davies, 2000). Davies argues that the nature of the union of Scotland with England (and Wales) in 1707 prevented the UK from developing either a federal or unitary structure. Instead, the UK is “essentially a dynastic conglomerate, which could never equalise the functions of its four constituent parts” (2000, pp. 870–1) and lacks a unified legal system, centralised educational system, common cultural policy or history.

The different policies in each country, which have developed following devolution, reflect differences in scale, culture and history (Greer, 2004, 2008). England differs from the other countries in being so much larger, having a strong Conservative Party, significant independent sectors for health care (and schools), think-tanks across the political spectrum, advocates of market-based reforms and ideas of New Public Management, a large and critical press, and political debates that put “the operation and even the existence of the NHS in question” (Greer, 2004, p. 103). The massive scale of the NHS in England means that it is also more complicated to run than in the devolved countries. Greer (2004) argues that the consequences are that its “civil service policy and administrative capacity... far exceeds that of the devolved administrations” (2004, p. 96), and that “[t]he decisions of the government can be turned into policy and implemented far more quickly and with less hazard” (2004, p. 97).

Bogdanor (1999) uses a Marxist distinction to highlight a crucial difference between Scotland and Wales following their unions with England: Scotland remained a “historic” nation “which succeeded in retaining the institutions of statehood” (1999, p. 144), and Wales did not. Greer (2004, p. 131) argues that the geopolitics that made Scotland a separate successful Scottish state before its union with England (and Wales) in 1707 also allowed it to assemble and develop an imposing and distinctive civil society; and that the legacies of the distinctiveness of Scottish institutions prior to devolution meant that of the three devolved countries, Scotland had “the most complicated, competitive and well-worked out policies” (2004, p. 64). He argues that the major influence on policy for the NHS in Scotland is that of professionalism stemming from its powerful medical elite, with its own royal colleges and academic centres (2004, p. 68). In Wales, he argues that the most important political influence on the Welsh Assembly is local government (2004, p. 131). The devolved governments of Wales and Scotland have developed similar hierarchical models of governing health services that differ from the purchaser/provider split in England. In Northern Ireland, there has been relatively little distinctive policy development. Greer (2004, pp. 159–61) attributes this to its small size, history of direct rule and the nature and intensity of its political conflict. He describes its style of policy-making as that of “permissive managerialism”, which he defines as “a combination of minimal policy activity (such as quality improvement, new public health, or acute care redesign) and an emphasis on running services” (2004, p. 159).

## **Governance and funding of public services before devolution**

Before political devolution in 1999, the administration of each health service in Scotland, Wales and Northern Ireland was the responsibility of the respective secretary of state. The Scottish Office was created in 1885, the Welsh Office in 1964 and the Northern Ireland Office in 1972 (Greer, 2004). Bogdanor (1999) argues that the convention of collective responsibility of the UK Cabinet meant that there was little scope for the Secretary of State for Scotland to pursue policies that diverged from those applied to England, except for matters “where English ministers did not particularly care what happened in Scotland and where there

seemed to be no implication for policy across the border” (1999, p. 113). Greer argues that there was even less scope for policy divergence in Wales, where the Welsh Office, “[u]nlike its Scottish or Northern Ireland predecessors... had to hew a distinctive Welsh policy arena out of the unified England and Wales organisations, policy regimes and Whitehall departments responsible for policy until its creation” (2004, p. 133); and that Whitehall departments supervised the development of the NHS in England and Wales. Although Hunter and Wistow (1987) did identify some policy diversity in community-based care in the 1980s rather than uniformity across England, Scotland and Wales, they also highlighted two powerful constraints on Scotland and Wales developing distinctive policies: the relative lack of policy-making resources in Edinburgh and Cardiff; and the limited growth in public spending. Bogdanor (1999, p. 161) argues that in Scotland and Wales, the wide range of issues that their secretaries of state were responsible for meant that officials had a greater influence on policies than in England. The politics of Northern Ireland meant that “the Secretary of State and junior ministers were the executive and effective centres of power” (1999, p. 101) – and unlike their counterparts in Scotland and Wales, lacked political accountability. Greer describes this as “a type of vice-regal politics in which the separation of government and the vote was nearly total” (2004, p. 167).

The Secretaries of State for Scotland, Wales and Northern Ireland were accountable for expenditure on public services within each country. Although identifiable within each country, decisions on spending on social security, defence and foreign affairs were, and still are, made on a UK-wide basis. The problems of funding public services in the different countries have long been fraught because of political lobbying, the mismatch between countries’ needs for these services and their tax base to pay for them (Bogdanor, 1999). The three Secretaries of State for Scotland, Wales and Northern Ireland were allocated a global sum for their public services, and were free to allocate money to their chosen spending priorities. The Barnett Formula used in making global allocations to the devolved countries began to operate in Scotland and Northern Ireland in 1979, and in Wales in 1980 (when political devolution was first being considered). This formula, in principle, uses data on crude populations to allocate increases in spending on public services in England to the devolved countries.<sup>1</sup> Before the formula was used, England had had the lowest per-head spending: in 1976/77, spending per head on public services was much higher in Northern Ireland than England (by 35 per cent) and Scotland (by 22 per cent) and a little higher in Wales (by six per cent) (Select Committee on the Barnett Formula, 2009, p. 21).<sup>2</sup> At the time of devolution to Scotland, Wales and Northern Ireland, Scottish public spending per head was around 25 per cent higher than in England.

## The devolution settlement

Devolution took effect when powers were transferred from the Westminster Parliament to the Scottish Parliament and Welsh Assembly on 1 July 1999, and to the Northern Ireland Assembly on 2 December 1999. The constitutional arrangements for devolution are that the Westminster Parliament acts for the UK for non-devolved matters, and for devolved matters for England; also, in principle, as the body with oversight across the subordinate legislatures in the devolved countries. These arrangements lack three basic elements of a federal structure.

First, as Hazel argued, the “hole in the devolution settlement” (2000, p. 29) is the absence of an English parliament, which has the consequence of what has become known at Westminster as the ‘West Lothian Question’, after the former

MP for West Lothian, Tam Dalyell. That is, why should MPs from non-English constituencies be able to vote on policies for public services in England, when English MPs cannot vote on these policies for each devolved country, even though its finance comes from the budget for the UK?

Second, the UK lacks any constitutional basis for agreeing what should be the UK-wide elements of policy for public services (Greer, 2004), such as the Canada Health Act of 1984, which prohibits ‘user charges’ in the different provinces (Flood and Choudhry, 2004, pp. 10–11). In the UK, devolution has resulted in marked differences between countries in charges for health and social care (which are discussed below), and charges for tuition fees for undergraduate education: for example, students studying in their own country pay no fees in Scotland, pay annual fees (financed by income contingent loans) of up to £3,575 in Northern Ireland and Wales, and £9,000 in England (The Complete University Guide, nd).<sup>3</sup>

Third, there are no federal institutions in the UK which might negotiate the collection of minimum datasets on a comparable basis to be reported to federal ministries of health, unlike many federal systems such as Australia (Banks and McDonald, 2010).

The arrangements for devolution mean that, in effect, there have been two different systems for determining health service budgets over much of the period for which this study reports funding and performance: one system applied to England only; the other to the devolved countries. The NHS budget for England is the outcome of UK Cabinet agreements following negotiations between HM Treasury and the Department of Health for England. From 1998 to the end of the Labour Government in 2010, in principle, budgets for public services were contingent on each government department in England delivering performance that satisfied a set of targets agreed with HM Treasury and set out in Public Service Agreements (PSA targets) (HM Treasury, 1998, 2008). The global allocations for ‘public services’ in the devolved countries were determined largely by the Barnett Formula,<sup>4</sup> which has been criticised for various inadequacies (see below). Each devolved government decides how much of its global allocation ought to be allocated to the NHS. The lack of a constitutional framework for regulating the spending decisions of the devolved and UK governments allowed the government in Scotland to spend extra money directed at improving NHS performance in England to finance free personal social care in Scotland (see below). There are also differences in accountability for public services between the governments. The devolved countries have direct political accountability (to the assemblies in Wales and Northern Ireland and the Scottish Parliament); political accountability for these services in England is through elections to the Westminster Parliament, which hinge on a mix of English and UK-wide issues (such as the economy, social security and defence and foreign policy). Only in England are government departments accountable to HM Treasury for the performance of public services funded by UK taxpayers; in the case of the devolved governments, funding for these services is based on the Barnett Formula. Neither the NHS in Scotland nor Wales was subject to the Treasury’s PSA targets (Connolly et al, 2011). Timmins (2013, p. 13) observes that, although the Department of Health, Social Services and Public Safety of Northern Ireland performed comparatively poorly against its PSA targets when these were reviewed in 2011, “it is not clear that any penalties were incurred, or indeed that much action followed, as a result of that poor performance”.

## Governance of health services before and after devolution

This section outlines four basic, conceptually distinct models of health care system governance, and uses these to analyse the trajectories of the four countries before and after devolution.

### Models of governance

The four models of governance can be summarised as:

- trust and altruism
- choice and competition
- targets and terror
- naming and shaming.

These archetypes are similar to those described in books written, after serving in the Blair Government, by Professor Julian Le Grand (2009), as senior policy adviser to the Prime Minister from 2003–05, and Sir Michael Barber (2007), as head of the Prime Minister’s Delivery Unit from 2001–05.

#### Trust and altruism

The model of *trust and altruism* assumes that providers of public services are ‘knights’ (Le Grand, 2003, 2009) and, as they are driven by altruism, they can be trusted to do the best that they can for those they serve within the available resources, without any need for external incentives – and indeed, poor performance should be taken to indicate a need for extra resources.

It is difficult to find any theoretical justification for this model, which can be criticised on two grounds. First, as Le Grand (2003) argued, those who deliver public services are not all driven purely by ‘knightly’ motives of altruism, but also by ‘knavish’ motives of self-interest. This mix cannot be guaranteed to provide the incentives necessary to overcome organisational inertia, in order to implement changes for quality improvement. This process requires using comparative information on performance to understand how performance needs to change to deliver better outcomes, and win support for implementing the necessary changes (Berwick and others, 2003).

Second, prospect theory, developed by Tversky and Kahneman (Kahneman, 2011), shows that people feel losses much more keenly than gains of equivalent magnitude. Thus, sanctions for failure can generate the high-powered incentives necessary to overcome organisational inertia, in order to improve quality. As the trust and altruism model eschews the use of sanctions, it removes these high-powered incentives and, of course, rewarding failure creates perverse incentives (Bevan and Fasolo, 2013). Nevertheless, this model has low monitoring costs, is popular with professionals, is common in public services (Le Grand, 2003, 2009) and, we assume, has been the default model for the governance of health services in the countries of the UK.

#### Choice and competition

Both Le Grand (2009) and Barber (2007) favour the model of *choice and competition* as having the greatest potential to deliver high performance in public services. This model assumes that users choose better performing providers, and that providers respond to the consequences of these choices for their market shares. This model creates external incentives through a quasi-market system in which there is patient choice of providers, and money follows the patient. However, it is difficult to design effective quasi-markets as they require good

information, supply-side flexibility and freedom to manage. Quasi-markets have high transaction costs, but are increasingly popular with governments because pressure on poor performance is perceived to come from the ‘invisible hand’ of the market (Le Grand, 2009). They promise to have more potential to respond to users’ needs than the two centrally driven models below.

### **Targets and terror**

The model of *targets and terror* holds providers to account against a limited set of targets that clearly signal priorities to those responsible for running organisations, with clear threats of sanctions for failure and rewards for success (Barber, 2007 and Le Grand, 2009 describe this model as ‘command and control’). The model assumes that providers will respond to clear economic incentives. Prospect theory tells us that of these incentives, sanctions will have a stronger impact than rewards. The targets and terror model imposes external incentives by strong performance management, has monitoring costs and is unpopular with professionals.

### **Naming and shaming**

The model of *naming and shaming* assumes that providers respond to threats to their reputation, and is a system of performance measurement. Hibbard and others (2003) show that this model requires an ability to rank providers’ performance, so that the public easily can see which providers are performing well or poorly on a regular basis, enabling change to be monitored. The classic model of naming and shaming is the publication of annual league tables of schools based on the performance of their pupils in examinations (Bevan and Wilson, 2013).

We conclude this outline of these models by making three points. First, elements of more than one model can coexist in a system, but they are conceptually distinct, as it is possible for any one model to be used alone.<sup>5</sup> Second, however convincing each model appears to be *a priori*, if it lacks effective sanctions for failure then it is, in effect, one of trust and altruism.<sup>6</sup> Third, models other than trust and altruism are vulnerable to ‘gaming’, because they create high-powered incentives in relation to inevitably imperfect measures of performance (Bevan and Hood, 2006; Holmstrom and Milgrom, 1991). Indeed, there is no perfect model, and it is a profound mistake to change policies in the belief that such a model is there to be discovered by trial and error.

## **Governance before devolution**

The creation of the NHS in 1948 had established largely the same organisational forms and common policies across the whole of the UK: with access to the NHS being free at the point of delivery (except for the subsequent introduction of prescription charges), and typically via a GP, who acts as gatekeeper to specialist services (Webster, 1988). Initial arrangements illustrate how Wales was seen essentially as an English region, with Scotland and Northern Ireland seen as more distinct administratively: the regulation to control the distribution of GPs was implemented by three medical practice committees for England and Wales, Scotland and Northern Ireland. A hospital management committee governed each hospital, and was accountable to 14 regional hospital boards in England, one in Wales, five in Scotland (Levitt and Wall, 1984) and a hospitals authority in Northern Ireland (Leathard, 2000, p. 294).

The first major reorganisation of the NHS (implemented in 1973 in Northern Ireland, and 1974 in England, Wales and Scotland) aimed to shift the NHS from an organisation based on hospitals to one based on populations. This resulted in a regional structure in England of 14 regional health authorities; for the other

countries, the government department responsible for health fulfilled both roles of region and department of state. Within English regional health authorities and Wales, there were area health authorities responsible for running hospital and community health services and planning for populations within each area (in England and Wales these were later reorganised into district health authorities), and family practitioner committees (later family health service authorities) for family practitioner services. In Scotland, health boards were created with equivalent responsibilities to both area health authorities and family health service authorities in England and Wales. In Northern Ireland, health and social services boards were created with responsibility for health and social services. The constitution of executive teams was similar in England, Wales and Scotland but differed in Northern Ireland, where the health and social services boards included the director of social services and excluded the treasurer (Levitt and Wall, 1984).

The dominant model of governance across each country for health services until 1991 was one of trust and altruism (Le Grand, 2003). From 1991, the model changed towards one of choice and competition, with the implementation of an internal market across the UK (Secretaries of State for Health, Wales, Northern Ireland and Scotland, 1989). This was based on a purchaser/provider split, with purchasers contracting with separate NHS providers on grounds of price and quality. District health authorities in England and Wales, health boards in Scotland and health and social services boards in Northern Ireland became purchasers, and their hierarchical role in governing providers was replaced with contractual arrangements, as providers became more autonomous NHS trusts. Another innovation of the internal market was the creation of new, small-scale purchasing by GPs who opted to become fundholders, of which various forms emerged over time (Mays and Dixon, 1996).

### **Differences in governance following devolution**

Following the election of the Blair Government in 1997, the model of governance across UK health care systems largely moved back to that of trust and altruism. In England, this was described as the 'third way', compared with two 'failed' alternatives: the "divisive 'internal market' system of the 1990s" and the "old centralised command and control policies of the 1970s" (the last time there had been a Labour government) (Secretary of State for Health, 1997). The government in England retained the organisational separation of purchasers from providers created for the internal market, but abandoned the rhetoric of competition, so that purchasers became commissioners with the objective of fostering collaborative arrangements with providers. However, after 2000 in England, following the UK Government's commitment to sustained increases in NHS funding, the model of trust and altruism was abandoned, and from 2000–05 the regime of star ratings combined the models of targets and terror with naming and shaming (Bevan and Hood, 2006). Over that period in Wales, the system of performance management for its NHS was criticised by the Wanless Report (Wanless, 2003) as lacking the "incentive systems to drive properly creation or imitation of best practice" (2003, pp. 1–2), and by the Auditor General for Wales (2005a, 2005b), who described the performance management arrangements to:

have provided neither strong incentives nor sanctions to improve waiting time performance [and] Trust and Local Health Board chief executives consistently described their perception that the current waiting time performance management regime effectively 'rewarded failure' to deliver waiting time targets. (Auditor General for Wales, 2005b, p. 42)

Moreover, there was no system of “naming and shaming” (Auditor General for Wales 2005b, p. 40). In Scotland, Propper and others (2010) describe the regime for managing reduction of hospital waiting times from 2000 as one in which there was neither “naming and shaming” nor “the coupling of performance against targets and managerial sanctions that operated in England” (2010, p. 320). Farrar and others (2004) observe that in Scotland, there was the perception of “perverse incentives... where ‘failing’ Boards are ‘bailed out’ with extra cash and those managing their finances well are not incentivised” (2004, pp. 20–1). In his review of health and social services in Northern Ireland, Appleby (2005) criticises its system of performance management as lacking “appropriate performance structures, information and clear and effective incentives – rewards and sanctions – at individual, local and national organisational levels to encourage innovation and change” (2005, p. 162), and that there was also no system of naming and shaming.

In England, from 2005/06 to 2008/09, the annual Health Check replaced the regime of star ratings with elements of naming and shaming and targets and terror,<sup>7</sup> but the government emphasised the reintroduction of the model of choice and competition in the form of a revised internal market (Audit Commission and Healthcare Commission, 2008; Bevan and Skellern, 2011; Secretary of State for Health, 2002). From 2010, the Coalition Government stopped publication of the annual Health Check, and hence relied solely on the model of choice and competition (Secretary of State for Health, 2010; Timmins, 2012). The changes in policy announced in 1997, 2000 and 2002 in England have been compounded by the appetite of successive secretaries of state for structural reorganisation: Timmins rightly observes that this has reached the point at which “organisation, re-organisation and re-disorganisation” almost might be dubbed the English NHS “disease” (2013, p. 6).

The governments in Scotland and Wales abandoned the purchaser/provider split in 2004 and 2009, and created health boards similar to those of the 1980s. In Scotland, Steel and Cylus state that “Unfavourable cross-border comparisons... about performance, particularly on waiting times” (2012, p. 113) led to two responses by the government from 2005. First, the primary change was “to shift the balance of care away from episodic, acute care in hospitals to a system that emphasises preventive medicine, support for self-care and greater targeting of resources on those at greatest risk through anticipatory medicine” (2012, p. 114). Second, “following a change in minister”, the government introduced a “tougher and more sophisticated approach to performance management” (2012, p. 114) in the system of HEAT (Health improvement, Efficiency, Access and Treatment) targets, which is organised by a delivery group within the health department that agrees annual local delivery plans with each board and systematically monitors and supports improvements in performance and, where necessary, intervenes. In Wales, following the reorganisation of the NHS in 2009, the government developed the *Five-Year Service, Workforce and Financial Strategic Framework for NHS Wales* (NHS Wales, 2010, p. 7) in which the first of five guiding principles was: “Making LHB [Local Health Board] and Trust chief executives personally accountable for delivery with strong, transparent, specific performance management”. The government in Wales has introduced a system of performance management around two sets of core delivery targets. Tier 1 targets are described as “key priorities where immediate improvement is necessary or where performance at defined target levels must be sustained” and are “subject to very close attention by health boards, trusts and Welsh Government (through national monitoring)” (NHS Wales, 2011, p. 1). However, Longley and others (2012) point out that in the absence of governance by the model of choice and competition:

Wales has been less clear about enunciating its alternative set of metrics and levers for change. The dominant philosophy appears to rely on a combination of exhortation to do better plus performance management of the [local health boards] by the Welsh Government. (2012, p. 66)

Suspension of the Northern Ireland Assembly resulted in stasis in the development of health policy through much of the post-devolution period. The Health and Social Care (Reform) Act (NI) 2009 created one large commissioning body, the Health and Social Care Board, supported by five local commissioning groups organised geographically, and five coterminous health and social care trusts to provide care (O'Neill and others, 2012, pp. 9–14). Although that structure maintains a purchaser/provider split, the policy emphasis is on cooperation, and not provider competition, which is unlikely to be effective in Northern Ireland for structural reasons (O'Neill and others, 2012; Timmins, 2013). O'Neill and others (2012) argue that, as in Wales, there is no clear articulation of what will bring the discipline to improve provider performance and efficiency in the absence of competition. The chosen model of governance in Northern Ireland seems strikingly similar to the 'third way', which was tried and found wanting by the Blair Government in England between 1997 and 2000.

## Differences between the four countries

This section outlines differences between the four countries in a range of specific policy areas that differ significantly across the UK:

- patient choice
- the approach to the common goal of integration
- charges
- funding in the period of austerity (and recent reports of financial pressures and concerns over quality).

Current policy differences in these areas are summarised in Table 2.1. As was explained above, prior to devolution, the policies for the NHS in England essentially applied throughout the UK. Table 2.1 shows how far the policies of the devolved governments currently differ from the English model of choice between competing providers, and how changes in user charges and entitlements have been made following devolution.

**Table 2.1: Current differences in policy, organisational characteristics and charges and entitlements between the four countries**

	England	Scotland	Wales	Northern Ireland
<b>Population (m)</b>	50	5	3	1.7
<b>Organisational characteristics:</b>				
Purchaser/provider split	Yes	Abolished 2004	Abolished 2009	Yes
Money follows the patient	Yes	No	No	No
Competition between public and private providers	Yes	No	No	No
Integration of health and social services	No	Various initiatives	No	Yes
<b>Charges and entitlements:</b>				
Free personal social care for the over-65s	No	Yes	No	No
Free prescriptions	No	Yes	Yes	Yes

## Patient choice

As England alone has opted for the model of choice and competition, this raises the question of how choice varies across the four countries. Box 2.1 summarises a study across the four countries undertaken in 2008 and 2009 by Peckham and others (2012) on the development and implementation of policies related to patient choice. This showed that patient choice, as an aspect of responsiveness of the system to individual patients' needs, was apparent in the operation of all four countries. However, the only element of choice that *potentially* applied in each country was over the time and date of appointment and site within an NHS trust, and except in Northern Ireland, the choice of specialist, both at the discretion of the provider organisation. In practice, in each of the four countries, the study found that there was lack of clarity about both the options available and the way that choices were offered to patients, with limited discussion of choices between referrers and patients, and tension between offering choice and managing waiting lists. Only in England did patients have a guaranteed choice of provider organisation, with a system of funding in which money followed the patient (known misleadingly as 'Payment by Results') (Department of Health, 2002; Dixon, 2004).<sup>8</sup>

**Box 2.1: A comparison of patient choices across the four countries, 2008–09**

Choices	England	Scotland	Wales	Northern Ireland
Provider	Yes	No (exception basis only)	No (exception basis only)	No (exception basis only)
Consultant	At provider's discretion	At provider's discretion	At provider's discretion	No
Time/date	Yes	Yes	Yes	Yes
Site	At provider's discretion	At provider's discretion	At provider's discretion	At provider's discretion

Source: After Peckham and others, 2012

## Integration

A justification used by governments in Scotland and Wales for abolishing the purchaser/provider split has been to enable the development of integrated care. However, the pursuit of better integrated care, particularly the integration of health and social services, is common to all four governments as being necessary for being better organised to care for an ageing population. Curry and Ham (2010) describe three levels at which integration may occur for providers, either together or with commissioners:

1. macro – at the level of populations; for example, as in the Kaiser Permanente health maintenance organisation (described as Kaiser) in the USA
2. meso – at the level of a particular care group or population with the same disease or condition; for example, managed clinical networks in Scotland
3. micro – at the level of individual service users and their carers.

Goodwin and others point out that integration at the macro level “appears to be neither necessary nor sufficient to deliver the benefits of integrated care” (2012, p. 2). Feachem and others (2002) compared the NHS in the UK (for about 60 million people) with Kaiser (for about six million Californians): they reported that the two systems used similar levels of resources per head, but Kaiser performed substantially better than the NHS with, for example, faster access to both primary- and secondary-care doctors. In a follow-up study, Ham and others (2003)<sup>9</sup> found that the use of hospital beds in the NHS for 11 leading causes of admission was three-and-a-half times that of Kaiser’s standardised rate, because of Kaiser’s combination of low admission rates and relatively short stays. They concluded that the NHS in England could learn in general from Kaiser’s integrated approach, which links funding with provision, inpatient with outpatient care and prevention, diagnosis and treatment (in particular for the effective management of chronic diseases).

Studies of integration suggest reductions in the use of hospital beds over time in England, in a pilot of integrated health and social care in Torbay (Thistlethwaite, 2011), and on a countrywide basis in Scotland and Wales (Ham and others, 2013). However, none of these developments has been subjected to a well-designed evaluation. Bardsley and others (2013) reviewed controlled studies of pilots of recent attempts to develop integrated care in England. They found that for none of these pilots was there good evidence of a reduction in rates of emergency hospital admissions. In contrast, they did find good evidence of the impact of the Marie Curie nursing service at the end of life: “a well-established and widely used model of care service delivered in a standard way” (2013, p. 12). Ham and others concluded that: “Despite having the longest history of administratively integrated care, Northern Ireland has been slowest to exploit the potential benefits” (2013, p. 78). Heenan explains this in terms of the distinctive problems of governing Northern Ireland, which “already had sufficient political controversy without adding reform of health and social care to the mix” (2013, p. 5). Indeed, the reason for moving social services out of local government in 1973 was not to achieve integration with health services, but because of “systematic discrimination by local governments, which was one of the factors causing the troubles. Northern Ireland’s social services, thoroughly politicised and sectarian, had to be changed – since they were a major cause of Catholic grievance” (Greer, 2004, p. 165). Although the organisational and policy environment in Scotland and Wales ought to enable integration, Ham and others point out that in each of these countries “it has been difficult so far to shift resources within local health boards from hospitals to the community, let alone from health to social care” (2013, p. 79).

## Charges

The governments of the devolved countries abolished prescription charges in Wales in 2007, Northern Ireland in 2010 and Scotland in 2011. In England, about 90 per cent of the population are exempt from these charges, but for those who do have to pay, the charge is currently £7.85. Timmins (2013) points out that the governments of Wales and Scotland have also abolished the car parking charges at hospitals (unless these are required under contracts) (2013, p. 8), and he raises the question of whether at a time of austerity, prescription charges might be reintroduced (2013, p. 18). A striking example of what can happen from the combination of the Barnett Formula and the ability of UK governments – even from the same political party – to pursue radically different policies is Scotland’s policy implemented in 2002 of free, long-term personal and nursing care for people aged 65 years and over (Greer, 2004, pp. 87–90). When it was introduced,

this policy was estimated to have had an annual cost of about £110 million for Scotland (Scott, 2000), and was funded in effect as a “Barnett consequential” from the massive increases in spending on the NHS in England (Greer, 2004, p. 89). Greer reports of one Scottish Labour politician being told “angrily” by English colleagues that the higher funding of public services was “because of the deprivation you have in Scotland, not so you can do things we can’t do” (2004, p. 88). Timmins (2013, p. 13) points out that the costs of this ‘free’ care have more than doubled in cash terms in seven years, from £219 million to £450 million, and that there are now waiting lists for access to it (Scottish Government, 2012).

### **The pressures of austerity**

The Organisation for Economic Co-operation and Development (OECD) (2013a) notes that health spending in the UK in 2011 was slightly above the OECD average in terms of percentage of gross domestic product (GDP), and also per head (adjusted for purchasing power parity). It points out that over the first decade of devolution:

Health spending in the United Kingdom grew in real terms by 5.7% per year on average between 2000 and 2009. However, this came to an abrupt halt in 2010 as health spending dropped by 1.9%, in real terms, in 2010 with a further 0.4% fall in 2011. (OECD, 2013a, p. 2)

Appleby’s (2011) analysis of governments’ policies for expenditure on health services from 2010/11 identifies Wales as an outlier, with planned reductions in NHS spending of nearly 11 per cent by 2013/14. Timmins (2013) questions the Welsh Government’s ability to achieve its planned reduction in spending, citing evidence from the House of Commons Health Committee that “no country has managed to keep spending on healthcare flat for four years, let alone cut it” (2013, p. 7). It is hard to see how such reductions could be achieved without rationalisation of acute hospital services, and Longley and others (2012) state that the NHS in Wales is embarking on proposals to do this – but as expected, it is proving controversial and facing vocal opposition. In October 2013, finance minister Jane Hutt announced an increase of nearly 3.6 per cent in cash terms (and 1.7 per cent in real terms) to “help the NHS in Wales to avoid a scandal such as the one in Stafford Hospital” (BBC News, 2013b).

This report looks back at how differences between countries have had an impact on funding, staffing and various measures of performance. Much of the data relate to the period when each country’s health service was still experiencing growth in funding in real terms; hence, this report has no systematic basis for comparing how the different countries are managing their health systems in the period of austerity. However, this study does have reports that indicate pressures and concerns over meeting targets and quality of care.

Each country has experienced problems with A&E services. In England, the House of Commons Health Committee (2013) reported on “the failure of emergency departments to meet national waiting time targets in the early months of 2013”, which was attributed to “a broader failure resulting from fragmented provision of emergency and urgent care and a structure that is confusing to patients”. In Wales, the Health and Social Services Committee reported in December 2013 that: “Waiting times at hospital emergency departments have generally increased over recent years, with some patients, particularly older people, spending longer than 12 hours in these departments” (2013, p. 5). News reports suggest improvements in the second half of the winter in early 2014 in England (Triggle, 2014) and

Scotland (Puttick, 2014), but serious problems have been reported at hospitals in Wales (BBC News, 2014a) and Northern Ireland (BBC News, 2014b).

There have been public concerns over quality of care and inspection regimes in England, Scotland and Wales.<sup>10</sup> In England, following publication of the report in February 2013 of the Second Francis Inquiry into the scandal at Mid-Staffordshire NHS Foundation Trust (Francis, 2013), Sir Bruce Keogh, medical director of the NHS, was asked by the Secretary of State for Health and the Prime Minister “to conduct a review into the quality of care and treatment provided by hospital trusts with persistently high mortality rates” (Keogh, 2013, p. 3). He selected 14 trusts with high rates following inspections, and 11 of these were placed in special measures. The new chief inspector of hospitals, Sir Mike Richards, recommended that two other NHS trusts be put into special measures in November and December 2013 (Care Quality Commission, 2013a, 2013b).

In Scotland, following higher than predicted hospital standardised mortality ratios in NHS Lanarkshire, the Cabinet Secretary for Health and Wellbeing commissioned Healthcare Improvement Scotland to undertake a rapid review of safety and quality of care for acute adult patients in its hospitals. The report from that review made 21 recommendations, including on better management of data, medical and nurse staffing levels and handling complaints (Healthcare Improvement Scotland, 2013).

In Wales, a review of 2013 by the BBC Wales health correspondent highlighted a series of concerns over poor care in various hospitals. These included cases of *C. difficile*, high death rates on cardiac waiting lists, and the avoidable deaths of eight patients with liver disease (Clarke, 2013). In a review by the Welsh Health and Social Services Committee of Healthcare Inspectorate Wales – the independent inspectorate and regulator of all health care in Wales – the chief executive of Healthcare Inspectorate Wales was unable to reassure the committee that there was no likelihood of a scandal in Wales like that of Mid-Staffordshire in England (BBC News, 2013c).

## What this report adds

The initial period of devolution provided a ‘natural experiment’ because in each country there were substantial increases in health service funding, targets for waiting times for hospitals (Auditor General for Wales, 2005a, p. 16) and for response times to life-threatening emergency calls by ambulances (Bevan and Hamblin, 2009). However, as argued above, only in England did the government abandon the model of trust and altruism. Studies that have examined performance across the four countries over that period, in terms of hospital waiting times and ambulance response times, found that the NHS in England performed best (Bevan and Hood, 2006; Bevan and Hamblin, 2009; Connolly and others, 2011; Propper and others, 2010). This report gives information on performance after that initial period of devolution, the period from 2006, and is of great interest for two kinds of comparisons. The first is between England and Scotland, as these two countries now provide a stark contrast in models of governance. Since 1991, in the English NHS, the dominant model (except from 1997–2005) has been that of choice and competition. In Scotland, the hierarchical integrated model has been in place since 2004, with an organisational stability that is the envy of all who have suffered from the successive ‘re-disorganisations’ of the English NHS. Scotland’s

emphasis since 2005 in terms of governance has been on a strong system of performance management. In Wales and Northern Ireland, there is neither the model of choice and competition and little compelling evidence of a sustained period of governance by a system of strong performance management (at least until 2010 in Wales). This suggests that, by default, the model of governance in Northern Ireland and in Wales (at least until 2010) had been one of trust and altruism. Therefore, the second comparative question of interest is: have Wales and Northern Ireland been able to improve their performance since 2006, and how does their performance compare with that of England and Scotland?

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## Notes

1. We point out in Chapter 6 that the Select Committee on the Barnett Formula (2009) reported that this formula had used crude, outdated population statistics (that benefited Scotland), with additional funding determined through bilateral negotiations (that benefited Scotland and Northern Ireland).
2. The formula did not determine all allocations of devolved public spending: there were extra allocations negotiated bilaterally with the Treasury outside the formula, in particular to cover public sector wage increases (which appear to have benefited Scotland and Northern Ireland).
3. These arrangements have become bizarre for students who are from one country and choose to study in another. Under European law, students from any European Union (EU) country are, like Scottish students, entitled to 'free' tuition at Scottish universities with three exceptions: students from England, Wales and Northern Ireland are required to pay annual fees, which at Edinburgh were £9,000 in 2013 (BBC News, 2013a).
4. There were also bilateral negotiations with the Treasury for allocations to Scotland and Northern Ireland.
5. For example, although the regime of star ratings combined the two models of targets and terror and naming and shaming, in schools and US health care the latter model is used alone, and there is no centralised system of accountability of providers to a government department. Although naming and shaming can lead to those responsible for running providers being sacked, this is the outcome of a local rather than a national decision.
6. For example, in the choice and competition model it has proved difficult for ministers to let 'failing hospitals' or services within hospitals exit the market. A system of targets without sanctions is one of 'hope and exhortation', rather than 'targets and terror' (or 'command and control').
7. See Bevan (2011).
8. Payment by Results creates financial incentives for hospitals to reduce costs and increase the numbers of cases that they treat, with concerns over incentives to skimp on quality or discharge patients too early. Farrar and others (2007; 2009) compared the efficiency of different types of hospitals in England with hospitals in Scotland over the period from 2003/04 to 2005/06. In Scotland, there was no tariff system for funding hospitals (other than for cross-boundary flows), and hence only weak financial incentives to reduce costs and treat more numbers. They estimated that efficiency had increased slightly faster in England than in Scotland. They tentatively concluded that reductions in hospital costs in England had been achieved by increases in efficiency, rather than reductions in quality.
9. This study standardised for age and sex, but did not take account of differences in morbidity (Talbot-Smith and others, 2004).
10. In Northern Ireland, there is little that is reported publicly over concerns over quality of care. The Inquiry into Hyponatraemia-Related Deaths after the deaths of five children in Northern Ireland hospitals between 1995 and 2003 is expected to report in 2014 (Inquiry into Hyponatraemia-Related Deaths, 2014).

# 3

## Indicators and methods

The analyses presented in Chapters 4 and 5 compare a set of indicators relating to health, publicly financed inputs, activity and performance longitudinally across the four countries of the UK and England's North East region. In Chapter 4 this report aims mainly to update comparisons using the same data as Dixon and others (1999), Alvarez-Roseté and others (2005) and Connolly and others (2011). Like them, the authors of this report have faced the continuing problem of the extremely limited set of data that are reported for the four countries for which it is possible to make meaningful longitudinal comparisons. This study has tried to report full-time series for the selected indicators from 1996 up to the most recent available year, but often this was not possible. This chapter gives the bases of the indicators reported in Chapter 4, and of amenable and other mortality in Chapter 5. It also discusses the use of the North East region of England as a comparator for the devolved countries, and the distinction between statistical significance and materiality.

### Indicators and data used in Chapter 4

The data for Chapter 4 have been obtained from a variety of sources, including routine and *ad hoc* publications from the Office for National Statistics, countries' statistical departments, national governments and health services and academic papers. Indicator definitions and sources are given in Appendix 1, which is published separately (Bevan and others, 2014b). We have been unable to report even the limited set of basic data that were reported by Connolly and others (2011) because of changes in data definitions across the four countries.

The comparisons in this report provide evidence of how differences in policy across the four countries since devolution have affected performance of their health systems. However, interpretation of this evidence is complicated by the fact that other factors shape the workings of those systems, regardless of the policy path pursued. The four countries differ in the following:

- size
- distribution of their populations between cities, towns and sparsely populated rural areas
- socioeconomic characteristics
- ethnic composition
- morbidity.

This study has tried to tackle this problem by including, where the data are available, statistics for the North East region of England which, as mentioned in Chapter 1, is a better comparator with the devolved countries than England as a whole (this is discussed below).

Most of the indicators selected were reported in the previous study by Connolly et al (2011). However, we have also tried to expand the range of data on quality of care beyond those on waiting times (for which it was not possible in the past to report comparative data for Scotland) that were reported in the earlier studies. In Chapter 4, we give comparisons using data from the UK renal audit and the stroke audit (except for Scotland); Methicillin-Resistant Staphylococcus Aureus (MRSA) mortality rates (where MRSA is mentioned on the death certificate); and rates of immunisation and vaccination. Sutherland and Coyle (2009) reported on rates of immunisation and vaccination and MRSA. They highlighted problems with MRSA in all countries. In 2013, as we discuss in Chapter 6, there were serious outbreaks of measles in England and Wales. The few national clinical audits that cover all four countries tend to be so highly specialised that patients often come from other countries. The renal audit is an exception. Although the stroke audit does not cover Scotland this merits inclusion given the importance of stroke care.

The indicators that are reported in Chapter 4 are as follows:

- life expectancy
- expenditure
- staffing levels (hospital doctors, GPs, nurses, non-clinical staff)
- activity (outpatient appointments, inpatient admissions and day-cases)
- crude productivity (inpatients per hospital doctor and nurse)<sup>11</sup>
- volumes of, and waiting times for, selected medical procedures
- waiting times and ambulance response times in relation to government targets
- satisfaction with health services
- quality of care (renal and stroke audits, MRSA mortality rates)
- immunisation and vaccination rates.

The indicators reported relate to publicly financed care only (patients treated by the independent sector, but paid for by the NHS, are included), and exclude privately financed activity. Appendix 1 of this report, published separately (Bevan and others, 2014b) highlights problems with data quality and comparability. The authors have devoted considerable effort to try to ensure that the indicators included in the analysis are defined and measured in the same way in each of the countries at each time point, and we are grateful to the data experts in each country for the assiduous way in which they have explained to us the many obstacles that stand in the way of achieving this objective (see Figures 4.1 to 4.37 and Table 4.1).

**Table 3.1: Comparability of indicators across the four countries in the most recent years for which data are available**

Indicator	England	Scotland	Wales	Northern Ireland
Life expectancy at birth	Blue	Blue	Blue	Blue
Public expenditure on health	Blue	Blue	Blue	Blue
Hospital doctors (WTE)	Blue	Blue	Blue	Blue
GPs (WTE headcount)	Blue	Blue	Blue	Blue
Nurses (WTE)	Purple	Purple	Purple	Purple
Non-clinical staff (WTE)	Purple	Purple	Purple	Purple
Outpatients	Purple	Purple	Purple	Purple
Inpatients	Blue	Blue	Blue	Blue
Day-cases	Purple	Purple	Purple	Purple
Selected procedures per 10,000 population*	Blue	Blue	Blue	Blue
Waiting time (RTT)	Blue	Blue	Purple	Purple
Waiting time (median and 90th percentile, selected procedures)	Blue	Blue	Blue	Blue
Ambulance response times	Blue	Blue	Blue	Blue
A comparison of patient choices available	Blue	Blue	Blue	Blue
Satisfaction with various aspects of the NHS	Blue	Blue	Blue	Red
Renal audit, survival	Blue	Blue	Blue	Blue
Stroke audit	Blue	Purple	Blue	Blue
Childhood immunisation 2011/12	Blue	Blue	Blue	Blue
Seasonal influenza vaccination uptake	Blue	Blue	Blue	Blue
Uptake of screening for breast cancer	Blue	Blue	Blue	Blue
Mortality rates for deaths with MRSA	Blue	Purple	Blue	Blue
Amenable mortality	Blue	Blue	Blue	Blue

■ Data comparable   
 ■ Data available (but not comparable)   
 ■ Data not available

Note: WTE = whole-time equivalent  
 RTT = Referral-to-treatment  
 \*Comparable Northern Ireland data only available to 2009/10.

Table 3.1 shows for each indicator reported in Chapter 4 the extent of comparability of the most recent data across the four countries. Blue shading means that the data are broadly comparable; purple means that data are available, but pose serious problems in making comparisons; and red means that the data are not available. Over time, the comparability of data has changed with changes in definitions in the different countries.

The data in Chapter 4 are largely the most up to date available in autumn 2013, updated subsequently where new data became available that could be easily incorporated. Thus it was possible to, for example, include waiting times for selected procedures for 2012/13 and RTT times from March 2013. Inevitably, there is a longer lag in the availability of comparable data across the four countries than within each country.

## Indicators and data used in Chapter 5

Chapter 5 gives comparative analyses of amenable mortality in the four countries and North East England. ‘Amenable conditions’ are defined in line with Nolte and McKee as “those from which it is reasonable to expect death to be averted even after the condition develops” (2004, p. 51). Age-standardised death rates are calculated by sex from selected single causes and cause groups, using the list of conditions applied in previous analyses.<sup>12</sup> The analysis was confined to deaths under 75 years, primarily because of the difficulty of reliably assigning a single cause of death to the often multiple conditions present among those dying at older ages (which includes almost 50 per cent of all mortality). In line with earlier work, ischaemic heart disease (IHD) is included in this report, but this cause is treated differently in that only 50 per cent of IHD deaths are considered as ‘amenable’. This is based on a review of the evidence, which suggests that between 40 per cent and 50 per cent of the IHD decline in industrialised countries can be attributed to improvements in health care (Ford and others, 2007). Hotchkiss and others (2014) also reported that increases in medical treatments have accounted for almost half of the 40 per cent decline in mortality due to coronary heart disease in Scotland between 2000 and 2010. Throughout this report, the term ‘amenable’ mortality always includes 50 per cent of IHD deaths. Further, lower age limits have been applied for some causes, such as diabetes (<50 years). This analysis of amenable mortality builds on the work of Desai and others (2011).<sup>13</sup> The European standard population is used to calculate age-standardised mortality rates, and mortality rates for England and Wales are adjusted for known discontinuities related to the introduction of automated cause of death coding in 1993.<sup>14</sup> The change in age-standardised death rates in England as a whole, North East England, Wales, Northern Ireland and Scotland are reported in two time periods: 1990–2000 and 2000–10. The study also compares trends in amenable mortality and mortality from conditions other than those considered amenable to health care (‘other’ mortality).

Analysing aggregate changes among those under the age of 75 years provides important insight into understanding the potential impact of health care on population health. However, such aggregate figures are likely to conceal possible differential impacts by age group (Nolte and McKee, 2012). Therefore, this study analysed trends for men and women for three age ranges – under 75 years, under 65 years and 65–74 years – using relative (%) and absolute rates (‘slope’) of change in the two periods and in each of the countries, plus the North East. The absolute annual change (‘slope’) was estimated by fitting a linear regression function to each of the two time periods. The relative change was estimated as the average annual percentage change over the same time periods. For detailed results, see Bevan and others (2014c).

## North East region of England as a comparator for the devolved countries

The third comparative study of the health care systems of the four UK countries (Connolly and others, 2011) argued that statistics for North East England are better benchmarks for comparison with the devolved countries than the statistics for England as a whole. The present report considers five criteria for benchmarking, as follows.

## Scale

In terms of their populations (2010 estimates), England has 52.2 million people; Scotland, 5.2 million; Wales, 3 million; and Northern Ireland, 1.7 million (Office of Population Censuses and Surveys (OPCS), 2011). The North East region of England has a population of 2.6 million, which is much more comparable to the devolved countries.

## Socioeconomic, demographic and morbidity characteristics

The Wanless Review of Health and Social Care in Wales chose the North East of England as its benchmark for comparisons with Wales because: “While there are some differences, the North East of England is very similar to Wales across a range of socio-economic indicators and expenditure on private healthcare” (Wanless, 2003, p. 31). The best choice of region in England as a benchmark with Wales was examined carefully by the First Report of the Independent Commission on Funding and Finance for Wales (Holtham, 2009, pp. 35–51). This also found Wales to be similar to the North East region of England in comparison with the average for England in terms of:

- low proportions of the population with a black and minority ethnic background
- low rates of economic activity – measured by gross value-added per head
- high percentages of adults with no qualifications
- percentages of the population with a limiting, long-term illness, and
- percentages of the working age population claiming social security benefits.

Wales differed from the North East region in that Wales has a higher dependency ratio (the ratio of the number of children and people above retirement age relative to the number of working age individuals), and higher rates of population sparsity (the percentage of people living in small settlements or isolated dwellings in sparsely populated areas). What is particularly striking in this analysis is that the Commission applied the formula used to determine target allocations of resources between NHS areas in England to the then English strategic health authorities and Wales. This formula aims to take account of geographical variations in the age distribution, additional needs and costs of delivering services to populations. The Commission found that the formula gave an estimate for the relative need for Wales that was “very close to the relative need in the North East of England” (2009, p. 48).

The Department of Health, Social Services and Public Safety of Northern Ireland (nd) also sought to identify the most appropriate English region as a benchmark for Northern Ireland. This analysis used data from around the 2000s, and so is now out of date. It suggested across a range of indicators that the region most similar to Northern Ireland was Yorkshire and the Humber. However, that analysis also found that the North East region was similar to Northern Ireland in terms of key measures of need for health care:

- dependency ratios
- standardised mortality ratios
- percentages of households with lone parents and dependent children
- older people living alone.

## Bias

This regards avoiding the bias from London's high costs of labour and concentrations of staff involved in research, teaching and training. The 2011 Annual Survey of Hours and Earnings (OPCS, 2011, p. 21) showed again that there is little variation in earnings within the UK, except for London and the South East:

In April 2011 median gross weekly earnings for full-time employees were highest in London at £651 (30 per cent higher than the national median) and lowest in Northern Ireland at £451 (10 per cent lower than the national median). (2011a, p. 20)

The weekly rates were £518 and £486 in the North East and Wales, respectively.

Data for numbers of medical clinical academics in 2009/10 show that there were nearly 1,000 in London, nearly 400 in Scotland, about 100 in the North East and Wales and about 50 in Northern Ireland (London Medicine, nd). These give rates per 100,000 of more than 11 in London, more than seven in Scotland, about four in the North East and about three in Wales and Northern Ireland.

## Policy differences

This relates to accounting for differences in policies between the four countries that affect the comparability of statistics on staffing in relation to activity. England has had a different policy from the rest of the UK, which has encouraged NHS commissioners to contract with private providers. Arora and others (2013) have estimated the scale of these changes over time. They show that NHS spending on non-NHS providers increased from £5.6 billion in 2006/07 to £8.7 billion in 2011/12 (at 2011/12 prices). As these commissioners spent £91 billion in total on their populations, the non-NHS element accounted for about 10 per cent. However, this varied substantially within the regions of England and was lowest in the North East, where it was only 3.2 per cent in 2011/12. Hence, the use of non-NHS services is relatively unimportant in comparisons of the North East with the devolved countries.

## Comparisons over time

This relates to being able to make comparisons over time, given the successive 're-disorganisations' of the English NHS. The North East region has been organisationally much the same over the period for which this study reports data.<sup>15</sup>

What this discussion shows is that comparisons between the three devolved countries and England as a whole are problematic, and that regions outside London and the South East generally offer better comparators than England as a whole. Detailed comparisons show that no English region is similar on all relevant criteria to Wales and Northern Ireland, also that the three devolved countries differ. Nevertheless, the North East region looks to be a good choice of comparator as it is similar in scale, morbidity and socioeconomic characteristics to the devolved countries. Scotland differs from the North East region, Wales and Northern Ireland in its concentrations of clinical academic staff, and in having slightly higher mean weekly incomes.

## Statistical significance and materiality

In this report we give estimates of mean values of various indicators, which typically differ across the four countries and the North East region (data in the figures have been rounded so occasionally the bars in charts may appear slightly different from those reported in the text). The question then arises as to whether these differences in mean values are statistically significant: that is to say, are they within the range of what we would expect from sampling errors? In Chapter 4, the data are presented in a form that is available in the public domain, without undertaking further testing for statistical significance for changes in trends or in differences between the four countries and North East England. For a few indicators we have given 95 per cent confidence interval estimates around the mean values: if these intervals overlap then the differences in means are not statistically significant (at the five per cent level) and vice versa. In Chapter 5 we report trends in amenable and other mortality. We have undertaken further statistical analyses, which found that the declines in amenable mortality were statistically significant, but we did not formally test whether trends in countries differed because the relative changes between countries were so similar.

Another question is whether the differences reported are material – whether they are large enough to be of practical significance. Paradoxically, a material difference may not be statistically significant, and a statistically significant difference may not be material. As Lee and Tabak (2010) point out:

Statistical significance sheds light on how unusual certain results or data are and specifically how unlikely it would be to see such results if there were no true causal effect or relationship present. Statistical significance, however, does not go to the magnitude of an effect, a concept referred to by terms such as practical, economic or clinical significance.

The question of materiality is a matter of judgement and we have aimed to present findings to inform such judgements.

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## Notes

11. This is a crude measure of productivity, as it captures neither costs in terms of use of resources, nor benefits in terms of gains in health.
12. Examples of cause groups are IHD, hypertension and stroke, colorectal and breast cancer, and diabetes.
13. We obtained data on deaths for each of the four countries with cause of death classified according to the ninth and 10th revisions of the International Classification of Diseases (ICD), by five-year age band and sex for 1990–2010 from the Office for National Statistics for England, England's regions and Wales, the General Register Office for Scotland and the Northern Ireland Statistics and Research Agency. Population data were obtained from the Office for National Statistics. Raw mortality and population data were collated into a single database in comparable format.
14. The introduction of automated cause of death coding resulted, among other things, in an overestimation of deaths assigned to pneumonia, and an underestimation of those assigned to cerebrovascular disease between 1993 and 1999. We used comparability ratios proposed by the Office for National Statistics for adjustment (see Brock and others, 2006; Griffiths and others, 2004).
15. We are grateful to Andy McKeon for pointing this out.

# 4

## Cross-country comparisons

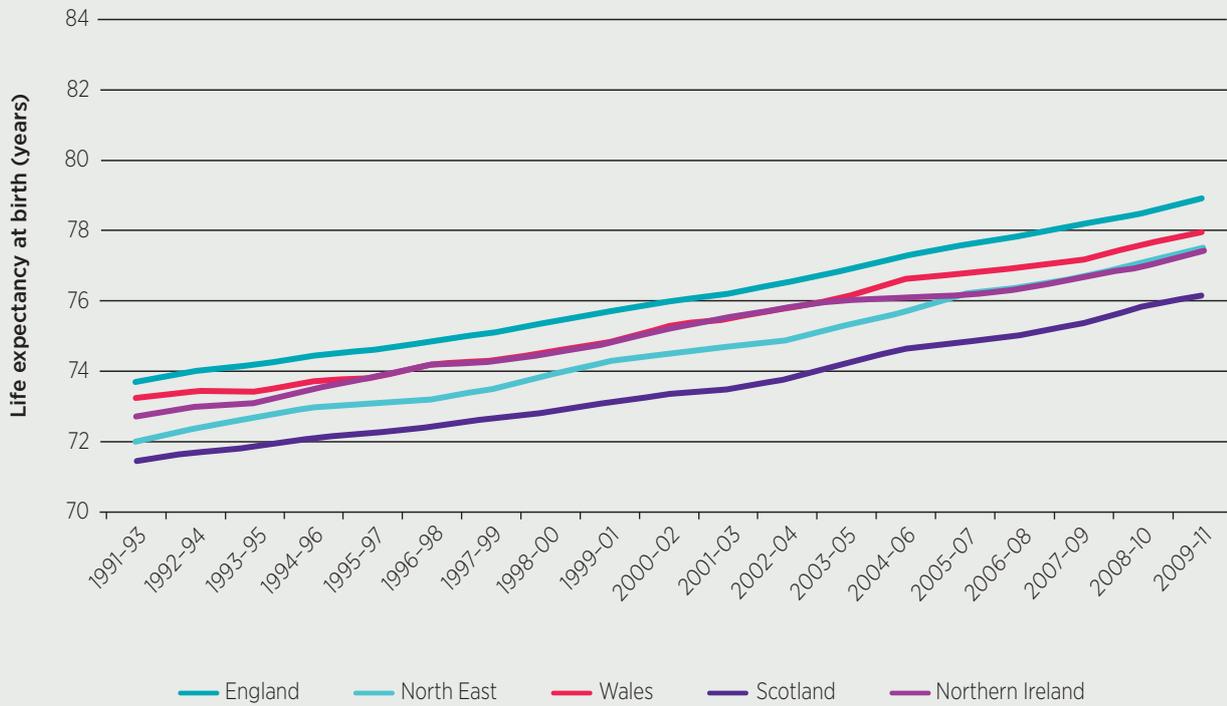
The aim of this report is to compare health and the resources for, and the outputs and performance of, each publicly financed health system in England, Scotland, Wales and Northern Ireland before and after devolution. As explained in Chapter 3, in order to inform comparisons with the devolved countries, we have tried to obtain data on the North East region of England. In common with all those who have tried to do this, we have found not only that limited data are available that could be used to make comparisons, but also that such comparisons can be problematic. This is because there are different definitions of what is and is not included in the data from each country, as well as differences in how performance is measured, in particular for hospital waiting times. The principal findings are reported in order of ease of comparison, and hence begin with data on life expectancy, where there are no doubts concerning comparability. As explained in Chapter 3, we present data in this chapter in a form that is available in the public domain, without undertaking further testing for statistical significance in changes in trends or in differences between the four countries and North East England. We have, however, given 95 per cent confidence intervals for some indicators. We have aimed to present data to inform judgements on the materiality of the differences shown.

### **Performance comparisons where data allow good comparisons across all four countries**

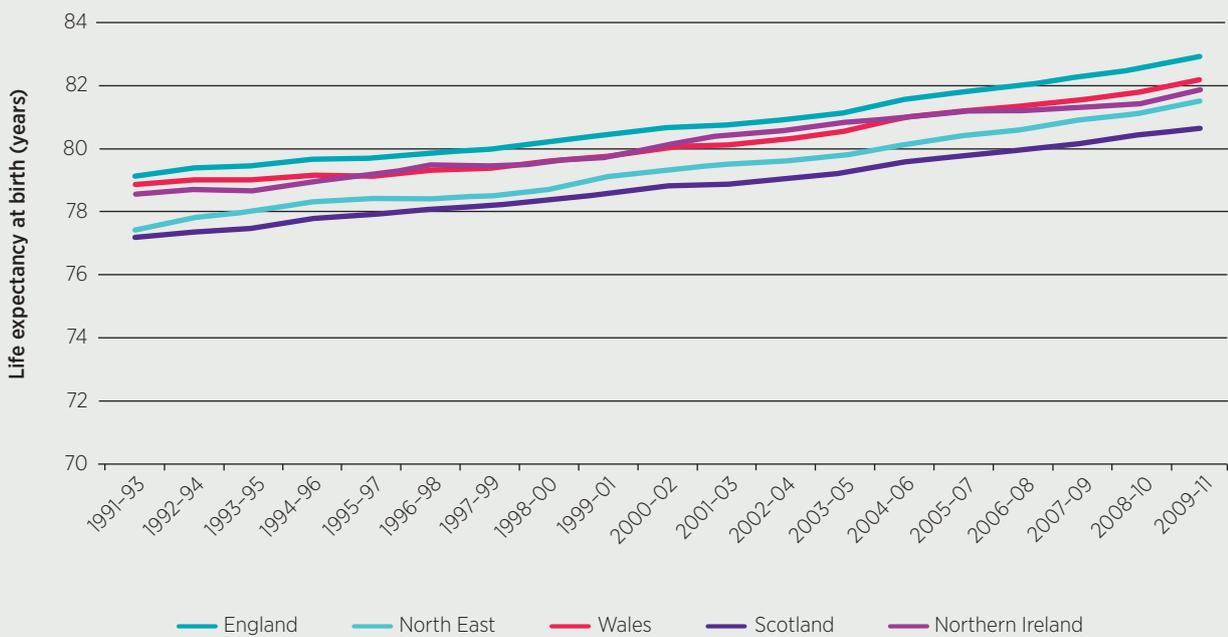
#### **Life expectancy**

In this report, life expectancy is used to provide a simple indicator of the relative health of the populations in the four countries of the UK, not as a measure of health system performance. Figures 4.1 and 4.2 (page 44) show that in the 21-year period between 1991–93 and 2009–11, life expectancy at birth increased by about five years for men, and three to four years for women in each country. The differences between the averages for each country were remarkably stable over time, with the ranking for men and women being consistently longest in England, and shortest in Wales, Northern Ireland and Scotland. Men and women in England would have been expected to live about two years longer than men and women in Scotland in the 1990s and 2000s, with the gap widening towards the end of the period. The interesting movement in relative rankings is shown in North East England, which in 1991–93 had similar life expectancy to Scotland, but, by 2009–11, both men and women in North East England would have expected to live about one year longer than in Scotland. Life expectancy (in years) in 2009–11 for women and men was 82.9 and 78.9 respectively in England, 82.2 and 78 in Wales, 81.8 and 77.4 in Northern Ireland, 81.5 and 77.5 in North East England and 80.6 and 76.1 in Scotland.

**Figure 4.1: Male life expectancy in the UK countries and North East England, 1991-93 to 2009-11**



**Figure 4.2: Female life expectancy in the UK countries and North East England, 1991-93 to 2009-11**



## Health spending per head

The source of data on expenditure on public services is the Public Expenditure Statistical Analyses series produced by HM Treasury. These data are comparable across the different countries, but are unsatisfactory for this report's purposes for three reasons. First, the data available on health spending are for total expenditure only: it is possible to compare neither the components of expenditure across countries in terms of primary care versus hospital and community health services, nor by programmes of care, such as non-psychiatric acute and mental health services, nor still by types of staff. The totals include activities such as medical research so health services account for around 93 per cent of the total in England.

Second, HM Treasury reports total *identifiable* expenditure by country, which is different from the allocations made with reference to the Barnett Formula to the governments of the devolved countries. For example, the Independent Commission on Funding and Finance for Wales (Holtham, 2009) pointed out that in 2006/07, the block grant allocation made to Wales with reference to the Barnett Formula was £12.8 billion, but that this accounted for only 53 per cent of identifiable expenditure in Wales. The remaining 47 per cent of public spending was mainly from social security benefits and tax credits (managed by the Department for Work and Pensions and HM Revenue & Customs on a UK basis) (Holtham, 2009, pp. 14–19).

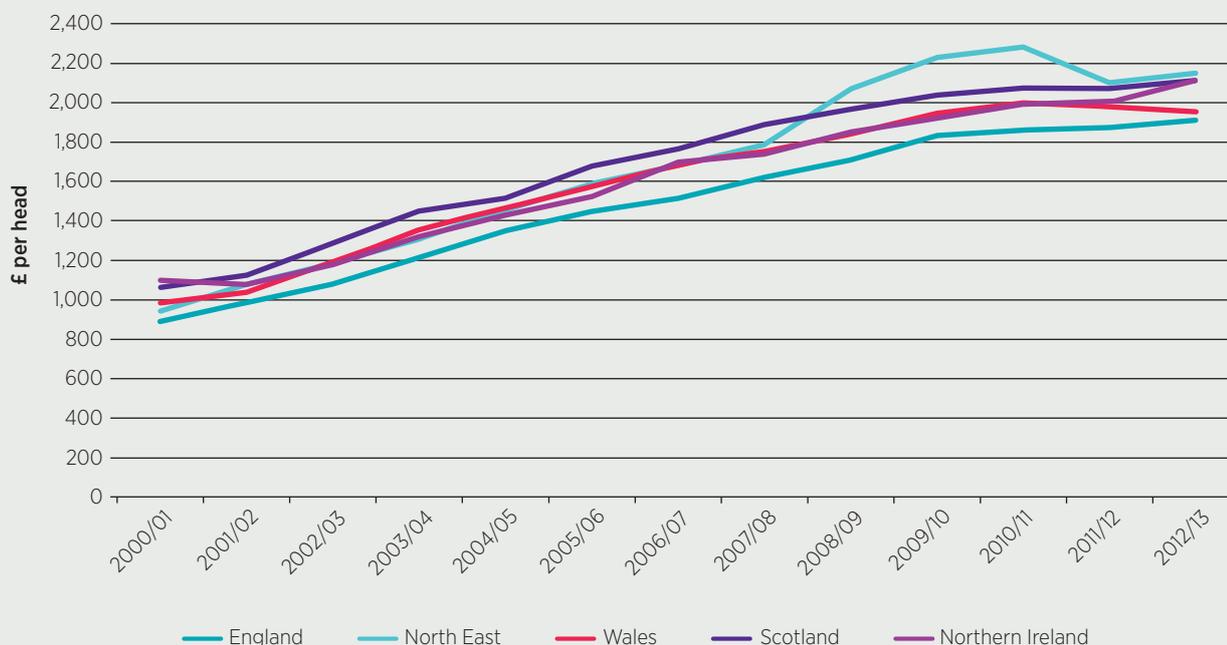
Third, there are potential problems in making comparisons over time because of frequent classification and transfer changes made by the Treasury between successive publications in the Public Expenditure Statistical Analyses series. These problems were investigated by the Holtham Commission in deriving its estimates of relative expenditure per head in Wales on programmes covered by the Barnett Formula from 1994/95 to 2010/11 (Holtham, 2009). The Commission was able to construct a robust single time series (from the Departmental Expenditure Limits for Wales of its block grants), which suggests that the classificatory changes over time have not been material, and that published data from different sets can be used to make meaningful comparisons over time. However, it remains problematic to derive comparable data on spending on public services by the devolved governments and England because HM Treasury publishes Departmental Expenditure Limits for the devolved countries only (and there is no comparable series for England). Hence, this report only gives data on total expenditure on health in each country and for North East England, and does not give estimates of the block grants to the devolved countries and their counterpart for England.

Figure 4.3 gives health expenditure per head in cash terms over the 13 years from 2000/01 to 2012/13 for the devolved countries and North East England. What is most striking about the Figure is the curious sharp increase in spending per head in North East England from 2007/08 to 2009/10, which diverges from the trend for North East England in the previous period from 2000/01, and from the four countries after 2007/08. There is then a sharp reduction in spending per head in North East England between 2010/11 and 2011/12. This odd pattern for the region appears in the latest data from HM Treasury, published in December 2013 (HM Treasury, 2013a). The previous publication of these data in July 2013 (HM Treasury, 2013b) showed no sharp rise and fall between 2007/08 and 2011/12 (see Bevan et al, 2014b, for further details on these sources). This latest revision of the data increased the Treasury's estimates of spend per head for North East England by five per cent in 2008/09, and eight per cent for 2009/10 and 2010/11. It is difficult

to understand why such large changes were made in 2013 to data going back to 2007/08 and the odd pattern that results from these changes. There were also downward revisions in the estimates of spend per head for Northern Ireland of five per cent for 2010/11 and 2011/12. Such revisions weaken confidence in these data.

The estimates shown in Figure 4.3 of health expenditure per head show that this doubled in cash terms (that is, at current prices and not adjusted for inflation), and what follows is similarly based on changes in cash terms in 13 years. In 2000/01, the spending per head in each country was as follows: Northern Ireland, £1,099; Scotland, £1,064; Wales, £985; and England £891. In 2012/13, this was as follows: Scotland, £2,115; Northern Ireland, £2,109; Wales, £1,954; and England, £1,912. The total percentage increases over those 13 years were: England, 115 per cent; Scotland, 99 per cent; Wales, 98 per cent; and Northern Ireland, 92 per cent. The relative excess of spending in Northern Ireland over England reduced from 23 per cent in 2000/01 to 10 per cent in 2011/12.<sup>16</sup> Figure 4.3 shows the beginning of the period of public sector financial austerity. Over the 11 years from 2000/01 to 2010/11, the annual rates of growth were: England, ten per cent; Scotland and Wales, nine per cent; and Northern Ireland, seven per cent. Over the three years from 2010/11 to 2012/13, the annual rates of change were: growth in Northern Ireland of two per cent; growth in England and Scotland of one per cent; and a reduction in Wales of one per cent.<sup>17</sup>

**Figure 4.3: Government expenditure on health, £ per head, UK countries and North East England, 2000/01 to 2012/13 (at current prices)**



The estimates in Figure 4.3 also show how the formula used to allocate resources within England has directed more resources towards areas that were more materially deprived in 2012/13 than in 2000/01. Over the 13-year period, the total percentage increase in per-head spending was 128 per cent in North East

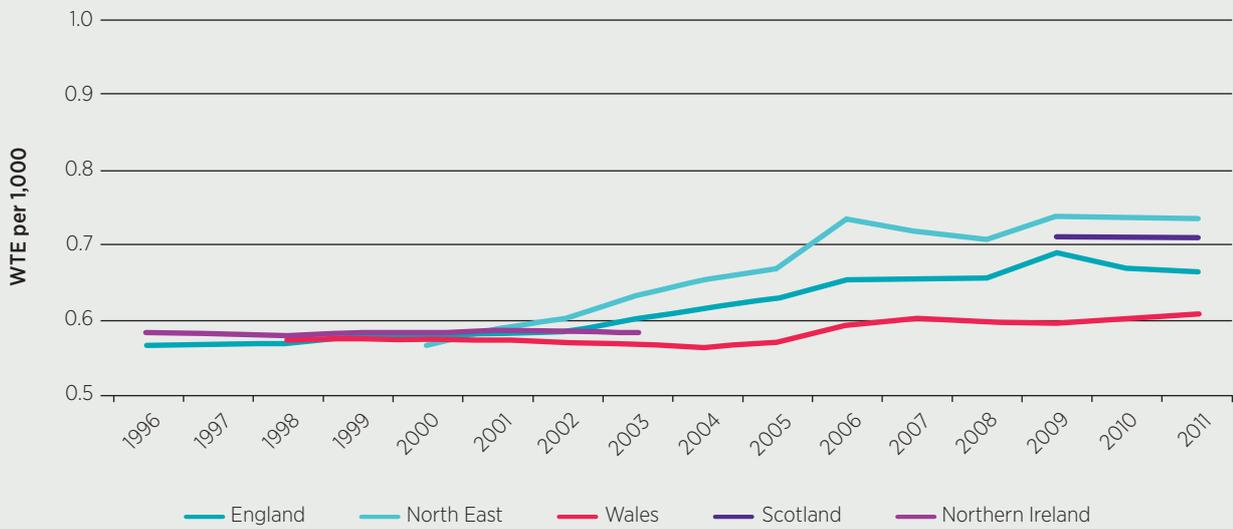
England, compared with 115 per cent for England as a whole, so the relative excess spending per head in North East England over the average for England increased from about six per cent in 2000/01 to about 12 per cent in 2012/13. This also meant that the relative spending per head in North East England as compared with the devolved countries changed over that period: in 2000/01, North East England had lower spending per head (£895) than the devolved countries, but by 2012/13 its spending per head (£2,150) was greater than the devolved countries.

### **Supply of general practitioners**

We would like to be able to compare how spending on each NHS translates into staff. Data are presented for hospital doctors, nurses and support staff below, but there are considerable difficulties in interpreting these statistics across countries and over time. The only group of staff for whom this study has good comparable data are general medical practitioners (GPs). As many GPs work part time, comparisons ought to be based on WTEs (whole-time equivalents), but these data are consistently available only for England and Wales; for Scotland there are cross-sectional primary care workforce surveys for 2009 and 2013; and Northern Ireland stopped reporting WTE data for GPs in 2003. This report presents available data on both WTE and headcounts.

The data for GPs include GP providers (practitioners who have entered into a contract to provide services to patients – formally known as Contracted and Salaried GPs), and other GPs who work within partnerships (and were formerly known as ‘GMS Other’).<sup>18</sup> Figure 4.4 (page 48) gives the WTE rate of GPs per 1,000 population from 1996–2011, except for Scotland, where these data are only available for 2009–11 (estimated from the 2009 and 2013 primary care workforce surveys). Figure 4.4 shows that England, Wales and Northern Ireland had similar rates of about 0.6 per 1,000 population until the early 2000s, but between 2002 and 2009, there was an increase in England to almost 0.7 followed by a slight fall. In 2011, there were about 0.7 WTE GPs per 1,000 population in Scotland and England, and 0.6 in Wales; and North East England had the highest rate. The study has complete data for the headcount rate of GPs per 1,000 population from 1996–2011, which are given in Figure 4.5 (page 48). This shows Scotland to have had the highest rates throughout, reaching 0.95 in 2010. In 2011, the rates were 0.8 in North East England, 0.75 in England, 0.66 in Wales and 0.64 in Northern Ireland. Comparing Figures 4.4 and 4.5 shows that North East England (0.74) had a higher rate than Scotland (0.71) in WTEs, but Scotland (0.95) had a far higher rate than North East England (0.8) in headcount. Hence, data on headcount give misleading impressions of the supply of GPs as the ratio of headcount to WTEs varies between the countries.

**Figure 4.4: General practitioners (whole-time equivalent) per 1,000 population, 1996–2011**



**Figure 4.5: General practitioners (headcount) per 1,000 population, 1996–2011**



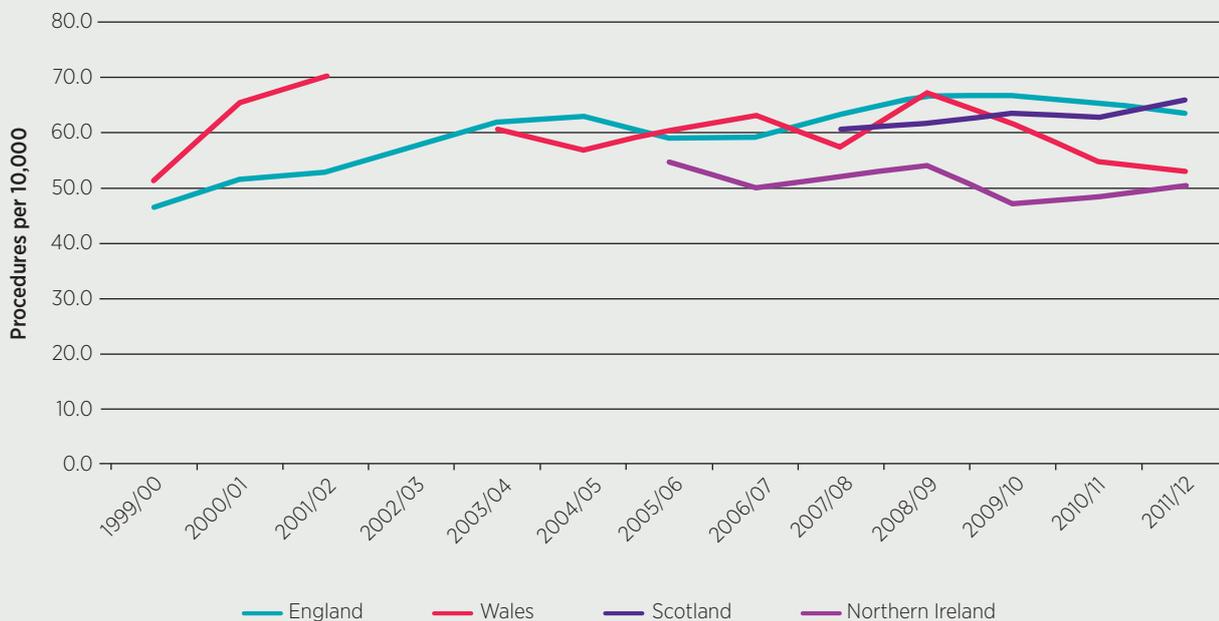
## Rates of treatment and waiting times for selected procedures

The three earlier studies (Dixon and others, 1999; Alvarez-Roseté and others, 2005; Connolly and others, 2011) compared how the inputs of spending and staff in the different countries translated into rates of treatment for outpatients, inpatients and day-cases. They also compared waiting times for the first outpatient appointment and elective admission (except for Scotland). Unfortunately, as explained below, it is now problematic to do so. However, this report does have broadly comparable data on rates of hospital treatment from 2007/08 to 2011/12 for the seven common procedures that were used to make cross-country comparisons in the earlier studies,<sup>19</sup> and for waiting times for six out of these seven procedures.<sup>20</sup>

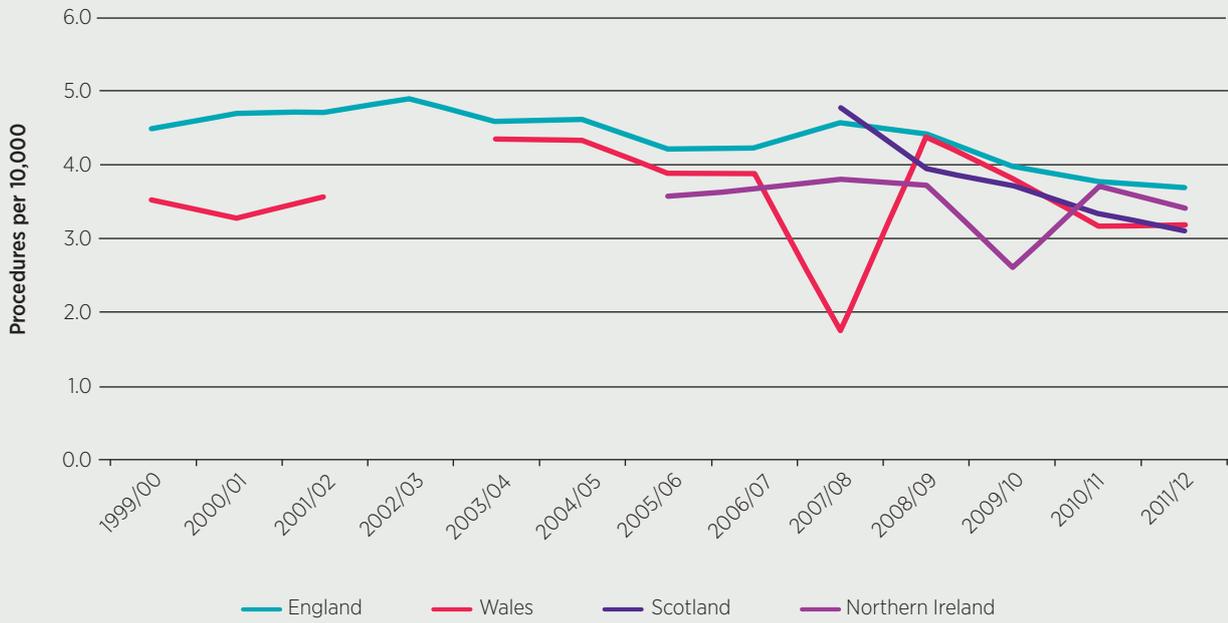
### Rates of treatment

Figures 4.6 to 4.12 give rates of hospital treatment (inpatients and day-cases) by procedure, by country. There were increases in the rates for gall bladder excision and hip and knee replacement; decreases for coronary artery bypass grafts (CABG), varicose vein removal (except for an increase in Northern Ireland in 2011/12) and inguinal hernia repair; and diverging trends in cataract removal, as there was an increase in England and Scotland, but a decrease in Wales and Northern Ireland. In 2011/12 the highest rates for cataract removal, excision of gall bladder and hip replacement were in Scotland; for CABG and hernia repair, in England; for varicose vein removal, in Northern Ireland; and for knee replacement in Wales.

Figure 4.6: Cataract, number of procedures (OPCS) per 10,000 population



**Figure 4.7: Coronary artery bypass grafts, number of procedures (OPCS) per 10,000 population**



**Figure 4.8: Hernia, number of procedures (OPCS) per 10,000 population**

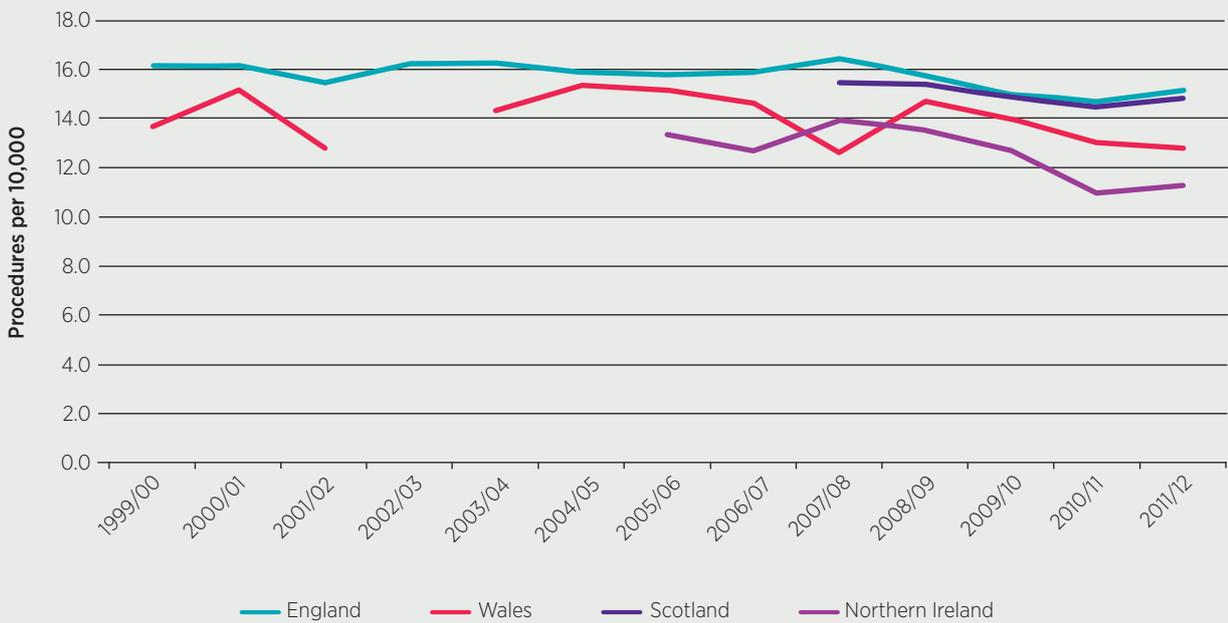


Figure 4.9: Hip replacement, number of procedures (OPCS) per 10,000 population



Figure 4.10: Knee replacement, number of procedures (OPCS) per 10,000 population

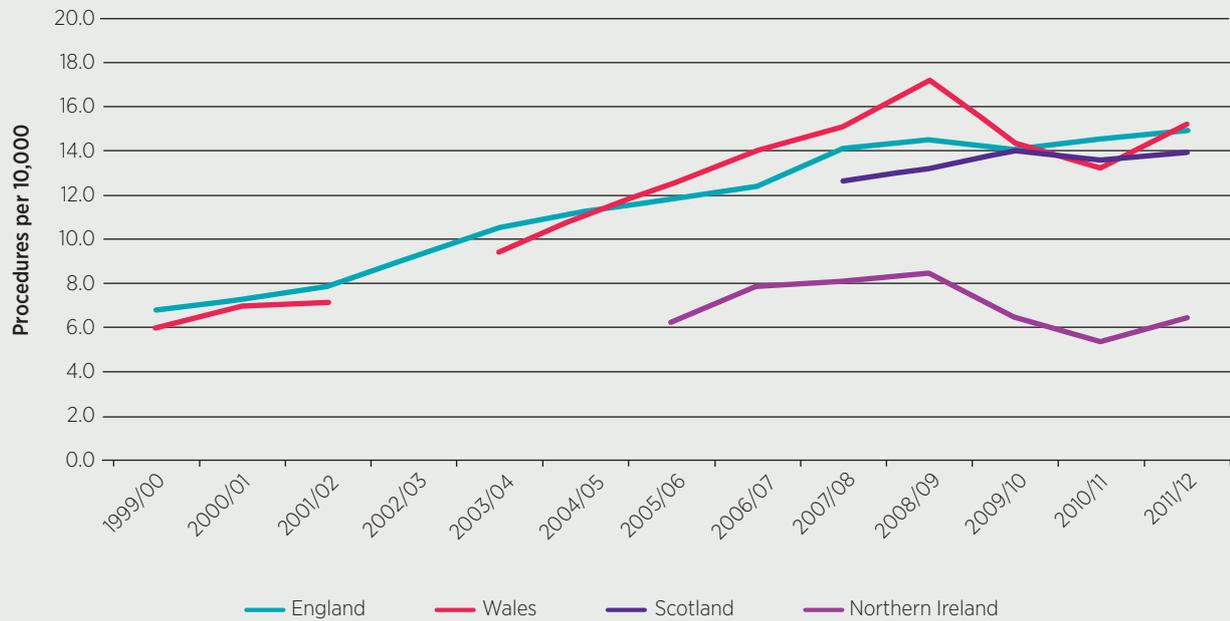


Figure 4.11: Varicose veins, number of procedures (OPCS) per 10,000 population

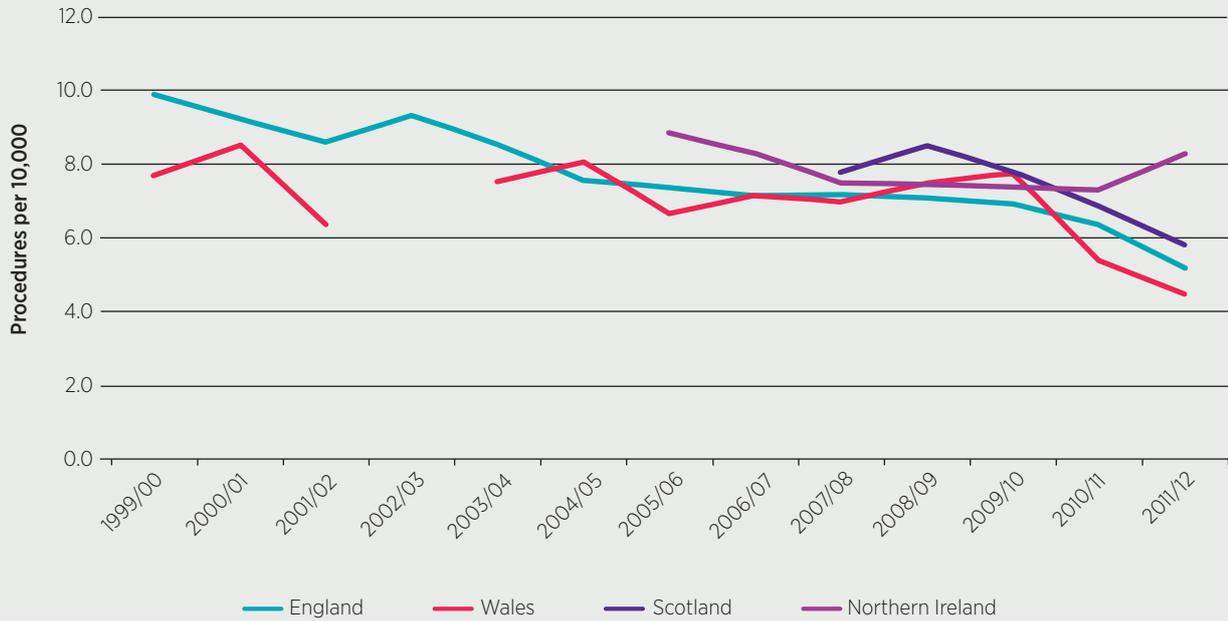
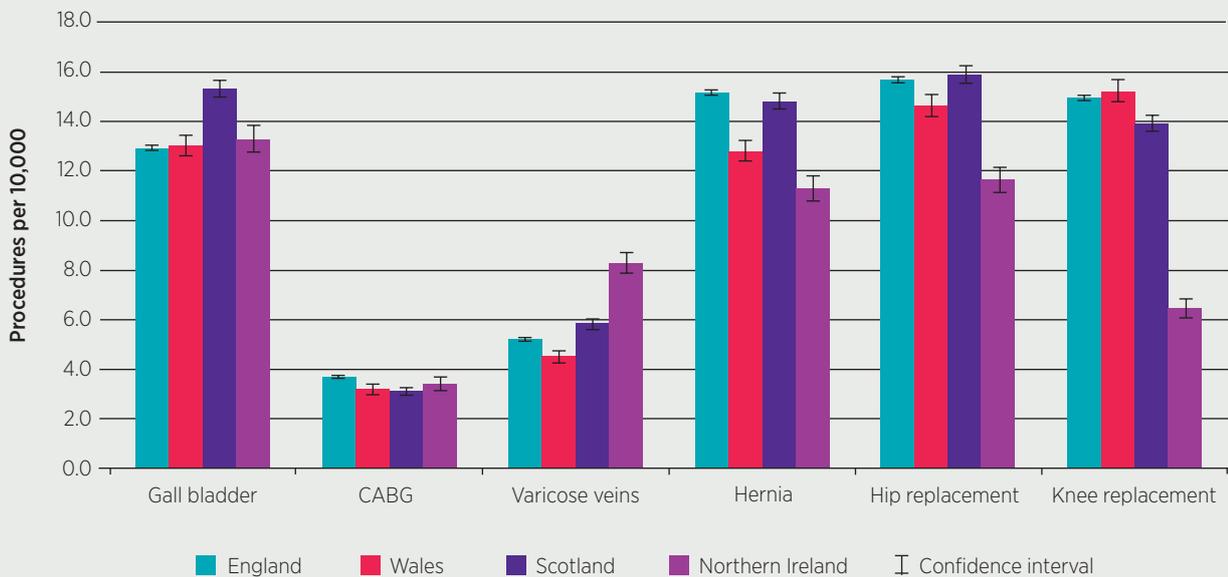


Figure 4.12: Excision of gall bladder, number of procedures (OPCS) per 10,000 population



In order to indicate whether there were statistically significant differences between the countries, Figure 4.13 gives, for 2011/12, 95 per cent confidence intervals for all procedures (meaning that one can be 95 per cent confident that the true value lies within the upper and lower bounds shown). The exception is cataract procedures, where all differences are significant due to the high volume performed (see Figure 4.6). Using England as a benchmark, Wales had significantly lower rates of varicose veins, hernia and hip replacement; Scotland had significantly higher rates of excision of gall bladder and varicose veins, and lower rates of CABG and knee replacement; and Northern Ireland had a significantly higher rate of varicose veins, and lower rates of hernia and hip and knee replacement. The rates of hernia and hip and knee replacement in Northern Ireland were also significantly lower than those in Wales and Scotland.

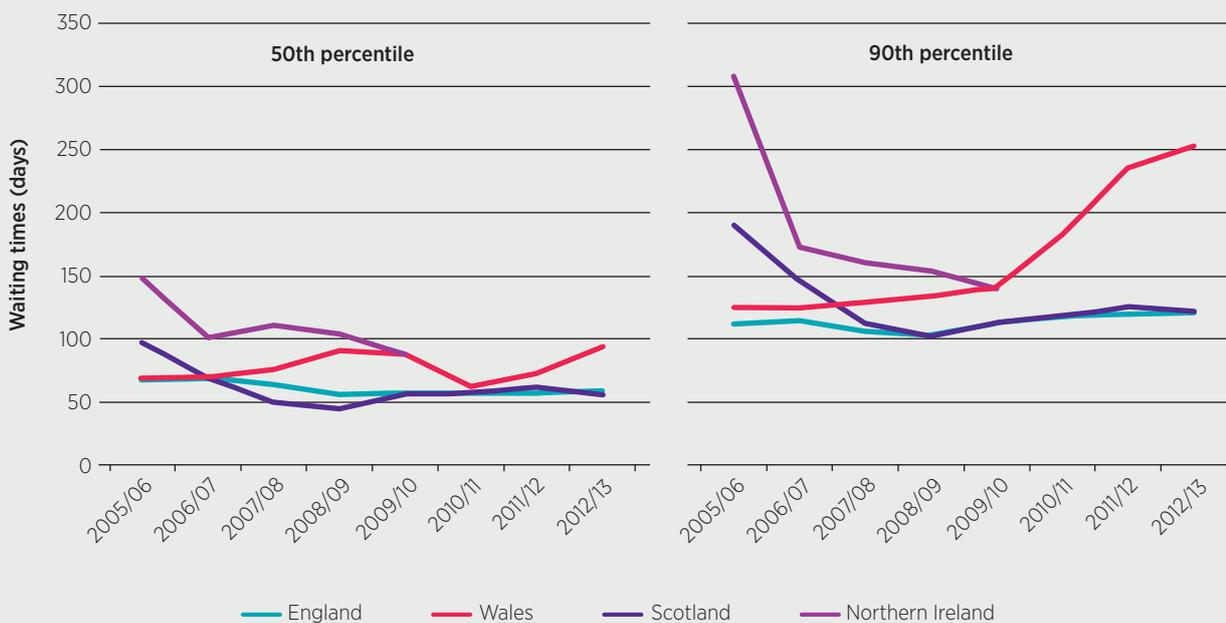
**Figure 4.13: Differences in selected procedures (number of procedures per 10,000 population, with 95% confidence intervals), 2011/12, in UK countries**



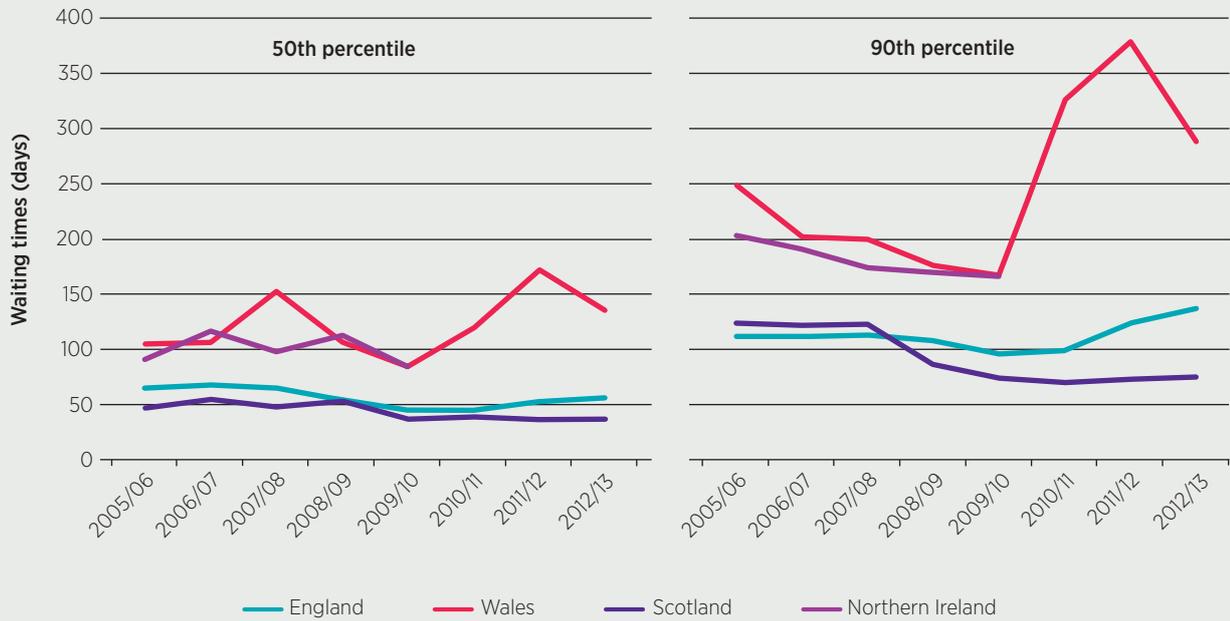
### Waiting times for common procedures

Since 2005/06, the UK Comparative Waiting Times Group has developed comparable data for a list of 11 inpatient procedures on the length of time that a patient has waited for treatment (Office for National Statistics, 2010), and these include six of the seven procedures for which this study has reported rates of treatment above.<sup>21</sup> These data record waiting times from the initial decision to admit, to the date of admission for the procedure.<sup>22</sup> Figures 4.14 to 4.19 give the median and 90th percentile of the distributions of waiting times in days from 2005/06 to 2012/13, except for Northern Ireland, where data are only available until 2009/10. These figures show that substantial reductions in median waiting times have been achieved in most procedures across all four countries to 2009/10, including halving the median wait for hip and knee replacement in England and Scotland. The 90th percentile decreased over the period from 2005/06 to 2012/13 for most of the procedures in England and Scotland, except for CABG surgery in England. In Wales and Northern Ireland, there were dramatic reductions in the 90th percentile from 2005/06 to 2009/10 for all procedures, except in Wales for cataract surgery (which increased). However, in Wales since 2009/10, there have been increases in the 90th percentile for all procedures.

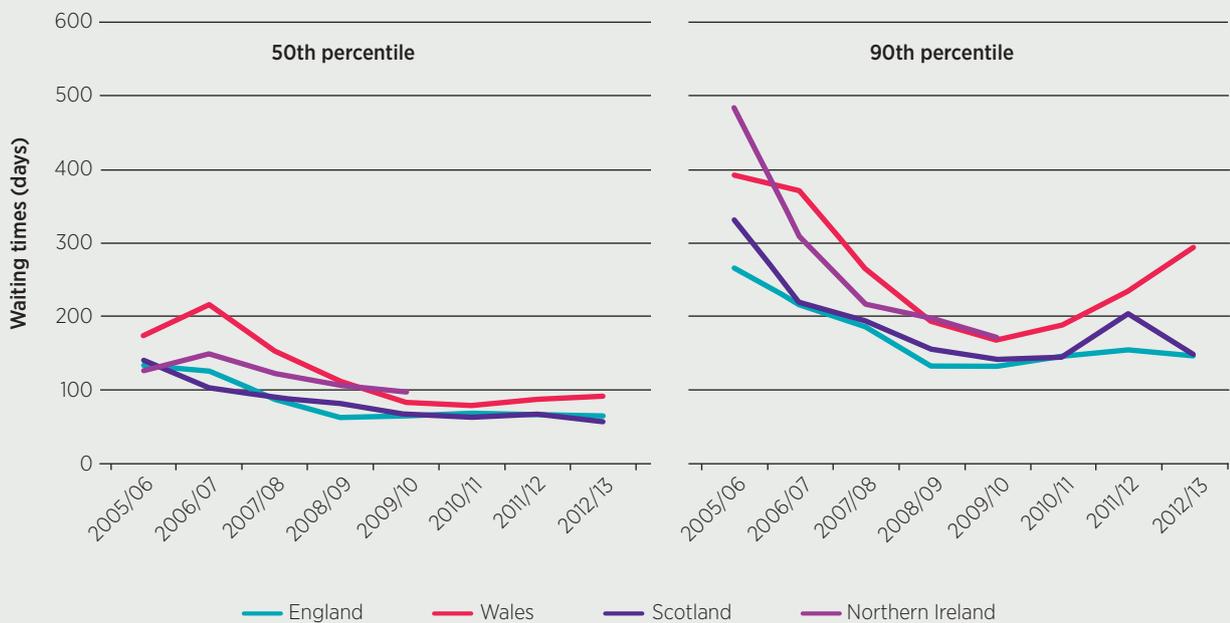
**Figure 4.14: Median and 90th percentile of completed waiting time for cataract surgery**



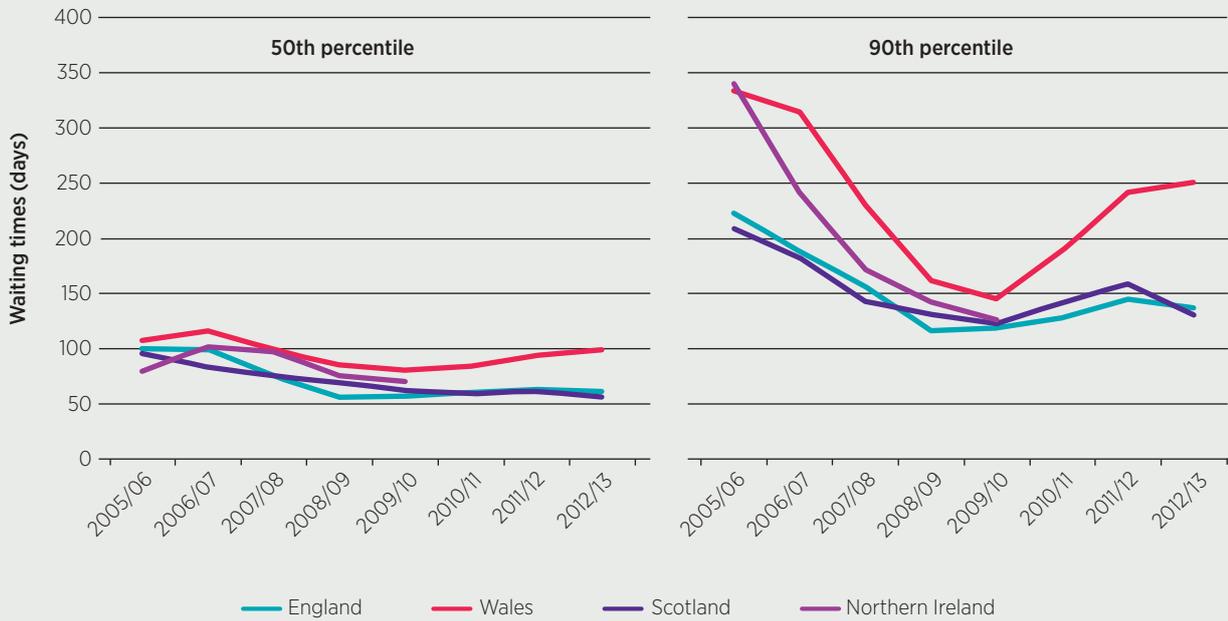
**Figure 4.15: Median and 90th percentile of completed waiting time for coronary artery bypass grafts surgery**



**Figure 4.16: Median and 90th percentile of completed waiting time for varicose veins**



**Figure 4.17: Median and 90th percentile of completed waiting time for inguinal hernia procedure**



**Figure 4.18: Median and 90th percentile of completed waiting time for hip replacement**

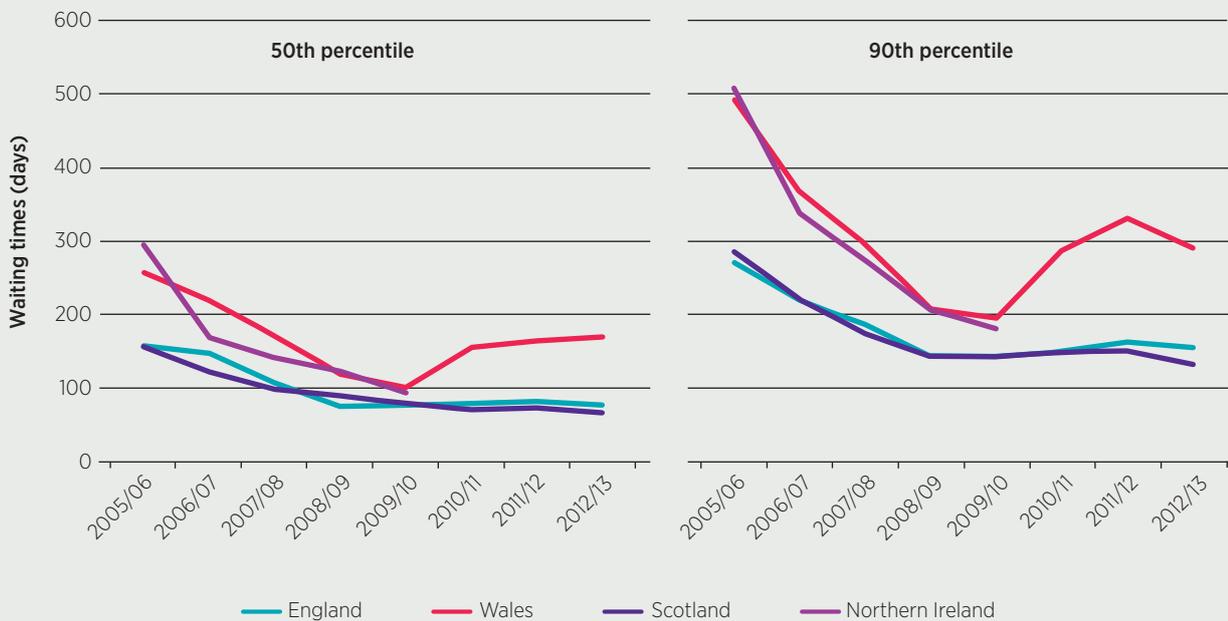
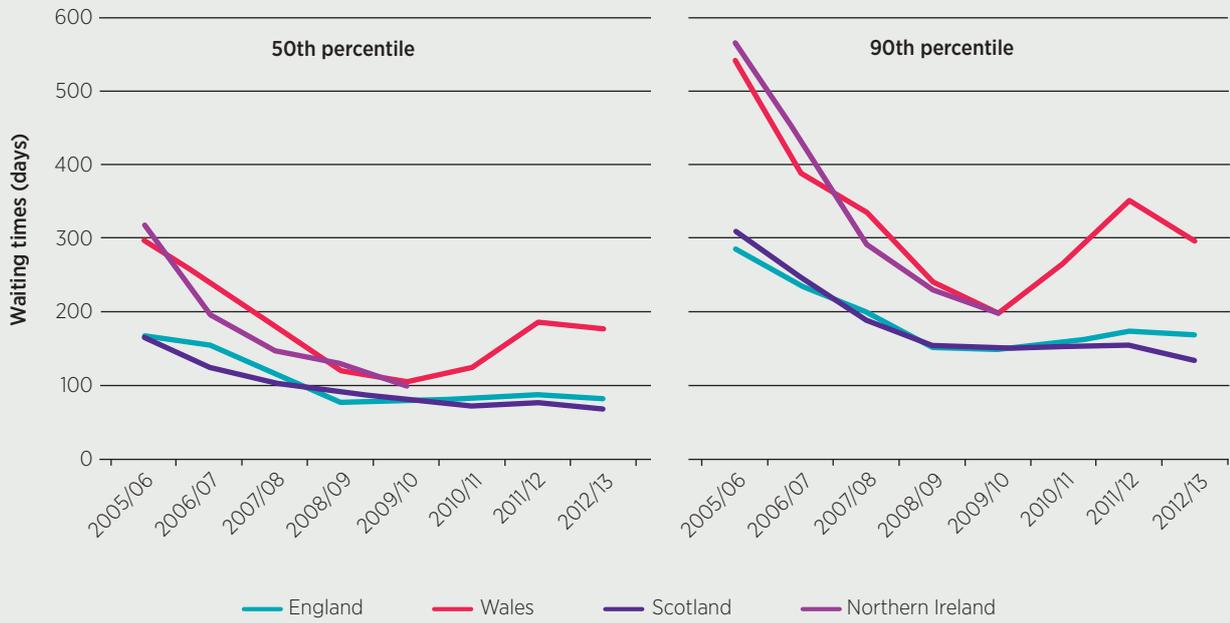


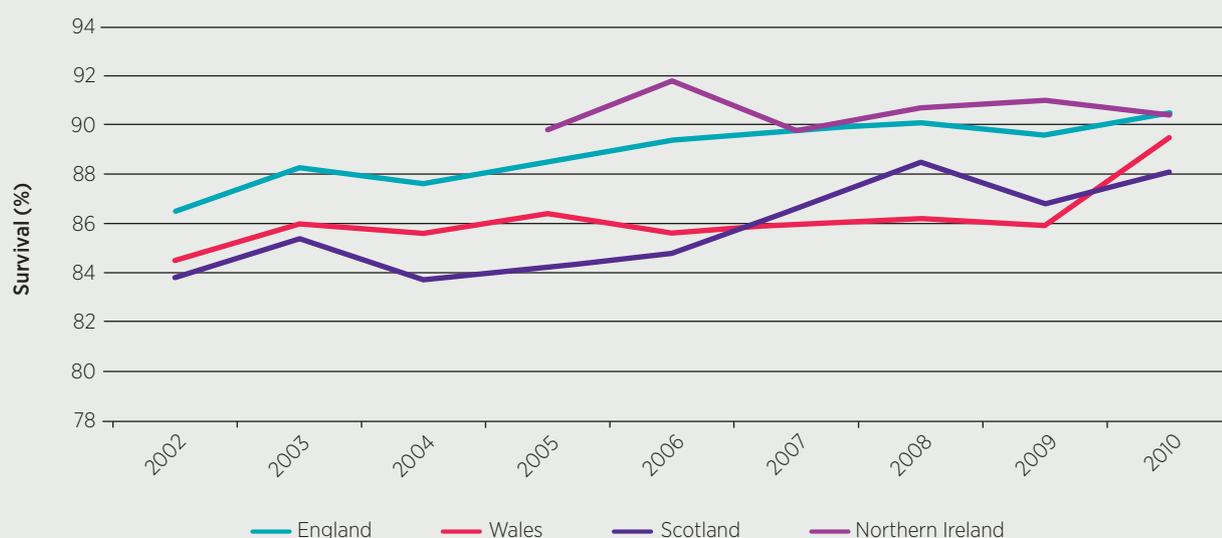
Figure 4.19: Median and 90th percentile of completed waiting time for knee replacement



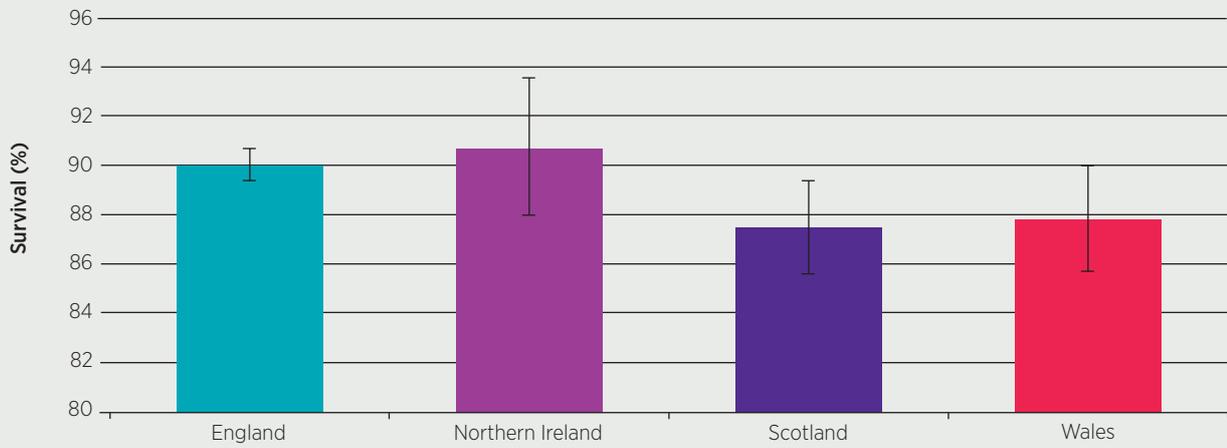
### Survival after renal replacement therapy

In comparing the four countries, we would like to be able to compare dimensions of quality of care in addition to waiting times. The large number of national clinical audits is potentially a good source of these data, but few cover all four countries. Most of those that do are highly specialised (for example, paediatric intensive care, coronary angioplasty or cardiac surgery), with relatively small numbers of patients who often receive treatment outside their country of residence. This report gives results from the national renal audit where patients are more likely to be treated closer to home. Figure 4.20 gives one-year percentage rates of survival for patients on renal replacement therapy, 90 days after the incident, by country, from 2002–2010 (the incident cohort years), adjusted to age 60. This shows that these rates have improved in all countries. Figure 4.21 gives mean survival rates and 95 per cent confidence intervals for 2009–2010. This shows that although the mean rates ranged between 87.5 per cent (Scotland) and 90.7 per cent (Northern Ireland), these differences were not statistically significant.

**Figure 4.20: One year after 90-day incident survival (%) after renal replacement therapy, by country for incident cohort years 2002–10, adjusted to age 60**



**Figure 4.21: One year after 90-day incident survival (%) after renal replacement therapy, by country, combined two-year cohort (2009/10), adjusted to age 60, with 95% confidence intervals**



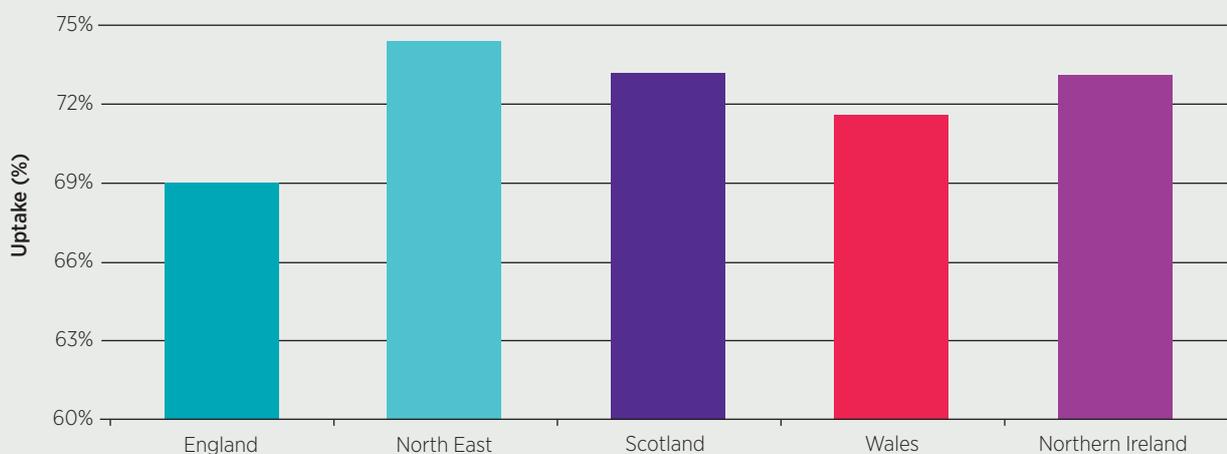
## Screening, vaccination and immunisation

The data for screening, vaccination and immunisation are comparable across the four countries as far as can be ascertained, and thus are included, though it was not possible to produce a time series.

### Screening for breast cancer

Figure 4.22 gives rates for the uptake of screening for breast cancer between the ages of 50 and 70 years for 2010/11. This report has data for England, Scotland, Wales, Northern Ireland and North East England, and shows that the rate ranged from 69 per cent in England to 74 per cent in North East England.

Figure 4.22: Uptake of screening for breast cancer (age 50–70), 2010/11

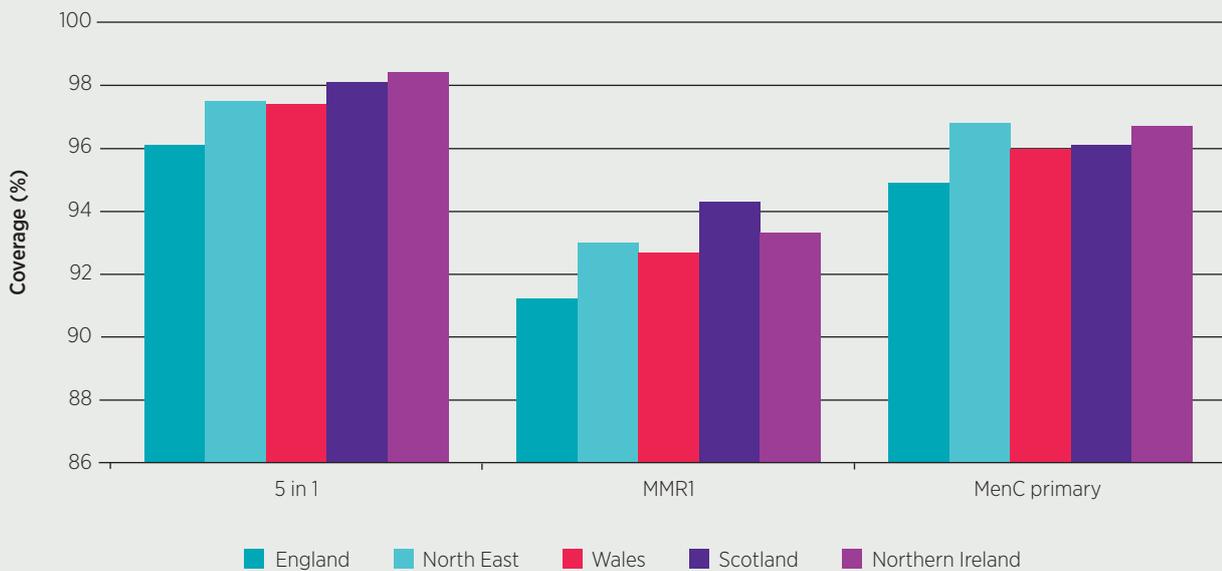


### Childhood immunisation and vaccination

Immunisation and vaccination programmes provide protection against contagious diseases to vaccinated individuals and, through ‘herd immunity’, to a wider unvaccinated population. This study has comparable data for the four countries and North East England. It reports coverage for children reaching their second birthday for measles, mumps and rubella (MMR) vaccination, and the ‘5 in 1’ (diphtheria, tetanus, whooping cough (pertussis), polio and Hib (Haemophilus influenzae type b))<sup>23</sup> and Meningitis C (‘MenC’) vaccines. Figure 4.23 shows that for all countries and North East England, the MMR rates for 2011/12 were below the 95 per cent rate recommended by the World Health Organization (Health and Social Care Information Centre, Screening and Immunisations Team, 2012, p. 30). For the other programmes, Figure 4.23 shows that the rates in children for 2011/12 were:

- for the ‘5 in 1’ vaccine, from 98.4 per cent in Northern Ireland to 96.1 per cent in England
- for the MMR vaccine, from 94.3 per cent in Scotland to 91.2 per cent in England
- for the Meningitis C vaccine, from 96.8 per cent in the North East to 94.9 per cent in England.

**Figure 4.23: Childhood immunisation and vaccination rates at 24 months, 2011/12**

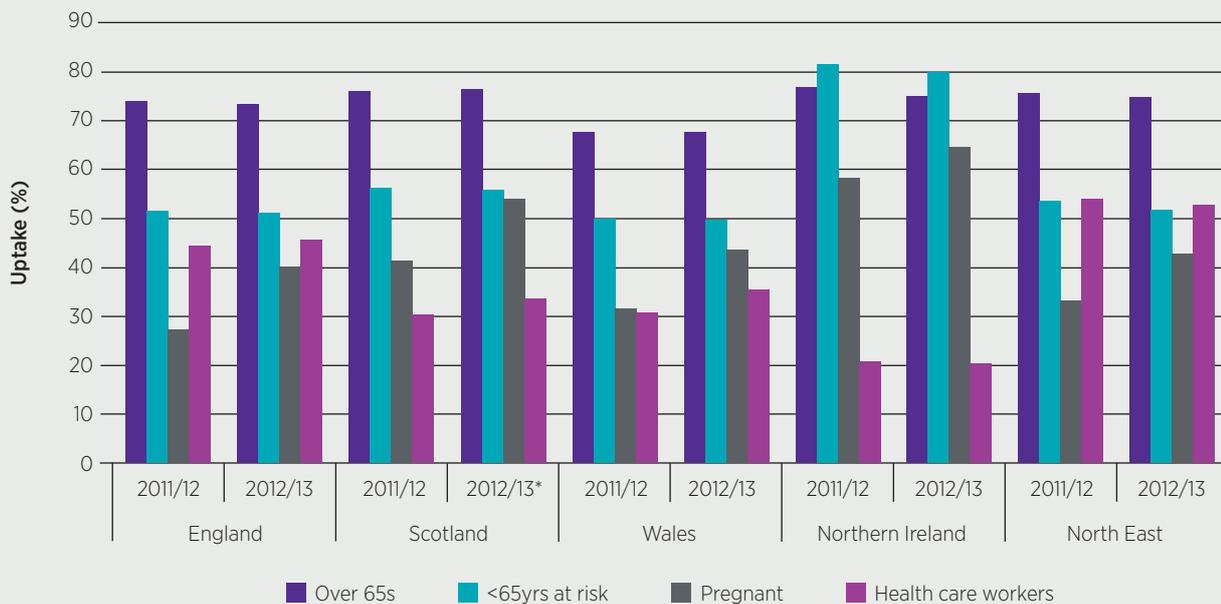


### Winter influenza vaccination

The groups who are targeted for influenza vaccination in the winter are the over-65s, the under-65s who are at particular risk, pregnant women and health care workers. This report has data for rates of vaccination for the four countries and North East England. Figure 4.24 gives the coverage for these groups for 2011/12 and 2012/13 and shows that these rates were stable over those two years, except for increases in the coverage of pregnant women. Figure 4.24 shows that over those two years:

- for the over-65s, coverage was highest in Scotland and Northern Ireland (about 76 per cent) and lowest in Wales (about 68 per cent)
- for the under-65s at risk, coverage was highest in Northern Ireland (over 80 per cent) and lowest in Wales (about 50 per cent)
- in 2012/13 only, for pregnant women, coverage was highest in Northern Ireland (nearly 65 per cent) and lowest in England (40 per cent)
- for health care workers, coverage was highest in North East England (about 53 per cent) and lowest in Northern Ireland (about 20 per cent).

**Figure 4.24: Seasonal influenza vaccination uptake (%) by target group, 2011/12 and 2012/13 seasons**



\* Provisional data

## Ambulance response times

Governments in each country have set targets for their ambulance services for the percentage of ambulance responses in fewer than eight minutes to what may have been life-threatening emergencies (category A calls). Currently, these are 75 per cent in England and Scotland, 72.5 per cent in Northern Ireland and 65 per cent in Wales. This is the final indicator which, we believe, merits inclusion in the set of indicators that are relatively unproblematic for the purpose of making comparisons across the four countries; although we are aware of ambiguity over, and differences in, the definition of what is (and is not) a category A call (Auditor General for Wales, 2006; Bevan and Hamblin, 2009), as well as differences regarding when the clock starts recording the response time.<sup>24</sup>

Although all governments have introduced targets for ambulance response times to category A calls, there have been differences regarding when these targets were introduced, and changes in the percentages specified in targets. The governments in England (NHS Executive, 1996) and Wales (National Assembly for Wales, 2001) introduced a common target of 75 per cent of category A calls to be met within eight minutes, which was to have been achieved by 2001 and which has remained the target in England. However, in Wales, following failure to meet the 75 per cent target, from April 2004, this was reduced to 65 per cent, and, from April 2005, it was reduced further to 60 per cent (Auditor General for Wales, 2006, p. 28); then, from April 2008, it was increased back to 65 per cent (Auditor General for Wales, 2009). In Northern Ireland, the target was 65 per cent for 2007/08, 70 per cent for 2008/09, and has been 72.5 per cent since 2009/10 (see Northern Ireland Ambulance Service Health and Social Care Trust, nd, for the change in target).<sup>25</sup> In Scotland, the target of 75 per cent was to have been achieved by the fourth quarter of 2007/08 in mainland boards only, and from March 2009 across Scotland (Scottish Government, 2012).

Figure 4.25: Ambulance response times, % of category A calls within eight minutes



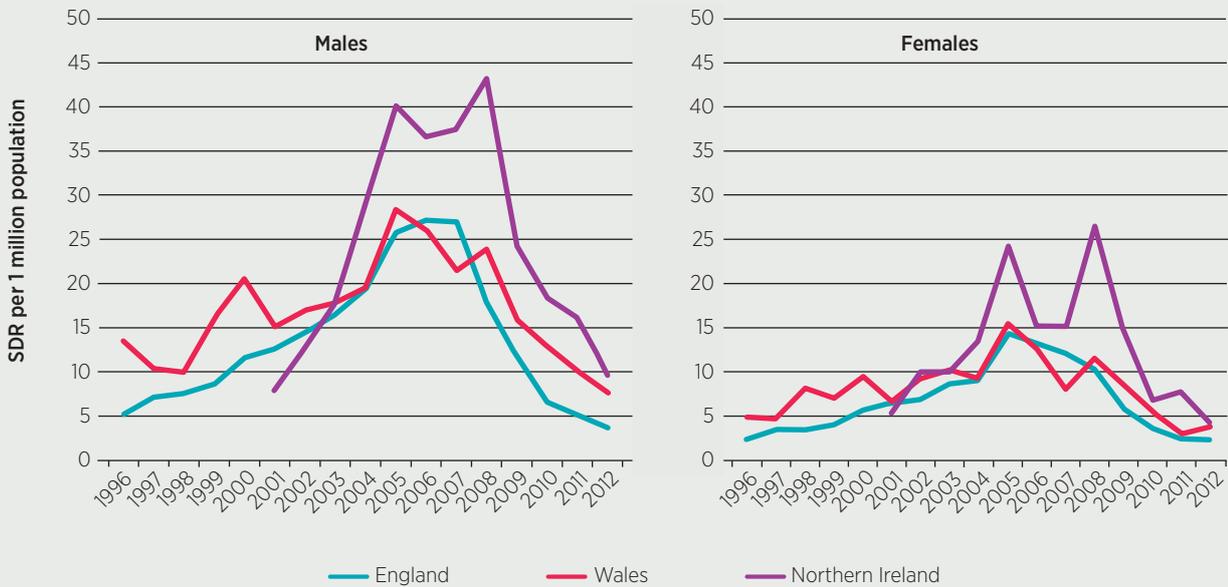
Figure 4.25 gives the performance of responses by the ambulance services of the four countries and North East England to category A calls from 2001/02 to 2011/12. Performance is measured by the percentages of responses in less than eight minutes. This shows that throughout the period, in England, the percentage was around 75 per cent, and in North East England, it was slightly higher than the average for England (and above the 75 per cent target from 2004/05 to 2011/12). Figure 4.25 shows dramatic improvements in the performance of the devolved countries between 2006/07 and 2011/12: in 2006/07, the percentage of responses to category A calls within eight minutes was about 56 per cent, and by 2011/12 this had risen to between 68 and 73 per cent. Performance in Wales improved from 58 per cent in 2004/05 to 68 per cent in 2011/12.<sup>26</sup> Performance in Northern Ireland increased from 50 per cent in 2004/05 to 73 per cent in 2011/12. Performance in Scotland improved from 55 per cent in 2004/05 to 73 per cent in 2011/12.

## Performance comparisons across England, Wales and Northern Ireland where data are comparable

### Methicillin-resistant staphylococcus aureus mortality rates

This study can compare mortality rates (per one million population) in which methicillin-resistant staphylococcus aureus (MRSA) is mentioned on death certificates (MRSA mortality rates), 1996–2012, for both sexes and for all countries except Scotland (for which data are not disaggregated by sex). This study does not have data for North East England. Figure 4.26 shows that MRSA mortality rates for men were about twice those for women. The rates for males in England fell from a peak of 27 in 2006 to 3.7 in 2012; in Wales, from a peak of 28 in 2005 to 7.6 in 2012; and in Northern Ireland, from a peak of 43 in 2008 to 9.7 in 2012.

**Figure 4.26: Mortality rates for deaths with MRSA mentioned on the death certificate (per one million population), 1996–2012**

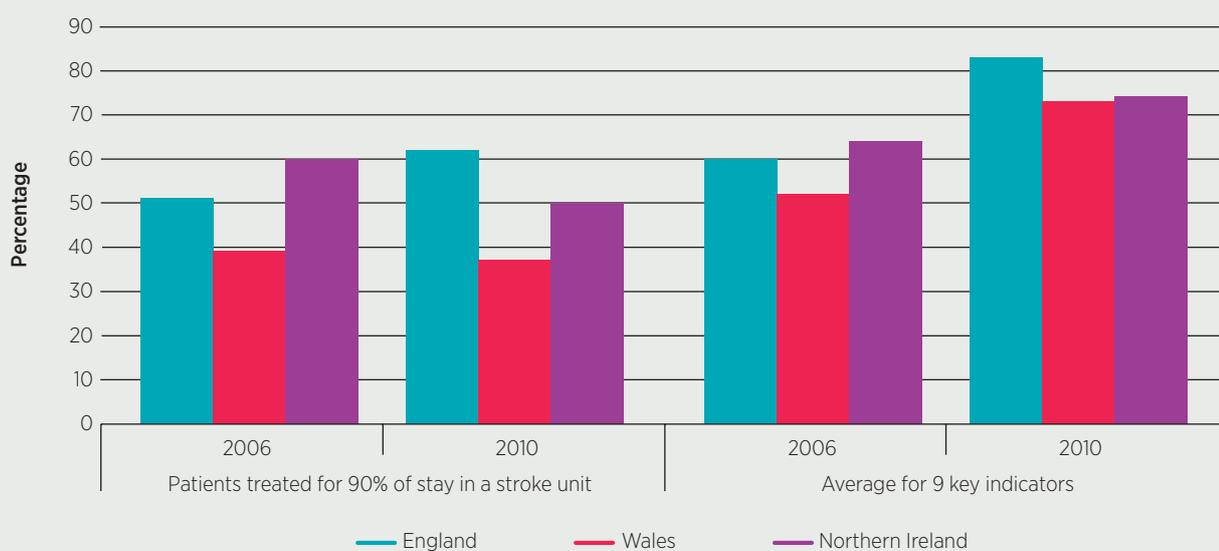


Note: SDR = standardised death rate.

### Quality of stroke care

The stroke audit by the Royal College of Physicians of London covers England, Wales and Northern Ireland (Royal College of Physicians, 2013), but not Scotland (see Scottish Stroke Care Audit, 2010).<sup>27</sup> Figure 4.27 shows how the percentage of patients who spent more than 90 per cent of their time in a stroke unit (generally regarded as strongly positive for patient survival and subsequent quality of life) changed, by country, between the stroke audits of 2006 and 2010.<sup>28</sup> In 2006, this percentage was highest in Northern Ireland (60 per cent) and lowest in Wales (39 per cent), with England in the middle (51 per cent). By 2010, the percentage had risen in England, with little change in Wales, but the percentage had fallen in Northern Ireland (to 50 per cent). However, Figure 4.27 also shows substantial improvements across nine key indicators of quality of stroke care in the three countries, with the average achievement increasing from: 60 per cent to 83 per cent in England; 52 per cent to 73 per cent in Wales; and 64 per cent to 74 per cent in Northern Ireland. Table 4.1 gives details for each indicator.

**Figure 4.27: Percentages treated in stroke units and average performance across nine key indicators of the quality of stroke care in England, Wales and Northern Ireland, 2006 and 2010**



**Table 4.1: Percentages treated in stroke units and performance on nine key indicators of quality of stroke care in England, Wales and Northern Ireland, 2006 and 2010**

	England		Wales		Northern Ireland	
	2006	2010	2006	2010	2006	2010
Patients treated for 90% of stay in a stroke unit	51	62	39	37	60	50
Screened for swallowing disorders within first 24 hours of admission	67	85	55	76	62	67
Brain scan within 24 hours of stroke	43	71	38	60	40	57
Commenced aspirin by 48 hours after stroke	71	93	76	92	68	91
Physiotherapy assessment within the first 72 hours of admission	72	92	54	87	74	87
Assessment by an occupational therapist within four working days of admission	50	85	30	59	61	77
Weighed at least once during admission	57	86	54	81	50	73
Mood assessed by discharge	54	81	53	66	77	70
Rehabilitation goals agreed by the multidisciplinary team	76	95	70	95	88	92
Average for nine key indicators	60	83	52	73	64	74

## Performance comparisons across England, Scotland and Wales where data are comparable

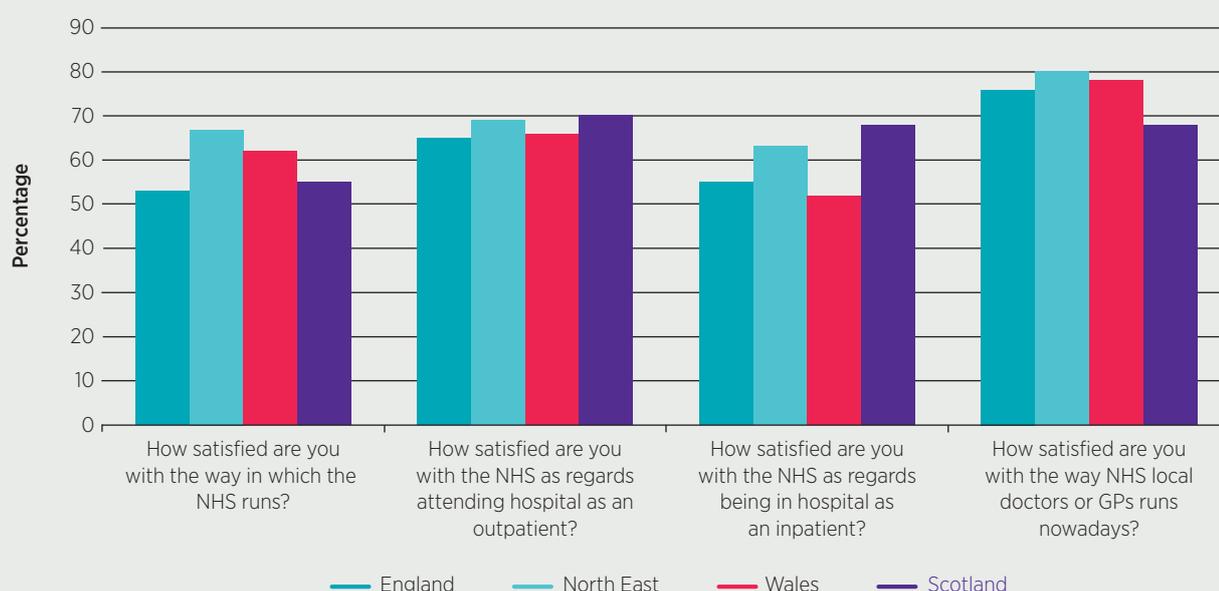
### Patient satisfaction with various aspects of the NHS

The British Social Attitudes (BSA) survey (Park and others, 2012) produced comparable data on the population reporting satisfaction with various aspects of the NHS in 2011 for England, North East England, Scotland and Wales, but not for Northern Ireland. Figure 4.28 gives comparisons between England, North East England, Wales and Scotland of the percentages of people who reported that they were 'very satisfied' or 'quite satisfied' with:

- 'the way in which the NHS runs' – this ranged from 62 per cent in Wales to 53 per cent in England, but North East England (67 per cent) had a higher rate than any of the country averages
- 'attending hospital as an outpatient' – this ranged from 70 per cent in Scotland to 65 per cent in England, the rate for North East England being 69 per cent
- 'being in hospital as inpatient' – this ranged from 68 per cent in Scotland to 52 per cent in Wales, the rate for North East England being 63 per cent
- 'the way that NHS local doctors or GPs are run' – this ranged from 78 per cent in Wales to 68 per cent in Scotland, but North East England (80 per cent) had a higher rate than any of the country averages.

Apart from the BSA survey, there is no consistent public or patient survey across the different countries. Each system undertakes its own survey of the experience of care received in GPs' surgeries and, although the classifications used differ,<sup>29</sup> each survey reported high levels of satisfaction in 2011: 94 per cent in Northern Ireland, 92 per cent in Wales, 89 per cent in Scotland and 88 per cent in England. There is a lack of comparative data on patients' experience with hospital care (Park and others, 2012).<sup>30</sup>

**Figure 4.28: Satisfaction with various aspects of the NHS – percentage reporting being 'very satisfied' or 'quite satisfied'**



Source: Park and others, 2012

## Performance comparisons with serious limitations in comparability of data

The available data on three broad categories of staff (excluding GPs, see above) and hospital activity provide blunt tools for analytic comparisons between the four countries, and in relation to each other. There always has been a particular difficulty in making comparisons with Northern Ireland, as its staffing data include those working in health and social services. It is has become much more problematic to make comparisons across the other three countries and over time because of changes in the definitions in categories of staff and activity. Moreover, it is not possible to compare performance across the four countries on hospital waiting times.

### Staffing

This report uses shorthand to describe the three different principal groupings of staff (notes at the end of this chapter give details of their composition in England and we comment on differences between the four countries and changes over time below):

- *hospital doctors* – for hospital and community health services medical and dental staff
- *nurses* – for qualified nursing, midwifery and health visiting staff
- *infrastructure staff* – for NHS infrastructure support staff.

The massive increases in funding of all four countries from 2000 led to increases in staffing, and in particular, hospital doctors (ranging from more than 50 per cent to more than 70 per cent). In addition, there were increases in the other staff groups, but these were not so dramatic and varied between each country.

### Hospital doctors

Hospital and community health services medical and dental staff include the following:

- consultants (including directors of public health)
- registrars
- other doctors in training and equivalents
- hospital practitioners and clinical assistants in non-dental specialties
- other medical and dental staff.

Data from the Health and Social Care Information Centre (2013a) show that at 30 September 2012 in England, of hospital and community health services medical and dental staff, only two per cent were dental, and only two per cent were in public health medicine and community health services. Hence, it is reasonable to describe these data as ‘hospital doctors’. There are two principal definitional problems when comparing these data across the four countries. The first is whether these do or do not include public health medical and dental staff, but these numbers are unlikely to be material. The second is locum hospital doctors (staff on temporary or fixed-term contracts are included in all countries):<sup>31</sup> we know that directly employed locums are included in Northern Ireland, but we understand that these are excluded in Scotland, Wales and England.

Figure 4.29 gives the rates of hospital doctors, in WTEs per 1,000 population, 1996–2011. This shows that Scotland had the highest rates throughout; Northern Ireland was second; and England and Wales had similar rates. The magnitude of the excess of Scotland over England and Wales was remarkably consistent, at about 0.4 per 1,000 throughout the period. In 2011, the rates per 1,000 population were England and Wales, 1.9; Northern Ireland, 2.0; North East, almost 2.2; and Scotland, 2.3. Of all the staff groups, this group had the largest percentage increases – over the period 1996–2011, these were: Northern Ireland, 50 per cent; Scotland, 53 per cent; Wales, 60 per cent; and England, 67 per cent. Figure 4.29 shows a change in the relative rate of hospital doctors for North East England compared with Northern Ireland: the rates were similar from 2000–08; afterwards, the rate in Northern Ireland stayed the same, but increased in North East England to become close to that of Scotland by 2011.

**Figure 4.29: Hospital doctors (whole-time equivalent) per 1,000 population, 1996–2011**



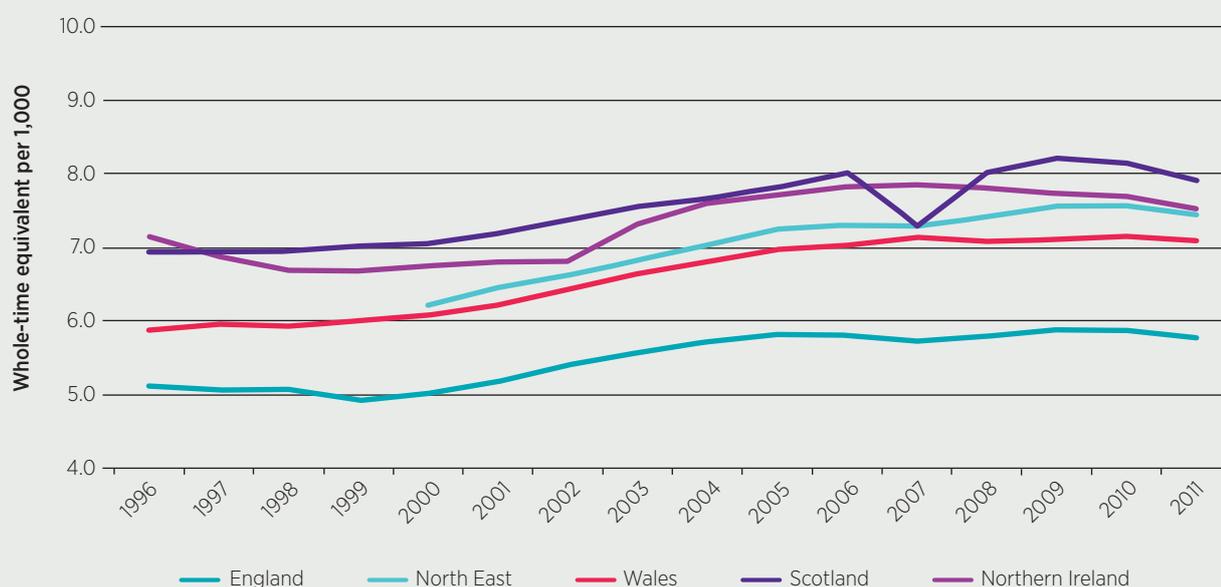
Note: 'hospital doctors' refers to hospital and community health services' (HCHS) medical and dental staff.

## Nurses

This staff group includes three broad categories: qualified nursing, midwifery and health visiting staff.<sup>32</sup> In England in 2012, those working as health visitors and district and school nurses accounted for only five per cent of the total (Health and Social Care Information Centre, 2013b). These data ought to exclude students on training courses (leading to a first qualification as a nurse or midwife) and nurses working in general practices. However, there are problems in making comparisons over time because of the implementation of the *Agenda for Change* reforms<sup>33</sup> (which explains a sudden drop in Scotland in 2007, shown in Figure 4.30); and between countries because of differences in definitions of the grades included, and whether bank staff are (or are not) included. Furthermore, there are particular problems comparing the data from Northern Ireland, which include nurses working in social services and NHS trust-funded GP practices.

Figure 4.30 gives the rate of nurses in WTEs per 1,000 population, 1996–2011.<sup>34</sup> This shows England to be an outlier, with much lower rates (5.8 in 2011) than the other countries (Wales, 7.1; Northern Ireland, 7.5; and Scotland, 7.9 in 2011) and North East England (7.4), which means that England’s low rate cannot be explained by definitional differences. The percentage increases in each country over the period 1996 to 2011 were Wales, 21 per cent; Scotland, 14 per cent; England, 13 per cent; and Northern Ireland five per cent.

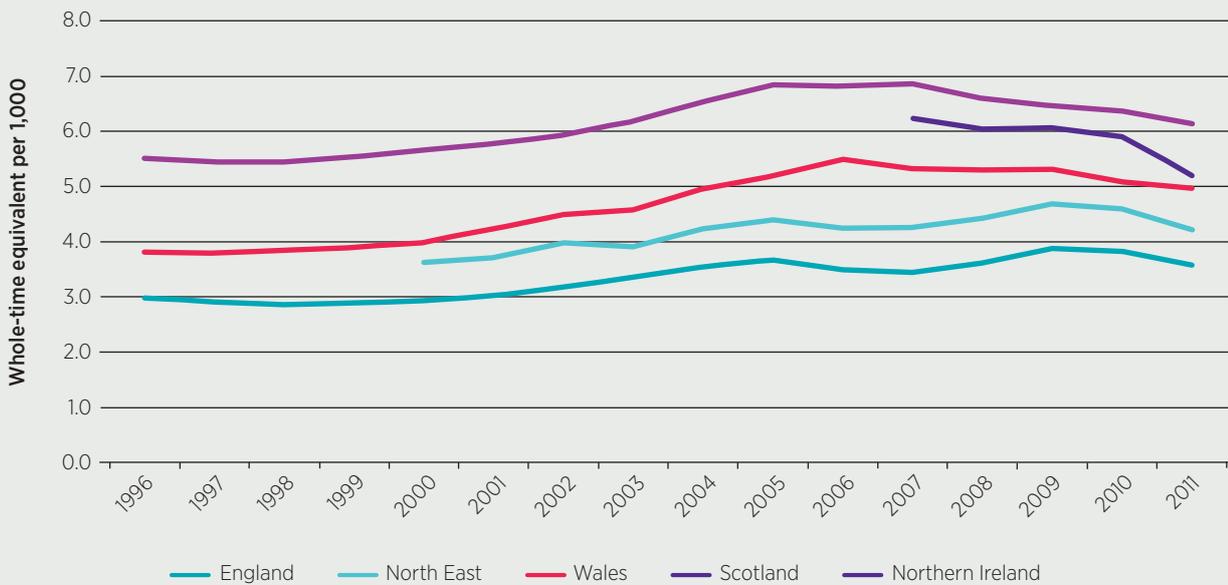
Figure 4.30: Nurses (whole-time equivalent) per 1,000 population, 1996–2011



### Infrastructure staff

Infrastructure staff includes those who work in estates and facilities, central functions and managers. The differences in definitions of infrastructure staff mean that it is not possible to make any comparisons between countries,<sup>35</sup> and in particular, not for Northern Ireland, where the data are for health and social services combined. Staff in hotel services are included in the data for Scotland, but excluded in Northern Ireland; there are also questions over staff being excluded because the services they relate to have been contracted out to varying degrees across countries. In addition, it is problematic to compare changes over time in Scotland, following staff grouping changes under *Agenda for Change*, which is why this report gives Scottish data from 2007 only. Figure 4.31 shows the rates of NHS infrastructure staff in WTEs per 1,000 population. The percentage increases in the three countries over the period 1996–2011 were: England, 20 per cent; Wales, 30 per cent; and Northern Ireland 11 per cent.

**Figure 4.31: Infrastructure staff (whole-time equivalent) per 1,000 population, 1996–2011**



## Activity

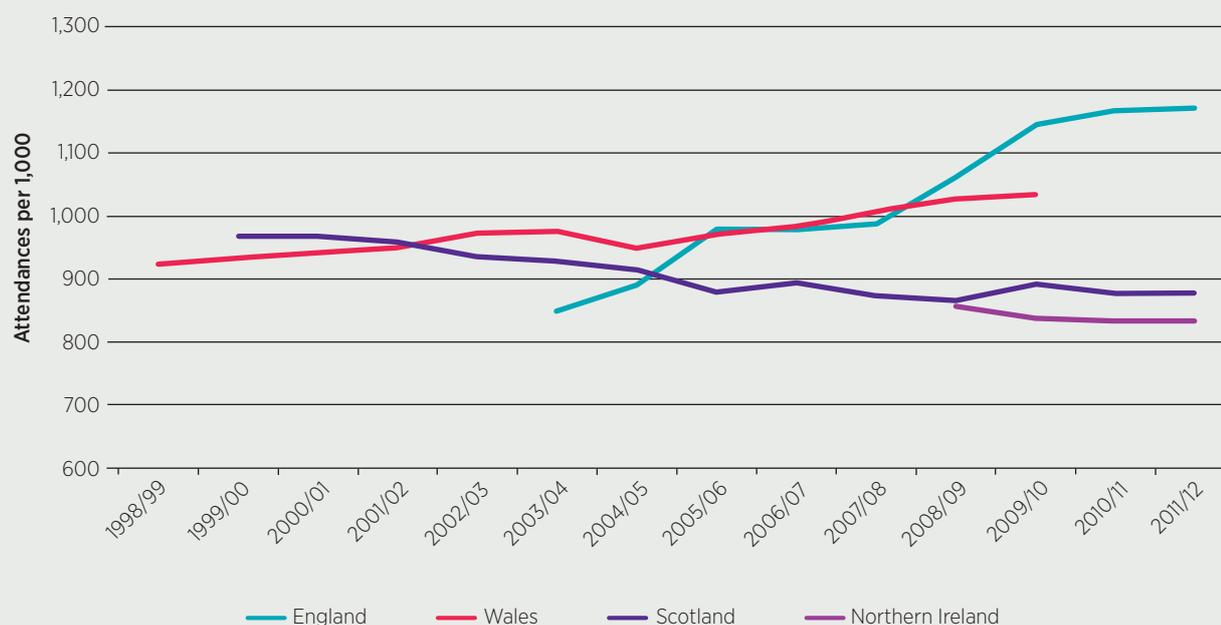
Reported here are rates per 1,000 population for outpatient appointments, inpatient admissions and day-cases. There are problems in comparing these rates across countries and over time because of differences and changes in definitions, in particular, in the coverage of inpatients and day-cases. In Scotland, these include acute specialties only; in England and Wales these data include inpatients for all specialties; and in Northern Ireland, ‘all programmes of care’ (see Appendix 1 of this report, published separately (Bevan and others, 2014b)). There are also problems in estimating rates per head for Wales and Northern Ireland, because the data are for patients treated in hospitals in those countries, and do not take account of residents treated in England and the Republic of Ireland.

### Outpatients

An outpatient is a non-resident of a hospital seen by a consultant for treatment or advice at a clinical outpatient department.<sup>37</sup> In capturing activity we would like to report and compare all outpatient attendances, but that is problematic. Data for England do include all consultant-led outpatient attendances, but this study has excluded North East England because its data also include outpatient sessions led by nurses and allied health professionals. In Scotland, it is mandatory to record only the first attendance and return appointments where a procedure has taken place.<sup>38</sup> In addition, there are problems in capturing data for NHS patients treated in non-NHS settings.<sup>39</sup> It looks as if in England there have been improvements in the coverage of outpatient activity in the statistics, including that in non-NHS settings.

Due to changes in definitions of outpatients, Figure 4.32 gives outpatient attendances per 1,000 for Wales from 1998/99 to 2009/10; for Scotland from 1999/2000 to 2011/12; for England from 2003/04 to 2011/12; and for Northern Ireland from 2008/09 to 2011/12.<sup>40</sup> From 1998/99 to 2006/07, these rates showed

**Figure 4.32: Outpatient attendances – all attendances per 1,000 population, 1998/99 to 2011/12**

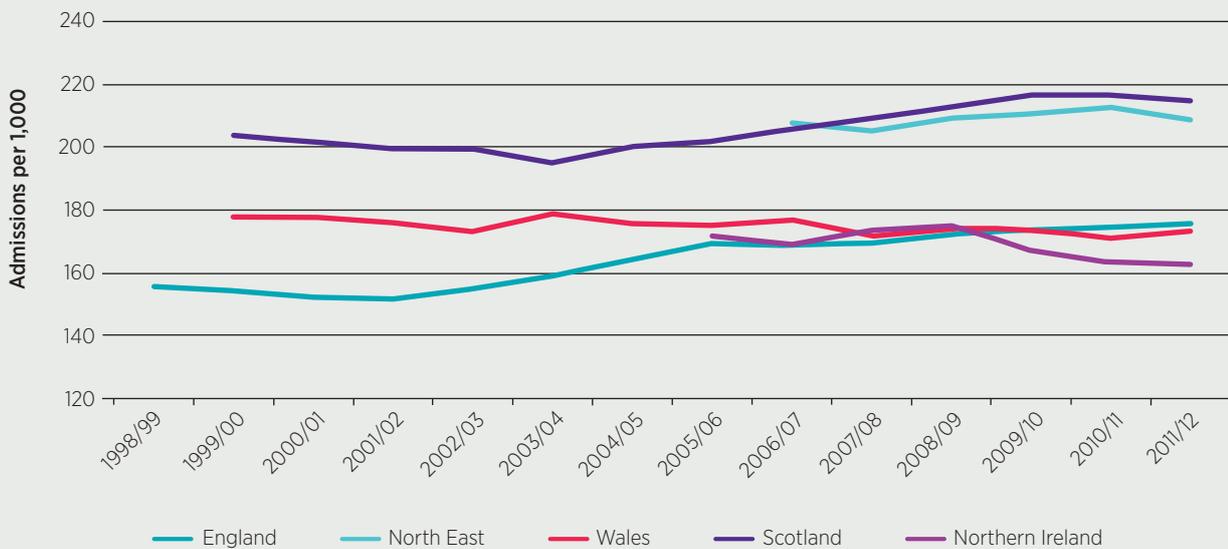


little change over time in each UK country, and were between 850 and 1,000 per 1,000 population; although, in 2006/07, the rates in England and Wales were a little higher than in Scotland (which was then about 900). However, from 2006/07, the rates in England increased rapidly, and in 2011/12 were 1,172. There was a slight decrease in Scotland to less than 900 in 2011/12. In Northern Ireland, the rates in 2011/12 were the lowest at 834 per 1,000 population.

**Inpatients<sup>41</sup>**

An inpatient admission is one where the patient is expected to remain in hospital for at least one night. The objective of this study is to capture all inpatient admissions<sup>42</sup> separately from day-cases and including NHS patients treated by non-NHS providers – which are reported for the NHS in England. For Northern Ireland, the change in definition means that data from before 2005/06 are not comparable with the earlier years, and so only the later data are given. The data for Scotland include day-cases for non-acute specialties. Figure 4.33 shows the rate of inpatient admissions per 1,000 population from 1998/99 to 2011/12 (except for Northern Ireland). Between 1999/00 and 2011/12, there was a small reduction in the rates of inpatient admissions for Wales (from 178 to 174), and increases in Scotland (from 204 to 215) and England (154 to 176). The rates for the North East of England were much higher than the mean rate for England.

**Figure 4.33: Inpatient admissions per 1,000 population, 1998/99 to 2011/12**



### Day-cases

A day-case is a patient who comes for investigation, treatment or operation under clinical supervision on a planned non-resident basis, who occupies a bed for part or all of that day and returns home the same day.<sup>43</sup> There are problems in comparing rates of day-cases across the four countries because of differences in definitions, such as whether regular attenders are included or excluded, and coverage (of acute and non-acute specialties). In Wales, prior to April 2007, a set of ‘cleansing rules’ was applied to day-case activity, which resulted in under-reporting of day-case activity, but this stopped from 2007/08 onwards. Day-case activity information in Northern Ireland is not comparable to the other countries as it includes regular attenders; because of the change in definition, this study gives data for Northern Ireland from 2005/06 only.

Figure 4.34 gives day-cases per 1,000 from 1998/99 to 2011/12 (except for Northern Ireland and the North East of England). This shows little change in Scotland, a steep increase in these rates in Wales from 2005/06 (probably due to the ending of the ‘cleansing’ of these data), a small increase for England and Northern Ireland, and a substantial increase in North East England.

**Figure 4.34: Day-cases per 1,000 population, 1998/99 to 2011/12**

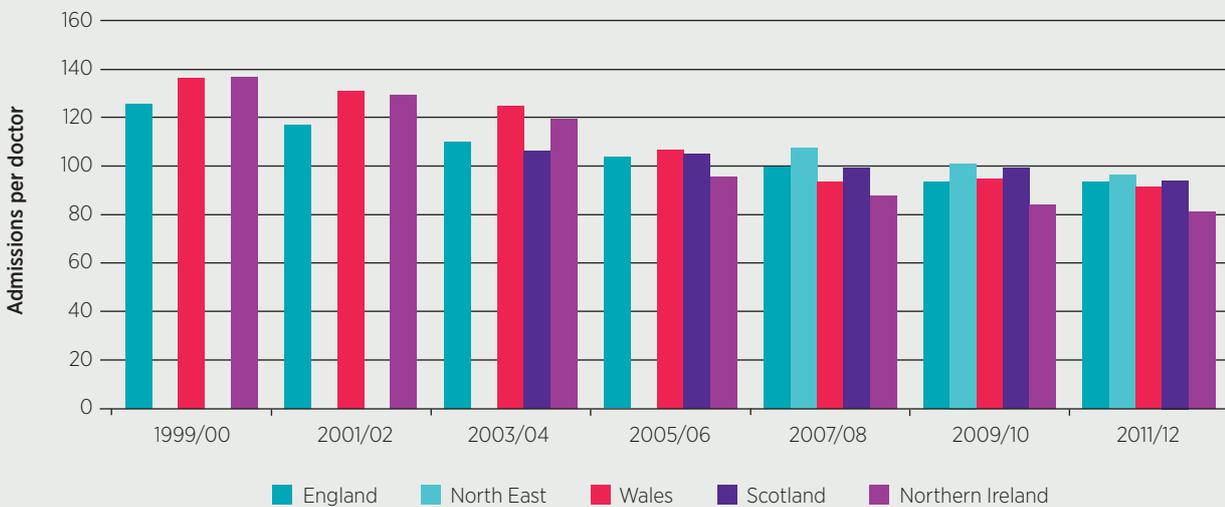


### Inpatient rates per hospital doctor and nurse

This study reports the numbers of inpatient admissions per hospital doctor and per nurse, which show reductions in these rates since 2000 because increases in staff have outstripped increases in the numbers of inpatients. Rates are reported for inpatients only, because changes and differences in the definitions of day-cases and outpatients mean that it is not possible to make meaningful comparisons with the available data, both between countries and within countries over time.

Problems over variations in definitions of hospital doctors (relating to locums) and inpatients complicate the interpretation of rates of inpatients per hospital doctor between the four countries and over time. Figure 4.35 gives these rates from 1999/2000 to 2011/12 and shows decreases for all countries. Over that 13-year period, the reductions were: in Northern Ireland, by more than 40 per cent (from 137 to 81); in Wales, by more than 30 per cent (from 136 to 91); and in England, by nearly 30 per cent (from 125 to 94). Over the nine years from 2003/04 to 2011/12, in Scotland, the reduction was more than 10 per cent (from 111 to 94). In North East England, the rate declined from 113 in 2007/08 to 97 in 2011/12; and in that year, the rate for North East England was higher than that of any country. In 2011/12, the rates for North East England, England, Scotland and Wales were all over 90. The comparatively low rate of 81 in Northern Ireland is probably because of changes in definition.

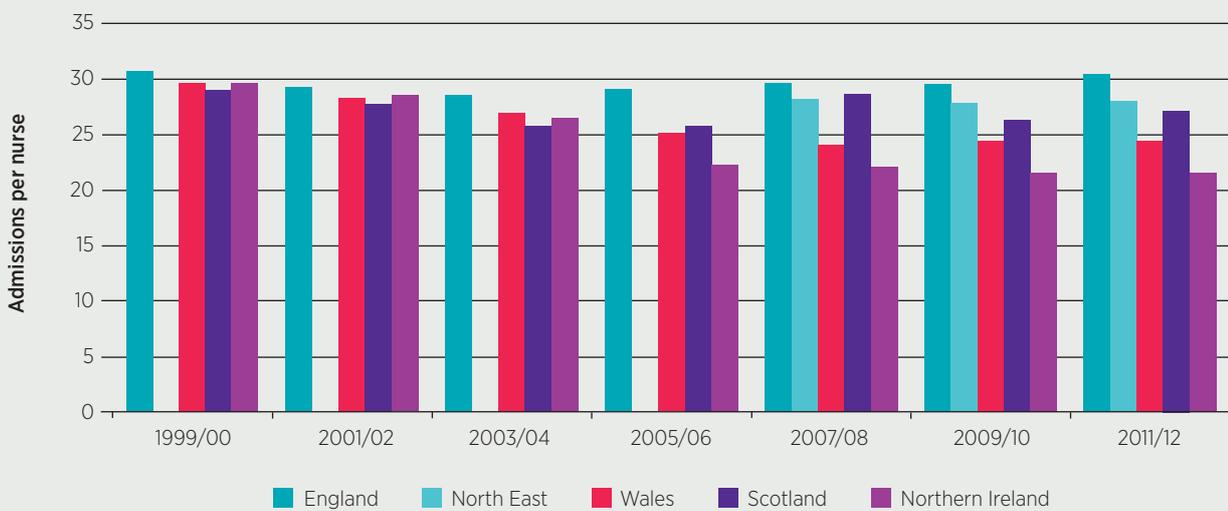
Figure 4.35: Inpatient admissions per hospital doctor, 1999/00 to 2011/12



Note: 'hospital doctors' refers to hospital and community health services' (HCHS) medical and dental staff.

We mentioned above that there are problems with using data on nurses to make comparisons between Northern Ireland and the other three countries, and for Scotland for 2007. Figure 4.36 gives the number of inpatient admissions per nurse from 1999/2000 to 2011/12. Over that 13-year period, the reductions were, in Northern Ireland, by nearly 30 per cent from 30 to 22; in Wales, by nearly 20 per cent from nearly 30 to 24; there were small reductions in Scotland, from 29 to 27 and England from 31 to 30. Rates in North East England were lower than in England but stayed at 28 from 2007/08 to 2011/12. In 2011/12, the rates were 28 for North East England, 27 for Scotland and 24 for Wales (we do not make a comparison with Northern Ireland).

**Figure 4.36: Inpatient admissions per nurse, 1999/00 to 2011/12**



## Hospital waiting times

Although performance on hospital waiting times is a key indicator in each country, it is difficult to compare their performance over time for three reasons.

First, census data from Scotland on time spent on waiting lists before admission were not comparable with the other countries, due to the policy of excluding certain patients from the waiting list statistics. Godden and Pollock (2008[2007]) describe this as follows:

Though waiting list statistics include all categories of patients, those with an Availability Status Code (ASC) are not subject to national waiting time guarantees. These include self-referrals, patients refusing a reasonable offer of admission, individual cases where treatment is judged as low clinical priority or deemed to be highly specialised, and patients who did not attend or who were unavailable for medical or social reasons.

In the other countries, these patients were added back to waiting lists once they became available for treatment. From January 2008, the policy of the Scottish Government brought practice in Scotland in measuring waiting times more into line with the other three countries.<sup>44</sup> However, the Auditor General for Scotland (Audit Scotland, 2013) found that the change in definition by the government does not seem to have been consistently implemented within Scotland, with concerns over inappropriate use of 'unavailability' codes to exclude patients from the waiting time calculations: the use of these codes had increased from 11 per cent in 2008 to more than 30 per cent in June 2011; there had been inadequate recording of the grounds for their use; and there were inconsistencies in waiting time guidance between health boards. In England, the comptroller and auditor general identified problems of "inconsistencies in the way trusts measure waiting time and errors in the waiting time recorded" (2013, p. 7), and the need for "independent validation of trusts' data" (2013, p. 8) (National Audit Office, 2014).

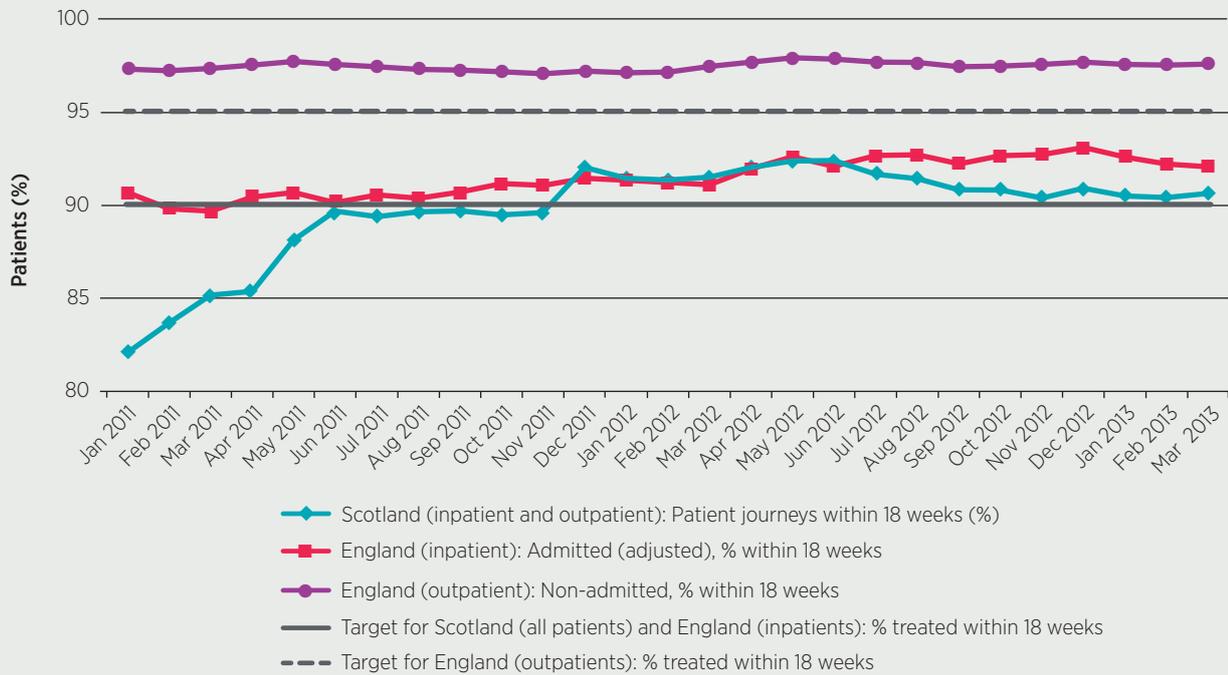
Second, although the governments in England, Scotland and Wales now measure performance in terms of the time from referral to treatment (RTT) for elective care,<sup>45</sup> which includes all stages between first referral and treatment (including, for example, diagnostics), there are differences in how this performance is measured. The RTT waiting time targets (or standards) in England, Scotland and Wales are as follows:

- England (from January 2009) – 95 per cent of outpatients to be seen, and 90 per cent of inpatients to be admitted, within 18 weeks
- Scotland (from December 2011) – 90 per cent of outpatients to be seen, and inpatients to be admitted, within 18 weeks
- Wales (for 2011/12) – 95 per cent of outpatients to be seen, and inpatients to be admitted, within 26 weeks; and 100 per cent within 36 weeks.

Third, the NHS in Northern Ireland has not yet moved to an RTT target, and still has separate targets for the time spent waiting for outpatient and inpatient attention. From April 2012, these were as follows:

- outpatients – at least 50 per cent of patients should be seen for a first outpatient appointment within nine weeks, and no one ought to wait for more than 21 weeks

**Figure 4.37: Waiting time (referral to treatment, percentage of patients treated within 18 weeks), Scotland and England, January 2011 – March 2013**



- inpatients – 50 per cent of patients should be seen within 13 weeks, and no one ought to wait for more than 36 weeks.

Given these differences in targets against which performance is measured, the closest, albeit complicated, comparison is between England<sup>47</sup> and Scotland, which is given in Figure 4.37. Since January 2011 in Scotland, the percentage of outpatients treated and inpatients admitted within 18 weeks increased from 82.1 to 90.6 per cent;<sup>48</sup> in England, the percentage of inpatients admitted within 18 weeks increased from 90.7 to 92.1 per cent and outpatients seen from 97 to 98 per cent. In Wales, in March 2013, 91.5 per cent of outpatients were seen and inpatients admitted within 26 weeks and all within 36 weeks; and in Northern Ireland, 80.1 per cent of outpatients were seen within nine weeks and 68.8 per cent of inpatients admitted within 13 weeks.

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## Notes

16. Under the Barnett Formula the increase in spending on the NHS in England feeds through into the global allocations for the devolved nations, and their governments can decide whether to use some of these increases on other services. We discussed above that the Scottish Government had used its growth money to finance free social care for older people, and return to this point in Chapter 6.
17. We mentioned in Chapter 2 that the government in Wales plans to cut spending on its NHS by about 10 per cent in real terms by 2014/15.
18. We assume that these data exclude GP registrars (practitioners employed for a maximum period of one year for the purpose of training in general practice, and in respect of whom a training grant is paid) and GP retainers (practitioners who provide service sessions in general practice as an assistant employed by the practice, and who are allowed to work a maximum of four sessions each week).
19. These were cataract, CABG, varicose vein operation, inguinal hernia, hip replacement, knee replacement and excision of gall bladder (there are questions over the exact coverage of diagnoses for cataracts and procedures included for knee replacements).
20. There are no data on excision of gall bladder.
21. This exercise did not include excision of gall bladder.
22. Hence includes time spent waiting in periods of suspension from the waiting list for medical and social reasons, which is excluded from the measure used in recording waiting times in relation to targets.
23. This is for diphtheria, tetanus, pertussis, polio and Haemophilus influenza type b (DTaP/IPV/Hib).
24. The timing of the start of the response time changed in England from April 2008 to the point where the call was received at the control room switchboard. Before that, response times were measured from the point where a series of details were recorded by the control room, such as exact location and nature of the incident. The end point remained when the response unit arrived on scene (see Health and Social Care Information Centre, 2012; for differences between the countries, see Appendix 1 of this report, published separately: Bevan and others, 2014b). The Auditor General for Wales (2006) investigated the definitional difference between England and Wales, as only in Wales from April 2005 have all calls for children under the age of two been classified as category A. The Auditor General found that in comparison with rural areas in England, in a “sample of 471,000 emergency calls during the period April 2005 to September 2006... there would have been only 0.6 per cent more Category ‘A’ calls in Wales, had it applied the same call categorisations as England” (2006, p. 35). From this, we conclude that the data on category A calls are comparable across the four countries.
25. The first mention of the target of 70 per cent is in Northern Ireland Ambulance Service Health and Social Care Trust (2008, p. 1).
26. However, the Welsh ambulance service has missed the 65 per cent target for 13 consecutive months (see BBC News, 2013c).
27. The Royal College of Physicians of Edinburgh organises a stroke audit in the NHS in Scotland that uses different categories, and so is not comparable with the other three countries.
28. Airoidi and others (2008) discuss the evidence of the comparative effectiveness of stroke units. The most recent report from the Royal College of Physicians of London (2011, p. 36) observes: The majority of patients (57%) are still initially admitted to general assessment units where stroke specialist care is often not delivered as effectively as on stroke units. It is very disappointing that only 36% of patients are admitted directly to an acute or combined stroke unit and only 38% within 4 hours of arrival in hospital despite the strong recommendations that this should occur in both the National Stroke Strategy and the NICE Guidelines on Acute Stroke and TIA... some of the key interventions such as provision of fluids, nutrition and brain scanning are performed as well for patients admitted to medical assessment units; it is concerning that swallow screening is less frequently performed. This screening is essential to lower the risk for respiratory infections.

29. The categories were Scotland, 'excellent' or 'good'; England, 'very good' or 'fairly good'; Northern Ireland and Wales, 'very satisfied' or 'fairly satisfied'.
30. There were inpatient surveys of Scotland and England only with different categories of response options (see NHS Scotland, 2012). The recent UK inflammatory bowel disease audit did compare patient experience in hospitals across the four countries. This showed no significant differences between the four countries in comparisons of satisfaction rating across several care domains (see UK IBD Audit Steering Group, 2012).
31. Unfortunately this study has been unable to find good data to check the materiality of the numbers of locum hospital doctors. It can compare the total spend on NHS consultants, reported by the National Audit Office (2013) to be £5.6 billion in 2011-12, with spend on locum hospital doctors over the three years 2010-13, which was reported by the *Daily Telegraph* to be about £700 million (Donnelly, 2013). So the spend on locums was more than 12 per cent of the spend on NHS consultants.
32. This includes those who are employed as nurses and hold at least a second-level registration with the Nursing and Midwifery Council.
33. *Agenda for Change* was implemented across the UK on 1 December 2004, with pay terms and conditions backdated to 1 October 2004.
34. The drop in 2007 is due to disruption reporting following the introduction of *Agenda for Change*.
35. In Scotland, some administrative and other support are excluded, as they are included in direct care staff; in Northern Ireland, staff working within personal social services are included, as health and social services are integrated; and in England and Wales, this category includes directly employed NHS staff only.
36. In 2010/11 there were 467,000 inpatient admissions for Welsh residents in Wales, and further 50,000 were admitted to hospitals in England.
37. A new outpatient is one whose first attendance (or only attendance) is part of a continuous series for the same course of treatment falling within the period in question.
38. So this does not include all return attendances.
39. In Scotland the completeness of these data has varied across locations and time.
40. In Northern Ireland, from the beginning of 2008/09, the count changed from clinics and appointments.
41. Again, there are problems in making comparisons because of changes in definitions and shifts between inpatients and day-cases. This study gives data for Northern Ireland after 2005/06 because the change in definition means that earlier data are not comparable.
42. These are counts of admissions/discharges and effectively spells and not finished consultant episodes, where there are multiple finished consultant episodes for one spell.
43. The definition of a day-case is as follows: a patient admitted electively during the course of a day with the intention of receiving care who does not require the use of a hospital bed overnight, and who returns home as scheduled. If this original intention is not fulfilled and the patient stays overnight, such a patient should be counted as an inpatient. In England, where a day-case patient stays overnight, they become an ordinary admission.
44. This is known as 'New Ways', so that the time that patients were unavailable was not included in their overall waiting time against the guarantee, but they remained on the waiting list (with a waiting time guarantee), and were included in statistics on time spent waiting prior to admission.
45. The RTT for elective surgery does not apply to, for example, cancers where there are much shorter targets for treatment. For information on these targets for England see [webarchive.nationalarchives.gov.uk/20130513211237/http://ncat.nhs.uk/our-work/ensuring-better-treatment/cancer-waiting-times](http://webarchive.nationalarchives.gov.uk/20130513211237/http://ncat.nhs.uk/our-work/ensuring-better-treatment/cancer-waiting-times).
46. These targets were tightened in March 2013 for both outpatient and inpatient services, to 60 per cent for the minimal wait threshold, and reduction of longest wait to 18 and 30 weeks.

47. England provides two sets of rates (adjusted and unadjusted) for inpatient admission RTTs. The adjustment allows for patients to be excluded for clinical reasons, patient refusing treatment and patient non-attendance, provided that the appointment was clearly communicated. In Scotland, patients can be excluded for refusal to attend an appointment (even if outside the health board area), not being able to attend within seven days (compared with three weeks in England) and changing an appointment more than three times.
48. Scottish performance was based on 91 per cent of total records (the rest were coded as unfinished journeys, with no data on the outcome).

# 5

## Trends in amenable and other mortality

It remains challenging directly to measure the contribution of health care to population health, given the often multi-causal nature of many outcomes. One approach that has been shown to provide a useful approximation is the concept of ‘amenable mortality’ (Nolte and McKee, 2004). It derives from work by the American Working Group on Preventable and Manageable Diseases which, in 1976, introduced the idea of measuring quality of care using the notion of ‘unnecessary, untimely deaths’ – that is, outcomes that ought not to occur, or that occur rarely in systems that deliver high-quality care (Rutstein and others, 1976). ‘Amenable mortality’ is defined as premature death from causes that should not occur in the presence of timely and effective health care. This has been applied widely as a means to assess quality of care in different systems across countries and over time (Charlton and others, 1983; Gay and others, 2011; Mackenbach and others, 1990; Nolte and McKee, 2003), and was recently adopted as one of the indicators in the NHS Outcomes Framework in England (Department of Health, 2010).

Desai and others (2011) used this approach to examine trends in amenable mortality in England and Wales in 1990–99 and 1999–2009, in comparison with Scotland and Northern Ireland. This showed that deaths from causes amenable to health care fell more slowly in England and Wales in 1990–99 than in Scotland and Northern Ireland, but that the rate of decline in England and Wales increased after 1999. Desai and others attributed this to a narrowing of the funding gap between England and Wales combined and the other two countries. However, as they also argued (and we shall see below), it is important to recognise that rates of amenable deaths were higher in Scotland and Northern Ireland in the 1990s than in England and Wales, and therefore the potential for improvement was greater in the former two countries. Furthermore, they observed that changes differed by cause of death: some improved uniformly, and others varied across countries.

This chapter updates this analysis for all four countries, examines England and Wales separately, and adds North East England which, as explained in Chapter 3, provides a more appropriate comparator with the devolved countries than England as a whole. It reports age-standardised death rates for men and women for amenable mortality and for other mortality, which are derived by subtracting amenable mortality from total mortality. For simplicity, we refer to these as ‘amenable mortality’ and ‘other mortality’. The focus of this chapter is on understanding variation in amenable mortality that can be more closely related to changes in health services (Nolte and McKee, 2004); and variations in other mortality that are likely to be indicators of variations in the wider determinants of health. This chapter also examines trends over two decades: 1990–2000 and 2000–10. The figures that illustrate these changes are given in the body of this report, and Appendix 2, published separately (Bevan and others, 2014c), includes detailed tables of amenable mortality by age, sex and major cause of death

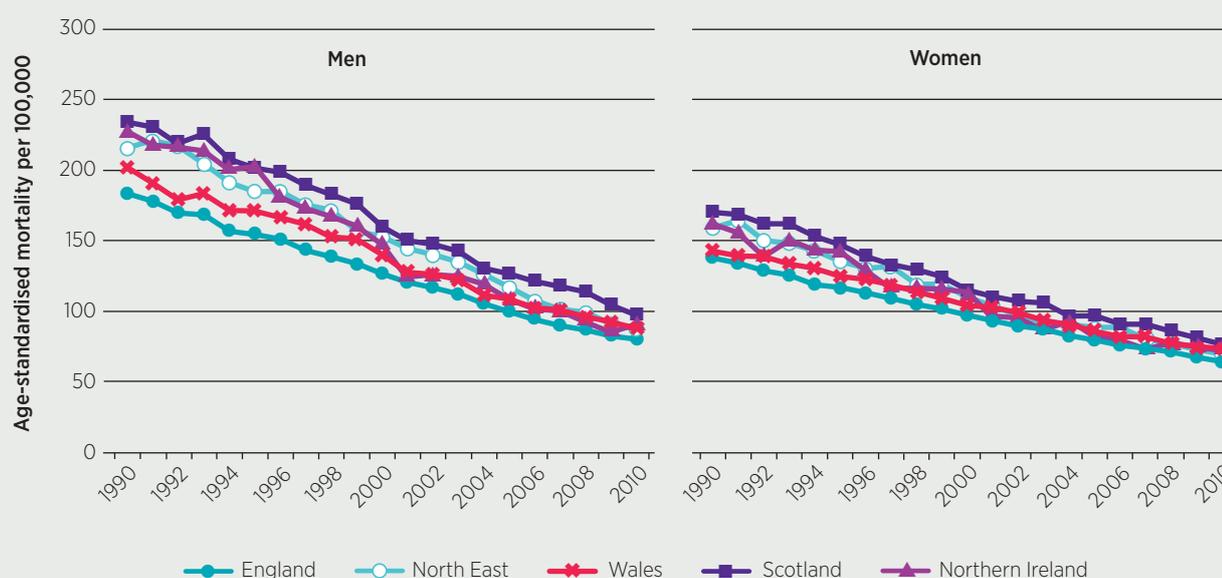
for 1990, 2000 and 2010, as well as relative changes over time. As explained in Chapter 3, we report trends in mortality only. We have undertaken further statistical analyses, which found that the declines in amenable mortality were statistically significant, but we did not formally test whether trends differed across countries, because the relative changes between countries were so similar.

### Trends in amenable and other mortality: under 75 years

Figures 5.1 and 5.2 show rates of amenable and other mortality for men and women under the age of 75 from 1990 to 2010. Amenable mortality forms an important contributor to total mortality under the age of 75 in all four countries, although this proportion has reduced over time. Thus, in 1990, deaths considered amenable to health care accounted for about 30 per cent of all deaths under age 75 in men, and about 40 per cent in women (data not shown). By 2010, these proportions had fallen to about 20 per cent in men, and about 30 per cent in women. This is mainly because, during the 20-year period, the rates of decline for amenable mortality were twice the rates of decline of other mortality for men, and three times the rates for women.

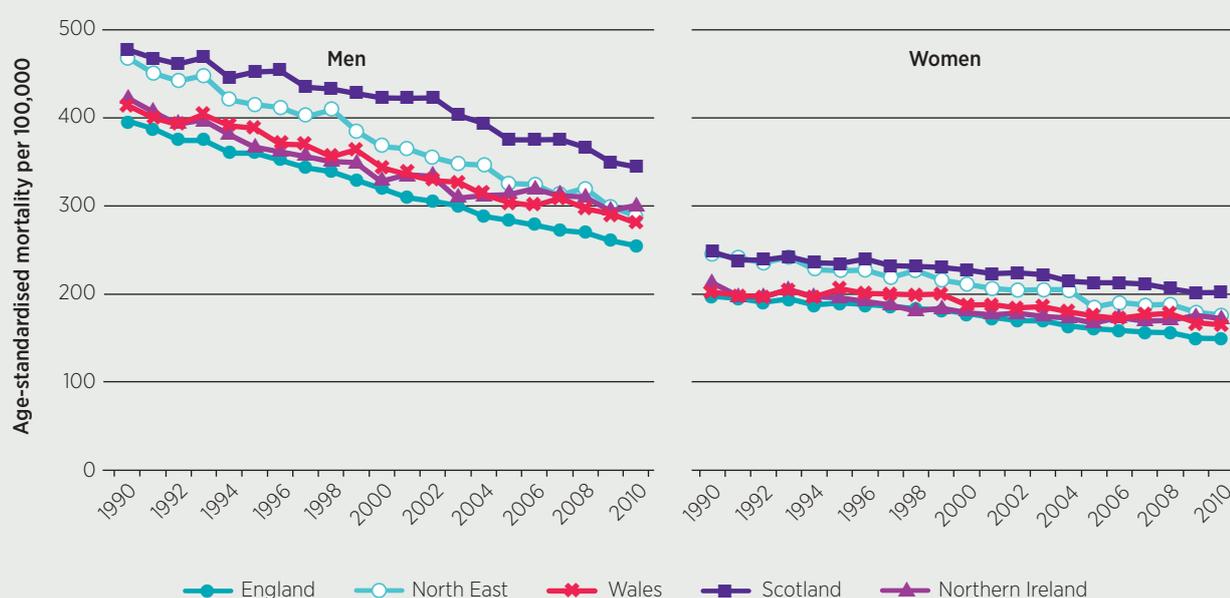
In 1990, across the four countries, rates of amenable mortality per 100,000 for both men and women under 75 were highest in Scotland (234 for men and 170 for women), and lowest in England (184 for men and 138 for women) (Appendix 2, Table 1). Between 1990 and 2010, amenable mortality rates more than halved in both sexes and across all countries, which meant that the relative gap between Scotland and England remained. Thus, amenable mortality rates in Scotland continued to exceed those in England by about 20 per cent for both men and women throughout the period. In Scotland, the rates per 100,000 in 2010 were for men, 97 compared with 80 in England. For women, rates in Scotland were 77 per 100,000 compared with 64 per 100,000 in England, respectively.

**Figure 5.1: Trends in amenable mortality in the four countries of the UK and North East England, men and women, aged 0-74, 1990-2010**



Similarly, Figure 5.2 shows that rates of other mortality were also highest in Scotland and lowest in England: the rates per 100,000 for men in Scotland were 477 compared with 396 in England; and for women, 249 and 198 respectively. By 2010, while falling everywhere, rates remained highest in Scotland and lowest in England. However, Scotland experienced a relatively smaller decline in other mortality compared with England over the entire period and, as a consequence, the relative mortality gap between the two countries increased from about 20–25 per cent higher in Scotland than in England in 1990, to more than 30 per cent higher in 2010.

**Figure 5.2: Trends in other mortality in the four countries of the UK and North East England, men and women, aged 0–74, 1990–2010**



Figures 5.1 and 5.2 show that in 1990, rates of amenable and other mortality for both men and women in North East England were most similar to those in Scotland. However, whereas between 1990 and 2010 amenable mortality declined at a similar pace in North East England and Scotland, at just under 60 per cent among men and 55 per cent among women, the decline in other mortality was much greater in North East England: this fell by just under 39 per cent for men and 28 per cent for women in North East England, compared with 28 per cent for men and 19 per cent for women in Scotland. As a consequence, by 2010, for both men and women, while rates of amenable mortality were only about 10 per cent higher in Scotland compared with North East England, for other mortality, rates in Scotland were about 15 per cent (women) to 19 per cent (men) higher than those in North East England.

This study has examined changes for the periods 1990–2000 and 2000–10 separately to explore how changes in mortality rates have differed pre- and post-devolution (as further illustrated in Appendix 2, Table 2 of this report, published separately (Bevan and others, 2014c)). Using the annual absolute change in amenable mortality, rates fell much more rapidly during the 1990s than they did during the 2000s among both men and women, and across all four countries. These declines were driven largely by a reduction in mortality from cardiovascular

disease and treatable cancers during this period. However, there was variation in the pace of change across the four countries. Thus, among men during the 1990s and 2000s, the absolute reduction was greatest in Northern Ireland and in Scotland, and least in Wales and England. Among women during the 1990s, the absolute reduction was greatest in Scotland and lowest in Wales; however, during the 2000s there was little difference between the countries. The reductions in North East England were similar to Scotland in both decades for men and women.

In order to interpret trends more fully, it is important to analyse the observed absolute changes in mortality rates in the context of relative changes. There was acceleration in the decline in amenable mortality between the 1990s and 2000s for men in all four countries, and for women in all countries except in Scotland, where death rates fell consistently by about 30 per cent in each decade (see Appendix 2, Table 1 of this report, published separately (Bevan and others, 2014c)). Looking across the four countries, the largest declines in the 1990s were for men in Northern Ireland, and women in Scotland. In the 2000s, the largest declines were for men in Northern Ireland and Scotland, and for women in Northern Ireland. However, it is important to recognise that the differences in relative mortality reduction between countries were rather small. These observations suggest that health care had a stronger impact on mortality trends in the 2000s in all four countries compared with the 1990s, and also compared with the relatively smaller reductions in mortality from causes other than those considered amenable to health care (Appendix 2, Table 2: Bevan and others, 2014c). Analysis at the country level suggests that the diverging policies following devolution may not have had a measurable impact on health care outcomes in the four countries, as assessed by amenable mortality, but the greater progress in North East England suggests a slightly better performance in England than the other countries post-devolution given the socioeconomic similarity between the North East and the devolved countries.

The next two sections give results from analyses in which data were disaggregated into two broad age groups: the under-65s and 65- to 74-year-olds (see Chapter 3).

### **Trends in amenable and other mortality: 0–64 years**

Figures 5.3 and 5.4 give rates of amenable and other mortality for men and women under 65 from 1990–2010. In 1990, across the four countries, rates of amenable mortality per 100,000, for both men and women under 65, were highest in Scotland (121 for men and 96 for women) and lowest in England (99 for men and 80 for women) (Appendix 2, Table 2: Bevan and others, 2014c). Between 1990 and 2010, amenable mortality rates approximately halved in both sexes and across all countries, which meant that the relative gap between Scotland and England remained. Thus, amenable mortality rates per 100,000 continued to be about 15 per cent higher in Scotland than England for both men and women throughout the period, and in 2010, were in Scotland, 55 for men and 48 for women; and in England, 48 for men and 42 for women. Although there was a downward trend in Northern Ireland, there were considerable fluctuations over the 20-year period, which is probably due to small numbers of amenable deaths in this age range and its relatively small population.

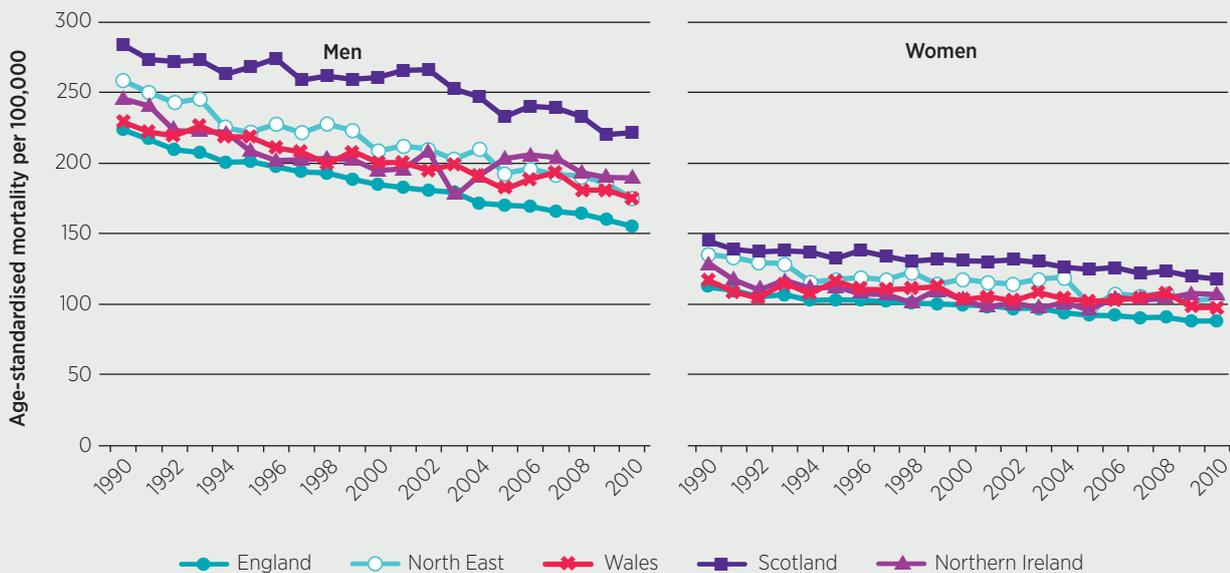
The pattern of change in other mortality, for both men and women under 65, was similar to that of the under-75s overall. Thus, in 1990, mortality rates per 100,000 were highest in Scotland (284 for men and 146 for women) and lowest in England (224 for men and 113 for women). As we have also seen for the 0–74 age group,

the gap between Scotland and England increased over time during the 20-year period. Thus, in 1990, the other mortality rate per 100,000 in Scotland exceeded that in England by just under 30 per cent for men and women. However, by 2010, this had increased to 42 per cent for men and 35 per cent for women: the rates for Scotland were 222 for men and 118 for women, and for England were 156 for men and 88 for women.

**Figure 5.3: Trends in amenable mortality in the four countries of the UK and North East England, men and women, aged 0-64, 1990-2010**



**Figure 5.4: Trends in mortality from other causes in the four countries of the UK and North East England, men and women, aged 0-64, 1990-2010**



In absolute terms, amenable mortality for the under-65s declined faster in the 1990s than the 2000s for both men and women in all countries, with rates declining faster among men than women. From 1990 to 2000, the greatest reductions in magnitude for men and women were in Northern Ireland and Scotland, and the smallest in Wales and England. From 2000 to 2010, the rates of absolute decline for men were greatest in Scotland and least in Wales; and for women, were greatest in Northern Ireland and least in England. The faster pace of decline in the 1990s was driven mainly by the larger reduction in that decade in premature deaths from ischaemic heart disease (IHD) among both sexes (this decline was greater in men) and from treatable cancers in women (see Appendix 2, Table 2: Bevan and others, 2014c).

In terms of relative change for the under 65s, during the 1990s, the decline in amenable mortality for men was greatest in Northern Ireland and least in Scotland; for women, it was greatest in Scotland and least in Wales (Appendix 2, Table 2: Bevan and others, 2014c). However, contrary to ages 0–74, the pace of decline in amenable mortality among those aged under-65 during the 2000s accelerated only for men in Scotland and in North East England; it decelerated in England as a whole, and stayed the same in Northern Ireland and Wales. For women, compared with the 1990s, the rate of reduction in amenable mortality accelerated in Northern Ireland, Wales and North East England, decelerated in Scotland and stayed the same in England. However, the differences in rates of decline among women in all countries were small.

### **Trends in amenable and other mortality: 65–74 years**

Figures 5.5 and 5.6 give rates of amenable and other mortality for men and women aged 65–74 from 1990 to 2010, which reflect the pattern observed for the age group 0–74.

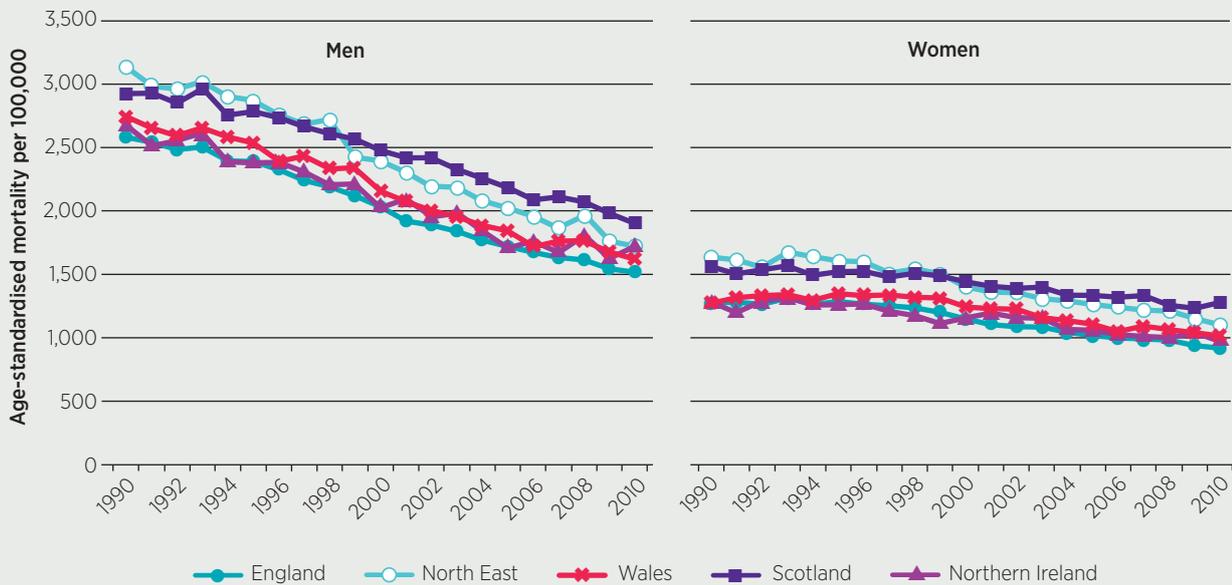
In 1990, rates of amenable mortality per 100,000 for both men and women aged 65 to 74 were highest in Scotland (1,682 for men and 1,114 for women) and lowest in England (1,266 for men and 867 for women) (Appendix 2, Table 3: Bevan and others, 2014c). Rates of amenable mortality fell across all countries for both sexes over the 20-year period. Although differences in rates between countries decreased between 1990 and 2010, rates per 100,000 remained highest in Scotland (630 for men and 445 for women) and lowest in England (491 for men and 352 for women). The greatest relative reduction of rates of amenable mortality per 100,000 from 1990 to 2010 was in Northern Ireland for men (from 1,630 to 556) and for women in North East England (from 1,033 to 373). However, differences in the relative decline between countries were comparatively small, ranging from 61 to 66 per cent in men and 57 to 64 per cent in women. We examine the reasons for these declines below.

Figure 5.6 shows that rates of other mortality per 100,000 in 1990 were highest in North East England (3,145 for men and 1,640 for women) and lowest in England (2,583 for men and 1,276 for women). However, rates in North East England fell more steeply than those in Scotland so that the relative mortality gap between Scotland and England rose from between 10 per cent (men) and 20 per cent (women) in 1990 to 25 per cent (men) and almost 40 per cent (women) in 2010.

**Figure 5.5: Trends in amenable mortality in the four countries of the UK and North East England, men and women, aged 65–74, 1990–2010**



**Figure 5.6: Trends in mortality from other causes in the four countries of the UK and North East England, men and women, aged 65–74, 1990–2010**



The absolute reduction in the rates of amenable mortality in the two decades varied between the sexes across the four countries and North East England. For men, the absolute reduction was greater in the 1990s than in the 2000s in Northern Ireland and Scotland, but greater in the 2000s than the 1990s for England and Wales. For women, the absolute reduction was greater in the 1990s than the 2000s in all four countries, except Wales and North East England. The faster rate of decline in the 1990s for women was driven mainly by a reduction in deaths from treatable cancers and IHD. For men there was also a greater reduction of deaths from IHD in the 1990s.

Other drivers are less clear. For example, for stroke, there was a greater reduction in mortality in the 1990s in Scotland than in the 2000s, whereas in all other countries the rates of reduction were greater in the 2000s. For treatable cancers, there was a greater reduction in mortality rates in the 2000s for Wales and Scotland than in the 1990s; however, in Northern Ireland, the rate of reduction in the 2000s was much lower than in the 1990s.

The relative rate of decline in amenable mortality in each country and North East England was greater in the 2000s than the 1990s for both sexes, and there were only small differences in the rates of relative change. In the 1990s, for men the relative decline was greatest in Northern Ireland at 38 per cent, and smallest in Wales at 30 per cent. For women, the relative decline ranged from 30 to 33 per cent. Differences in the relative decline between countries became very small during the 2000s, at around 43 to 45 per cent among men and 38 to 42 per cent among women.

## Changes in amenable mortality between 1990 and 2010

Figure 5.7 shows the relative change in amenable mortality between the 1990s and the 2000s for men and women for the two age groups 0–64 and 65–74. In general, the relative pace of decline was greater among men than women in both age groups. Only in North East England was the rate of decline in amenable mortality for both men and women of all ages greater in the 2000s than in the 1990s.

**Figure 5.7: Relative decline in amenable mortality from 1990–2000 compared with 2000–2010, in the four countries of the UK and North East England, men and women, aged 0–64 and 65–74**



## Summary

Over the 20 years from 1990 to 2010, there was a marked decline in both amenable and other mortality in each country. Throughout both decades, Scotland had the highest rates of amenable mortality for both sexes. The pace of relative decline in amenable mortality in all four countries was faster in the 2000s than in the 1990s for all groups (except for women in Scotland, where it stayed the same), and exceeded the rate of decline for other mortality. This suggests that health care had a stronger impact on mortality in the 2000s than in the 1990s. During the 2000s, relative declines in amenable mortality were fairly similar between the four countries. The greatest decline was in North East England for both men and women. For other mortality, Scotland had the highest rates throughout both decades. In 1990, other mortality rates in North East England were comparable to Scotland. However, relative to the devolved countries, improvements made over the two decades were greatest in North East England, so that by 2010, rates in the region were similar to Northern Ireland and Wales. The comparison of amenable mortality at the country level suggests that the different NHS policies associated with political devolution may have had little measurable effect, but including a comparison of the devolved countries with North East England suggests that there may have been a greater beneficial impact in England over the other countries in reducing both amenable and other mortality.

# 6

## Discussion

### Introduction

Devolution coincided with a 'crisis' of underfunding of the NHS. Clive Smee, who was the chief economist at the Department of Health throughout the 1990s, shows how good comparative data on countries' performance helped to add to that sense of crisis:

In 1994, in its regular survey of the UK economy, the Organisation for Economic Cooperation and Development (OECD, 1994) stated that the 'NHS was and is a remarkably cost-effective institution'. Most national and international policy analysts probably concurred. Analysts in the Department of Health certainly did (Smee, 2005). Six years later, in its next major review of UK health care, the OECD came to a radically different conclusion. The 2000 study highlighted poor cancer survival rates in the UK, suggested that other disease-specific outcomes were also poor, and noted the limited progress on waiting times and the apparent under-investment in both doctors and buildings. Instead of drawing attention to the efficiency of the NHS, it drew the conclusion that the NHS was underfunded. Many of the officials in the UK had reached a similar conclusion. On 16 January 2000, while the OECD report was still in draft, the prime minister made his seminal commitment to match the average health expenditure levels of the European Union by 2006/07. (Smee, 2008, p. 92)

Smee also points out in a footnote that: "In private the authors went further and indicated that they had been unable to identify any features of the NHS that were particularly commendable" (2008, p. 92). He attributes the change in the OECD's assessment of the NHS to four reasons. First, although the UK had looked to be efficient in 1994 on average lengths of stay for acute care, bed turnover rates and hospital doctors' caseloads, these comparisons were misleading and made the UK look better than it was because of differences in definition: the UK's data were based on finished consultant episodes, but other countries used data on hospital spells. When comparable data were used, the UK did not stand out. Second, in 1994, the UK had both a low level of spending on health care as a share of gross domestic product (GDP) and a level of health status in the middle of the OECD range, but by 2000, data on disease-specific outcomes and, in particular, cancer survival rates showed the NHS to be performing comparatively poorly. Third, the internal market reforms which had excited interest internationally in 1994 had "not produced the scale of benefits that many had anticipated" (2008, pp. 93-4), and there was less interest in the new policy emphasis on targets. Fourth, there was a mismatch between increases in public expectations and slowdown in the growth of NHS funding; the UK's long hospital waiting times were seen as a "clear sign of failed policies and particularly of underfunding" (2008, p. 94).

These observations help to set the context for the discussion of the comparisons in this report over time and across the four countries. They emphasise both the

power of comparative data, and the importance of consistency in definitions. They also indicate ways of assessing health system performance: at the aggregate level in terms of spending and health status; by linking funding to staffing and numbers of cases treated; and how in Beveridge-type systems, long hospital waiting times are seen as a symptom of systemic failings. A recent analysis by the OECD (2013a) pointed out that over the first decade of devolution, UK health spending grew in real terms by nearly six per cent a year on average. This raises one set of questions about the data reported here in terms of accountability: is there evidence of such substantial improvements in performance that they justify the massive increases in NHS expenditure in the 2000s? Furthermore, which of the different policies pursued by the different countries has produced best value for money? A second set of questions looks forward: do the available data enable benchmarking to inform better practices and policies in future in the four countries?

Bogdanor (1999) and Greer (2004) saw the legacies of history as indicating that the Scottish Government should be better able to govern following devolution than the governments of Wales and Northern Ireland, but for different reasons. Given that Wales has been governed from England for so much of its history, one would expect there to be a period of learning how to govern, following recognition of its new, more independent status. Northern Ireland ought to have the advantage of having experienced devolution for much of its history, but the complex and deep-seated structural, political and religious issues confronted by government in Northern Ireland meant devolution was suspended between 2002 and 2007, and, as Greer (2004) argued, the normal processes of political accountability have not generally applied. Chapter 2 pointed out that studies that had examined performance across the four countries from devolution to 2006 in terms of hospital waiting times and ambulance response times found that the NHS in England performed best (Bevan and Hamblin, 2009; Bevan and Hood, 2006; Connolly and others, 2011; Propper and others, 2010). The later information reported here on performance after that initial period of devolution is of great interest for answering two kinds of comparative questions. First, has the new system of performance management since 2005 in Scotland resulted in improved performance, and how does this compare with that of England? Second, have Wales or Northern Ireland been able to improve their performance since 2006, and how does their performance compare with that of England and Scotland?

In the next five sections, the following are discussed: health care spending, health care need and health; health care productivity; health care quality; patient satisfaction; and related wider public policy issues posed by devolution.

## Spending, need and health

Smee (2008) argues that one macro-level performance indicator of a country's system of health care is the relationship between its total spending on health care as a percentage of GDP and its population health status. However, the relationships between spending and health status are complex: poorer health creates a need for increased health care which, it is hoped, leads to better health and hence reduced need (Grossman, 1972). Here, this report considers spending in relation to need and health status.

One of the main findings of Dixon and others (1999) was that in 1995/96, health spending per head in Scotland was 25 per cent higher than in England. The first three columns of Table 6.1 give spending per head on health in the devolved

countries, England and North East England for 2000/01 and 2012/13, as well as the percentage increases over those 13 years. Comparing the devolved countries with North East England, at the start of that period, North East England had lower spending per head than any of the devolved countries, but by the end, health spending per head was about £2,100 in North East England, Scotland and Northern Ireland; and in Wales was about 10 per cent lower (at about £1,900). This marked shift in relative spending is the outcome of two changes shown in Table 6.1. First, the government in England increased spending on health more than those in the devolved countries: the percentage increases were 115 per cent for England, 99 per cent for Scotland, 98 per cent for Wales and 92 per cent for Northern Ireland. This had what is known as ‘Barnett consequentials’: that is, the Barnett Formula would have allowed each devolved country to increase spending on health at the same rate as in England, but their decisions to spend less than this on health services meant that they had more to spend on other public services, or eliminate user charges, or some mix of both. This degree of autonomy is attractive provided that the allocations were fair (this is discussed further below). The second change was that England increased the funding per head in regions such as North East England (128%) relative to the average for England (115%), because of changes in the formula used to allocate resources in England according to the relative needs of different areas (Bevan, 2009).

Table 6.1 gives estimates of differences (in £s per head) between their actual health spending in 2012/13, and what they would have been able to spend on health if they had increased spending at the same rate as England: £249 in Northern Ireland; £168 in Scotland; and £160 in Wales. If these per-head rates are multiplied by their populations, this gives estimates of the ‘Barnett consequentials’ as nearly £900 million in Scotland, and over £400 million in Wales and in Northern Ireland. Chapter 2 mentioned how Scotland funded the costs of free long-term

**Table 6.1: Health spending per head – increases and ‘Barnett consequentials’ (in cash terms)**

	Actual per head		% increase	Projection for 2012/13 at rate of increase for England	‘Barnett consequential’	
	2000/01	2012/13			Per head	In total
	£	£	%	£	£	£m
North East	945	2,150	128	2,028		
England	891	1,912	115	1,912		
Scotland	1,064	2,115	99	2,283	168	884
Wales	985	1,954	98	2,114	160	489
Northern Ireland	1,099	2,109	92	2,358	249	452

personal and nursing care for people aged 65 years and over from the ‘Barnett consequential’ by not increasing spending on its health service at the same rate as England. The recent cost of that policy was estimated to be £450 million (Timmins, 2013, p. 13).

An unresolved difficulty in making sense of differences in spending per head on health in the different countries, lies in accounting for differences in relative health care need in terms of morbidity, of which age is one indicator (Bevan, 2009). Each country has developed different formulas for estimating the relative needs of different areas within the country, but the Barnett Formula used for the devolved countries is designed to take account of population size only.<sup>49</sup> The National Audit Office (2012a, 2012b) has produced estimates of relative health care needs across the four countries. These are given in Table 6.2 with the present study’s data on life expectancy, and rates of amenable and other mortality over the period 2007–10.

**Table 6.2: Life expectancy, mortality and relative health care need, 2007–10**

	England	North East	Wales	Scotland	Northern Ireland
Life expectancy at birth (2008–10)					
Males	78.50	77.1	77.62	75.9	76.96
Females	82.51	81.1	81.78	80.4	81.4
Amenable mortality under age 75; age-standardised mortality per 100,000 (2010)					
Males	80	89	87	97	90
Females	64	69	72	77	72
Other mortality under age 75; age-standardised mortality per 100,000 (2010)					
Males	255	289	281	344	302
Females	149	177	165	203	170
National Audit Office population relative needs weights (2007/08 to 2009/10)					
Mean	0.91		1.07	0.98	1.11
Range	0.63–1.27		0.92–1.24	0.8–1.16	1.00–1.26

The estimates of relative needs by the National Audit Office (2012a, 2012b) were based on data from 2007/08 to 2009/10, which included measures of population age, levels of disability and wealth (National Audit Office, 2012a, p. 18). The National Audit Office’s weighting for the different measures was estimated by regression analysis on the Resource Allocation Formula used in England. The National Audit Office estimated that on this basis, relative need was as follows: England (0.91), Scotland (0.98), Wales (1.07) and Northern Ireland (1.11). More generally, on the basis of its analysis of indicators of relative need, using measures of age, income, morbidity and unemployment, the Select Committee on the Barnett Formula also concluded that “any well-based combination of the measures would show that England and Scotland have lower overall needs than Wales or Northern Ireland” (2009, p. 42).

Chapter 3 mentioned that in its examination of the Barnett Formula, the Holtham Commission also applied the formula used for the NHS in England, and estimated that the relative need for Wales was almost the same as for North East England, which was 14 per cent greater than that for England as a whole (Holtham, 2009, p. 48). This report now considers differences in health and life expectancy across the four countries, and how these do (and do not) relate to the National Audit Office's estimates of their relative needs.

The OECD (2013b) noted that in 2011, the life expectancy at birth in the UK of 81.1 years was a full year more than the OECD average (80.1 years). Table 6.2 shows Scotland to have the worst life expectancy and amenable and other mortality for both men and women of the four countries. Dixon and others (1999), Alvarez-Roseté and others (2005) and Connolly and others (2011) all found that in comparison with the other countries, the population of Scotland had the highest rates of standardised mortality and lowest life expectancy. The current study found that in 1991–93, men and women in North East England had a similar life expectancy to Scotland, but that by 2009–11, both would have been expected to live about one year longer in North East England than in Scotland.<sup>50</sup>

Over the 20 years from 1990–2010 there was a marked decline in both amenable and other mortality in each country. Throughout both decades, Scotland had the highest rates of amenable mortality for both sexes across the four countries and North East England for all the three age groups that this study examined (the under-75s, under-65s and those aged 65–74). The wide dispersal of rates for amenable mortality in 1990 between the devolved countries and North East England narrowed considerably, so that by 2010 there were only small differences between England, North East England and the devolved countries. For other mortality, in 1990 the rates in Scotland and North East England were higher than in Wales and Northern Ireland; however, by 2010, North East England had similar rates for men and women as Northern Ireland and Wales, and lower rates than Scotland. Scotland's relatively high mortality rates indicate a greater need for health care than in the other countries, which was not reflected in the National Audit Office's estimates of relative need.

## Productivity

The dramatic increases in NHS funding from 2000 have been associated with low rates of NHS productivity, as increases in spending have outstripped increases in measured outputs. The problem of measuring productivity has been a focus of research since the Atkinson Review (Atkinson, 2005). The Office for National Statistics (2010) estimates that across the four countries, average productivity growth in publicly funded health care in the UK was 0.4 per cent a year between 1995 and 2010, but the growth in the rate of output began to exceed the rate of inputs from about 2005 (Massey, 2010). Looking at the end of the period studied by the Office for National Statistics, Bojke and others (2013) estimated that between 2004/05 and 2010/11 there had been an eight per cent increase in the productivity of the English NHS, which is almost three times greater than the Office for National Statistics' estimates over the period 1995 to 2010.

This section begins by considering what might be described as a reductionist approach to assessing productivity. It then considers another way of thinking about productivity, by benchmarking the NHS in each country against Kaiser

Permanent using estimates by Feachem and others (2002). This discussion of waiting times also refers to a study that sought to estimate the costs and benefits of the dramatic reductions in waiting times that have been achieved in England.

### A reductionist approach

In a reductionist approach to measuring productivity, we would like to be able to:

- disaggregate total spending on health care into hospital and community health services and family health services
- see how funding on hospital and community health services translates into different types of staff
- relate staffing to activity in terms of outpatients, day-cases and inpatients.

Box 6.1 shows how the availability of these data has degenerated over the four studies, which means that it is not now possible to assess how spending translates into staff and their productivity.

<b>Box 6.1: Availability of data on spending, staffing and activity</b>				
	Dixon and others (1999)	Alvarez-Roseté and others (2005)	Connolly and others (2011)	This study
<b>Expenditure</b>				
Hospital and community health services	✓	✗	✗	✗
Family health services	✓	✗	✗	✗
<b>Staff</b>				
Hospital doctors	✓	✓	✓	✓
Nurses	✓	✓	✓	✗
GPs	✓	✓	✓	✓
<b>Activity</b>				
Outpatients	✓	✓	✗	✗
Inpatients	✓	✓	✗	✓
Day-cases	✓	✓	✗	✗

The OECD (2013a) highlighted the large increase in practising doctors per 1,000 population in the UK, from 2.0 in 2000 to 2.8 in 2011, but showed that the rate was still below the OECD average of 3.2. The OECD rate is based on headcounts of practising doctors (including GPs and hospital doctors), and there are differences in definitions between countries over whether doctors in training are or are not included (OECD, 2013b, p. 64). The increase in the UK was driven by the increase in hospital doctors, which of all the staff groups had the largest percentage increases over the period 1996–2011. The rates of hospital doctors per 1,000 population (in whole-time equivalents; WTEs) in 2011 were 1.9 in England and Wales, 2.0 in Northern Ireland, 2.2 in the North East and 2.3 in Scotland. Staffing rates per 1,000 population for GPs are discussed below, which ranged from 0.6 to 0.7 in WTEs and from 0.6 to 0.9 in headcounts.

The OECD (2013b, p. 77) reported that in 2011 in the UK, there were 8.6 nurses per 1,000 population, which was similar to the OECD average of 8.7 (again, there are problems over differences in definition; OECD, 2013b, p. 64). The present report's comparisons of nurses in WTEs per 1,000 population in 2011 showed England to be an outlier with a much lower rate (5.8) than the other countries (Wales, 7.1; Northern Ireland, 7.5; and Scotland, 7.9). As the rate for the North East (7.4) was similar to that of the devolved countries, the low rate for England as a whole cannot be explained by definitional differences. This could be due to proportionately more NHS-funded care being provided by non-NHS staff in England than in the devolved countries and the North East,<sup>51</sup> given that only in England are NHS commissioners encouraged to contract with private providers. Chapter 3 mentioned that Arora and others (2013) showed that NHS spending on non-NHS providers in 2011/12 was about 10 per cent for England as a whole, but only 3.2 per cent in the North East. If this were the complete explanation, then it would imply that a nearly seven per cent increase in NHS spending on non-NHS providers in England as a whole over that of the North East had resulted in a reduction of nearly 30 per cent in rates of nurses. This is highly implausible.

Although the formula used to guide the allocation of health service resources aims to compensate for variations in labour markets by the Market Forces Factor, this is designed to cover costs of agency nursing staff in high-cost areas (Bevan, 2009). Buchan and Seccombe (2012) point out that temporary nurse staffing costs as percentages of permanent staff costs (including all staff groups and types of temporary staff) were 7.4 per cent in England, about 5.3 per cent in Scotland, 2.8 per cent in Northern Ireland and 2.3 per cent in Wales (p. 25). There are no recent data on the distribution across England, but it is likely that the North East of England will have low rates that are comparable with the devolved countries: the National Audit Office (2006) reported the percentage in the then Northern and Yorkshire region to be among the lowest in England and to be about 4 per cent (p. 14). Hall and others (2008) also showed the North East to have low rates of agency staff (p. 57). They also found that high use of temporary agency staff, was associated with worse health outcomes: a 10 per cent increase in the outside wage was associated with a 4 to 8 per cent increase in death rates for acute myocardial infarction within 30 days of emergency admission. The key points are that the gap in nursing supply per head between England, and the devolved countries and North East England, is likely to be explained by differences in the levels of employment of agency staff, and that low levels are likely to be associated with better quality of care.

This report has explained that it is not meaningful to make comparisons between countries in term of rates of infrastructure staff per 1,000 population. However, it is possible to compare England with North East England. The rates of infrastructure staff in England and North East England in 2011/12 were 3.6 and 4.2, respectively; so North East England had about 17 per cent more staff than the average for England. This may be due to North East England spending about seven per cent less than the average for England on independent providers.

This study has data on rates of hospital treatment per 1,000 population in England, Scotland and Wales from 1998/99 to 2011/12 for outpatient attendances, inpatient admissions and day-cases. For Northern Ireland, the study has data from 2006/07 or 2008/09 only. For North East England, the study has data on inpatient admissions from 2008/09, and day-cases from 2006/07 only. Rates of treatment per 1,000 population changed as follows:

- Outpatients – for England, Scotland and Wales, these showed little change from 1998/99 to 2006/07 and were between around 900 and 1,000. From 2006/07 to 2011/12 these rates increased in England (to 1,200), changed little in Wales, and slightly decreased in Scotland (to less than 900). In Northern Ireland, the rates in 2011/12 were the lowest (around 800).
- Inpatient admissions – from 1998/99 to 2011/12 these showed a small reduction in Wales (from 178 to 174), and increases in Scotland (from 204 to 215) and England (154 to 176). In 2011/12, the rates for the North East (209) were similar to Scotland, and lowest in Northern Ireland (163).
- Rates of day-cases – from 1998/99 to 2011/12 these showed little change in Scotland (79 to 84); a steep increase in Wales (42 to 75), which was probably due to the ending of the cleansing of these data; and a substantial increase in England (70 to 104). The rates increased from 2006/07 to 2011/12 in Northern Ireland (150 to 170), and from 2008/09 to 2011/12 in the North East (107 to 158).

There are serious problems of comparability between countries and over time because of differences and changes in definitions of outpatient attendances, inpatient admissions and day-cases. One indicator of efficiency used by the National Audit Office (2013, p. 4) is day-cases as a percentage of all hospital admissions. The National Audit Office reports these percentages to have been, for 2008/09, 41.0 for England, 36.4 for Scotland, 36.8 for Wales and 41.8 for Northern Ireland. The present study's data for the same year suggest that these percentages were 36.9 for England, 26.8 for Scotland, 30.1 for Wales and 42.2 for Northern Ireland; and 37.7 for North East England. However, we are aware that the differences in definition of what constitutes a day-case mean that cross-country comparisons are highly likely to be uninterpretable and, more generally, make it difficult to interpret differences in rates of inpatient admissions, as well as making it virtually impossible to use the data that are collected routinely to compare rates of hospital activity across the four countries.

A further complication in interpreting cross-country comparisons of rates of hospital activity is caused by another policy difference between England and the devolved countries. In England, some hospital procedures are reimbursed depending on their volume following the introduction of Payment by Results, which was fully in place from about 2006/07. This creates financial incentives in England, but not in the other countries, for both increasing volumes of activity and their more complete recording, but it is not possible to distinguish between these real and artefactual effects. Farrar and others (2007, Table 5.41, p. 128; 2009) evaluated the early impact of Payment by Results in England in comparison with Scotland, where there was no funding of hospitals by activity. By using difference-in-difference analysis, they found that between English and Scottish hospitals there was no statistically significant difference in rates of outpatient activity in 2006/07; there was a small increase in rates of inpatient admissions in England, but this may have been due to pressure to reduce waiting times and cash limits; and, consistent with the anticipated effects of Payment by Results, there was a greater increase in day-case rates in England (as well as a greater reduction in lengths of stay).

Dixon and others (1999) measured crude productivity in terms of rates of hospital admissions (inpatient and day-cases) and outpatients per HCHS doctor/dentist and nurse in 1995/96. They found that "doctors and nurses in Scotland, Wales and Northern Ireland seem to be under less pressure (or are less productive) than their counterparts in England" (p. 525). Alvarez-Roset  and others (2005) found that

the increases in numbers of HCHS doctors/dentists and nurses between 1995/96 and 2002/03 meant reductions in crude productivity for all measures in all four countries; that Wales had the highest rates of outpatients and hospital admissions per HCHS doctor/dentist; and that England had the highest rates for nurses. Connolly and others (2010) encountered problems from definitional changes of inpatients, day-cases and outpatients. Where cross-country comparisons were possible, for 2006/07, England had the highest rates of crude productivity for outpatient appointments and day-cases per HCHS doctor/dentist, and outpatient appointments, day-cases and inpatient admissions per nurse; and Northern Ireland had the highest rate for inpatient admissions per HCHS doctor/dentist. This report has shown that increases in the numbers of hospital doctors over the 13 years from 1999/2000 to 2011/12 has resulted in reductions of 30 to 40 per cent in crude productivity in each country in terms of the rate of inpatient admissions per HCHS doctor/dentist. (This is the only available measure of activity with consistent definitions across the four countries, although there are some questions over the data from Northern Ireland.) By 2011/12, the rates of inpatient admissions per HCHS doctor/dentist were similar and over 90 for North East England, England, Scotland and Wales; the comparatively low rate of 81 in Northern Ireland is probably due to differences in definition.

The National Audit Office (2012a) estimated comparative efficiency per HCHS doctor/dentist in each country in 2008/09 by weighting the numbers of inpatient and day-case admissions and outpatients by their estimated average costs. This estimate did not take account of the complexity, quality of care or differences in the levels at which staff were employed. Their estimates of cost-weighted activity per HCHS doctor/dentist for inpatients, outpatients and day-cases were: in England, £238,000; Wales, £219,000; Northern Ireland, £189,000; and Scotland, £179,000. Table 6.3 gives the data reported for each country by the National Audit Office, as well as this study's estimates of inpatient and day-case admissions and outpatients per HCHS doctor/dentist for the four countries and the North East. This report mentioned above the problems of inconsistency of definitions across the four countries for day-case admissions and outpatients, which may explain the variations between this study's estimates and those of the National Audit Office. However, even for inpatients, there is no consistency in the rankings by country. This study's estimates have been checked by information

**Table 6.3: Crude productivity and cost-weighted activity per HCHS doctor/dentist, 2008/09**

	England	North East	Wales	Scotland	Northern Ireland
Crude productivity per HCHS doctor/dentist					
Inpatients	98	106	95	97	88
Day-cases	57	64	41	36	79
Outpatients	662	712	558	394	433
Cost-weighted activity (£000s) (National Audit Office)					
Inpatients	144	N/A	136	115	117
Day-cases	35	N/A	28	23	30
Outpatients	59	N/A	55	40	42
<b>Total</b>	<b>238</b>	<b>N/A</b>	<b>219</b>	<b>179</b>	<b>189</b>

experts in each country, and the National Audit Office report does not give the raw data on which its estimates were based. Given the problems of comparability of basic data on staff and hospital activity, it is not currently possible to compare with confidence even the crude productivity of HCHS doctors/dentists and nurses across the four countries.

### Benchmarking against Kaiser Permanente

The measures that this study has tried to estimate of crude productivity in terms of numbers of inpatients per hospital doctor are meaningful where these rates are low, but it cannot be assumed that high rates mean high productivity. The caveat that always applies to activity-based measures of productivity is that they do not distinguish between care that improves health, has little or no impact, or is unwanted or even harmful from the patient's viewpoint. There is evidence that unwarranted variations in hospital care are pervasive and material (Wennberg, 2011): these have been mapped for the NHS in England by Right Care for 2010 and 2011, and in a series of themed atlases of services for children and young people, diabetes, kidney disease, respiratory disease, liver disease and diagnostic services (Right Care, n.d.). Indeed, one widely sought indicator of the success of better integration across different services is reductions in rates of emergency admissions to hospital. In the discussion of integrated care in Chapter 2, comparisons were mentioned between Kaiser Permanente in the USA and the UK in 2000 by Feachem and others (2002), and between Kaiser Permanente and the English NHS by Ham and others (2013). The latter detailed study standardised for age, but did not take account of differences in morbidity (Talbot-Smith and others, 2004), and suggested that Kaiser Permanente's better-integrated provision of health care explained why its rate of acute admissions was about one-third that of the English NHS.

Table 6.4 compares data from Feachem and others from 2000 with data for 2008/09 for the four countries, using the present study's data for inpatient admissions (excluding day-cases),<sup>52</sup> and estimates by the National Audit Office (2012a) for mean lengths of stay.<sup>53</sup> The National Audit Office observed 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" (2012, p. 33), which suggests scope for greater efficiency in the use of acute beds in Wales, Scotland and Northern

**Table 6.4: Rates of use of acute beds per 1,000 population**

	Kaiser Permanente (2000)	UK NHS (2000)	England (2008/09)	Scotland (2008/09)	Wales (2008/09)	Northern Ireland (2008/09)
Mean length of stay	3.9	5.0	4.3	5.7	6.3	5.5
Inpatient admissions per 1,000	69	200	172	213	174	175
Acute bed days per 1,000	270	1,000	741	1,213	1,099	961

Sources: Feachem and others, 2002 for Kaiser Permanente, and UK, 2000; National Audit Office, 2012a for mean lengths of stay for 2008/09 (see Appendix 1 of this report for details of the present study's data on admissions in 2008/09; Bevan and others, 2014b).

Ireland. However, the promise of integration is of much greater efficiency savings, by eliminating all admissions that can be substituted by more appropriate, cheaper care. The comparison with Kaiser Permanente suggests that a well-designed system of integrated care could release substantial resources from the acute hospital sector. This suggests a focus for future comparative research on developments of integrated care in England and Scotland (see the final section of this chapter), where policy objectives are the same, but the organisational forms and models of governance differ (for example, England has to develop integrated care in a system with a commissioner/provider split and subject to the overarching institutional logic of choice and competition; see Chapter 2). This comparison could include analyses of large, individual-level linked datasets for the purposes of benchmarking, complemented by detailed local studies of areas with similar demographics and socioeconomic circumstances that would include studies of patients' experiences of particular services, as well as qualitative research to attempt to explain any differences observed.

## Quality

As Smee (2005) pointed out, one of the reasons for the increases in spending on the NHS in the UK was that quality of care seemed to be so poor in comparison with other countries. This report considers what evidence there is of changes in quality in the four countries, organised using Donabedian's (1966) categories of structure, process and outcomes.

## Structure

A major research question is: which of the different organisational structures and models of governance in the four countries is best for improving quality of health care? The only data that this study has on structure, which are deemed to be a good measure of quality, are for stroke care. The stroke audits by the Royal College of Physicians of London for 2006 and 2010 cover all countries except Scotland, which carries out its own stroke audit. In 2006, the percentage of patients who spent more than 90 per cent of their time in a stroke unit was highest in Northern Ireland (60 per cent), and lowest in Wales (39 per cent), with England in the middle (51 per cent). By 2010, the percentage had risen in England, with little change in Wales, and had fallen in Northern Ireland (to 50 per cent).

## Process

This study has measures of process for ambulance response times, hospital waiting times, stroke care and some public health services.

### Ambulance response times

This study has data for North East England and all four countries on the percentages of ambulance response rates in fewer than eight minutes to what may have been life-threatening emergencies (category A calls).<sup>54</sup> There was a substantial improvement in performance in the devolved countries between 2006/07 and 2011/12. In 2006/07 these were about 56 per cent, but by 2011/12 they ranged from 68 per cent in Wales to 73 per cent in Scotland and Northern Ireland, and more than 75 per cent in England and North East England.

### Hospital waiting times

Table 6.5 summarises the findings on performance on hospital waiting times from the three earlier studies (Dixon and others, 1999; Alvarez-Roseté and others, 2005; Connolly and others, 2011). The data for Scotland were not comparable with the other countries (because of the different rules for excluding suspended patients). There are few data for 1995/96, but there was only one case of improvement by 2002/03: in England, where there was a small improvement in those waiting less than six months for day-case or inpatient admission, from 75 to 81 per cent. The data for 2006/07 show improvements in all cases except for waiting less than three months for a first outpatient appointment in Northern Ireland. Across the three countries, the performance for England was clearly the best, with virtually everyone waiting less than three months for a first outpatient appointment, and less than six months for day-case or inpatient admission.

**Table 6.5: Performance on hospital waiting times, 1995/96, 2002/03 and 2006/07**

	England	Wales	Scotland	Northern Ireland
% population waiting less than:				
3 months for first outpatient appointment:				
1995/96	N/A	72	N/A	65
2002/03	80	46	N/A	42
2006/07	100	56	N/A	39
6 months for day-case or inpatient admission:				
1995/96	75	N/A	N/A	62
2002/03	81	63	N/A	60
2006/07	100	79	N/A	84

Since this time, the health service in Scotland has brought its practice for suspended patients into line with the other countries. However, it is unclear how consistently this change has been implemented. The government auditor in Scotland has raised concerns over health boards' inappropriate use of 'unavailability' codes to exclude patients from waiting time calculations (Audit Scotland, 2013). The government auditor in England has also identified different problems of inconsistencies and errors in the way that English NHS trusts measure waiting times (National Audit Office, 2014, p. 7). Waiting time performance is now measured for elective hospital admission in terms of referral to treatment (RTT) time, which includes diagnostic waits, in England, Scotland and Wales. In March 2013, the performance in the different countries was as follows:

- England – more than 97 per cent of those seen in outpatients only, and more than 92 per cent of those admitted to hospital, were dealt with within 18 weeks (the targets were 90 and 95 per cent).
- Scotland – more than 90 per cent of those seen in outpatients only or admitted to hospital were dealt with within 18 weeks (the standard was 90 per cent).

- Wales – 92 per cent of those seen in outpatients only or admitted to hospital were dealt with within 26 weeks (the target was 95 per cent); 99 per cent of those seen in outpatients only or admitted to hospital were dealt with within 36 weeks (the target was 100 per cent).
- Northern Ireland – for the first outpatient appointment, 80 and 99 per cent were seen within nine and 21 weeks, respectively (the targets were 50 and 100 per cent); and for inpatients, 69 and 97 per cent were admitted within 13 and 36 weeks, respectively (the targets were 50 and 100 per cent).

The data on performance against targets show both a transformation for each country since 2000, and remaining differences between them in March 2013. As the targets and standards differ, it is not possible to make direct comparisons between the countries, and there are questions over the reliability of the data.

In assessments of health service productivity, a value is placed on reductions in waiting times, but a problem in doing so is that as Wanless and others observed, “there is no readily available data on the costs and benefits of meeting successive waiting time targets” (2007, p. 193). Morton and Bevan (2012) sought to produce such estimates for England by making some heroic assumptions. They first estimated that over the five years from 2002/03 to 2007/08, the better performance resulted in a reduction in time spent waiting of more than a million years. They estimated the annual cost of resources consumed by this policy in 2007/08 to be £3 billion at most, and if the value of waiting a day less were £15, then the costs of the policy would be about equal to the benefits.<sup>55</sup> The current report pointed out earlier that in 2002/03 the waiting time performance of the health system in England appeared to be superior to that of Wales and Northern Ireland, and that the data show substantial improvements in these countries since then. It would be interesting to undertake a similar kind of analysis for those countries in order to give a sense of the scale of their achievement, even if it has lagged behind that of England.

This study does have broadly comparable data for all countries on rates of hospital treatment from 2007/08 to 2011/12, for the seven common procedures that were used to make cross-country comparisons in the earlier studies;<sup>56</sup> and the 50th and 90th percentiles of the distributions of waiting times<sup>57</sup> for six of the seven surgical procedures from 2005/06 to 2009/10. There is no consistent pattern of higher or lower procedure rates across countries. There were substantial reductions in median waiting times for most procedures across all four countries, including halving the median wait for hip and knee replacement in England and Scotland. The 90th percentile decreased over the period from 2005/06 to 2012/13 for most of the procedures in England and Scotland, except for coronary artery bypass graft (CABG) surgery in England. In Wales and Northern Ireland there were dramatic reductions in the 90th percentile from 2005/06 to 2009/10 for all procedures, except in Wales for cataract surgery (which increased). However, in Wales since 2009/10, there have been increases in the 90th percentile for all procedures. Although there is no simple relationship between the statistics on rates of treatment and on waiting times, since 2009/10 in Wales, there has been an increase in waiting times, and a reduction in surgical rates for these procedures.

### Stroke care

For stroke care, there were substantial improvements across nine key indicators of the quality of the process in all three countries between the audits published in 2006 and 2011 by the Royal College of Physicians of London (2006, 2011). The average achievement increased from 60 per cent to 83 per cent in England, from 52 per cent to 73 per cent in Wales, and from 64 per cent to 74 per cent in Northern Ireland.

### Preventive services

For preventive health services, this study has rates of vaccination, immunisation and screening. Of these, the most serious failing in the 2000s was that the average rate in England for measles, mumps and rubella (MMR) coverage of children reaching their second birthday had fallen below 80 per cent in 2003/04, against the World Health Organization's recommended 95 per cent. The report from the Health and Social Care Information Centre (2012b) states that:

The controversy and associated publicity around a potential link between the MMR vaccination and autism and Crohn's disease, which started in the late 1990s and continued through the early 2000s, may have impacted on MMR coverage during that period. The study that initiated the controversy has since been discredited.<sup>58</sup>

Since then, the average rate for England has increased every year and, for all countries and North East England for 2011/12, was over 90 per cent, but still below the recommended 95 per cent. In 2013, there were measles outbreaks with more than 2,000 cases in England and Wales (BBC News, 2013a); there was also a particularly severe outbreak beginning in Swansea in 2012 (BBC News, 2013a). 'Catch-up' campaigns targeting specific age groups have been conducted in England and Wales to increase coverage in older children and adolescents.

Rates of immunisation for 2011/12 for the '5 in 1' (diphtheria, tetanus, whooping cough (pertussis), polio and Hib (Haemophilus influenzae type b)) vaccine and the Meningitis C vaccine, by the first and second birthdays, were above 95 per cent in all countries except England, which had rates close to 95 per cent. However, there were wide variations in the rates of vaccination against influenza in the winter over the two years, 2011/12 and 2012/13. Northern Ireland had the highest uptake rates for the general population at risk, but the lowest rate for health care workers. Uptake of screening for breast cancer among women between the ages of 50 and 70 for 2010/11 was 69 per cent in England, and above 70 per cent in the North East of England and the devolved countries.

### Outcomes

This study has reported data on three different kinds of outcomes. First, at the system level, it has compared amenable mortality across the four countries and North East England. This shows that over the 20 years, 1990–2010, there was a marked decline in amenable mortality in each country, which exceeded the rate of decline for other mortality. Throughout both decades, Scotland had the highest rates of amenable mortality for both sexes. At the country level, there was little difference in the rates of decline in amenable mortality; but North East England showed greater reductions in amenable and other mortality than Scotland.

Second, this study has compared one-year percentage rates of survival for patients on renal replacement therapy for one indicator from 2002 to 2010, which showed improvements in all countries with rates close to, or more than, 90 per cent. This shows that these rates have improved in all countries. In 2010, the survival rates were above or close to 90 per cent.

Third, this study has compared rates (per one million population) of deaths in which methicillin-resistant staphylococcus aureus (MRSA) is mentioned on death certificates, from 1996 to 2012, for both sexes, for all countries except Scotland, which show that the rates for men were about twice that for women. However, this study does not have data for North East England. The MRSA mortality rates peaked in Wales in 2005, in England in 2006 and in Northern Ireland in 2008. From then the rates for men fell from their peaks to the following in 2012: in England, from nearly 27 to 3.7; in Wales, from 28 to 7.6; and in Northern Ireland from 43 to 9.7. In 2011 in England and Wales, there were on average 170,000 hospital admissions for a million population in each country. MRSA would have been mentioned on the death certificates of six men and women in England, and more than 11 in Wales per million admissions, indicating MRSA mortality rates of about 0.4 and 0.6 per cent, respectively.

## Performance and satisfaction

We can see how comparative performance relates to patient satisfaction (percentages who were 'very satisfied' or 'quite satisfied'), by using the 2011 British Social Attitudes (BSA) survey (Park and others, 2012), which gave results for England, North East England, Scotland and Wales (but not Northern Ireland). One of the questions in the BSA survey was on 'the way in which the NHS runs'. Answers to that question may reflect people's general perceptions of the system which are influenced by reporting in the media, rather than their own direct experience of health care. The rates of satisfaction were: North East England, 67 per cent; Wales, 62 per cent; Scotland, 55 per cent; and England, 53 per cent. Hood and Dixon (2010) found that coverage of the demanding target regimes that applied in England from 2000 to 2005 was generally negative in London-based press articles, and became more so over time. They also sought to test the hypothesis that "changes in party preferences on health and education would be more favourable to the incumbent party in England than in Scotland and Wales over this period – given the more aggressive pursuit of health and education targets in England" (2010, p. i292), but found "no significant differences between England, Scotland and Wales in level of Labour support or rate of decline" (2010, p. i292). Their conclusion was that there is no obvious benefit in terms of media or public support accruing from tough regimes in which governments put pressure on providers to improve their performance. Indeed, the opposite is possible, since an absence of such pressure will tend to avoid negative press coverage, and hence could lead conceivably to higher levels of satisfaction with the way that the NHS runs – even if performance is not improving.

Two questions in the BSA survey asked directly about patient experience of 'attending hospital as an outpatient' and 'being in hospital as an inpatient'. Across the three countries, Scotland had the highest rates of satisfaction (70 per cent and 68 per cent, respectively); with England (65 per cent and 55 per cent) and Wales (66 and 53 per cent) having similar rates. North East England had rates that were closer to those of Scotland than England (69 per cent and 63 per cent).

The fourth and final question in the BSA survey was on ‘the way the NHS’s local doctors or GPs run nowadays’ (for being ‘very satisfied’ or ‘quite satisfied’). Answers to this question also may be influenced by reporting in the media rather than people’s own direct experience of health care. The rates of satisfaction were: North East England, 80 per cent; Wales, 78 per cent; England, 76 per cent; and Scotland 68 per cent. The National Audit Office (2012a) sought to examine the quality of primary care in the four countries across four disease areas (coronary heart disease, stroke, hypertension and diabetes) using results from 28 indicators in the general practice Quality and Outcomes Framework between 2009/10 and 2010/11. General practices can exclude patients in order to prevent being penalised in the Quality and Outcomes Framework assessment: for example those who do not attend for a review, or for whom a medication cannot be prescribed due to a contraindication. The National Audit Office found that the extent of so-called ‘exception reporting’ varied across the four countries, and was highest in Scotland. Without adjustment for exception reporting, GP practices in Scotland and Northern Ireland generally scored better across the 28 indicators and outperformed England across all four disease areas, with practices in Wales performing similarly to England. After adjustment, practices in Northern Ireland still performed better than those in England, but there were no consistent differences between the other three countries, which appears to be at variance with the differences in satisfaction in the BSA survey.

## Wider policy issues posed by devolution

In this section three general issues which apply to public services and are posed by devolution are discussed: resource allocation, governance and developing comparable data.

### Resource allocation

The failure to develop a fair system of allocation of resources for devolved services in the different UK countries has a long history. Bogdanor (1999, pp. 35–42) points out that the problem of deciding what spending ought to be in relation to need, and the capacity of each country to raise taxes to fund public services, arose in the period of Irish Home Rule and remained unresolved following devolution. The consequence is that the level of funding has been vulnerable to political lobbying which, Bogdanor (1999, pp. 112–13) and McLean (2000, p. 82) argue, is why Scotland has been so successful in securing higher levels of spending on public services than the other UK countries. Insofar as there is a formal basis for funding, this is still through the Barnett Formula which, as the Holtham Commission pointed out, was described by Lord Barnett himself as no more than:

‘a temporary expedient not expected to last a year, or even twenty minutes’... politically it was not found possible to secure agreement on a formula that allocated resources on the basis of needs, although the Treasury had devoted time and effort to developing such a formula, the results of which were published in 1979. The outcome was simply to take expenditure per head as it was in Wales, Scotland and Northern Ireland as a baseline. (Holtham, 2009, p. 14)

Furthermore, the Select Committee on the Barnett Formula (2009) reported that this formula had used crude, outdated population statistics (that benefited Scotland), with additional funding determined through bilateral negotiations (that benefited Scotland and Northern Ireland). Paradoxically, for more than

30 years, each country has developed and implemented complex formulas to ensure that within its borders, resources for the health service have been allocated with the objective of securing equal opportunity of access for equal need (Bevan, 2009). The Select Committee on the Barnett Formula concluded that “the resulting per head allocations are arbitrary and unfair” (2009, p. 8) between countries, and recommended that:

Public spending per head of population should be allocated across the United Kingdom on the basis of relative need, so that those parts of the United Kingdom which have a greater need receive more public funds to help them pay for the additional levels of public services they require as a result. (2009, p. 8)

The First Report from the Holtham Commission recognised that the Barnett Formula “must ultimately be superseded by a needs-based formula” (Holtham, 2009, p. 30), but recognised that such a change:

will need to be accompanied by an adjustment mechanism since the formula may imply substantial changes to block grants and it would be both disruptive and politically difficult to introduce those rapidly... [it] would need to be seen to be equitable to all parties... [and] therefore be jointly agreed by Ministers from both the UK Government and all the devolved administrations concerned. (2009, p. 30)

The Report from the Holtham Commission recognised that “any significant changes to the status quo will require a process of consultation, which will take time and will inevitably induce political difficulties” (2009, p. 30). The Government’s response to the Select Committee’s report (HM Treasury, 2009) rejected the proposal to develop a needs-based weighting for the Barnett Formula, so the Barnett Formula still fails to take account of relative needs. Although measuring relative need is complex and contentious, there is obvious scope to introduce measures that would make the formula fairer.

We have yet to see how recent constitutional developments, which will enable Wales and Scotland to raise taxes to fund devolved services, will develop (these were recommended by the Calman Commission for Scotland and the Silk Commission for Wales: Calman, 2009; Silk, 2012). Although this has the obvious attraction of linking representation to taxation, these developments will also encounter the same problem that was faced by Northern Ireland under devolution from the 1920s, where the mismatch between its needs for services, and the tax base to pay for them, resulted in “stabilising its financial position... but at the cost of drastically undermining her financial autonomy and destroying the connection between expenditure and revenue” (Bogdanor, 1999, p. 89). Indeed, in health care, this problem of mismatch between need and capacity to raise revenue to meet that need was captured vividly by Tudor Hart’s Inverse Care Law which, he argued, meant that: “The availability of good medical care tends to vary inversely with the need for it in the population served” (Tudor Hart, 1971, p. 405). The purpose of formula funding, which is based on the relative needs of populations, is precisely to remedy this Inverse Care Law (Bevan, 2009).

### **Governance**

This report has referred to the old, unresolved constitutional problem of devolution now known as the “West Lothian question” (Bogdanor, 1999, p. 34). The Report of the Commission on the Consequences of Devolution for the House of Commons (McKay, 2013) recommended that henceforward, decisions that

affect England should be normally taken only with the consent of a majority of Members of Parliament (MPs) for constituencies in England. This raises the issue of MPs at Westminster having different voting rights. More central to this report are the different arrangements for governance and accountability for the different countries. As pointed out in Chapter 2, the governments of the devolved countries are held to account by their electorates specifically for the performance of devolved services, but there is no equivalent specific electoral accountability for such services in England, as this is exercised only through general elections to the UK Parliament. Furthermore, although the UK taxpayer pays for health services in all four countries, only the NHS in England is held to account for its performance by the UK Treasury. Since HM Treasury is also responsible for the effective use of the taxes and borrowing that finance devolved services, it is legitimate to ask why it does not require, as a condition of funding each country, that data are collected in such a way that each government's auditors are able to make valid cross-country comparisons.

The three previous studies (Dixon and others, 1999; Alvarez-Roseté and others, 2005; Connolly and others, 2011), before and after devolution, suggested that the NHS in England was both more efficient in terms of crude productivity of its hospital doctors and nurses, and was performing better in terms of shorter waiting times for hospitals and ambulance response times to what could be life-threatening emergencies, than the devolved countries. However, the more recent data reported here suggest that expenditure and performance of the health system in Scotland on these measures – insofar as they can be compared – appear to be similar to that of North East England. As mentioned above, improvements in performance in Scotland appear to have come about because of a policy change in Scotland in response to unfavourable cross-country performance comparisons (Steel and Cylus, 2012, p. 113). Both wider electoral and executive accountability for specific public services ought to be informed and driven by the availability of comparable information on performance across the four countries, and its lack is the subject of the following subsection.

### **Developing comparable data**

This report has already quoted the comments by Dixon and others (1999), in their first comparative study of the four countries, on the lack of a policy initiative to encourage consistent data recording across the health systems in the four countries – even before devolution. The next study by Alvarez-Roseté and others commented that: “We have been astonished at the difficulty and in some cases impossibility, of obtaining valid comparable basic statistics on the NHS in the four countries” (2005, p. 949). They found that it was not possible at the time to produce comparative data on hospital waiting times for Scotland, and pointed out that unlike Dixon and others (1999), they had been unable to report per-head spending on the NHS and on its component programmes of hospital and community health services and family practitioner services.

These problems of a lack of comparable data apply across all the devolved public services. A report from the Centre for Public Policy for Regions stressed:

*the difficulties inherent in trying to make comparisons, even across the four home nations of the United Kingdom... Indeed a recent report to the Northern Irish government avoided making such comparisons due to these potential inconsistencies. (2009, p. 2)*

After having reported spending per pupil using the available data, the report pointed out that: “The scale of the differences between Scotland and Wales and Northern Ireland... are scarcely credible” (2009, p. 2). The Select Committee on the Barnett Formula similarly highlighted the problem of inadequate comparable data published by the Treasury:

Despite its importance, the Treasury only publish limited data about devolved public spending and the published official data appear in a number of places – in the Statement of Funding Policy, the Public Expenditure Statistical Estimates and the annual reports of the Scotland and Wales Offices. Older published data do not distinguish clearly which level of government is responsible – United Kingdom or devolved – for particular spending in the breakdowns published in the Public Expenditure Statistical Estimates. There is no time series showing how expenditure has changed as a result of spending decisions made in previous years or spending reviews. It is difficult to establish comparable levels of spending in England for devolved functions as they are different in each part of the United Kingdom. (2009, p. 30)

The Select Committee called for greater transparency, and recommended that:

the Treasury publish their statistics of the workings of the Barnett Formula, or its successor, in a single, coherent and consistent publication. This annual publication should contain all material data on devolved finance, showing the allocations of grant to the devolved administrations, changes from previous years and explanations for any changes made. We recommend that the statistics be monitored by the UK Statistics Authority. (2009, p. 30)

The Government’s response to that report (HM Treasury, 2009) did accept that “the allocations of grant to the devolved administrations, changes from previous years and explanations for any changes made, as provided to the Committee, should be included in PESA [Public Expenditure Statistical Analysis] supplementary material” (2009, p. 6). However, we have been unable to find any such supplementary material. Furthermore, what would also be required are not just data for the devolved governments, but also comparable data on expenditure in England.

This report has mentioned problems of errors in the data published by the Office for National Statistics that led to a revision of the report by Connolly and others (2011). Their revised report also highlighted problems of lack of comparability of data, stating that: “The divergences in definitions of basic NHS data between the devolved countries and England, such as for staff, hospital activity and waiting times, increasingly restrict benchmarking of performance to comparisons within each country” (2011, p. 109). More recently, in its comparison of the four countries, the National Audit Office (2012a) concluded that the current state of data is inadequate both for the retrospective purpose of accountability at the level of each country, and for comparing value for money across the four countries:

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. (2012a, p. 10)

The National Audit Office also highlighted the potential for learning from the ‘natural experiment’ following devolution:

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. (National Audit Office, 2012a, p. 10)

The National Audit Office made recommendations that the health departments should:

- 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
- use the comparisons as a starting point to draw out key factors that drive performance and value for money (2012a, p. 10).

More specifically, Ham and others (2013) described the approaches taken to integrated care in the devolved countries with a view to drawing out lessons for England, and thus remedying the failure of governments in the different countries of the UK to realise the “enormous potential” (2013, p. 1) to learn from each other in the ‘natural experiment’ of diverging policies following devolution. However, Ham and others found it difficult to draw lessons from the experience of the different countries in the absence of well-designed comparative evaluations, and the “formidable difficulties in making comparisons” from routinely available data, “because often these are collected in different ways in different countries” (2013, p. 78). Recent evidence suggests that the Department of Health in England and its external research advisers disagree about the “enormous potential” (2013, p. 1) of such studies for comparing policies between the countries of the UK. The following appeared in a second call for proposals under the Department’s Health Reform Evaluation Programme in November 2013:

In some applications to the March 2013 call, the proposed approach to framing a counterfactual in order to determine the specific impact of the health reforms in England was to undertake comparisons with the UK devolved administrations. However, the Commissioning Panel and colleagues within the Department of Health have taken the view that such an approach would not be regarded as a convincing solution because of the considerable difficulty in controlling for all relevant variables that may confound such comparisons... given the concomitant reforms in Scotland and Wales, policy officials are not convinced that any significant differences in outcomes between England and the other devolved administrations could be attributed to a specific reform (such as changes to commissioning) in England. (Department of Health, 2013, pp. 4, 7)

From this, there does seem to be a risk that as the policies of the four countries continue to diverge, this will become the government orthodoxy. It has the advantage of enabling health departments to avoid any potentially uncomfortable comparisons by invoking technical objections to comparing different systems.

This sort of argument entirely fails to recognise that from an international vantage point, the four systems are highly comparable (that is, all are tax funded, universal, largely free at the point of use, committed to securing equity of access, and so on).

In his overview of policy in the four countries, Timmins (2013) makes the same points as the National Audit Office but in much stronger language, which seems to be driven by his frustration at trying to make comparisons using the separate reports on each country from the European Observatory on Health Systems and Policies (Boyle, 2011; Longley and others, 2012; O'Neill and others, 2012; Steel and Cylus, 2012). Timmins also emphasises the opportunity provided by the UK's 'natural experiment':

From the point of view of anyone interested in policy – politician, civil servant, policy adviser, academic, member of the public – this should be a unique opportunity to compare, contrast and learn. It is an almost perfect test bed. (Timmins, 2013, p. v)

The central argument of his paper is that there is far too little comparative work taking place, and that: "Something needs to be done to change this" (2013, p. v). Timmins points out that it is difficult to do comparative work using the data that are collected routinely (although not impossible), and that when this was done by Connolly and others (2010), the response to their report:

appeared to be a greater willingness to pick holes in the data, or seek reasons, even excuses, for less good performance rather than confront the fact that there might be a real message here, despite the problems. (Timmins, 2013, p. 1)

His concluding section pulls together what can be gleaned from comparative data across the four countries, and leads to what he sees as "the most striking conclusion", which is that the problems of doing so mean that "there is a huge opportunity going to waste" (2013, p. 22). His concluding statements are that:

the four health departments are charged with securing value for public money... the four health services offer a natural starting point to better understand the factors that affect value and the impact of diverging health policies and systems on performance... their health departments need to agree the specific indicators that would provide the most insight, establish the data needed to make comparisons and identify how to collect and collate that data cost-effectively.

This is a call to arms that should be answered. In the meantime academics, their funders and others should do whatever is possible with what is available. And they should do so without fear of the answers. It is a public duty. (Timmins, 2013, p. 23)

This report is our response to that call to arms. In preparing this report, our experience has been that there seems to be greater interest within each country, at least in the short term, in highlighting the problems of using the data to make comparisons than in seeking to make sense of these data or make improvements. Indeed, there is a view that the performance data collected in each country can and should relate only to the policies and procedures of each country's system. This overlooks the possibility of collecting data in such a way as to be useful for different purposes.

We do applaud two developments which run against the general trend of data becoming less comparable over time as the logic of devolution unfolds. First, the Scottish Government has changed its definitions of patients on waiting lists, so that these census data are now more comparable with those from the other countries. Second, the Office for National Statistics has led the development of comparative data on waiting times for selected procedures, so that the four countries can be compared with some confidence in at least one very specific way (despite having ceased publication of its UK-wide annual *Regional Trends* in 2010). In addition, we are encouraged by the recent establishment of a working group of statisticians across the four health departments on the comparability of indicators, although we do not know what the eventual goal is likely to be, and what progress has been made.

The call for comparative data is not about curbing the freedoms of governments to pursue different policies. Indeed, we welcome the divergence in policies as providing the opportunity for valuable comparative research. But it is right to demand that data be collected to enable the impacts of different policies to be compared, particularly when these policies appear to be increasingly divergent. As one of the purposes of the governments in Belfast, Cardiff, Edinburgh and Westminster is the running of health services, it can legitimately be argued that proper electoral accountability ought to require data to be published on their comparative performance in running these services.

We recognise that the collection of statistics is a costly exercise: expenditure on collecting data has the obvious opportunity cost of not being available for the care of patients; and this opportunity cost is felt more intensely in periods of austerity. The benefits of collecting more comparable data are that, through benchmarking, each country can learn how to both make changes that lead to care of higher quality without increasing costs, and enable savings to be made without impairing quality. Within the devolved countries, there are often too few units of observation or degrees of freedom when assessing specialised services to allow for the most robust comparison and benchmarking. This can be improved by taking part in UK-wide exercises.

We have two specific sets of recommendations for developing more comparable data across the four countries: for a minimal set of data that is currently collected to be defined so that the items are properly comparable; and for extending established systems of data collection across all four countries.

A minimal set of data that ought to be defined so as to be comparable across the four countries would cover the following:<sup>60</sup>

- Expenditure: in total on each NHS, disaggregated by types of service (at least distinguishing between hospital and community health services, primary care and social care) and by the principal staff groups (as given below); and on public services by the devolved countries and England.
- Staff (in whole-time equivalents): hospital medical and dental staff; nursing, midwifery and health visiting staff; direct support to clinical staff; infrastructure staff; and GPs.
- Hospital activity: outpatients, day-cases and inpatient admissions.
- Hospital waiting times: the percentages waiting more than 18 weeks from referral by a GP to admission as an inpatient or day-case.

- Ambulance services: the percentage of category A ambulance calls met within eight minutes.
- Satisfaction: percentages reporting satisfaction with the general running of the NHS, inpatient care, outpatient care and GP care.

Systems of data collection that we believe ought to be extended to cover all four countries include:

- The coverage of the stroke audit by the Royal College of Physicians of London (2011) to Scotland to show the way for other clinical audits, which could, over time, report on a consistent UK-wide basis. This would be invaluable for the smaller specialties where the samples will be small in the devolved countries. Even in the larger specialties, it would allow closer 'like with like' comparisons (for example, of GPs working in sparsely populated areas which by definition will not have many GPs, but where Welsh and Scottish GPs might benefit from benchmarking one another).
- Systems to report Patient Reported Outcomes (PROMs). These measure changes in a patient's health status or health-related quality of life through short, self-completed questionnaires before and after a procedure, and provide an indication of the outcomes or quality of care delivered to NHS patients. Such data have been collected in England since 2009.<sup>61</sup>
- Surveys of the experiences of hospital and GP patients, and staff. Such surveys have been run nationally in England since the early 2000s.<sup>61</sup>

We are not advocating that English practice is ideal, but that the areas covered by PROMs, and surveys of patients and staff, ought to be undertaken in all countries. We appreciate that the collection of these data will entail extra costs, but it seems increasingly untenable for modern health care systems to continue to run without routinely collecting such data. If these collections were available across the UK, they would provide much greater scope for benchmarking than is available in other systems that otherwise only routinely collect data to assess quality on whether patients have died or been re-admitted.

## Concluding observations

Within the limitations of the performance information available across the four countries over time before and after devolution, it does not appear that the increasing divergence of policies since devolution has been associated with a matching divergence of performance. In addition, there is little sign that one country is consistently moving ahead of the others. Where we do have comparable data, there are no material differences in performance in terms of breast screening, immunisation and survival following renal replacement therapy. Where there were material differences in the past, improvements over time have narrowed differences so these are now relatively small: for example, in ambulance response times to immediately life-threatening emergencies; perhaps as a result of cross-border comparisons and learning. The data on hospital waiting times do suggest that England and Scotland now have similar performance and do better than Wales<sup>59</sup> and Northern Ireland. England performed better than Wales and Northern Ireland on the structure and process indicators from the stroke audit, and in reducing MRSA mortality rates. In relation to measures such as amenable

mortality, the pre-devolution differences seem to have changed relatively little while overall rates of amenable mortality have been falling. During the 2000s, the relative decline in amenable mortality was similar between the four countries.

As the closest comparator to the four devolved countries, the North East of England is notable for the fact that by spending at Scottish levels in the later 2000s it increased its staff and admission rates while seeing increases in life expectancy and in amenable mortality. In fact, the North East had a larger improvement in amenable mortality than any of the devolved countries. This suggests greater health care system effectiveness in the North East, before and after devolution. It may be that the policies pursued in England played some part in this, though it is impossible to be definitive on this score.

## Future research

Over the next few years, we should begin to have firmer evidence about the impact of different models of governance across the UK; most starkly between pluralistic provider competition and individual patient choice in England, and managing NHS performance against targets in Scotland. While macro-level studies such as the current one are important and valuable, and have the potential to improve performance across the four countries (Steel and Cylus, 2012), there is also a need for more granular and contextually relevant studies, for example, comparing similar areas with similar populations in the different countries (for example, comparing the same services on either side of the borders between England and Scotland, and Wales and England) and, in this way, identifying what the increasing differences in system policy mean for patients' and carers' experiences of health care. It should also be possible to shed light on why health has improved more quickly in North East England than in Scotland in the last two decades, despite many population, funding and contextual similarities. A key focus for such comparative work would be to see which of the four countries is the most successful in achieving important shared goals such as the better integration of health and social services, which is vital for providing high-quality care to an ageing population in the context of severe constraints on public funding. Another focus would be to look at the impact and costs of some of the most obvious policy differences such as the removal of prescription charges in Wales, Scotland and Northern Ireland over time against their retention in England.

## Notes

49. We point out below that the formula was criticised by the Select Committee on the Barnett Formula (2009) for failing to use good data on the populations of the four countries.
50. Life expectancy for 2009–11 for women and men were in years, 82.2 and 80, respectively in Wales, 81.5 and 77.5 in North East England, 81.4 and 77.0 in Northern Ireland (for 2008–10) and 80.6 and 76.1 in Scotland.
51. We are grateful to Jim Buchan for this explanation.
52. In 2011/12, the rates per 1,000 were 215 in Scotland, 209 in North East England, 176 in England, 174 in Wales and 163 in Northern Ireland.
53. The National Audit Office reported that: “We used a consistent methodology for calculating lengths of stay in the four nations. As a result, the figures quoted in the report may differ from previous publications due to variations in how lengths of stay are usually calculated in each nation” (2012b, p 4).
54. As discussed in Chapter 4, there are differences in ambiguity over the definition of what is (and is not) a category A call, and differences as to when the clock starts in recording the response time.
55. Propper (1995) describes a study (conducted in 1987) which estimated a mean value of waiting of £37 a month. Dawson and others (2005) revalued that result to 2002/03 prices, which gave a value of £3.13, and also used values of £10 a day and £50 a day (described as “likely to be at the high end of any willingness to pay for a reduction in waiting time for most elective care”).
56. These were cataract surgery, coronary artery bypass graft (CABG) surgery, varicose vein operation, inguinal hernia, hip replacement, knee replacement and excision of gall bladder (there are questions over the exact coverage of diagnoses for cataracts and procedures included for knee replacements).
57. These data record time spent waiting from the initial decision to admit to the date of admission for the procedure, and differs from waiting times recorded as performance in relation to targets, which exclude time spent waiting in periods of suspension from the waiting list for medical and social reasons. The selected procedures are bypass surgery, cataract surgery, hip replacement, knee replacement and varicose vein procedures.
58. The original study was published in *The Lancet* but later retracted (Wakefield and others, 1998).
59. Hawkes points out that the failings of the NHS in Wales: “have given the Westminster government a stick to beat Labour with. In the House of Commons on 23 April, the Prime Minister, David Cameron, asserted that Labour had been in charge of the NHS in Wales for three years and it hadn’t hit an emergency target during that period. ‘Last time the urgent care cancer treatment target was met in Wales, anyone? 2008,’ he taunted. ‘Last time A&E targets were met? 2009.’ The Welsh Ambulance Service has missed its call-out target for the last 10 months” (2013).
60. We assume that vital statistics on populations and their mortality rates, and rates of screening and vaccination, are not subject to definitional problems across the different health systems of the UK.
61. These are available in England for four of the selected elective surgical procedures for which we have reported rates of treatment and waiting times across the four countries: hip replacements, knee replacements, groin hernia and varicose veins. See [www.hscic.gov.uk/proms](http://www.hscic.gov.uk/proms).
62. See [www.nhsstaffsurveys.com/Page/1010/Home/Staff-Survey-2013/](http://www.nhsstaffsurveys.com/Page/1010/Home/Staff-Survey-2013/) and [www.nhssurveys.org](http://www.nhssurveys.org).

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