

# Focus on: International comparisons of healthcare quality

What can the UK learn?




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# About QualityWatch

QualityWatch is a major research programme providing independent scrutiny into how the quality of health and social care is changing. Developed in partnership by the Nuffield Trust and the Health Foundation, the programme provides in-depth analysis of key topics and tracks an extensive range of quality indicators. It aims to provide an independent picture of the quality of care, and is designed to help those working in health and social care to identify priority areas for improvement. The programme is primarily focused on the NHS and social care in England, but will draw on evidence from other UK and international health systems.

 The QualityWatch website **[www.qualitywatch.org.uk](http://www.qualitywatch.org.uk)** presents key indicators by area of quality and sector of care, together with analysis of the data. This free online resource also provides research reports, interactive charts and expert commentary.

## About this report

QualityWatch Focus On reports are regular, in-depth analyses of key topics; these studies exploit new and innovative methodologies to provide a fresh view of quality in specific aspects of health and social care. This QualityWatch Focus On report uses data from the Organisation for Economic Co-operation and Development (OECD) to understand what international comparisons tell us about changes in the quality of care in the UK between 2000 and 2013, and provides a baseline and guidance for making future comparisons.

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## Disclaimer

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# Summary

## Background

International comparisons of the performance of healthcare systems have become a fairly common approach to supporting or refuting arguments for change in healthcare. Attempts to compare the performance of different systems predate the National Health Service (NHS) itself and continue into the modern day, with both the NHS *Mandate* and the *Five Year Forward View* describing the ambition for England to become one of the best in Europe and even the world (NHS England, 2014; Department of Health, 2015). However, while international comparisons are appealing and often newsworthy, assessing differences in the quality of care between countries is inherently difficult.

There are many challenges involved in collecting high-quality and comparable data across countries, and simple cross-sectional comparisons often do not tell the whole story. For this report we were interested in extending these approaches to look at change over time. We also wanted to be realistic about the strengths and weaknesses when looking at the indicators of the quality of healthcare. We do not believe that this should be a process of ranking countries; rather, it is a way of understanding how the United Kingdom (UK) is progressing over time relative to other countries and of identifying areas where more effort may need to be made.

## Quality indicators

For these analyses we have chosen to use an established set of indicators derived from national returns and collated by the Organisation for Economic Co-operation and Development (OECD). We use 27 Health Care Quality Indicators (HCQI) to explore care in four sectors – primary care, acute (hospital) care, cancer care and mental health – and across the following 15 countries: Australia, Belgium, Canada, France, Germany, Greece, Ireland, Italy, the Netherlands, New Zealand, Portugal, Spain, Sweden, the United States (US) and the UK. It is important to note that these indicators are selective and only touch upon quality of care in the different healthcare systems where validated comparative indicators are available. Patient safety and patient experience are essential aspects of the quality of care but, at present, meaningful international comparisons over time are still challenging.

This report uses the data to understand what international comparisons tell us about changes in quality of healthcare in the UK between 2000 and 2013, and provides a baseline for future comparisons. Ultimately, this analysis attempts to answer the crucial question: How can we use this information to improve the quality of healthcare in the UK?

## Findings for the UK

Despite continuous improvements in the quality of the OECD data and indicators, we have to guard against making oversimplified statements, for example that the quality of care is good or bad in one country or another. Table S1 summarises the 27 indicators according to whether performance on these in the UK appears in general to be better than, similar to or worse than performance in the comparator countries, and whether trends since 2000 have been improving, stable or deteriorating. It should be noted that healthcare in the UK has been a devolved matter since 1999, but the OECD comparative indicators are taken at the UK-wide level.

The UK does not consistently overperform or underperform when compared with the pool of 14 countries. Absolute and relative trends – that is, whether the UK is improving or deteriorating and how it is performing in relation to other countries – are also mixed. It is encouraging that the UK is stable or improving on almost all the indicators (25 out of 27) and we would hope that the UK can at least maintain but ideally increase the speed of improvement. It is also encouraging that there is no indicator on which the UK performs worse than other countries and is deteriorating at the same time. However, it is worrying that the UK performs worse than most countries on 14 out of 27 indicators and performance is deteriorating on two indicators.

Key findings:

- The indicators representing **primary care** do not show a clear trend. Influenza vaccination rates in the UK seem to be consistently higher than many OECD countries. This is presumably an indication of a system that is capable of delivering population-wide prevention largely through a system of well-developed primary care.
- Average but improving performance on childhood vaccination rates gives some insight into the quality of services for children. More internationally comparable indicators are required to truly understand the quality of services provided to children in primary care.
- The over-use of antibiotics is an issue of global concern. Although the volume of antibiotics prescribed in the UK is rising, overall rates tend to be lower than those in other countries, but higher than those in Germany, the Netherlands and Sweden.
- Rates of notionally **avoidable hospital admissions** are relatively low for diabetes, but for asthma and chronic obstructive pulmonary disease (COPD) these rates are relatively high compared to the best performers.
- Indicators representing **acute care** (stroke and acute myocardial infarction (AMI)) mainly show improvements. However, the UK continues to lag behind other countries. For diagnosis-specific indicators it is important to note that overall inaccuracies in routine data around the world make comparisons even more challenging.
- In **cancer care**, the UK has a somewhat contradictory position. Although it seems to perform relatively well on a range of measures of population screening, survival rates are relatively low and mortality rates are relatively high for some common cancers in the UK.

**Table S1: Indicators by relative and absolute performance of the UK in comparison with the comparator countries, 2000–13 (or latest year available)**

RELATIVE PERFORMANCE	ABSOLUTE PERFORMANCE of the UK, 2000–13 (or latest year available)			
		IMPROVING	STABLE	DETERIORATING
	BETTER than most countries	<ul style="list-style-type: none"> <li>• Influenza immunisation</li> <li>• Prescriptions of cephalosporins and quinolones as a proportion of all antibiotics</li> <li>• <i>Deaths from suicide after discharge among people diagnosed with a mental disorder*</i></li> </ul>	<ul style="list-style-type: none"> <li>• Breast cancer screening</li> <li>• Diabetes hospital admissions – short- and long-term complications and uncontrolled diabetes without complications</li> <li>• Diabetes hospital admissions – lower extremity amputations</li> </ul>	<ul style="list-style-type: none"> <li>• Volume of antibiotics prescribed in primary care</li> <li>• Cervical cancer screening</li> </ul>
	SIMILAR to other countries	<ul style="list-style-type: none"> <li>• DTP immunisation</li> <li>• Measles immunisation</li> <li>• COPD admissions</li> <li>• <i>Colorectal cancer mortality</i></li> <li>• <i>Deaths from suicide after discharge among people diagnosed with schizophrenia and bipolar disorder*</i></li> </ul>		
	WORSE than most countries	<ul style="list-style-type: none"> <li>• Asthma admissions</li> <li>• Patient-based ischaemic stroke – 30-day mortality (in hospital and out of hospital)*</li> <li>• Patient-based haemorrhagic stroke – 30-day mortality (in hospital and out of hospital)*</li> <li>• Patient-based AMI – 30-day mortality (in hospital and out of hospital)*</li> <li>• <i>Admission-based ischaemic stroke – 30-day in-hospital mortality*</i></li> <li>• <i>Admission-based AMI – 30-day in-hospital mortality*</i></li> <li>• Breast cancer five-year relative survival</li> <li>• Cervical cancer five-year relative survival</li> <li>• Colorectal five-year relative survival</li> <li>• <i>Breast cancer mortality</i></li> <li>• <i>Cervical cancer mortality</i></li> <li>• <i>Inpatient suicide among patients diagnosed with a mental disorder*</i></li> </ul>	<ul style="list-style-type: none"> <li>• Admission-based haemorrhagic stroke, 30-day in-hospital mortality*</li> <li>• <i>Inpatient suicide among patients diagnosed with schizophrenia or bipolar disorder*</i></li> </ul>	

Relative categorisations provide an illustrative assessment of how UK performance compares to other comparator countries over the entire time period (where data are available), with more weight given to performance in recent years.

Asterisk denotes indicators on which suitable data are available for fewer than seven of the comparator countries. Charts for indicators in italics can be found in Appendix 4, published separately (Kossarova and others, 2015).

DTP, diphtheria, tetanus and pertussis; COPD, chronic obstructive pulmonary disease; AMI, acute myocardial infarction.



- It is important to note that we have been comparing average aggregate figures for the comparator countries as well as the UK. This masks variations within the four countries of the UK, and even regional and small area-level variation.

## Making the most of international comparisons

Overall, we would like to emphasise three lessons for policy-makers and health service managers:

- **International comparisons can be very powerful and could be used more widely.** Although the depth of internationally comparable data is limited, there still remains substantial scope to increase the ways in which it is used to assess quality of care within the UK. One good example is how some of the measures published by the OECD are included in the NHS Outcomes Framework. Moreover, data emerging from a range of specialty-based comparative research projects could be used to provide learning from other countries' performance and policies at the national and local level.
- **When looking at high-level performance indicators, handle with care.** The challenges of using summary international indicators are well known. Perhaps the most important thing to remember is that these indicators are better at framing questions and initiating a debate than producing definitive judgements. Deriving useful learning means carrying out a thorough analysis involving quantitative and qualitative methods with a range of different stakeholders (e.g. researchers, patients and healthcare professionals), at different levels of the system (macro to micro), in order to validate and better understand the findings – such as the work being done through the International Cancer Benchmarking Partnership (Cancer Research UK, 2014a).
- **Consider the indicators in the context of the system.** It is important to take a broad view of quality across measures and, if necessary, to undertake some work to test whether the differences are a true reflection of the quality of care provided. One indicator alone will not provide a complete picture of the quality of care provided. When a range of different indicators provides a consistent message, we can be more confident in the findings. Sometimes even a set of indicators does not reveal the full picture about the quality of care, as important data may not be collected or easily available (e.g. data on the quality of services provided to children or data on the quality of mental healthcare).

We hope that policy-makers and health service managers will use this information effectively, especially for indicators where the UK's performance is average, low or deteriorating. Furthermore, we hope that the information will be used to better understand what the UK could learn from other countries and also what specific steps should be taken to improve performance in the next few years.

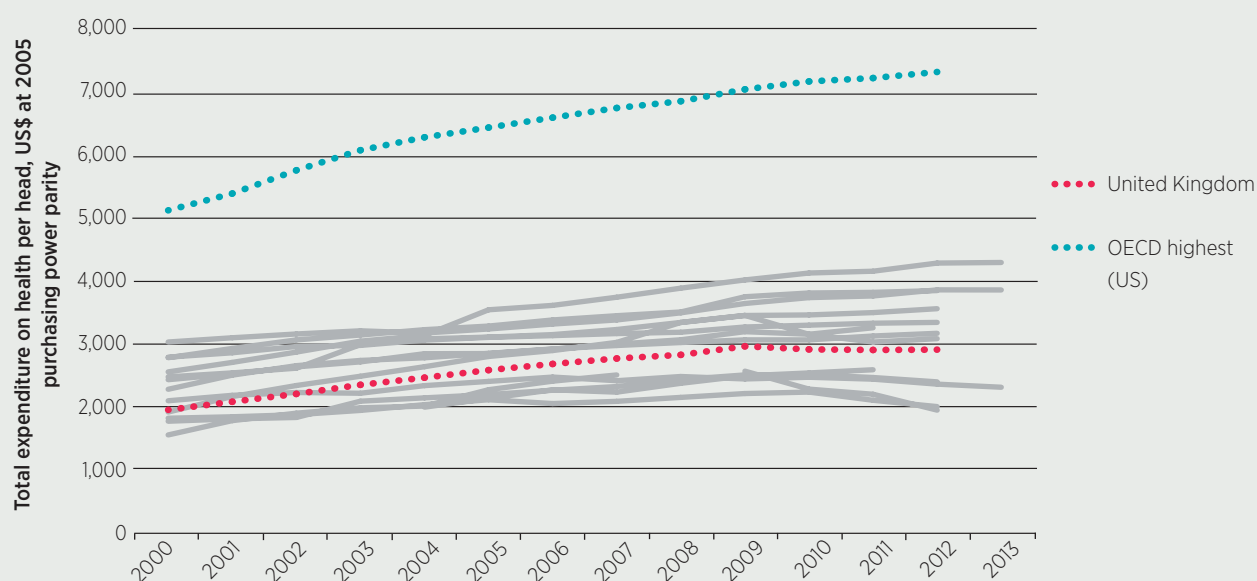
## 1

## Introduction

Extensive work has been done in the UK in the past decade to define, measure and improve the quality of healthcare. This has highlighted important variations within the UK; areas of good performance as well as gaps that require concentrated efforts in order to bring about an improvement in the quality of care provided to patients. Monitoring and improving the quality of care is especially important in a general climate of constrained funding in most countries – one of the drivers behind the QualityWatch programme.

In the past few years, the UK's total health expenditure as a proportion of Gross Domestic Product (GDP) has been one of the lowest of all the comparator countries in the present study, but similar to that of Italy, Spain and Sweden. There was an increasing trend up until 2009 when the proportion of GDP stood at 9.2 per cent, and then there was a drop to 8.9 per cent in 2012 (see Appendix 1, published separately (Kossarova and others, 2015)). This decline is a reflection of the economic crisis, a situation not unique to the UK – apart from in the Netherlands, expenditure on health as a proportion of GDP continues to plateau or decline in most countries. Total expenditure on health per head in the UK has been level since 2009, with an annual average of US\$2,920 purchasing power parity (see Figure 1.1), even though in many other countries, where health expenditure as a proportion of GDP has levelled off or declined, expenditure per head has been increasing (e.g. Germany and the US). There is also variation within the UK. While

**Figure 1.1: Total annual expenditure on health per head, 2000–13**



Source: OECD (2014a)

total identifiable expenditure on health per head between 2008/09 and 2012/13 increased in England, Northern Ireland and Scotland, in 2012/13 England had the lowest annual spending at £1,912 per head (Wales £1,954 per head, Northern Ireland £2,109 per head and Scotland £2,115 per head) (HM Treasury, 2013). A Nuffield Trust analysis of changes in quality of care between 1998 and 2008 found that while significant progress has been made, it is not clear whether gains could have been even higher given the amount of financial investment and effort made (Leatherman and Sutherland, 2008).

The NHS *Mandate* (Department of Health, 2015), which sets out the goals agreed between the Government and NHS England, notes several times an ambition for the health service in England to become one of the best in Europe and even the world, as does the *Five Year Forward View* (NHS England, 2014). In this context, there is a clear role for comparisons of the quality of care between countries – to provide an external benchmark and help us to understand where not only England, but also the UK, stand and where England/the UK could potentially learn from others.

The practice of gauging the performance of health systems by comparing them with those of other nations is not new. Early examples include a qualitative discussion of service provision in 1840 (*Medical Times*, 1840), hospital-level mortality rates by procedure in 1862 (*The Lancet*, 1862) and population-level analysis of child mortality in 1866 (Farr, 1866).<sup>1</sup>

More recent examples include the work of the OECD and the World Health Organization (WHO) (see Smith and others, 2009). As well as international and European (e.g. Eurostat) databases, there are European surveys (e.g. Eurobarometer), European research projects (e.g. EuroDRG, EuroHOPE and EuroREACH), bilateral/multilateral research projects and reports, which look at comparative health system performance (e.g. Davis and others, 2014; The Economist Intelligence Unit, 2015; Health Consumer Powerhouse, 2014; European Observatory on Health Systems and Policies reports), and disease-specific initiatives (e.g. Diabetes Atlas; see International Diabetes Federation, 2014).

However, only a few of these resources can be used to consistently monitor changes in the quality of care over time. Overall, these types of international comparisons allow for greater transparency, accountability and mutual learning. But they involve many challenges, some of which, but not all, we highlight in this report, and others discuss at length (Nolte and others, 2006; Smith and others, 2009).

The area of cancer care demonstrates very well both the usefulness and potential pitfalls of international comparisons. While poor health outcomes in the UK relative to other European countries were used as one of the main arguments for the reforms introduced in the 2012 Health and Social Care Act by Andrew Lansley when he was Secretary of State for Health, it is questionable whether such a simple comparison of cancer survival and other health outcomes was fair, especially as a different picture emerges if you look not just at absolute levels, but also at trends over time (Appleby, 2011).

Given the large differences in survival rates between the UK and other countries, the International Cancer Benchmarking Partnership was set up in 2009 to try to

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1. For further reading, see Rivett (no date).

understand what was causing such differences across six countries: Australia, Canada, Denmark, Norway, Sweden and the UK. It found that the UK has consistently low survival rates for some cancers compared with Australia, Canada and Sweden (Coleman and others, 2011). It was also able to examine some reasons for this, such as data issues – there is variability in the way stages of cancer are defined (Walters and others, 2013a) – or cultural differences where people in the UK may be less likely than people in the other countries to report symptoms to a general practitioner (Forbes and others, 2013). However, differences in survival rates are also likely to be related to the way services are delivered, especially in terms of timely diagnosis and access to appropriate treatment, as highlighted by the Cancer Taskforce (2015) recently established by NHS England.

In addition to the work of the International Cancer Benchmarking Partnership, there are other cancer initiatives at European (e.g. the EURO CARE project) and worldwide (Allemani and others, 2014; Coleman and others, 2008) level looking at differences in cancer survival across a population. Lessons learned from the cancer initiatives could potentially be applied more broadly by using such international comparisons in other healthcare contexts (e.g. access to diagnosis and treatment for other chronic and acute conditions).

The aim of this report is to use data and indicators collected by the OECD to analyse the UK's performance in the quality of healthcare it provides. We do not rank countries as rankings may change easily depending on the prevailing situation in the comparator countries, and the process can lead to over-simplification and, ultimately, misleading comparisons between countries. Rather, as part of the QualityWatch programme, the goal is to provide an additional lens on the quality of care in the UK over time. At the same time, we are providing a baseline of the UK's performance relative to other countries and hope to continue monitoring it regularly in the future to ensure that good performance is maintained, or to highlight where continued efforts are required. In doing this international comparison, we are mindful of all the challenges that exist in measuring the quality of care, as well as what is realistic to achieve if we are looking at quality across many different areas and countries (see Box 1.1, which summarises what this report does and doesn't do).

### Box 1.1: What this report does and doesn't do

#### This report DOES:

- provide a snapshot of the UK's performance on selected aggregate quality of care indicators **over time**
- use **only** quality of care indicators developed and validated by the OECD
- identify levels and trends in performance relative to a selection of OECD member countries
- signpost selected pieces of important work in the area
- validate findings by experts in the area
- provide the basis for discussions about quality of care nationally and internationally
- focus on the UK, with examples from the four countries of the UK.

#### This report DOESN'T:

- provide a comprehensive and in-depth overview of the quality of care across the different areas of care
- provide a review and analysis of all the national and international quality of care indicators
- review all the different international data sources or identify consistencies/ discrepancies in figures (e.g. OECD versus WHO or European Union data)
- provide conclusive evidence and a basis for immediate policy action
- compare quality of care across all OECD countries
- provide country- or organisation-level recommendations, given the use of aggregate figures.

In this report we use 27 quality of care indicators as defined by the OECD to explore care in four areas – primary care, acute (hospital) care, cancer care and mental health – across the UK and 14 countries similar to the UK. We also discuss areas where the indicators are not quite ready for international comparison due to issues with data quality and availability over time. The next chapter provides a detailed description of the data and methods.

## 2

## Data and methods

In this report we look at quality of care across the different countries using the OECD's Health Care Quality Indicators (HCQI) project framework (see Appendix 2 (Kossarova and others, 2015)), data and indicators. Quality in the HCQI framework is defined in terms of effectiveness, safety and patient responsiveness for different healthcare needs (i.e. staying healthy, getting better, living with illness or disability, and coping with the end of life). This is similar to the definition of quality in the QualityWatch programme<sup>1</sup> and the definition set out by the Department of Health (2008). The HCQI project was initiated in 2002 with the aim of developing a set of indicators that can be used to raise questions about differences in the quality of care across OECD countries (Armesto and others, 2007).

The OECD has published extensive information about data quality and comparability, as well as the methods applied in the process, for all the different indicators used in this report.<sup>2</sup> Its methodological reports also highlight the challenge of trying to measure quality of care comprehensively across over 30 countries and having to narrow things down to a substantially smaller set of indicators that are actually feasible to work with. While the OECD indicators are considered to be 'scientifically sound, clinically important and comparable across countries this does not mean that they are free of data comparability issues' (Armesto and others, 2007, p. 24). The OECD is aware of these problems and, together with all the member countries, continues reviewing and revising all the indicators. Detailed information about the rationale for using the different indicators, definitions, sources and methods by country can be accessed from the OECD.<sup>3</sup>

In this report we examine a total of 27 indicators currently available to explore the quality of primary care, acute care (represented by stroke and acute myocardial infarction), cancer care and mental health. Apart from childhood immunisation indicators, most of the indicators focus on the quality of care for adults. See Appendix 3, published separately (Kossarova and others, 2015), for a summary of indicator definitions and comparability.

We compare the UK to a pool of 14 countries considered to be relevant comparators for one or more of the following reasons:

- They are a similar western European country or have a similar level of economic development.

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1. The QualityWatch programme analyses quality across the following six domains: effectiveness; safety; person-centred care and experience; access; capacity; and equity. In the OECD framework, access and capacity are conceptualised as being separate from quality, and equity is a cross-cutting dimension.

2. Armesto and others (2008), Drosler (2008), Drosler and others (2009), Greenfield and others (2004), Hermann and others (2004), Kelley and Hurst (2006), Lambie and Mattke (2004), Marshall and others (2004), Mattke and others (2006a, 2006b), Millar and Mattke (2004) and OECD (2010, 2013b, 2013d).

3. [http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH\\_HCQI](http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_HCQI).

- They have a minimum population of approximately 10 million people.
- They have a similar type of health system to the UK.
- They are historically relevant.

The following 14 countries were selected for comparison: Australia, Belgium, Canada, France, Germany, Greece, Ireland, Italy, the Netherlands, New Zealand, Portugal, Spain, Sweden and the US. For indicators where the OECD best is not one of these 14 comparator countries or the UK, we highlight the best performer from the OECD overall for illustrative purposes.

It should be noted that not all of the countries report data on all of the indicators or do so regularly. Lack of data can actually be a signal for possible gaps in performance but we do not explicitly focus on under-reporting here.

The charts in this report show the UK's performance (represented in red) and the best performer out of the pool of comparators (represented in purple and referred to as 'cohort best') or all the OECD countries (represented in turquoise). The remaining comparator countries are represented by grey lines. The charts simply show where the UK lies relative to the other countries; however, data on all the comparator countries is displayed on the QualityWatch website so it is possible to observe their reporting patterns as well. The OECD publishes UK-wide data and so in this report we look at the performance of the UK as a whole. These data are supplied at the UK level by the Department of Health. In most cases, a breakdown of the figures for England, Wales, Scotland and Northern Ireland is not available.

Box 2.1 lists some things to consider when working with international data.

#### **Box 2.1: Handle with care – making the most of international comparative indicators**

- Be wary of individual observations that are extreme – experience suggests that this is often the result of data artefacts. Focus on patterns that look broadly similar.
- Try to look at change over time – even if the baselines are different, there may be more value in looking at trends.
- Look for similar patterns in related indicators – 'triangulation'. No single data item or indicator is perfect. So, for example, you could take each of the areas of care (e.g. acute care), conditions (e.g. asthma) or population group (e.g. child health), and see what the results/trends are if different data sources and indicators are added.
- Consider the likely explanation for observed variances. Do they fit with your perceptions of how things work in different countries?
- Remember that some of the indicators prompt as many questions as they provide answers. Understanding what really lies behind observed differences would require an in-depth analysis of additional data in the specific areas of care.



# 3

## Findings for the UK

### Primary care

In this section we look at the following indicators as proxies for the quality of primary care:

- vaccination rates (three indicators: influenza vaccinations; diphtheria, tetanus and pertussis vaccinations; and measles vaccinations)
- potentially avoidable hospital admissions (four indicators: chronic obstructive pulmonary disease (COPD), asthma, diabetes in general and diabetes lower extremity amputations in particular)
- prescribing in primary care (two indicators: antibiotics in general, and cephalosporins and quinolones in particular).

### Vaccination rates

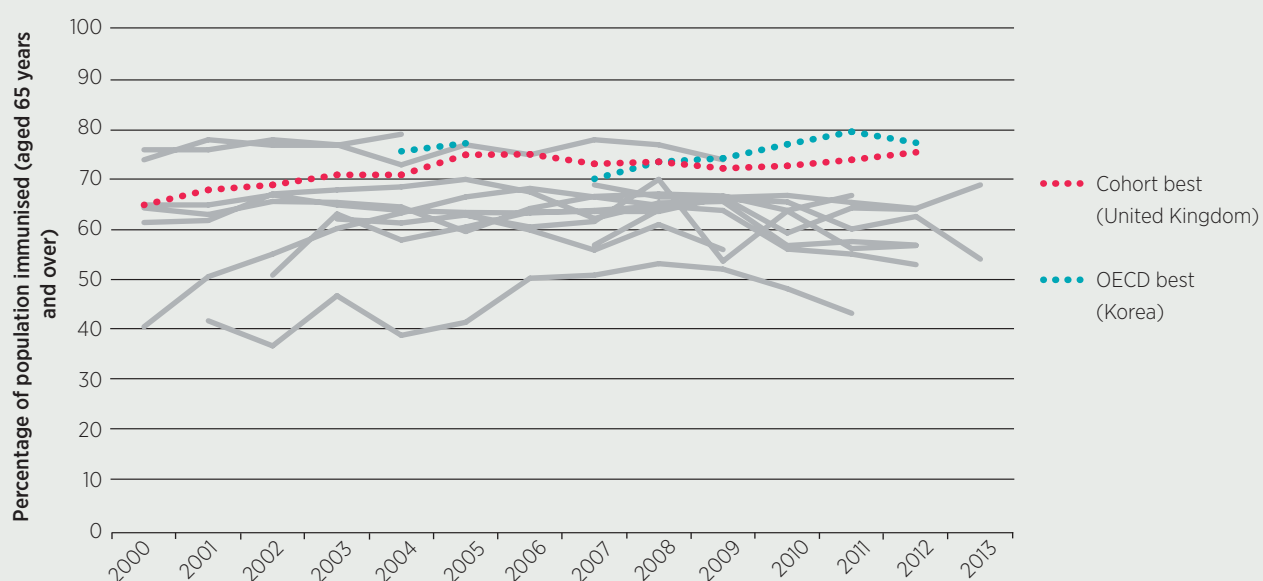
Routine **influenza vaccinations** have been recommended in the UK for selected population groups as they can help prevent serious complications and potentially also unnecessary deaths. The effectiveness of influenza vaccines and the recommended vaccination targets continue to be evaluated so that the best health outcomes can be achieved (European Centre for Disease Prevention and Control, no date). Here we look at three markers of the quality of care for selected population groups: influenza in older people; and diphtheria, tetanus and pertussis (DTP) in children, and measles in children.

Figure 3.1 shows the percentage of people aged 65 and over who received the annual influenza vaccination between 2000 and 2013. The UK was the best performer after Korea, with vaccination rates in 2012 reaching 75.5 per cent, exceeding the WHO target of 75 per cent for the first time.

Figure 3.1 captures the average across the UK, but within that there appear to be important country-level and even small area-level variations – although comparisons between the countries of the UK need to be made with caution (Public Health England, 2015a). In England, the cumulative take-up of influenza vaccinations between September 2014 and January 2015 among the population aged 65 years and older was 72.7 per cent, with only six out of 25 area teams reaching the 75 per cent target (Public Health England, 2015b). Cumulative uptake in the population aged 65 and over was 76.3 per cent in Scotland, 68.1 per cent in Wales and 73.4 per cent in Northern Ireland (Public Health England, 2015a). The 2014/15 annual surveillance report concluded that there were moderate levels of influenza activity in the community, with outbreaks in care homes resulting in more hospital admissions than seen in the previous years, as well as excess mortality (Public Health England, 2015a). The report suggests that there may have been a mismatch between the circulating viruses and the vaccine; however, the vaccination programme is continuously evaluated and high uptake should be encouraged.



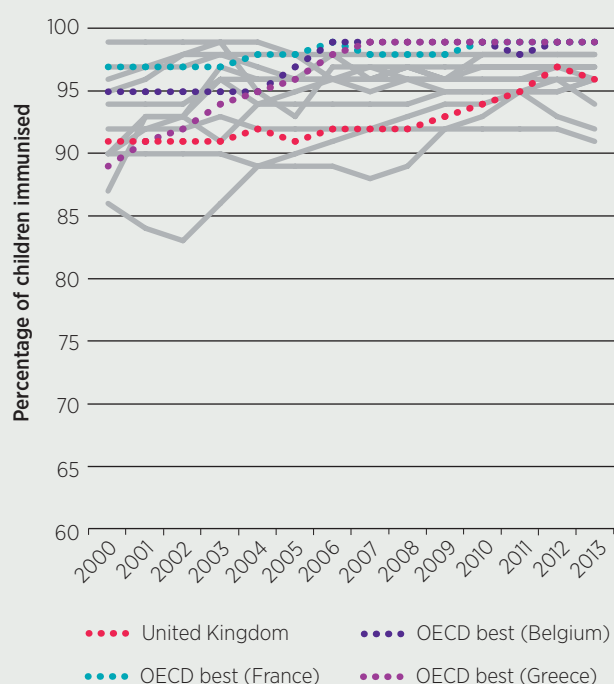
**Figure 3.1: Influenza immunisation coverage (percentage of population aged 65 and over), 2000–13**



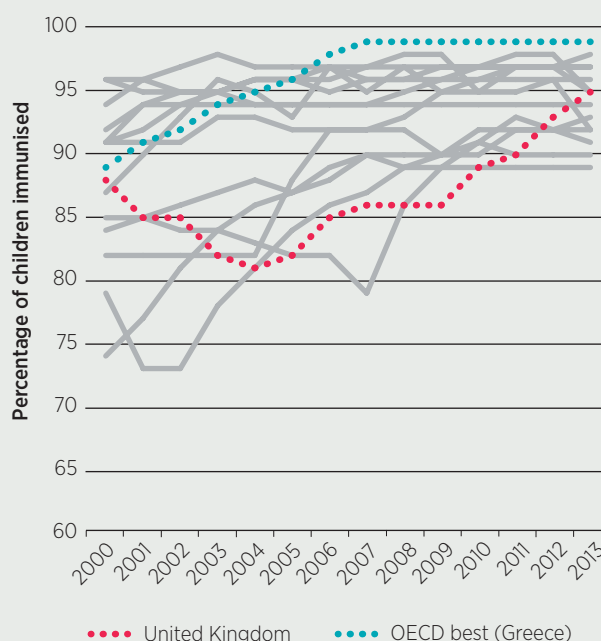
Source: OECD (2014a)

The OECD (2013c) includes selected childhood vaccinations as a proxy measure of the quality of primary care and services for children. Together with infant mortality rates (where the UK has been improving over time but still lags behind other similarly developed countries), these vaccinations are one of the few internationally comparable indicators for the quality of care provided to children. **Diphtheria, tetanus and pertussis (DTP) vaccinations and measles vaccinations** are part of the UK's routine childhood vaccination programme and are considered to provide safe and effective protection against these diseases.

Since 2008, the UK has improved significantly on the DTP vaccination rate: this increased from 92 per cent in 2008 to 97 per cent in 2012, although it dropped to 96 per cent in 2013. Belgium, France and Greece – together with many other OECD countries (e.g. the Czech Republic, Hungary and Poland) – have reached even higher vaccination rates, with 99 per cent coverage (see Figure 3.2).

**Figure 3.2: Diphtheria, tetanus and pertussis immunisation rates, 2000–13**

Source: OECD (2014a)

**Figure 3.3: Measles immunisation rates, 2000–13**

With regard to measles vaccination rates in the UK, in the early 2000s these were actually declining (see Figure 3.3). This was because the safety of the measles, mumps and rubella (MMR) vaccine was questioned following an infamous article in *The Lancet* in 1998, which linked the MMR vaccine to autism (Wakefield and others, 1998). This article was subsequently retracted. However, if vaccination rates fall below a certain level, then the likelihood of outbreaks increases dramatically. In 2013 there was an outbreak of measles in Wales, which was linked to reduced vaccination rates in the early 2000s (OECD, 2013c). From 2004 things started to improve, with the vaccination rate increasing from 81 per cent in 2004 to 95 per cent in 2013. The rate of 95 per cent meets the recommended WHO target of 95 per cent coverage. In 2013, Greece – together with several other OECD countries (e.g. the Czech Republic, Hungary and Korea) – reached a coverage of 99 per cent, followed by Portugal (98 per cent) and Sweden (97 per cent).

Considering country-level and regional variations for vaccinations, the four countries of the UK had similar DTP vaccination rates for children at 24 months (England 95.6 per cent, Wales 96.9 per cent, Scotland 98.2 per cent and Northern Ireland 98.4 per cent). However, there were within-country variations. For example, within England in the same year, 21 out of 25 English area teams achieved 95 per cent DTP vaccination coverage. For the MMR1 vaccine at 24 months, the UK average was only 92.3 per cent coverage (England 91.8 per cent, Wales 94.6 per cent, Scotland 95.4 per cent, Northern Ireland 95.5 per cent). At five years, coverage had increased in all the countries of the UK and only England's coverage was slightly below 95 per cent (94.6 per cent). The UK average for the MMR2 booster for children at five years old was only 89.2 per cent (Public Health England, 2015c).

## Potentially avoidable hospital admissions

Hospital admissions are both costly and frequently unpleasant experiences for patients. Many hospital admissions related to long-term conditions could be avoided if timely and effective care is provided to the patient in the community (Bardsley and others, 2012; Billings and others, 1993; Blunt, 2013; Purdy and Griffin, 2008). The relative rates of hospital admission for so-called ambulatory care sensitive conditions (ACSCs) are often used as a measure of the extent to which people can access primary and preventive care, and the quality of this care, although other factors contribute to the number of hospital admissions such as age, gender, social deprivation and lifestyle.

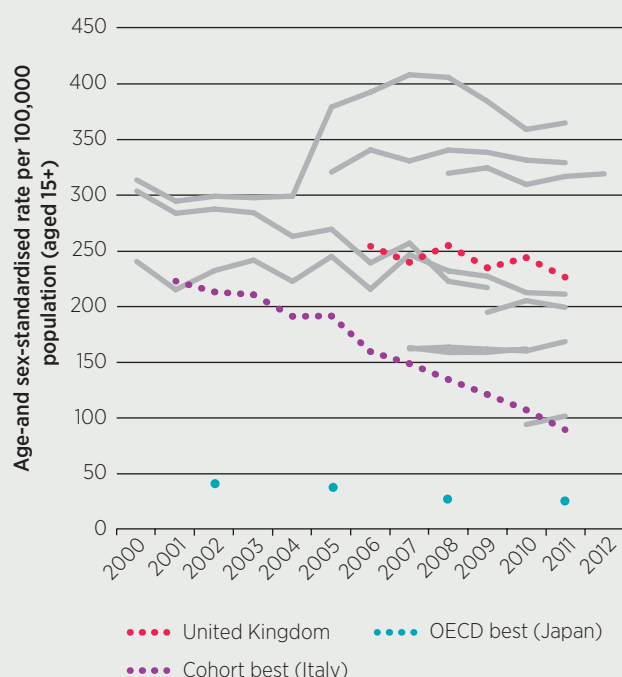
One of the problems with these indicators is that they look at hospital admissions and do not take account of underlying differences in the prevalence of different conditions. For example, with regard to diabetes, it is not always clear whether lower admission rates are due to a lower prevalence of diabetes in the population or better management of people with diabetes. However, there are several ongoing OECD initiatives that focus on coding practices, dataset structure and data specification, with the aim of making the indicators more useful for international comparison.

In England, potentially avoidable admissions for ACSCs make up one in every five emergency admissions. Five conditions<sup>1</sup> account for half of all ACSC admissions (Blunt, 2013). For this analysis we looked at three common chronic conditions – **chronic obstructive pulmonary disease (COPD)**, **asthma** and **diabetes** – which affect millions of people worldwide (European Lung White Book, no date; OECD, 2013c) as well as in the UK (Health and Safety Executive, 2014; Royal College of Physicians, 2014c; Diabetes UK, no date). For all three conditions, there is a sound evidence base for effective treatment at the primary care level. So, well-performing healthcare systems should be able to provide the necessary prevention and treatment to minimise acute deteriorations in people's conditions and unnecessary hospital admissions (OECD, 2013c).

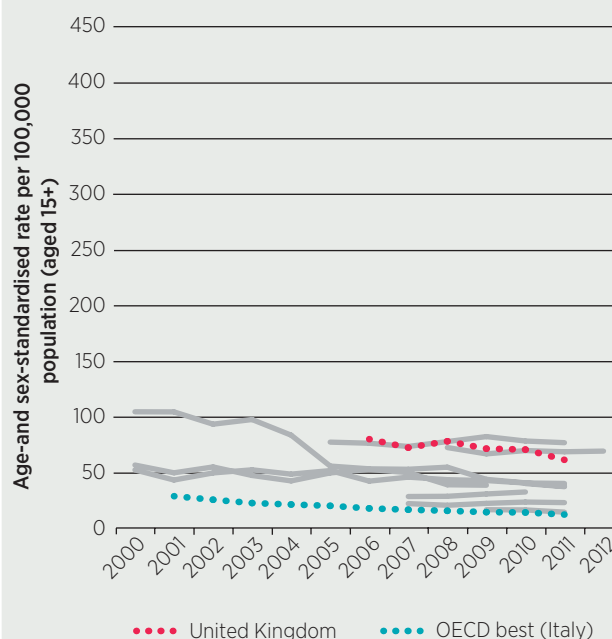
Overall, COPD-related hospital admissions are more common than asthma- or diabetes-related hospital admissions. When comparing the UK with other countries, the age-standardised rate per 100,000 population for both COPD and asthma is relatively high, although overall performance levels are similar; for asthma, the UK is one of the worst performers of all the comparator countries. However, there has been a reduction in the number of hospital admissions for COPD and asthma in the UK in recent years. For COPD (see Figure 3.4) there was an 11 per cent reduction between 2006 and 2011 (from 254.4 admissions per 100,000 population in 2006 to 226.5 admissions per 100,000 population in 2011). For asthma (see Figure 3.5) the rate dropped by 24 per cent between 2006 and 2011 (from 79.5 admissions per 100,000 population to 60.8 admissions per 100,000 population). This decline in the number of hospital admissions may reflect some improvement in the quality of care provided to people with these conditions.

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1. Of these five conditions, three mainly affect older people (urinary tract infection/pyelonephritis, pneumonia and COPD) and two affect children and young people (convulsions/epilepsy and ear, nose and throat infections).

**Figure 3.4: COPD hospital admissions, 2000–12**

Source: OECD (2014a)

**Figure 3.5: Asthma hospital admissions, 2000–12**

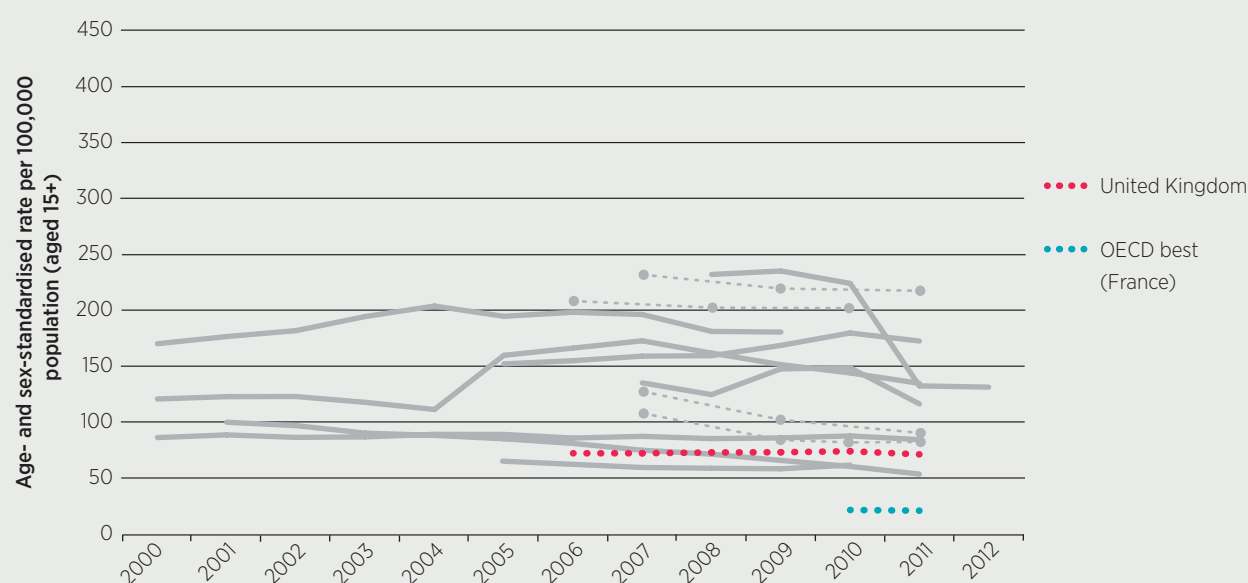
Trends in the other countries under analysis in this report vary. For example, there has been a continuous rapid reduction in the number of hospital admissions for COPD in Italy, and in Ireland the number of hospital admissions for asthma has also fallen notably. In the other countries, trends are more stable. Of all the OECD countries, Japan has the lowest admission rate for COPD, and Canada (13.6 per 100,000 population) and Italy have the lowest rates for asthma. Trends in the UK seen in the OECD data reported here are broadly consistent with those reported in earlier work on hospital admissions for ACSCs in England (Blunt, 2013).

While the focus in this analysis is not on respiratory deaths, it is worth noting that the recently published inquiry by the All Party Parliamentary Group on Respiratory Health (2014) into respiratory deaths concluded that the quality of services and outcomes in the UK compared very poorly with other countries and that urgent action was needed. The inquiry report highlights that awareness in the population as well as among non-specialist professionals, and the effective implementation of numerous existing evidence-based clinical guidelines, should be the priority in order to prevent potentially unnecessary admissions and deaths. Other reports have highlighted concern about the quality of care provided to asthma and COPD patients (Department of Health, 2012; Healthcare Quality Improvement Partnership, 2014).

Diabetes is a common chronic condition for which inadequate management can lead to a range of short-term (e.g. diabetic coma) and long-term (e.g. cardiovascular disease, retinopathy and kidney disease) complications. The combined hospital admission rate in the UK for short- and long-term diabetes complications and uncontrolled diabetes without complications (see Figure 3.6) has been stable since 2006, with approximately 72 admissions per 100,000

population in 2011<sup>1</sup> – one of the lowest rates among the comparator countries. Both Italy and the Netherlands had lower rates of admission than the UK, with France having the lowest. Despite lower hospital admissions, the estimated prevalence of diabetes in 2014 was higher in France (7.17 per cent) than in the UK (5.38 per cent) (International Diabetes Federation, 2014). Ideally, we would like to measure hospital admissions within the diabetes population rather than the general population. While hospital admission rates have been stable in the UK, many adults but especially children still do not receive the recommended care for diabetes (Health and Social Care Information Centre, 2014; Royal College of Paediatrics and Child Health, 2015) and there are large variations around Europe in the quality of care provided and diabetes outcomes (e.g. HbA1c control) (see the SWEET project: [www.sweet-project.eu/relaunch/](http://www.sweet-project.eu/relaunch/)).

**Figure 3.6: Diabetes hospital admissions (short- and long-term complications, and uncontrolled diabetes without complications), 2000–12**



Source: OECD (2014a)

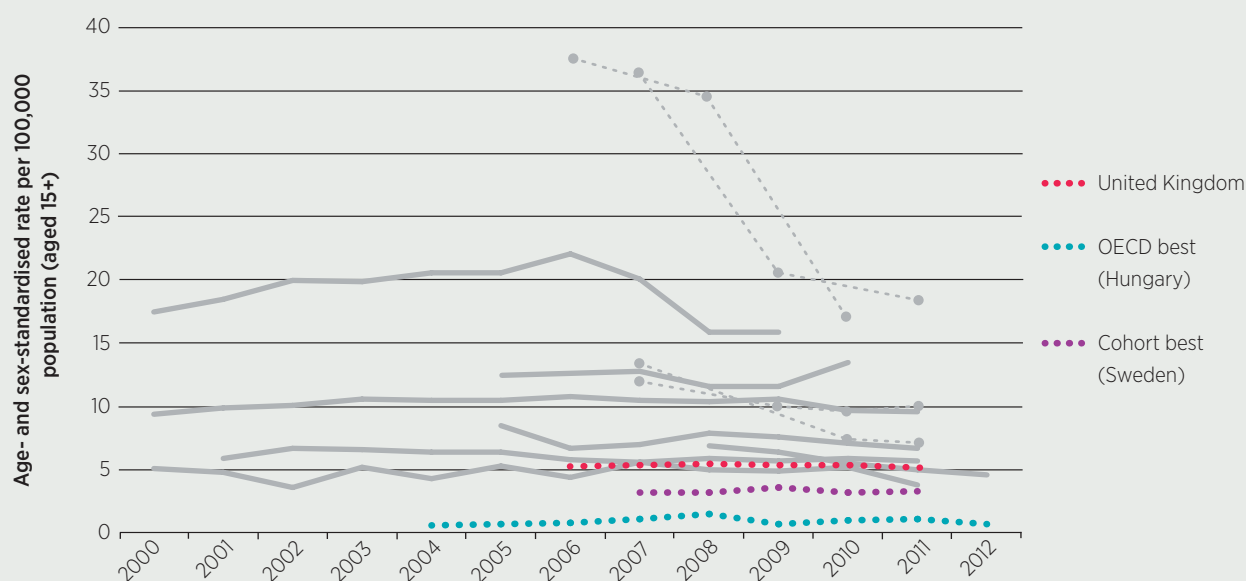
Looking at the more specific indicator of hospital admission rates for **diabetes lower extremity amputations**, these have also been stable in the UK since 2006 – at an average of five amputations per 100,000 population (see Figure 3.7). In many of the other countries under analysis, the rate has also been stable. The UK's performance relative to other countries appears good. However, Sweden had only 3.3 amputations per 100,000 population in 2011 (the estimated diabetes prevalence in 2014 was 6.14 per cent), while Hungary had only 0.7 amputations per 100,000 population in 2012 (the estimated diabetes prevalence in 2014 was 7.51 per cent). Other evidence from England suggests that many of the amputations could still be prevented with targeted preventive services and fast

1. Data are not available for the number of admissions per diabetes patients.

access to high-quality foot care (Kerr, 2012). Also, multidisciplinary diabetic foot care teams improve outcomes and reduce costs to the NHS (Kerr, 2012).

It is important to be mindful of the differences in coding practices (e.g. major/minor amputations) that are likely to have an impact on the observed differences between countries. OECD and country experts are working on further improving the quality of the diabetes data.

**Figure 3.7: Diabetes hospital admissions (lower extremity amputations), 2000–12**



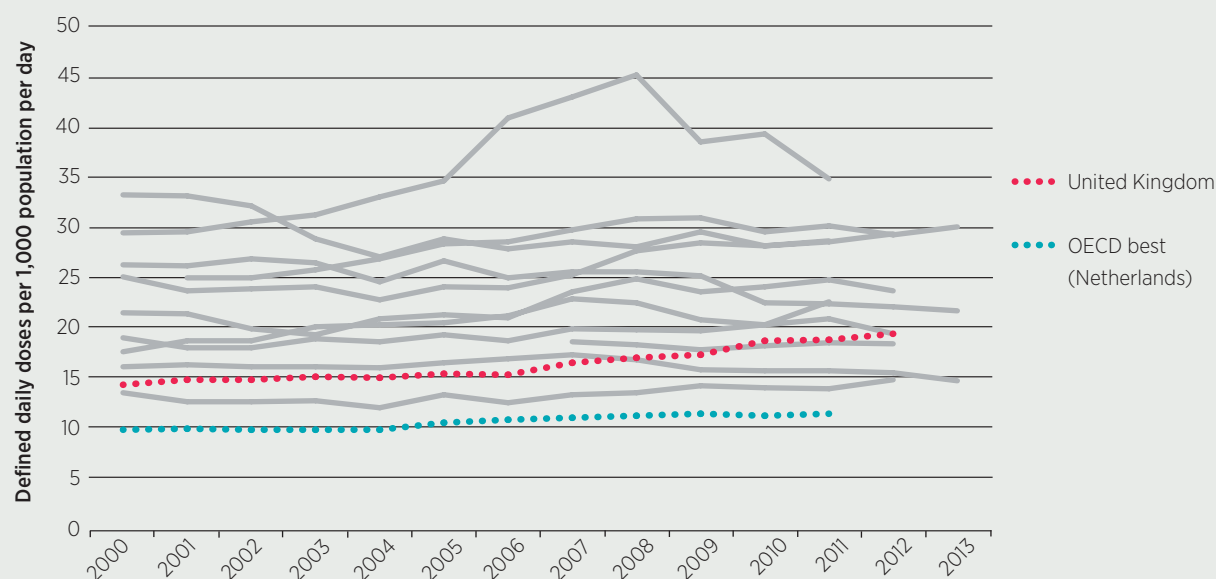
Source: OECD (2014a)

### Prescribing in primary care

Over recent years, more and more importance has been given to controlling **antibiotic prescribing** in light of increasing antibiotic resistance. Antibiotic resistance is one of the most important threats to global safety worldwide and is driven by the over-use of antibiotics and inappropriate prescribing (Public Health England, 2014). If it is not tackled, countries will face a situation where common illnesses and injuries cannot be cured and diseases which today are relatively minor may lead to premature deaths (NHS England, no date; World Health Organization, 2014). In the UK, Prime Minister David Cameron's 2014 launch of a global independent review of the crisis and the economic issues involved, as well as his call for global coordinated action, highlight the urgency of this issue (Department of Health and Prime Minister's Office, 2014). As 80 per cent of antibiotic prescribing in the UK occurs in primary care (Royal College of General Practitioners, no date), monitoring primary care prescribing is essential and is one indication of the quality of care provided. Even though the exact prescribing rate cannot be established, trends over time and variations across countries, regions and even smaller areas should be monitored.

Since 2000 in the UK, the volume of antibiotics prescribed in primary care per day has increased. As Figure 3.8 shows, it rose from 14.3 defined daily doses<sup>1</sup> in 2000 to 19.4 defined daily doses in 2012. The UK performs better than many countries but lags behind Canada, Germany, Sweden and the Netherlands – the last of these being the best performer.

**Figure 3.8: Overall volume of antibiotics prescribed in primary care (community), 2000–13**

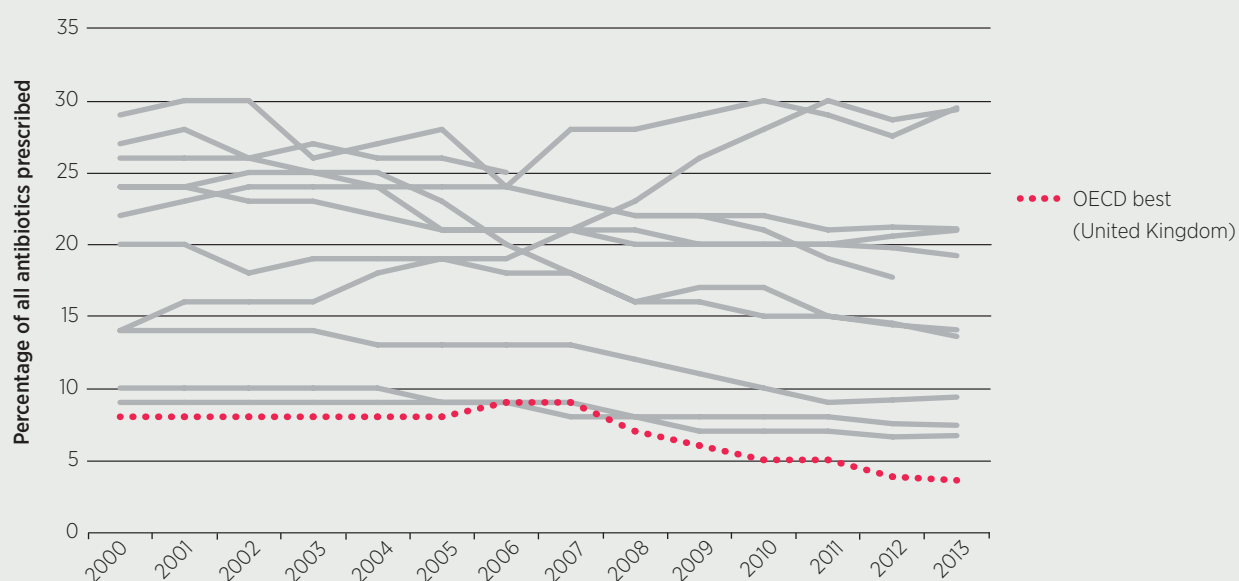


Source: Up until 2011, the OECD used data from the European Centre for Disease Prevention and Control, and since 2012 it has used data from the Health and Social Care Information Centre.

Two drugs of particular importance are **cephalosporins** and **quinolones**. These are second-line antibiotics restricted for situations where first-line antibiotics have failed (OECD, 2013c). Figure 3.9 shows that their prescribing as a proportion of all antibiotics prescribed has been on a sharp decline since 2007, and that the UK performs the best out of all the comparator countries. Data from the Health and Social Care Information Centre indicate that this proportional decline is due to fewer cephalosporins being dispensed since 2007, rather than simply due to an increase in the overall prescribing of antibiotics. This sudden decline could also be linked to the numerous initiatives aimed at reducing the use of cephalosporins because of their association with the incidence of *clostridium difficile* infection among hospital patients.

1. The defined daily dose is the assumed average maintenance dose per day for a drug used for its main indication in adults (WHO Collaborating Centre for Drug Statistics Methodology, 2009).

**Figure 3.9: Cephalosporins and quinolones prescribed as a proportion of all antibiotics prescribed, 2000–13**



Source: Based on data from the European Centre for Disease Prevention and Control (ECDC). From 2012 the denominator (overall volume of antibiotics prescribed) provided by the ECDC is slightly different from the denominator provided by the OECD (Figure 3.8).

### Primary care – summary

- Rates and trends for a selection of primary care indicators used as a proxy for the quality of primary care suggest some excellent performance but also some important concerns.
- Influenza vaccination rates are relatively high and have been improving.
- Childhood vaccination rates have also been increasing over time, despite a small decrease in DTP vaccination rates in more recent years.
- Overall antibiotic prescribing rates, while relatively low, have been increasing. However, the prescribing of cephalosporins and quinolones is low and on the decline.
- The numbers of potentially preventable admissions for diabetes are relatively low but could be further improved. However, numbers of preventable admissions for other chronic conditions (e.g. asthma and COPD), despite small improvement, remain relatively high.
- It would be important to further unpick performance behind these chronic care indicators as they suggest serious gaps in the quality of primary care.
- At the same time, additional internationally comparable indicators for the quality of primary care services – including health promotion and prevention, diagnosis and treatment for different population groups (e.g. children and older people), mental health and patient satisfaction – would help us to better understand the overall quality of services in primary care.



## Acute care

In this section we look at the following indicators as proxies for the quality of acute care:

- stroke care (four indicators: patient-based 30-day in-hospital and out-of-hospital mortality rates and admission-based 30-day in-hospital mortality rates for stroke (ischaemic and haemorrhagic))
- acute myocardial infarction care (two indicators: patient-based 30-day in-hospital/out-of-hospital mortality rates and admission-based 30-day in-hospital mortality rates for acute myocardial infarction).

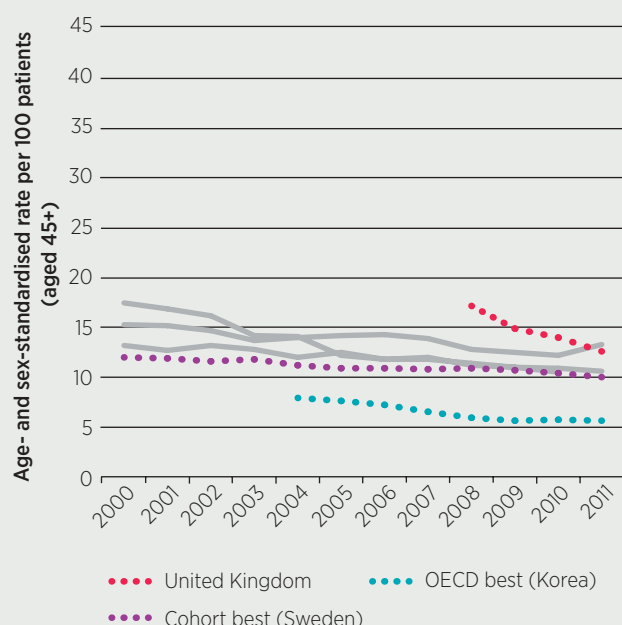
We focus on both in-hospital and out-of-hospital mortality rates as these capture deaths more widely than the in-hospital indicator only (see Appendix 4 (Kossarova and others, 2015)).

## Stroke

In the UK, cardiovascular and circulatory diseases represent the second highest burden of disease (28.8 per cent of total years of life lost) after cancer (Institute for Health Metrics and Evaluation, 2013). Ischaemic heart disease represents 15.9 per cent of years of life lost and 6.8 per cent is due to cerebrovascular diseases (of which 3.0 per cent is due to haemorrhagic and other non-ischaemic stroke, and 3.8 per cent is due to ischaemic stroke) (Institute for Health Metrics and Evaluation, 2013). The majority of strokes in England are ischaemic – that is, where a clot blocks blood flow to part of the brain; haemorrhagic strokes happen when a blood vessel bursts and bleeds into the brain.

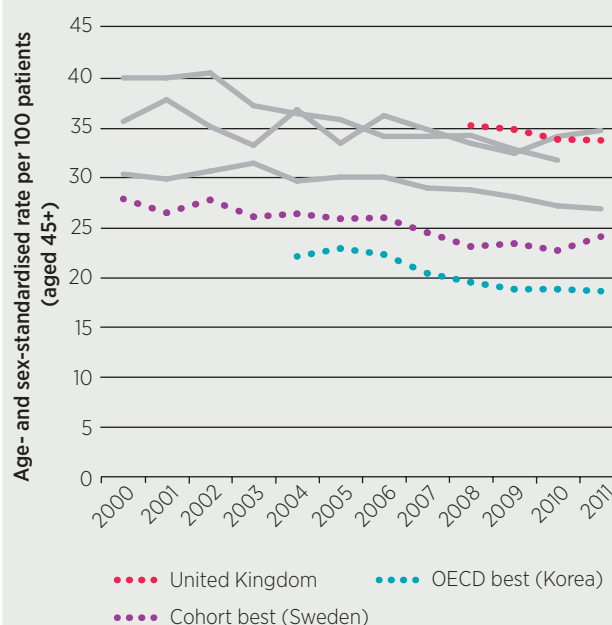
Mortality rates, which are used as a proxy for the quality of acute care, have been stable or declining over time in most of the countries. For **ischaemic stroke** (see Figure 3.10), patient-based 30-day in-hospital and out-of-hospital mortality rates have been declining rapidly in the UK (they fell from 17 per 100 patients in 2008 to 12.4 per 100 patients in 2011) but still remain above almost all the other comparator countries (New Zealand's rate was 13.1 per 100 patients in 2011). Sweden has the lowest rate of the comparator countries and Korea the lowest of all the OECD countries. Admission-based ischaemic stroke, 30-day in-hospital mortality has also been declining, but the UK has one of the highest rates of all the comparator countries, with 10.4 deaths per 100 hospital discharges in 2011 (see Appendix 4 (Kossarova and others, 2015)). The US has the lowest rate of the comparator countries and Japan the lowest rate of all the OECD countries.

**Figure 3.10: Patient-based ischaemic stroke, 30-day mortality (in hospital and out of hospital), 2000–11**



Source: OECD (2014a)

**Figure 3.11: Patient-based haemorrhagic stroke, 30-day mortality (in hospital and out of hospital), 2000–11**



For **haemorrhagic stroke**, in 2011 the UK had one of the highest patient-based (in-hospital and out-of-hospital) 30-day mortality rates at 33.7 per 100 patients and rates have only been declining very slowly (see Figure 3.11). Only New Zealand had higher mortality rates. Sweden had the lowest rate of the comparator countries and Korea had the lowest of all the OECD countries. Admission-based haemorrhagic stroke, 30-day in-hospital mortality shows similar trends for the UK and was more or less stable at approximately 30 deaths per 100 hospital discharges between 2008 and 2011 (see Appendix 4 (Kossarova and others, 2015)). Sweden had the lowest rate of the comparator countries and Japan had the lowest of all the OECD countries.

A range of reports have highlighted problems in the delivery of acute care (e.g. Francis, 2013; Keogh, 2013). The trends described above may to some extent be capturing some of these deficiencies, but the declines nevertheless offer a hopeful picture. It is also important to note that, overall, inaccuracies in routine data and differences in stroke care around the world make international comparisons challenging.

Since the 1990s, the Royal College of Physicians has carried out work to improve quality of care for patients who have had a stroke. Most recently, it has set up the Sentinel Stroke National Audit Programme (SSNAP), which aims to improve quality by auditing stroke services against evidence-based standards. Starting from December 2012, this audit collects data on a quarterly basis for every stroke patient in England, Wales and Northern Ireland, looking across the entire care pathway – acute care, rehabilitation, six-month follow-up and outcomes. The most recent audit reports highlight that there have been significant improvements in the organisation and provision of stroke care services. However, large unacceptable variations remain and not all patients have access to the same high-quality care (Royal College of Physicians,

2014a, 2014b). Variations are mainly in staff mix and skills (nurses, care assistants and consultants), access to clinical psychology and social care, stroke-specific early supported discharge, organisation of stroke units, clinical commissioning group (CCG) involvement in services development and strategic planning. A Cochrane review of evidence suggests that stroke patients who receive organised inpatient care in dedicated stroke units are more likely to be alive and leading an independent life one year after a stroke (Stroke Unit Trialists' Collaboration, 2013).

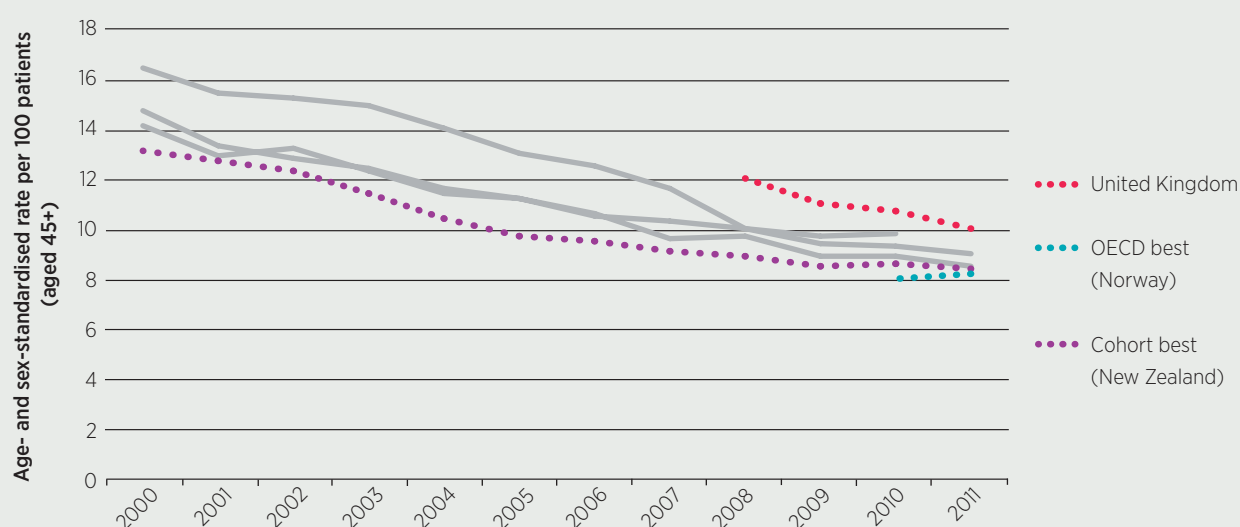
At the same time, a review by the National Confidential Enquiry into Patient Outcome and Death (2013) on the quality of care received by patients with aneurysmal subarachnoid haemorrhage has provided a range of recommendations for improving the quality of care for haemorrhagic stroke patients. The report specifically highlights the importance of appropriate education for professionals about clinical presentation, establishing formal networks linking different levels of care, and introducing standard protocols of care at secondary and tertiary level.

### Acute myocardial infarction

Similarly to strokes, **acute myocardial infarctions** (AMIs) – or heart attacks – require early diagnosis and fast and appropriate specialist treatment,<sup>1</sup> together with cardiac rehabilitation in order to reduce the probability of recurrent heart attacks or death, and improve quality of life (National Institute for Cardiovascular Outcomes Research, 2013, 2014).

Figure 3.12 shows that only a few of the comparator countries have the required data, but there is a declining trend and convergence across most of them. Between 2008 and 2011, patient-based AMI, 30-day in-hospital and out-of-

**Figure 3.12: Patient-based acute myocardial infarction, 30-day mortality (in hospital and out of hospital), 2000–11**



Source: OECD (2014a)

1. Different types of myocardial infarctions (ST-elevation versus non-ST-elevation myocardial infarction) require different types of cardiology service (i.e. primary percutaneous coronary intervention, thrombolytic treatment or angiography).

hospital mortality in the UK declined from 12 to 10 per 100 patients aged 45 and over. The UK had the highest mortality rate and Norway (8.2 per cent) had the lowest of all the OECD countries, followed by New Zealand (8.4 per cent) and Sweden (8.5 per cent). Admission-based AMI, 30-day in-hospital mortality showed very similar trends, with 7.8 deaths per 100 patients in the UK (see Appendix 4 (Kossarova and others, 2015)).

While not directly comparable with the OECD indicators, a report from the Myocardial Ischaemia National Audit Project (MINAP) has shown that there was a decline between 2003–04 and 2011–14 in same-hospital 30-day mortality rates (unadjusted for patient characteristics over which the admitting hospital has no control and which may affect the risk of death after a heart attack) (National Institute for Cardiovascular Outcomes Research, 2014). This suggests that there have been significant improvements in the care provided to patients who have had a heart attack. However, the report also cautions about using unadjusted health outcome indicators to measure quality of care and conducting international comparisons of outcomes – due to differences in data collection, definitions and patient characteristics.

A recent study compared AMI mortality in the UK and Sweden, and reported that mortality rates in the UK are higher than those in Sweden. It suggested that many thousands of deaths at 30 days might have been prevented or delayed if the same treatment was given in the UK as is given in Sweden. At the same time, the mortality gap between the two countries has narrowed over the last decade (Chung and others, 2014).

#### **Acute care for stroke and AMI – summary**

- Timely provision of high-quality acute stroke and AMI care is essential for preventing long-term disability and unnecessary deaths.
- Admission- and patient-based AMI and stroke, 30-day mortality indicators are used as a proxy for the quality of acute care.
- Although reported mortality rates in the UK have fallen, they remain higher than those in the comparator countries.
- While efforts to improve the quality of acute care services continue, the size of the gap in stroke and AMI mortality rates between the UK and the comparator countries is of some concern and needs to be understood and reduced further over the coming years.
- It will be important to monitor whether changes in the quality of acute care services will translate into further reductions in mortality rates and whether the gap with other countries can be closed.

## Cancer care

In this section we look at the quality of cancer care through the following proxy indicators for breast, cervical and colorectal cancers:

- cancer screening (two indicators: breast and cervical cancer screening)
- cancer survival (three indicators: breast, cervical and colorectal cancer survival)
- cancer mortality (three indicators: breast, cervical and colorectal cancer mortality).

The OECD uses survival rates for three cancers – breast, cervical and colorectal (bowel) – as indicators of the quality of care provided by healthcare systems, together with cancer screening and mortality indicators (OECD, 2013b). According to Cancer Research UK (2015), in 2011, breast cancer was the most common female cancer in the UK – with 49,936 new cases (30 per cent of all new cases in women) – and there were 3,064 new cases for cancer of the cervix (2 per cent of all new female cancer cases). In the same year, bowel cancer was the third most common cancer among women (18,410 new cases, 11 per cent of all new cases) as well as men (23,171 new cases, 14 per cent of all new male cases). In 2012, 29,928 people died because of these three cancers (18 per cent of all cancer deaths).

The main, and mainly modifiable, risk factors for over 40 per cent of all cancers include tobacco, alcohol, diet, being overweight, inactivity, infection (human papillomavirus infection for cervical cancer), radiation, occupation, post-menopausal hormones or breastfeeding for less than six months (Cancer Research UK, 2014b). As many of these risk factors can be influenced by effective policies (e.g. the smoking ban), rates of cancer could also, to some extent, be controlled. The OECD (2013a) recently carried out a review of cancer care and policies in all the OECD countries and found that most countries could improve the cancer care they provide, especially through effective and fair resource allocation, promoting best practice in cancer care (i.e. prevention, early diagnosis, treatment, palliative care and quality of life), and strong governance (OECD, 2013a).

## Cancer screening

There are several types of cancer for which screening can contribute to prevention by detecting pre-cancerous stages, and to the early detection and treatment of cancer, and therefore to longer survival and reduced mortality.

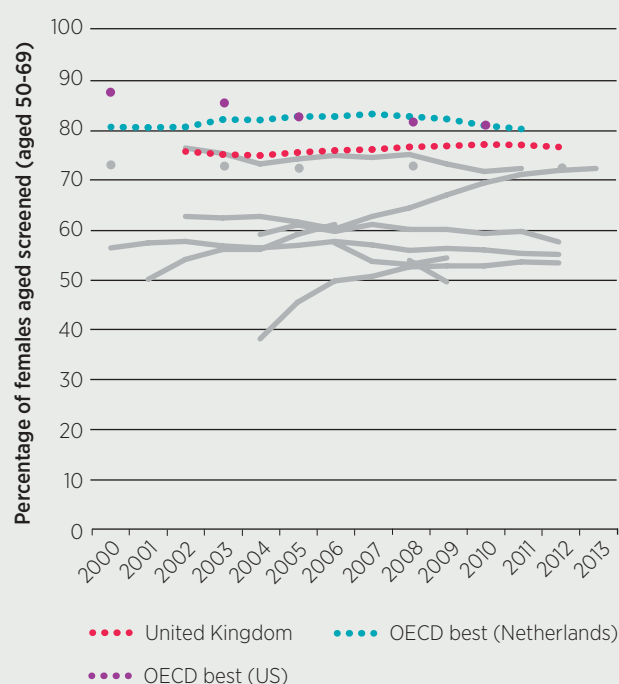
Low uptake of screening could potentially indicate problems in the quality of care provided by a healthcare system, even though uptake is determined by a range of factors.

At the same time, while cancer screening is extremely important, the effectiveness of cancer screening programmes continues to be reviewed. Also, screening should not take attention away from the importance of early access to diagnosis and treatment.

Overall, the UK performs very well on cancer screening. Between 2000 and 2012, the UK maintained stable and very high **breast cancer screening** rates, with an average of 76 per cent of 50- to 69-year-old women being screened (see Figure 3.13). Of the comparator countries, only the Netherlands had higher breast cancer screening rates than the UK in 2011 (80.1 per cent). With regard to **cervical cancer screening**, Figure 3.14 shows that the UK had the highest rates

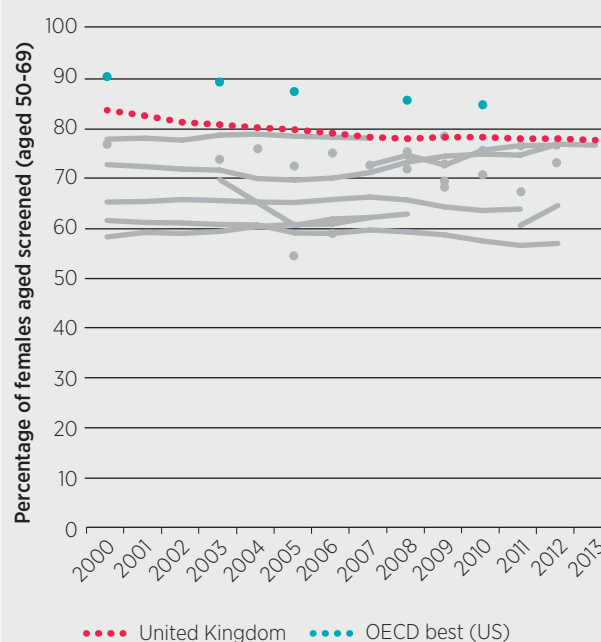
among all the OECD countries – the US had higher rates in 2010 but more recent data are not available. However, it is important to keep monitoring the trend, as the proportion of women aged 50–69 who were screened in the UK decreased from 84 per cent in 2000 to 78 per cent in 2013.

**Figure 3.13: Breast cancer screening, 2000–13**



Source: OECD (2014a)

**Figure 3.14: Cervical cancer screening, 2000–13**



While colorectal cancer screening is also available in many OECD countries (including the UK), the frequency and methods of screening differ, which currently make colorectal screening rates difficult to compare (OECD, 2014b).

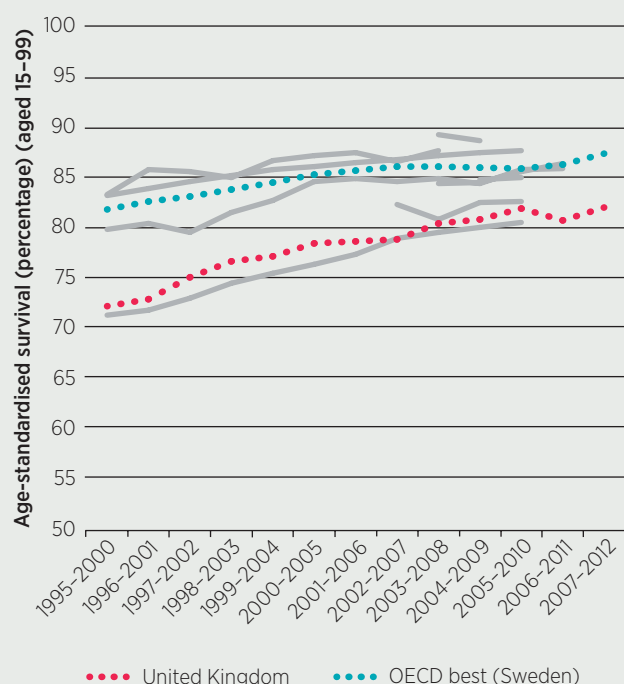
### Five-year relative survival

Survival rates for people diagnosed with cancer are a broader indicator of the effectiveness of the healthcare system, capturing both early detection and the effectiveness of subsequent treatment (OECD, 2013c).

Survival rates can differ across countries because cancer may be diagnosed at different stages (more or less advanced) due to differences in screening, cancer awareness and referral pathways. There may also be differences in stage-specific survival, which could be explained by differences in treatment, co-morbidities and the accuracy of assessing how advanced a cancer is (Walters and others, 2013a). Inaccurate or incomplete recording of stage information for the different cancers may result in inappropriate treatment for the patient (Cancer Research UK, 2014c). It is therefore essential to further disentangle any identified international differences and better understand the underlying reasons in each country, as has been done by the International Cancer Benchmarking Partnership.

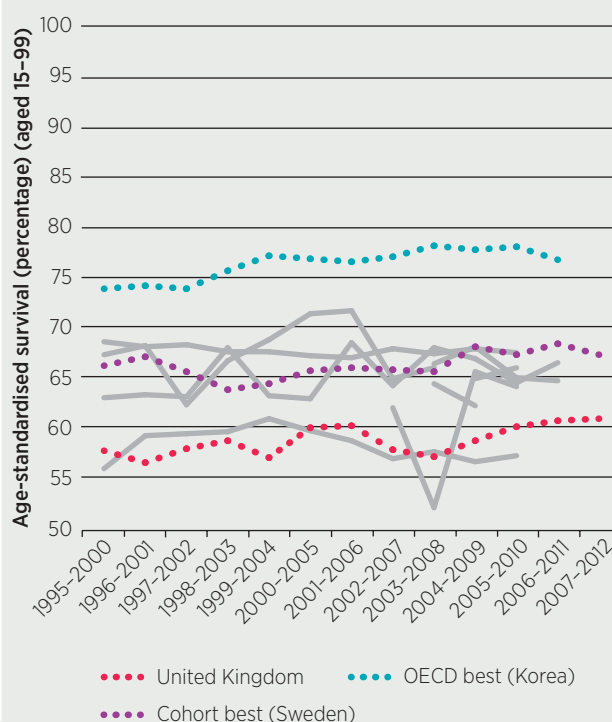
Five-year relative **survival for breast cancer** has been steadily improving in the UK over time, reaching 82 per cent in 2007–12 (see Figure 3.15). However, despite relatively high breast cancer screening coverage in the UK, when compared with several other OECD countries, the UK continues to lag behind in terms of survival rates, with the US achieving the highest five-year relative survival levels in 2003–08 (89.3 per cent) and Sweden in 2007–12 (87.4 per cent). The International Cancer Benchmarking Partnership study, comparing Australia, Canada, Norway, Sweden and the UK, found that the international differences in **breast cancer survival** are partly explained by differences in the point at which an individual is diagnosed with cancer (stage at diagnosis) and stage-specific survival (Walters and others, 2013b). The UK had relatively low stage-specific survival, which is likely to be explained by the accuracy of staging as well as timely and effective access to stage-specific treatment. Australia and Sweden had relatively high survival at all stages of disease and so learning from the health policies in these countries should be encouraged (Walters and others, 2013a).

**Figure 3.15: Breast cancer five-year relative survival in women aged 15–99, 1995–2012**



Source: OECD (2014a)

**Figure 3.16: Cervical cancer five-year relative survival in women aged 15–99, 1995–2012**



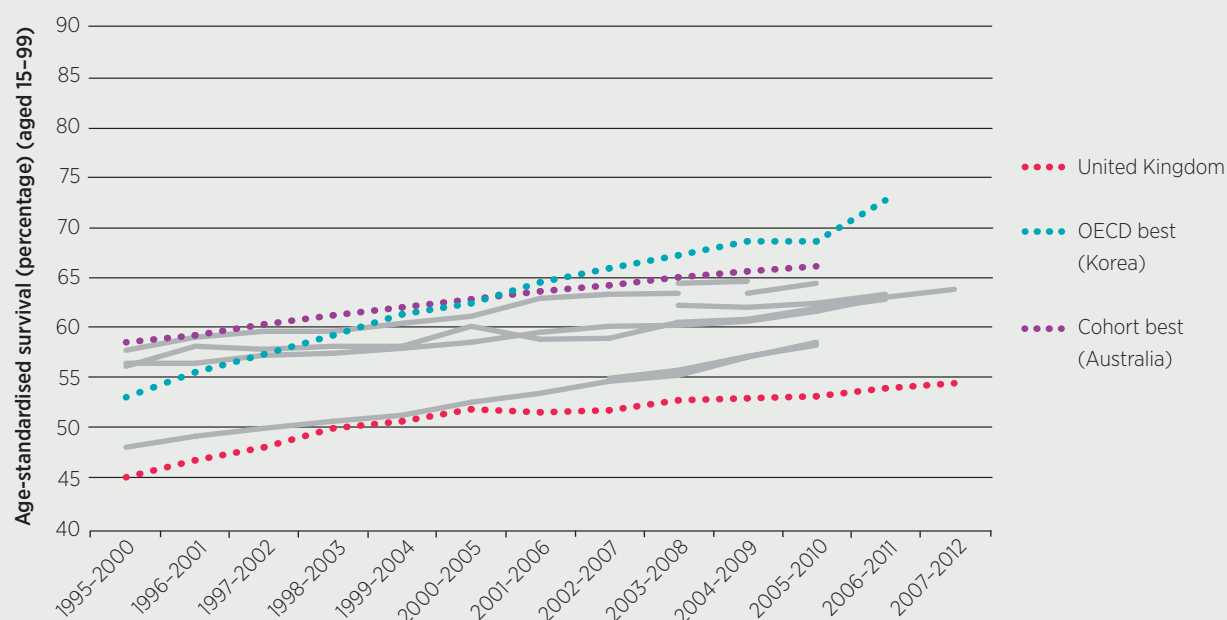
Trends for five-year relative **survival for cervical cancer** are more stable in some countries but also fluctuate significantly more than for the other types of cancer (see Figure 3.16). While survival rates in the UK have picked up since 2003–08, they are lower than those in the comparator countries, with a five-year survival estimate for cervical cancer of only 60.9 per cent in 2007–12. This is despite the UK having the highest cervical cancer screening coverage of all the countries. In comparison, survival in Sweden was 67.3 per cent in 2007–12, while survival in



Korea reached 76.8 per cent in 2006–11. Given that cervical and breast cancer screening coverage is already relatively high in the UK, it is essential to further examine and mitigate any potential delays in diagnosis (after screening or the first presentation of symptoms) and, once diagnosed, the barriers that patients may be facing in accessing timely and effective treatment.

Trends for five-year relative **survival for colorectal cancer** resemble the trends for five-year relative survival for breast cancer (see Figure 3.17). While there has been a gradual increase in survival in the UK over time, in 2007–12, five-year relative survival was only 54.5 per cent. In the same period in Sweden it was as high as 63.9 per cent, Australia reached 66.2 per cent in 2005–10 and Korea was the OECD's best-performing country, with a five-year relative survival of 72.8 per cent in 2006–11. While cervical and breast cancer screening coverage are already relatively high, there is still plenty of scope to improve colorectal cancer screening coverage (von Wagner and others, 2011). In addition, changes to the screening programme (e.g. a new bowel scope screening programme) may also increase the proportion of cancers detected by screening. Similarly to the work carried out on breast cancer as part of the International Cancer Benchmarking Partnership, detailed analysis of colorectal cancer data highlights a concern about the consistency of the quality of staging and access to treatment in the UK (Maringe and others, 2013). Treatment guidelines in the UK are similar to those in countries that outperform the UK (e.g. Canada), so implementation needs to be better understood (Maringe and others, 2013).

**Figure 3.17: Colorectal cancer five-year relative survival in men and women aged 15–99, 1995–2012**



Source: OECD (2014a)



## Cancer mortality in the population

Finally, we look at cancer mortality, which captures both the quality of the entire healthcare system (e.g. prevention, early detection and treatment) and also incidence rates. Table 3.1 summarises the trends but detailed mortality charts can be found in Appendix 4 (Kossarova and others, 2015).

**Table 3.1: Cancer mortality, 2000 and 2010**

Cancer type	2000		2010		
	UK deaths per 100,000 women/population	Gap to best performer	UK deaths per 100,000 women/population	Gap to best performer	Number of countries performing better than the UK
Breast	37.7	+ 12.4 (Spain)	30.4	+ 8.7 (Spain)	11/14
Cervical	3.6	+ 2.5 (Italy)	2.7	+ 1.7 (Italy)	11/14
Colorectal	26.1	+ 8.5 (Greece)	22.9	+ 5.9 (Greece)	5/14

Source: OECD.StatExtracts; 2000/2010 or latest available data year.

**Breast cancer mortality** in the UK has been declining since the early 2000s: it fell from 37.7 deaths per 100,000 women in 2001 to 30.4 deaths per 100,000 women in 2010. However, the UK continues to have one of the highest mortality rates. The lowest mortality rates are in Korea and, of the comparator countries, in Spain. Since the late 1990s, the incidence of breast cancer has been increasing in both the UK (from 68.8 per 100,000 women in 1998 to 95 per 100,000 women in 2012) and Spain (from 49.6 per 100,000 women in 1998 to 67.3 per 100,000 women in 2012). However, Spain has had a significantly lower incidence rate and stagnating mortality rate (OECD (2014a) data, graphs not presented).

**Cervical cancer mortality** rates in the UK fell between 2001 and 2006 (from 3.6 to 2.8 deaths per 100,000 women) and since then they have plateaued at 2.7 deaths per 100,000 women – one of the highest mortality rates of all the comparator countries. In 2010, Italy had only one death per 100,000 women, followed by Finland with 1.5 deaths per 100,000 women. Incidence rates for cervical cancer in Italy and the UK are very similar and have shown a decline: in Italy the rate fell from 9.1 per 100,000 women in 2000 to 6.7 per 100,000 women in 2012, while in the UK the incidence rate fell from 9.3 per 100,000 women in 2000 to 7.1 per 100,000 women in 2012.

Finally, **colorectal cancer mortality** has been slowly declining over time. In the UK it fell from 26.1 deaths per 100,000 population in 2001 to 22.9 deaths per 100,000 population in 2010, and the UK's performance on this indicator lies in the middle of the comparator countries. Greece, which has the lowest mortality rates of the comparator countries (17.1 deaths per 100,000 population in 2011), had an incidence rate of 13.5 per 100,000 population in 2012, while incidence in the UK was more than double in the same year, with 30.2 per 100,000 population. It is also interesting to note that Australia has one of the lowest mortality rates (19 deaths per 100,000 population in 2011), but one of the highest incidence rates

(38.4 per 100,000 population in 2012) relative to the other comparator countries. Mexico had the lowest mortality rate of all the OECD countries with 7.7 deaths per 100,000 population in 2012.

### **Cancer care – summary**

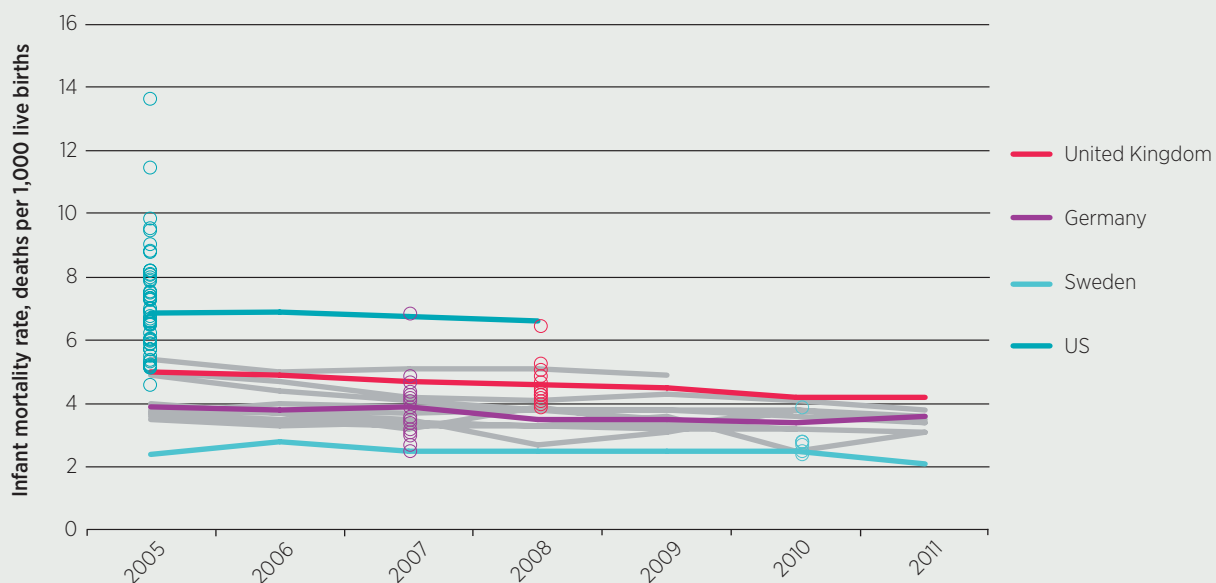
- Cancer survival, together with cancer screening coverage and mortality, are commonly used proxy indicators for the quality of cancer care.
- Despite ongoing initiatives and attention focused on this area in recent years, the UK's performance in terms of cancer care is mixed and there is much room for improvement.
- Relative to other countries, the UK performs very well on breast and cervical cancer screening coverage.
- However, cervical cancer screening coverage has been declining over time.
- Also, the UK is stagnating or significantly lags behind other countries in relation to cancer survival and mortality, raising concerns about potential delays in diagnosis and how quickly patients are able to access effective treatment.
- There is clearly a need for ongoing initiatives to continue and to redouble efforts to understand how best to reduce the survival and mortality gap between the UK and other countries.
- It would be useful if the OECD collected and provided comparative data on the quality of cancer care for children (in collaboration with other partners collecting data from cancer registries, e.g. the International Agency for Research on Cancer (IARC) and the European Cancer Observatory).

## Variation within countries and regions

This report has discussed the variations in performance on a range of healthcare quality indicators between the UK and up to 14 broadly similar countries, where data are available. While the questions raised by differences in performance represent a valuable opportunity to learn from the best-performing countries, it is important to remember that there are likely to be variations in performance within a country on each indicator.

This effect is illustrated in Figure 3.18. Here we present data on infant mortality in the UK and comparator countries. The national averages are shown as lines and are drawn over time. However, in selected years and countries we also present regional breakdowns, represented by circles (for example, the regional breakdown for the US is displayed in 2005, whereas the breakdown for Sweden is presented in 2010). Figure 3.18 shows that, while the UK has one of the highest national infant mortality rates of all the comparator countries, there are areas within the UK that have lower rates which are similar to those in the better-performing Germany and Sweden. On the other hand, there are areas within the UK where rates are higher and similar to the high US average.

**Figure 3.18: Infant mortality – national and regional variation, 2005–11**



Source: OECD (2014a)

## Areas under development

Mental health, patient safety and patient experience are all essential aspects of quality of care but, at present, international comparisons are still challenging. In this section we give an overview summarising why these areas are important, what has been done to date and why we cannot present meaningful comparisons yet.

A recent review of **mental health** in OECD countries found that despite the enormous burden of mental ill-health, it is not a priority in most healthcare systems and, due to a lack of data, it is difficult to get a sound understanding of mental health system performance internationally (OECD, 2014c). At present, the OECD uses inpatient suicide rates and deaths after discharge from suicide to proxy the quality of mental health care, which has shown some improvement over time (for more detail see Appendix 4 (Kossarova and others, 2015)), having dropped hospital admission measures owing to their unreliable nature (OECD, 2013b). More information on mental health indicators is presented in Appendix 5 (Kossarova and others, 2015).

**Safety** is very high on the policy agenda in many countries, especially as several million adverse events could be prevented every year (OECD, 2014a). However, international data collection and comparison of patient safety indicators has been one of the most challenging areas. On several of the OECD indicators there was an increase in reported incidents for the UK, which is likely to suggest improved reporting rather than deteriorating performance (e.g. obstetric trauma vaginal delivery with/without instrument, post-operative pulmonary embolism or deep vein thrombosis – all discharges etc.). In the UK, safety has been increasingly at the forefront of debate, especially in light of some important system failings and consequent investigations (Keogh, 2013). The QualityWatch annual statement provided evidence for safety improvements in inpatient care, but noted that there is very little data to capture safety in primary and community care (QualityWatch, 2014).

Measures of the **experiences of care** derived from patients themselves are increasingly recognised as being important markers of performance and the OECD has started to collect this type of data as well, but monitoring trends over time is still not possible. The International Health Policy Survey carried out by the Commonwealth Fund (Davis and others, 2014) forms the basis for the OECD's work in this area. The 2014 report found that the UK is one of the most responsive healthcare systems. However, issues with the data including sample size, representativeness, and response rates, need to be noted (Davis and others, 2014), as well as a problem with adjusting for the different expectations of the public and patients across the countries.

# 4

## Conclusions

There are many examples of commentators comparing the current state of the NHS to its past performance, either to demonstrate improvement or to highlight signs of decline. It is well established that one of the best routes to improvement is by learning from others, including other countries – a method currently under-used within the NHS, despite offering valuable insight. International comparisons of the performance of healthcare systems have been in use for at least 150 years and provide an external benchmark that will help us to understand where the UK stands and where it is heading.

International comparisons allow for greater transparency, accountability and mutual learning, but involve many challenges, some of which, but not all, we have addressed in this report. The challenges of collecting high-quality data that are genuinely comparable across different countries and health systems present a substantial practical barrier. The level of popular interest that such comparisons tend to receive also complicates such analyses, as careful caveats are often disregarded in favour of making political points – for example, the reception of the WHO health rankings in 2000 or the frequent citation of The Commonwealth Fund's (2014) report in the recent General Election campaign in the UK. These challenges mean that this sort of international reflection is not used as frequently as it should be.

Although there are challenges, substantial improvements have been made in the quality of data collected, as well as indicators and methodologies used. For this report we were interested in extending these approaches to look at change over time across several areas of care. We also want to be realistic about the strengths and weaknesses when looking at these indicators.

This report used the 27 Health Care Quality Indicators – the most robust indicators available to date for comparing the quality of healthcare systems across over 30 OECD countries – to understand how the quality of care in the UK changed between 2000 and 2013 relative to a pool of 14 similar countries. The 27 indicators are selective and only touch upon quality of care in the different healthcare systems where validated comparative indicators are available – there are many other quality of care indicators in the UK but these are usually not internationally comparable across several countries.

In considering how the UK compares with other countries on selected quality of care indicators, we have examined both where the UK is heading (trends) and where it stands relative to other countries (better/similar/worse). Ultimately, this analysis can attempt to answer the crucial question: How can we use this information to improve the quality of healthcare in the UK?

## Findings for the UK

For the reasons set out above, we have to guard against making oversimplified statements, for example that the quality of care is either good or bad in one country or another.

Looking across the 27 indicators in this analysis indicates that, compared with other countries, the UK's healthcare system is better than average in some areas, while it requires significant improvement in others. Absolute and relative trends – that is, whether the UK is improving or deteriorating and how it is performing in relation to other countries – are also mixed. It is encouraging that the UK is stable or improving on almost all the indicators (25 out of 27), and we hope that the UK can at least maintain but ideally increase the speed of improvement. However, it is worrying that, although the UK does not consistently overperform or underperform when compared with other countries, it performs worse than most countries (where data are available) on 14 out of the 27 indicators. Table 4.1 lists detailed results for each indicator, according to whether performance in the UK appears in general to be better than, similar to or worse than performance in other countries, and whether it is improving or deteriorating.

We would like to emphasise the following key findings for the UK:

1. The indicators representing **primary care** are too mixed to highlight any patterns in trends or relative performance. Overall, the UK is performing better than most other countries on five out of nine indicators. However, its performance is deteriorating on two indicators (DTP vaccination coverage between 2012 and 2013, and the volume of antibiotics prescribed). And significant improvement could be made in areas where performance is average (three out of nine indicators) or low (one out of nine indicators) relative to other countries. Specifically, we would like to highlight the following:
  - Influenza vaccination rates in the UK seem to be consistently higher than those in many OECD countries – an indication of a system that is capable of delivering population-wide prevention, largely through a system of well-developed primary care.
  - Average but improving performance on childhood vaccination rates gives a small insight into the quality of services for children. More internationally comparable indicators are required to truly understand the quality of services provided to children in primary care.
  - The over-use of antibiotics is an issue of global concern. Although the volume of antibiotics prescribed in the UK is rising, overall rates tend to be lower than those in other countries, but higher than those in Germany, the Netherlands and Sweden. However, there are indications that the UK is prescribing a decreasing proportion of second-line antibiotics (cephalosporin and quinolones) – restricted for situations when first-line antibiotics have failed – which is an indication of good prescribing practice.
  - In an ideal world, hospital admissions for asthma would be avoidable. However, in the UK the relative rates of admission for asthma are high compared with other countries, and could also be further improved for COPD and diabetes lower extremity amputations.

**Table 4.1: Summary of findings by area of care and individual indicators**

Area of care	Indicator	Improving, stable or deteriorating	UK relative to others: better, similar or worse
Primary care	Influenza immunisation	Improving	Better
	DTP immunisation	Improving	Similar
	Measles vaccination	Improving	Similar
	COPD – avoidable admissions	Improving	Similar
	Asthma – avoidable admissions	Improving	Worse
	Diabetes hospital admissions – short-and long-term complications and uncontrolled diabetes without complications	Stable	Better
	Diabetes hospital admissions – lower extremity amputations	Stable	Better
	Overall volume of antibiotics prescribed in primary care	Deteriorating	Better
	Cephalosporins and quinolones as a proportion of all antibiotics prescribed	Improving	Better
Acute care	Patient-based ischaemic stroke – 30-day mortality (in hospital and out of hospital)*	Improving	Worse
	Admission-based ischaemic stroke – 30-day in-hospital mortality*	Improving	Worse
	Patient-based haemorrhagic stroke – 30-day mortality (in hospital and out of hospital)*	Improving	Worse
	Admission-based haemorrhagic stroke – 30-day in-hospital mortality*	Stable	Worse
	Patient-based AMI – 30-day mortality (in hospital and out of hospital)*	Improving	Worse
	Admission-based AMI – 30-day in-hospital mortality*	Improving	Worse
Cancer	Breast cancer screening coverage	Stable	Better
	Cervical cancer screening coverage	Deteriorating	Better
	Breast cancer five-year relative survival	Improving	Worse
	Cervical cancer five-year relative survival	Improving	Worse
	Colorectal cancer five-year relative survival	Improving	Worse
	Breast cancer mortality	Improving	Worse
	Cervical cancer mortality	Improving	Worse
	Colorectal cancer mortality	Improving	Similar
Mental health	Inpatient suicide among patients diagnosed with a mental disorder*	Improving	Worse
	Inpatient suicide among patients diagnosed with schizophrenia or bipolar disorder*	Stable	Worse
	Deaths from suicide after discharge among people diagnosed with a mental disorder*	Improving	Better
	Deaths from suicide after discharge among people diagnosed with schizophrenia or bipolar disorder*	Improving	Similar

Relative categorisations provide an illustrative assessment of how UK performance compares to other comparator countries over the entire time period (where data are available), with more weight given to performance in recent years.

Asterisk denotes indicators on which suitable data are available for fewer than seven of the comparator countries.

2. In **cancer care**, the UK has a somewhat contradictory position. Although it seems to perform relatively well on a range of measures of population screening, survival rates for some common cancers are still relatively low. Compared with other countries, the UK performs very well on breast and cervical screening coverage. However, cervical screening coverage has been declining over time and the UK stagnates or significantly lags behind in terms of cancer survival generally, raising concerns about potential delays in diagnosis and timely access to effective treatment for patients. A recent study carried out by the International Cancer Benchmarking Partnership suggests that differences in cancer survival are associated with differences in the readiness of primary care physicians to investigate for cancer in different countries, calling for initiatives that would facilitate primary care physicians' ability to investigate and refer to specialists (Rose and others, 2015). Overall, there is clearly a need for ongoing initiatives to continue and to redouble efforts to understand how best to reduce the survival and mortality gap with other countries. It would also be useful if the OECD collected and provided comparative data on the quality of cancer care for children (in collaboration with other partners collecting data from cancer registries, e.g. the IARC and the European Cancer Observatory).
3. Indicators representing **acute care** (stroke and AMI) mainly show improvements, but the UK continues to lag behind other countries. It is important to note that overall inaccuracies in routine data and differences in stroke care around the world make comparisons very challenging. Nevertheless, timely provision of high-quality acute stroke and AMI care is essential for preventing long-term disability and unnecessary deaths. A recent study compared AMI mortality in Sweden and the UK and reported that mortality rates in the UK are higher than those in Sweden. It also suggested that many thousands of deaths at 30 days might have been prevented or delayed if the same treatment was given in the UK as is given in Sweden. At the same time, the mortality gap between the two countries has narrowed over the last decade (Chung and others, 2014). While it is clear that efforts to improve the quality of acute care services are being made, the size of the gap in mortality rates between the UK and comparator countries is of some concern and needs to be better understood. It will be important to monitor whether changes in the organisation and provision of acute care services will translate into further reductions in the mortality rates and whether the gap with other countries can be closed.
4. While some indicators exist in the areas of **mental health**, **patient safety** and **patient experiences**, the main focus of efforts here is improving data collection in order to provide meaningful results.



## Making the most of international comparisons

This type of descriptive international comparison of the quality of care over time is the first step towards building the evidence base necessary to identify problems and understand changes in the quality of care in the UK and other countries, just as was done with cancer survival, leading to the work done by the International Cancer Benchmarking Initiative. However, further analysis of trends in each of the areas of care (e.g. mental health, stroke and COPD) using a range of other quality of care indicators, and an analysis of what drives the UK's performance on these indicators, are necessary before effective policies can be designed and implemented. The OECD has also been trying to unpick the observed variations by conducting in-depth reviews of quality improvement policies in a selection of 10 to 12 countries.<sup>1</sup>

We have also shown that the variation within countries often far exceeds that which is observed between them. It is important to note that we have been comparing average aggregate figures for the comparator countries as well as the UK, which masks variations within the four countries of the UK, or even regional and small area-level variation. In the future, it would be beneficial if comparisons were also made at disaggregated levels in order to improve the potential for learning, as done by the Canadian Institute for Health Information (2014) comparing Canadian provinces to the Canadian average and other OECD countries.

We would emphasise three lessons for policy-makers and health service managers:

- **International comparisons can be very powerful and could be used more widely.** Although the depth of internationally comparable data is limited, there still remains substantial scope to increase the ways in which such data are used to assess the quality of care within the UK. One good example is how some of the measures published by the OECD are included in the NHS Outcomes Framework. Moreover, data emerging from a range of specialty-based comparative research projects could be operationalised to provide learning from other countries' performance and policies at national and local levels.
- **When looking at high-level performance indicators, handle with care.** The challenges of using summary international indicators are well known. Perhaps the most important thing to remember is that these indicators are better at framing questions and initiating a debate than producing definitive judgements. Deriving useful learning means carrying out a thorough analysis involving quantitative and qualitative methods with a range of different stakeholders (e.g. researchers, patients and healthcare professionals), at different levels of the system (macro to micro), in order to validate and better understand the findings – such as the work being done through the International Cancer Benchmarking Partnership.
- **Consider the indicators in the context of the system.** It is important to take a broad view of quality across measures and, if necessary, to undertake some work to test whether the differences are a true reflection of the quality of care provided. One indicator alone will not provide a complete picture of the quality of care provided. When a range of different indicators provides a consistent

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1. [www.oecd.org/els/health-systems/health-care-quality-reviews.htm](http://www.oecd.org/els/health-systems/health-care-quality-reviews.htm).

message, we can be more confident in the findings. Sometimes even a set of indicators does not reveal the full picture about the quality of care as important data may not be collected or easily available (e.g. data on the quality of services provided to children or data on the quality of mental healthcare).

We hope that policy-makers will:

- use the data presented in this report effectively, especially for indicators where the UK's performance is average, low or deteriorating
- try to better understand not only what the UK could learn from other countries but also what specific steps could be taken to improve performance in the next few years.

Even if all these suggestions are followed, the resultant learning needs to be implemented sensitively. It must be remembered that healthcare systems have different histories, designs, cultural settings and population expectations, so what works in one setting may not be applicable in another. Also, consideration must be given to whether any proposed changes in one area of the healthcare system could have negative unintended consequences in other areas of the system.

The NHS in the UK faces profound challenges over the term of the current Parliament. Comparing the results delivered by the NHS with other similar systems represents a notable opportunity to identify innovations that could help to deliver the required efficiency savings over the next few years. However, if the lessons are not learned or the savings cannot be delivered, the Secretary of State for Health may find that international comparisons are used to highlight an increasing gap between the UK and other countries.

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## About the authors

**Lucia Kossarova** joined the Nuffield Trust in April 2014 and is involved in quality of care and international comparisons projects. She has over 10 years of experience in international health policy and health systems research and analysis. She joined from the London School of Economics and Political Science (LSE), where she had been a Teaching Fellow. While at the LSE she taught on different MSc courses, worked as a researcher on different EU-funded projects, and was Assistant Editor for Eurohealth. Prior to this, Lucia worked in the Quality Team at the Health, Nutrition and Population unit of the World Bank in Washington DC. She also worked as senior consultant at a private healthcare consulting company involved in health system reform and HIV/AIDS projects in Central Asia, Eastern Europe and Central America. She continues to be a strategic adviser for the Provida Foundation which invests and provides advice to social ventures with social impact, as well as for project Buddy that focuses on disadvantaged children in Slovakia. Lucia obtained her PhD in Health Policy from the LSE.

**Ian Blunt** is a Senior Research Analyst at the Nuffield Trust. He leads a range of quantitative analyses making use of large administrative datasets. Recent examples include an evaluation of an NHS integrated care pilot, a descriptive analysis of long-term trends in admissions for ambulatory care sensitive conditions and implementing a predictive risk model for emergency readmissions within 30 days. Past projects have included studies on person-based resource allocation, patient-level costing and the rising trend of emergency admissions. Before joining the Trust, Ian worked for the Healthcare Commission, developing an automated risk assessment process to help target inspections.

**Martin Bardsley** is Director of Research at the Nuffield Trust. He leads a specialist team undertaking a range of quantitative research projects, most of which aim to exploit existing information systems in the NHS. He has over 20 years' experience in health services research and analysis. Before joining the Trust he worked in healthcare regulation. He was Assistant Director at the Commission for Health Improvement before moving to the Healthcare Commission, where he led its work on new ways to use information to target regulatory activity. This included groundbreaking work on the use of multiple indicators and time series analyses for surveillance. Martin is a Fellow of the Faculty of Public Health and in the 1990s he established a London-wide resource on public health information. This work led to a number of reports on health in London, including the first Public Health Report for Greater London in 1998. Prior to that, Martin had worked on the application of outcome measurement, which formed the basis of his PhD. He was also involved in early stages of the application of Diagnostic Resource Groups in the UK – work that eventually led to Payment by Results. Martin is a member of the board of CLOSER, a project funded by the Medical Research Council on longitudinal surveys; and a member of the Peter Sowerby Commission.

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