Securing the future: funding health and social care to the 2030s

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2. What does the NHS spend its money on?

Tom Lee and George Stoye (IFS)

Key findings

Increases in health spending over the past two decades have led to a large rise in NHS inputs; however, growth has varied considerably across areas of spending in recent years.

Department of Health spending increased by 15.3% between 2011–12 and 2016–17. Spending on hospital drugs increased by 66%, while spending on primary care, prescriptions and procurement all fell.

Recent cuts to spending on primary care and community prescribing have continued a long-run trend of health spending shifting away from primary care towards hospitals.

Spending on primary care and community prescribing rose by an average of 2.8% and 2.3% respectively between 1999–2000 and 2011–12. This compares with overall spending growth of 5.5% per year over the same period.

Staff costs make up a large share of overall spending. In 2016–17, £52 billion was spent on staff costs in the Hospital and Community Health Services (HCHS) sector in England.

The HCHS sector in England has over 1,000,000 full-time equivalent (FTE) employees, including 110,000 (non-GP) doctors, 310,000 nurses, health visitors and midwives, and 630,000 other staff.

Over the past twenty years, the number of hospital doctors has increased considerably faster than the population. In contrast, increases in the number of GPs track population growth.

The number of FTE hospital doctors per 1,000 people increased by 72% between 1996 and 2016. The number of FTE GPs fell by 5% over the same period. These trends mirror the changes in spending in these areas over time.

Despite the increases in the number of doctors, the UK still employs fewer doctors per head (2.8 per 1,000 people) than all other EU countries.

In 2015, the UK had 2.8 doctors per 1,000 people. This compares with averages of 3.9 doctors per 1,000 people in the EU15, 3.3 doctors per 1,000 in France and 4.1 doctors per 1,000 in Germany.

Hospital activity has increased in England but there has been little change in other parts of the UK. In England, a much greater share of the population used inpatient services in 2015 than in 1997.

An individual at any age over 30 was more likely to have an inpatient admission in 2015 than in 1997. This was driven by increased elective admissions, except at the oldest ages (80+), when individuals have become more likely to be admitted for both elective and emergency procedures over time.

In spite of the large rise in admissions, people spend far less time in hospital on average, due to increasingly effective and specialised treatments.

In 1997, an average 65- to 74-year-old man spent 1.9 days in hospital; by 2015, this had fallen by 32% to 1.3 days.

The volume of community prescribing in the UK has increased dramatically over the history of the NHS, from 4.5 prescriptions per person in 1949 to 19.3 in 2012.

In spite of the volume of prescriptions growing by 4.3% per year in England between 2002 and 2012, the total amount spent on community prescriptions remained flat. This is due to a shift away from branded drugs towards generic ones.

The NHS has become more productive over time. The Office for National Statistics (ONS) estimates that productivity has increased at an average annual rate of 1.4% since 2009. This compares with an average growth rate of 0.8% since 1995.

However, the increase in productivity achieved since 2009 remains substantially below the 2.4% productivity rate targeted by Simon Stevens in 2013.

The NHS does more than it ever has before, and quality along many dimensions has increased substantially. However, UK health outcomes still lag behind international comparators.

Median inpatient waiting times fell by 77% between 1987 and 2010. Mortality rates across most cancers have seen large declines in the past decade, but despite this improvement, remain above the OECD average.

Recent declines in performance are relatively small by historical standards.

Public satisfaction with the NHS peaked at 70% in 2010. A drop in satisfaction to 57% in 2017 is considerable, but the satisfaction level remains higher than it was for the vast majority of the previous 30 years.

2.1 Introduction

Chapter 1 documented a considerable rise in health spending over the past 70 years, with real health spending increasing almost tenfold since the founding of the NHS. It also discussed the reasons why such spending increases have occurred, and why pressures are likely to continue into the future.

Spending increases of such magnitude raise the obvious question of ‘Where does this money go?’. In this chapter, we examine in detail how public funding for health is spent in England. We first describe the inputs that are purchased with this funding, including staffing costs and other goods and services. We then examine what the NHS produces, in terms of the quantity and quality of care provided to the UK population, and how this has changed over time.

We focus on spending by the Department of Health in England, because it accounts for the vast majority of UK health spending and because consistent data are largely available over time. Where possible, we analyse changes over time and we make comparisons with changes in activity in Scotland, Wales and Northern Ireland.

One lesson that can be drawn from this chapter is that such data are often not available. Improving the scope and comparability of these data in future would play an important role in better understanding how public money is spent on providing healthcare and how this can be improved to provide better-value services for the taxpayer.

Section 2.2 sets out how Department of Health spending in England is distributed across different areas of spending. It then describes how the number and pay of staff have changed over time, and discusses changes to spending on other inputs. Section 2.3 examines how activity has changed since 1997, focusing on how use of hospitals has changed in England and how this varies across different ages. Section 2.4 discusses what these changes mean for NHS productivity, quality and patient outcomes. Section 2.5 concludes.

2.2 Inputs

In England, the Department of Health (DH) is responsible for the vast majority of health spending.[1] In 2016–17, DH spending was £124.6 billion, or 83.5% of total UK health spending. Figure 2.1 provides a breakdown of day-to-day spending in that year.[2]

NHS provider staff costs in England accounted for £52.1 billion (39.7%) of this spending. This was the largest single area of spending, and includes wage and pension costs for all staff directly employed by the Hospital and Community Health Services (HCHS). In

1 The Department of Health accounted for 99% of health spending in England in 2016–17 (HM Treasury *Public Expenditure Statistical Analyses 2017*). The rest is accounted for by the Department for Culture, Media and Sport and the Department for Business, Innovation and Skills.

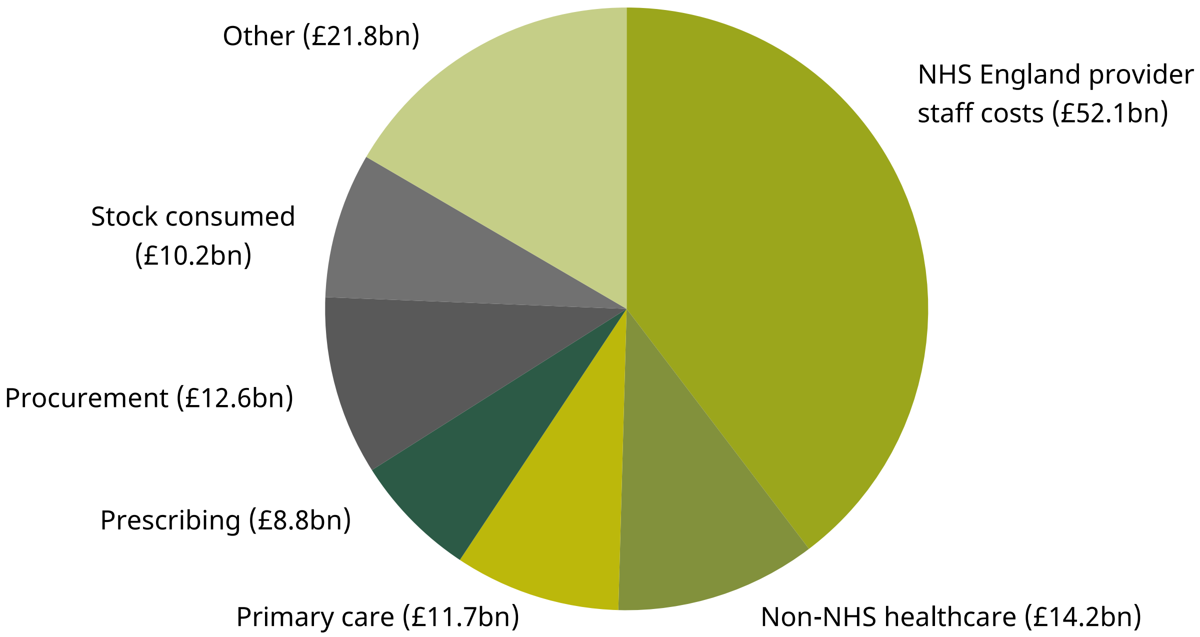
2 Figure 2.1 reports gross spending. As a result, its total is more than the net £124.6 billion figure reported above, which takes into account non-tax revenues (such as prescription fees and private patient income) and inter-department transfers.

September 2017, there were over 1 million full-time equivalent employees in the HCHS.[3] This includes 110,000 (non-GP) doctors and 310,000 nurses, health visitors and midwives. The remaining 630,000 employees consist of support to clinical staff, scientific, therapeutic and technical staff, infrastructure support and ambulance staff.

Spending on primary and secondary healthcare that is purchased from non-NHS providers amounted to £14.2 billion (10.8%). The majority of this funding goes to independent sector providers (ISPs), private sector or voluntary enterprises that carry out a range of services across community health, diagnostics and acute care.[4] While the NHS has always purchased some services from the private sector, the role of the private sector in providing routine community, diagnostics and elective (non-emergency) care was formalised and expanded in the 2000s,[5] and now accounts for a significant share of public spending on health in England.

A further £11.7 billion (8.9%) was spent on primary care. This includes general practice (£8.3 billion, 6.3%), dentistry (£2.8 billion, 2.1%) and general ophthalmic services (£0.6 billion, 0.5%) and

Figure 2.1. Breakdown of Department of Health RDEL gross expenditure in England (£131.4bn), 2016–17 (2018–19 prices)



Note: RDEL stands for revenue departmental expenditure limit.

Source: Figure 6 of *Department of Health Annual Report and Accounts 2016–17*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/629984/DH

3 NHS Hospital & Community Health Service (HCHS) monthly workforce statistics – Provisional Statistics – staff in Trusts and CCGs, NHS Digital, September 2017.

4 For more details, see British Medical Association, 'Hidden figures: private care in the English NHS', 2018, https://www.bma.org.uk/collective-voice/influence/key-negotiations/nhs-funding/privatisation-report.

5 C. Naylor and S. Gregory, 'Independent sector treatment centres', King's Fund Briefing, 2009, https://www.kingsfund.org.uk/sites/default/files/Briefing-Independent-sector-treatment-centres-ISTC-Chris-Naylor-Sarah-Gregory-Kings-Fund-October-2009.pdf.

_annual_accounts_2016_2017_web_version.pdf. GDP deflators from the Office for Budget Responsibility (OBR) in March 2018.

covers the staffing costs of 33,000 full-time-equivalent GPs[6] and 90,000 general practice staff.[7]

Spending on prescribing was £8.8 billion (6.7%). It is important to note that this expenditure only covers the cost of prescriptions made by GPs for which the government pays. As documented in detail in Chapter 4, generous exemptions from user charges mean that this covers nearly 90% of all GP prescriptions. The £8.8 billion does not include the additional private expenditure on GP prescriptions, or the public expenditure on hospital drugs (which is included in stock consumed).

Procurement spending was £12.6 billion (9.6%). This budget is used to purchase a range of goods and services, including: clinical supplies and services (£4.2 billion, 3.2%), such as medical devices, dressings and testing materials; non-clinical supplies and services (£1.2 billion, 0.9%), such as cleaning supplies, uniforms, bed linen, and external contracts for cleaning and catering; expenses for maintaining and renting premises (£2.6 billion, 2.0%); establishment (£0.9 billion, 0.7%), which covers administration expenses such as printing, stationery and telephones; transport (£0.4 billion, 0.3%); and consultancy services (£0.3 billion, 0.2%). Stock consumed accounted for £10.2 billion (7.8%); the majority of this spending is on hospital drugs (£8.6 billion, 6.5%).

The remaining £21.8 billion (16.6%) is on other expenditure. This includes grants to local authorities (£3.5 billion, 2.7%), which are used to fund public health activities. Other areas include administrative costs (£2.5 billion, 1.9%), depreciation (£3.0 billion, 2.3%), clinical negligence (£1.7 billion, 1.3%) and other costs.

This provides a fairly detailed breakdown of what the Department of Health currently spends money on. We now examine how this spending has changed over time. Figure 2.2 shows how spending on different areas of the budget has changed between 2011–12 and 2016–17. There is large variation in the changes among spending categories.

Expenditure on stock consumed was two-thirds higher in real terms in 2016–17 than in 2011–12. This rise is entirely driven by increased expenditure on drugs by hospitals. Drug issues by hospital pharmacies increased by 70%, from £5 billion in 2011–12 to £8.6 billion in 2016–17.[8] It is unclear exactly what has driven this increase as a breakdown of the data is not publicly available, although it is likely to be due to a combination of using costly new drugs and the number of prescriptions per patient increasing.[9]

‘Other’ spending increased by more than 60%. This growth in spending is composed of spending increases in a number of smaller budgetary items. It can partly be explained by changes to DH responsibilities over time: grants to local authorities for public health

6 GPs refer to practitioners excluding registrars.

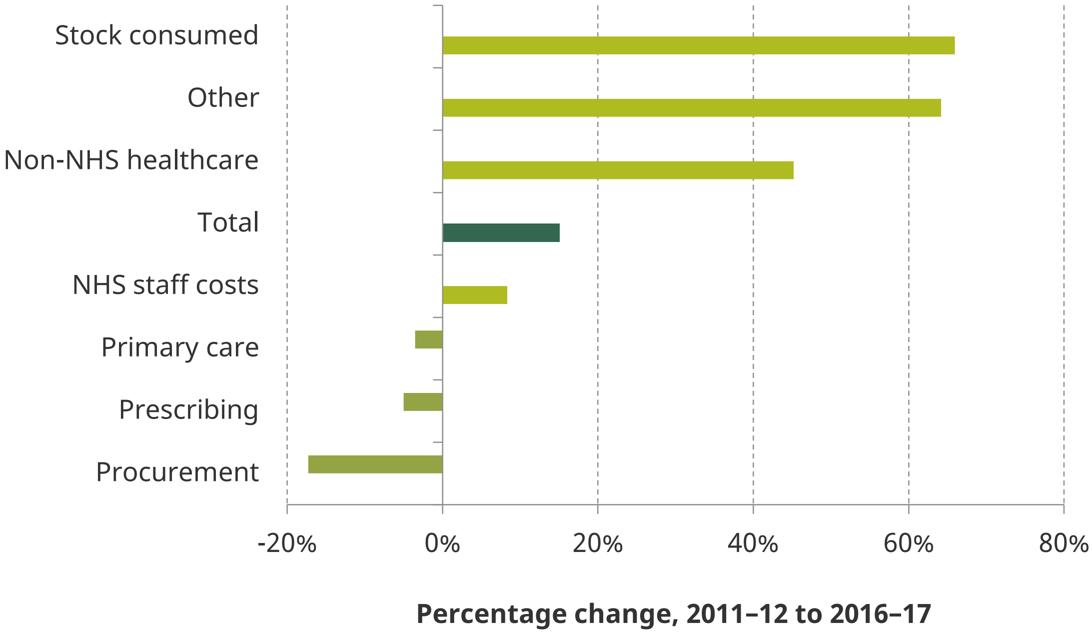
7 NHS England, ‘The Review Body on Doctors’ and Dentists’ Remuneration: NHS England’s evidence for the 2018 Review’, 2018.

8 NHS Digital, ‘Prescribing costs in hospitals and the community, England 2016/17’, 2017.

9 L. Ewbank, K. Sullivan, H. McKenna and D. Omojomolo, ‘The rising cost of medicines to the NHS: what’s the story?’, King’s Fund, 2018, https://www.kingsfund.org.uk/publications/rising-cost-medicines-nhs.

activities, which totalled £3.5 billion in 2016–17, were not part of DH expenditure in 2011–12. There has also been strong growth in spending on clinical negligence, which increased

Figure 2.2. Change in Department of Health expenditure by spending category in England, 2011–12 to 2016–17 (2018–19 prices)



Source: Authors' calculations from *Department of Health Annual Report and Accounts 2011–12* (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/212977/23735_HC-66-DoH.pdf) and *Department of Health Annual Report and Accounts 2016–17* (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/629984/DH_annual_accounts_2016_2017_web_version.pdf), using GDP deflators from the OBR in March 2018.

by 70% over the period. Non-NHS healthcare was 45% higher in 2016–17 as use of the independent sector increased.

NHS staff costs, the largest area of expenditure, grew by 8% over the five-year period. This increase is roughly in line with the increase in overall public spending on health, which rose by 10% from 2011–12 to 2016–17.

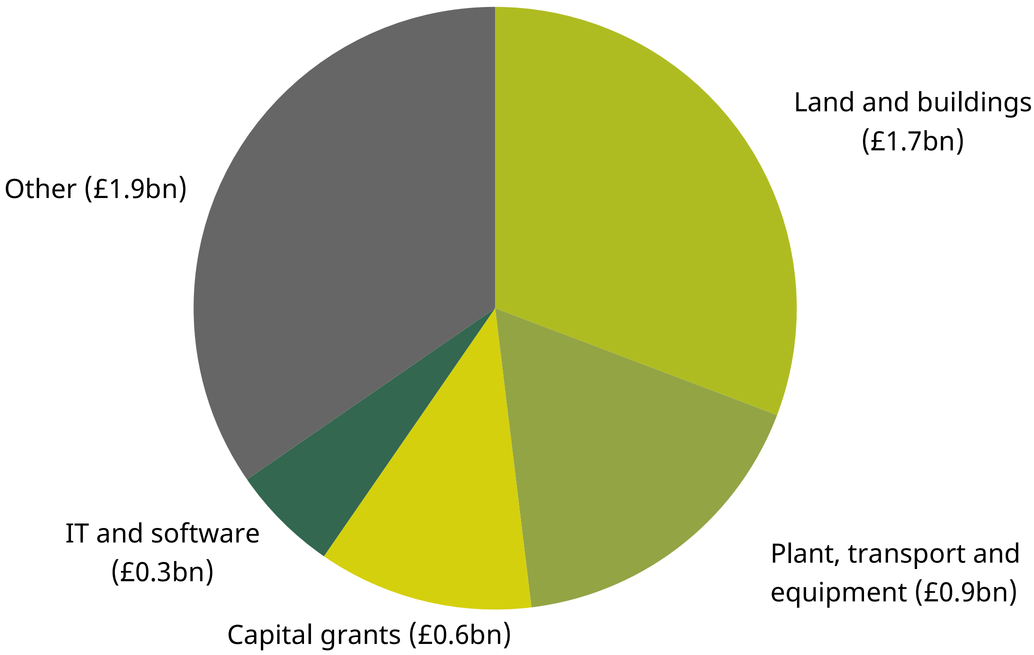
Other areas of expenditure experienced real cuts in spending. Primary care expenditure fell by 4%, whilst spending on community prescriptions decreased by 5%. This indicates that over the past five years there has been a shift in spending away from primary to secondary care. Spending on procurement also fell, by 17%. This is largely due to an NHS efficiency drive to reduce unnecessary procurement expenditures.[10]

It is also possible to make some limited comparisons with spending further back in time. Between 1999–2000 and 2011–12, spending on primary care and prescribing rose by 2.8% and 2.3% a year respectively. This spending growth is considerably below the average increase in health spending over this period (5.5%). In comparison, real expenditure on items other than primary care and community prescribing rose at an average annual rate

[10] NHS England, *Better Procurement Better Value Better Care*, 2013.

of 6.3% over the same period. As a consequence of this, the share of total expenditure spent on primary care and prescribing has fallen considerably over time.

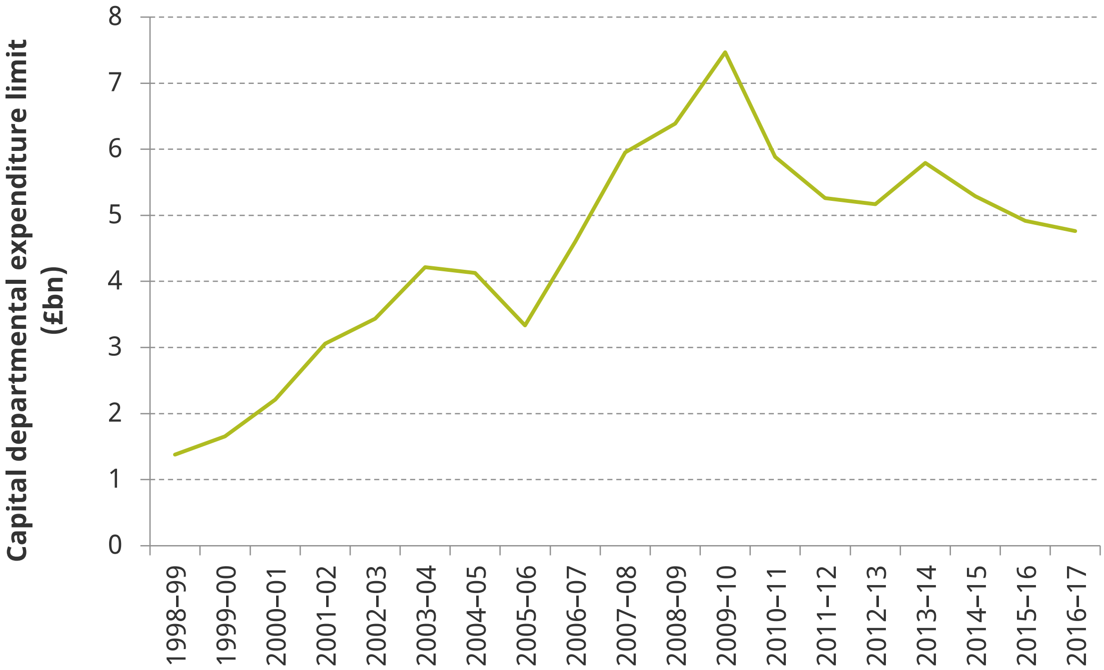
Figure 2.3. Breakdown of Department of Health CDEL gross expenditure in England (£5.4bn), 2016–17 (2018–19 prices)



Note: CDEL stands for capital departmental expenditure limit.

Source: Figure 5 of *Department of Health Annual Report and Accounts 2016–17*, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/629984/DH_annual_accounts_2016_2017_web_version.pdf. GDP deflators from the Office for Budget Responsibility (OBR) in March 2018.

Figure 2.4. CDEL gross expenditure in England, 1998–99 to 2016–17 (2018–19 prices)



Source: Authors' calculations from various Public Expenditure Statistical Analyses (PESAs). The value for 2016–17 does not match with Figure 2.3 as adjustments were made to account for piecing together spending figures from multiple years.

In addition to day-to-day spending, the Department of Health also has capital spending, which is investment spending on the assets used by the health service to provide care, including hospitals and machines. In 2016–17, CDEL gross expenditure was £5.4 billion (3.9% of total expenditure) broken down as shown in Figure 2.3. Figure 2.4 shows that this is over three times as much as in 1998–99 but has fallen since 2009–10 as austerity has led to less capital expenditure.

Reductions in capital spending were not all pre-planned: shortfalls in current expenditure have persistently led to transfers from long-term capital expenditure towards day-to-day spending.[11] As a result, concerns have been raised over investment levels in the NHS. The 2017 Naylor Review estimated that the NHS requires additional capital expenditure of £10 billion in order to deliver its Sustainability and Transformation Plans, a sum which the review claims could be raised through a mixture of additional public spending, asset sales and private investment.[12]

We now examine how key inputs have changed over time. Given the importance of labour in providing healthcare, we first examine trends in the size and composition of the workforce before examining other inputs.

How has the NHS workforce changed over time?

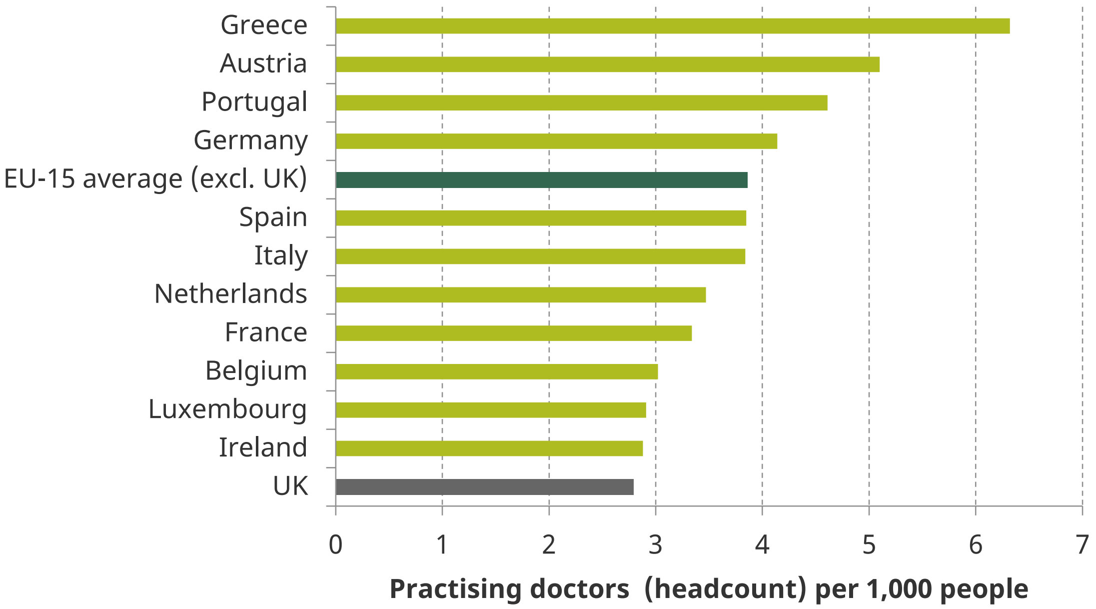
Employment

Figure 2.1 clearly demonstrated that staffing is a substantial part of overall spending on health. Doctors are an obviously important component of the medical workforce. Figure

[11] https://www.health.org.uk/chart-nhs-capital-spending-falls-third-year-row.

[12] R. Naylor, *NHS Property and Estates: Why the Estate Matters for Patients*, 2017, https://www.gov.uk/government/publications/nhs-property-and-estates-naylor-review.

Figure 2.5. Practising doctors (headcount) per 1,000 people for EU15 countries, 2015



Source: OECD Health Statistics. Denmark, Finland and Sweden are excluded due to missing data.

2.5 shows how the number of practising doctors (headcount) per 1,000 people varies across EU15 countries in 2015. The UK has fewer doctors for its population size than other European countries, at 2.8 doctors per 1,000 people. This is 28% lower than the EU15 average of 3.9, despite the UK spending an average share of national income on health (see Figure 1.7 in Chapter 1). Overall, it appears that there is no relationship between total spending and the number of practising doctors. France spends a relatively high amount (11.0%) and has relatively few doctors (3.3) per 1,000 people, whilst Germany spends 11.3% of national income and has an above-average number of doctors (4.1) per 1,000 people.

Over the past 20 years, the number of doctors has grown faster than the population across most developed countries. In the UK, the number of practising doctors per person rose by 66% from 1993 to 2015. This is equivalent to an average increase of 2.3% doctors per person per year. Similarly, the EU15 average increased from 2.7 to 3.9 doctors per 1,000 people over the period, an average increase of 1.7% per year. So, although the UK remains below the average doctor–person ratio for the EU15 countries, the gap is smaller than it was 25 years ago.

Importantly, the above analysis does not distinguish between different types of doctors (e.g. GPs and hospital doctors). Neither does it account for the degree to which doctors work less than full-time, which can lead to misleading conclusions. For instance, in England from 1996 to 2016, the headcount of GPs per 1,000 people increased by 10%, whereas the number of full-time-equivalent (FTE) GPs fell by 5%.[13] Ideally, we would like to be able to compare the number of FTE doctors per 1,000 people internationally; unfortunately, a lack of internationally comparable data prevents this analysis.

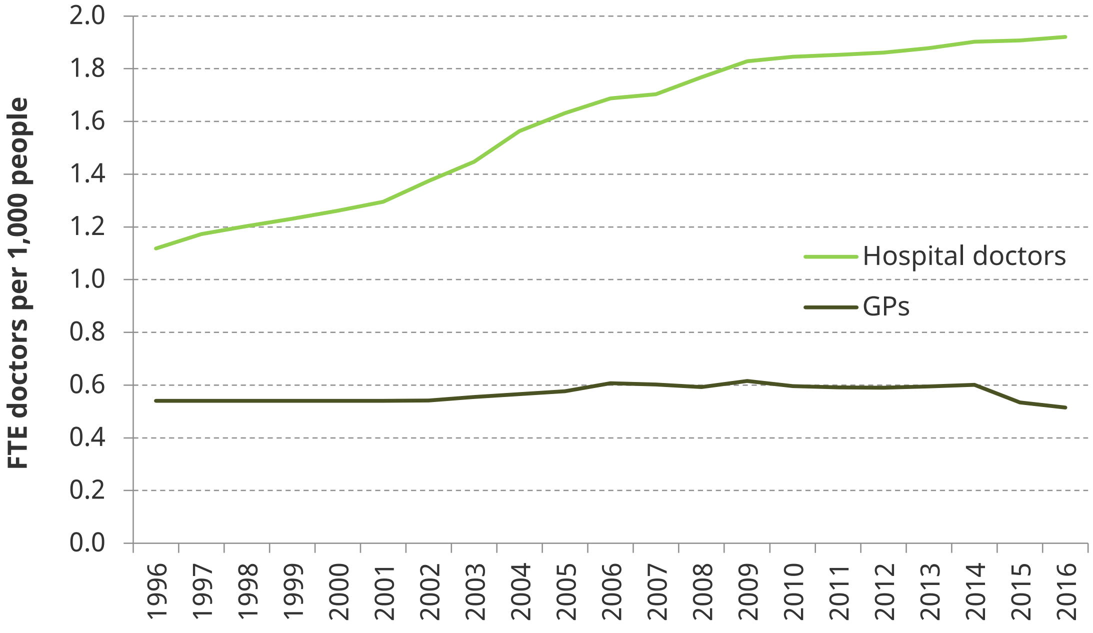
[13] See Figure 2.6 for source.

Within England, we can distinguish between GP and hospital doctors, and adjust for the proportion of doctors that work part-time. Figure 2.6 shows the number of FTE hospital doctors and GPs per 1,000 people in each year between 1996 and 2016. The number of FTE hospital doctors per 1,000 people has risen by 72% since 1996, an average annual growth rate of 2.7%. In contrast, the number of FTE GPs per 1,000 people has stayed remarkably flat.

The different trends for hospital and GP doctors in part reflect the differences in spending growth between primary and secondary care observed in Section 2.2. Between 1999–2000 and 2011–12, real spending on primary care rose by an average of 2.8% a year, whilst the number of FTE GPs per 1,000 people increased at an annualised rate of 0.7%. Since 2011–12, the amount spent on primary care has fallen in real terms by 0.7% a year. Over the same period, the number of FTE GPs per 1,000 people fell at a rate of 2.7% a year. On the other hand, the large increase in non-primary care spending during the 2000s was accompanied by a large expansion in the number of hospital doctors. Since 2011–12, there has been a levelling-off in the number of hospital doctors, corresponding to a period when NHS funding grew at a more modest pace.

The NHS workforce includes many other staff in addition to doctors. In 2017, there were 300,000 FTE nurses, midwives and health visitors employed in the Hospital and Community Health Services sector in England alone (or 29% of the total HCHS workforce). Figure 2.7 shows how the number of FTE nurses, midwives and health visitors per 1,000 people has

Figure 2.6. FTE doctors per 1,000 people in England

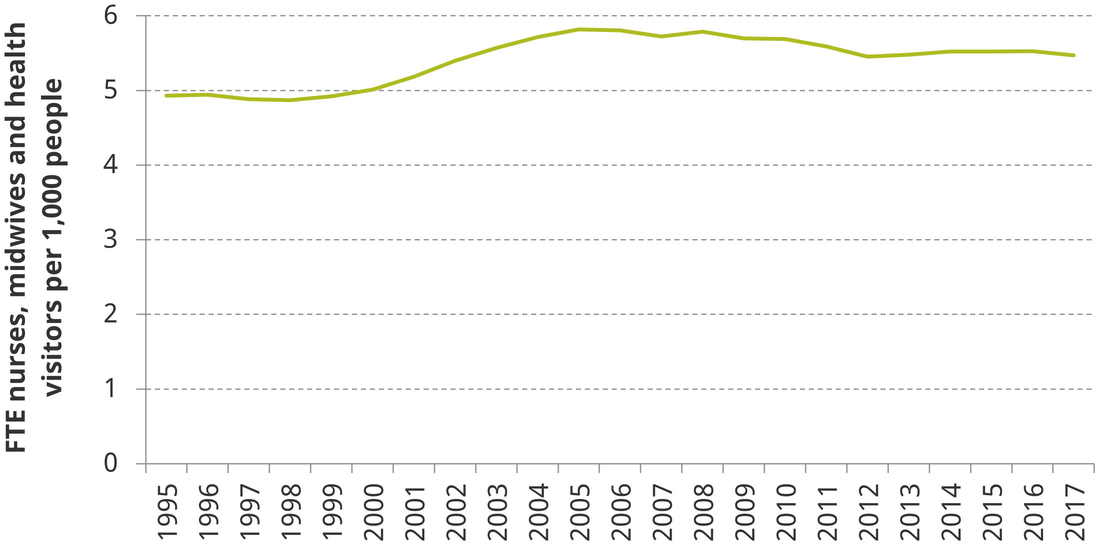


Note: Hospital doctors figure refers to the number as at 30 September of each specified year. GPs refer to practitioners excluding registrars, retainers and locums.

Source:
GPs – National Audit Office, NHS Pay Modernisation: New Contracts for General Practice Services in England, 2008; NHS Digital, General and Personal Medical Services in England, Bulletin Tables 2006–2016, 2017.
Hospital doctors – NHS Hospital and Community Health Services (HCHS): Staff in NHS Trusts, SHAs, PCTs, Support Organisations and Central Bodies in England. NHS Digital, NHS Hospital & Community Health Service (HCHS)

monthly workforce statistics, 2018.
Population figures come from ONS.

Figure 2.7. FTE nurses, midwives and health visitors per 1,000 people in England



Source: NHS Hospital and Community Health Services (HCHS): Staff in NHS Trusts, SHAs, PCTs, Support Organisations and Central Bodies in England by Strategic Health Authority area and main staff groups. NHS Hospital & Community Health Service (HCHS) monthly workforce statistics – Provisional Statistics – staff in Trusts and CCGs. Population figures come from ONS. The series refers to the number as of September for any given year. 2017 population estimate imputed from previous years.

evolved since 1995. There was a sharp increase in the early 2000s, but since 2005 there has been a decline in the number of these staff relative to the population, falling from 5.8 per 1,000 people to 5.5 in 2012, as the number of FTE nurses, midwives and health visitors has stayed constant while the population has continued to grow. Since 2012, staff increases have matched population growth.

International comparisons using OECD statistics also suggest that the UK employs substantially fewer nurses (a headcount of 7.9 nurses per 1,000 people) than the EU15 average (10.2 nurses per 1,000 people[14]), although there are some inconsistencies in the definition of a ‘nurse’ across countries and the data do not account for the number of nurses who work part-time in each country.[15]

In addition to doctors and nurses, the HCHS alone has 630,000 FTE other employees, consisting of support to clinical staff, scientific, therapeutic and technical staff, infrastructure support and ambulance staff. The size of this other workforce per 1,000 people increased by 23% from 1996 to 2016.[16] Figure 2.8 shows how this compares with growth in the number of hospital doctors (72%), nurses, midwives and health visitors (12%) and GPs (–5%). Given the stronger growth in the numbers of doctors during this

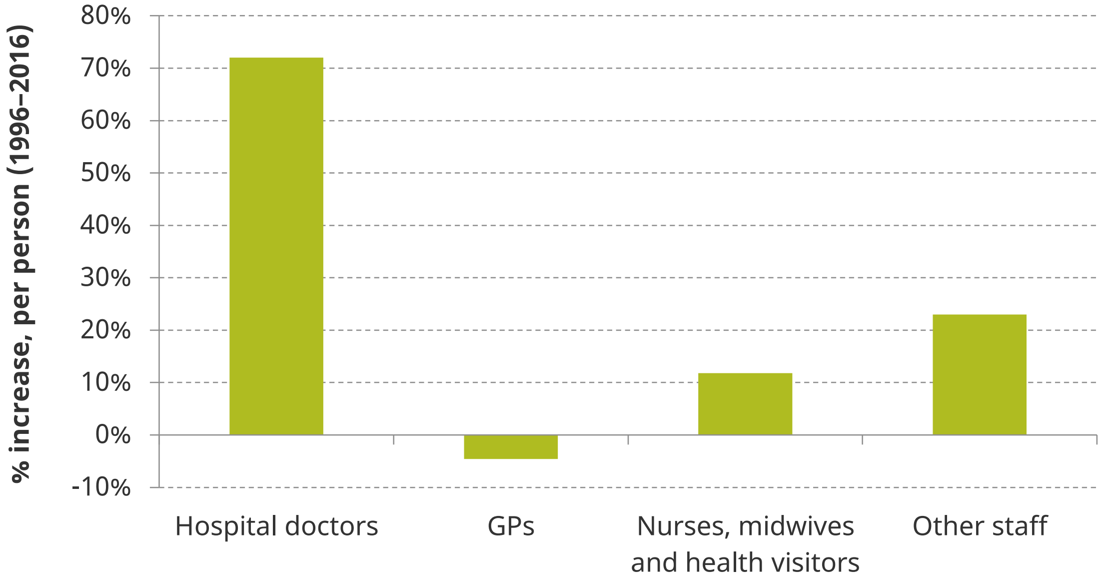
14 Using latest year available from https://data.oecd.org/healthres/nurses.htm.

15 OECD Health Statistics.

16 NHS Hospital and Community Health Services (HCHS): Staff in NHS Trusts, SHAs, PCTs, Support Organisations and Central Bodies in England by Strategic Health Authority area and main staff groups. NHS Hospital & Community Health Service (HCHS) monthly workforce statistics – Provisional Statistics – staff in Trusts and CCGs. Population figures come from ONS.

period, the composition of the NHS workforce has shifted towards hospital doctors over the past 20 years. In 1996 there were 4.4 FTE nurses, midwives and health visitors for every hospital doctor in England. By 2016, this figure had fallen by over a third to 2.9. This is higher than the OECD average of 2.5, suggesting that the NHS employs a higher skill mix than other OECD countries.

Figure 2.8. Changes in size of different NHS staff groups per population, 1996 to 2016



Source: See Figures 2.6 and 2.7.

While these increases in staff are large, it is worth noting that NHS spending more than doubled over this period. In 1996–97, public spending on health was £1,096 per head. By 2016–17, this had grown to £2,273, a 107% increase. Therefore, even for hospital doctors (the fastest-growing staff group), the growth rate in the number of FTE employees is below the overall rise in spending.

Pay

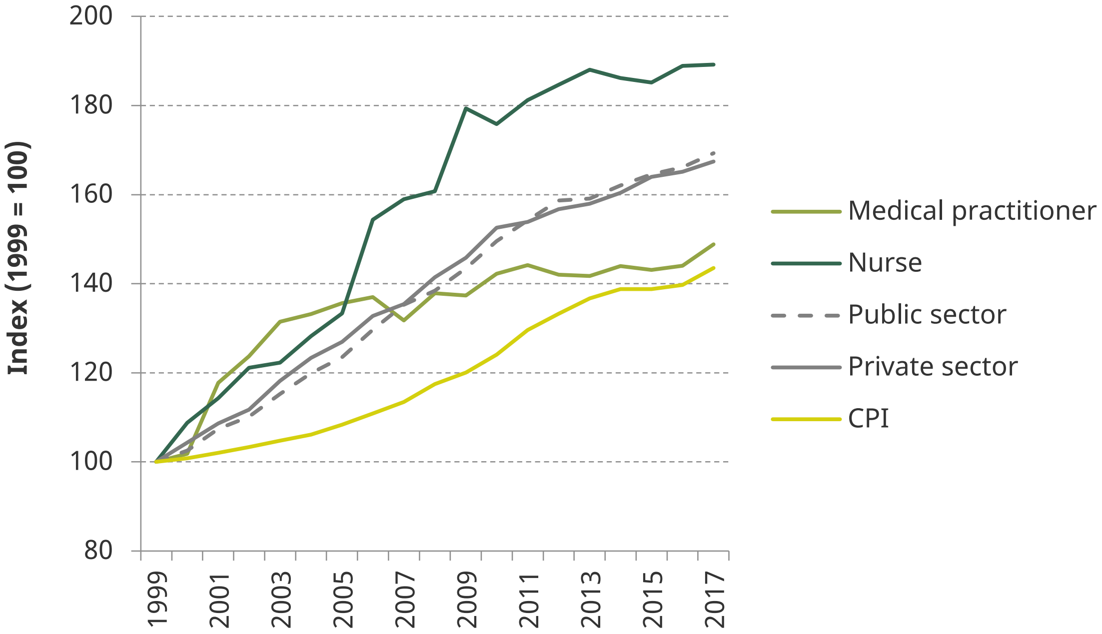
However, the cost of employing a doctor and other types of staff has also increased over time. Understanding how NHS pay has evolved (particularly in comparison with other professions) is important in studying how staff costs have changed.

Figure 2.9 shows how median gross weekly earnings for medical practitioners (doctors) and nurses have changed since 1999. Pay for doctors increased by an annual average of 2.2% between 1999 and 2017. Over the same period, nurses' earnings increased by 3.6% per year. This compares with annual growth in median pay of 3.0% in the public sector and 2.9% in the private sector and with an inflation rate (as measured by the Consumer Prices Index, CPI) of 2.0%. This means that pay for both doctors and nurses increased in real terms over this entire period, and nurses' pay has improved relative to wider earnings.

However, these figures disguise variation in pay growth for all groups across two distinct periods. Pay for doctors and nurses increased much faster before 2010 than after. Average annual increases in median earnings were 3.3% and 5.3% for doctors and nurses respectively between 1999 and 2010, compared with an average CPI inflation rate of 2.0%.

Pay increases subsequently have been below the rate of inflation (2.1%): 0.6% p.a. and 1.1% p.a. for doctors and nurses respectively.

Figure 2.9. CPI and pay inflation by occupation or sector



Note: All pay figures are median gross weekly earnings for full-time employees. All figures are relative to their 1999 level (1999=100). Medical practitioners and nurses are identified by SOC occupation codes, and include both public and private employees.

Source: Authors' calculations using data from the Annual Survey of Hours and Earnings (ASHE), 1999–2017.

Table 2.1. Median percentile of major public sector occupations in the overall hourly pay distribution

Occupation	Median percentile in hourly pay distribution in: 1980	1990	2000	2010	Median hours of work per week (2010)
Doctors	95	95	95	96	40.0
Nurses	48	67	72	75	37.5
Other NHS	65	71	74	78	37.5
Non-NHS public sector	55	48	47	46	36.9

Source: J. Cribb, C. Emmerson and L. Sibieta, *Public Sector Pay in the UK*, IFS Report R97, 2014, https://www.ifs.org.uk/publications/7395.

These figures show that the cost of employing both doctors and nurses has increased in real terms since 1999. However, doctors' earnings have increased at a slower rate than economy-wide earnings, while nurses' earnings have significantly improved. Changes in the average earnings of nurses (and other NHS staff) are reflected in Table 2.1, which shows how the position of different NHS occupations in the hourly median earnings distribution has changed over time.

There is substantial variation in how the average position of different occupations has evolved over time. The average position of doctors has remained consistently high, whilst there has been a striking increase in the ranking of nurses. In 1980, the average nurse was paid below the median wage. Nurses' ranking rose substantially in the 1980s from the 48th percentile in 1980 to the 67th percentile in 1990 and has risen further since, reaching the 75th percentile by 2010. This likely reflects changes in the educational and training requirements of nurses, and the subsequent change in composition of skills in this profession over time.[17] As nurses are more skilled, they are more productive and therefore demand a higher wage.

The average position of other NHS jobs has also risen over time, whilst the median public administration wage has fallen down the overall wage distribution. This suggests that increases in NHS spending during the 2000s went towards funding not only a larger workforce, but one that receives higher pay relative to the rest of the workforce.

It is difficult to compare healthcare sector pay internationally as there are likely to be differences in a variety of factors such as hours worked, productivity and job requirements. The OECD estimates that in 2014, UK specialist doctors (through their NHS work only) earned 3.4 times the mean wage, slightly higher than the EU15 average of 3.0.[18] In the same year, UK nurses earned approximately the mean wage, slightly lower than the EU15 average, where nurses earned 14% more.[19]

How have non-labour inputs changed over time?

It is not just workforce where there has been a change in healthcare inputs over time. Changes in medical technology and in working practices have changed the way that patients are treated and the range of conditions that the NHS is able to treat.

One identifiable area where there has been a large increase over time is the amount spent on drugs. Figure 2.10 shows how the total cost of NHS prescriptions dispensed in the community (as opposed to hospitals) across the UK has risen over the past 70 years. In 2012, the total cost of community prescriptions per person was £212, over ten times higher than in 1949. This is due to the development of new drugs, enabling the NHS to treat a far greater range of conditions than was possible 70 years ago. Interestingly, however, the large increases in prescription spending actually predate the strong growth in health spending in the 2000s, with prescription spending levelling off after 2004. A key reason for this is that, in recent times, there has been a shift away from branded drugs to generic ones as patents have expired.[20] This trend is discussed further in Section 1.3.

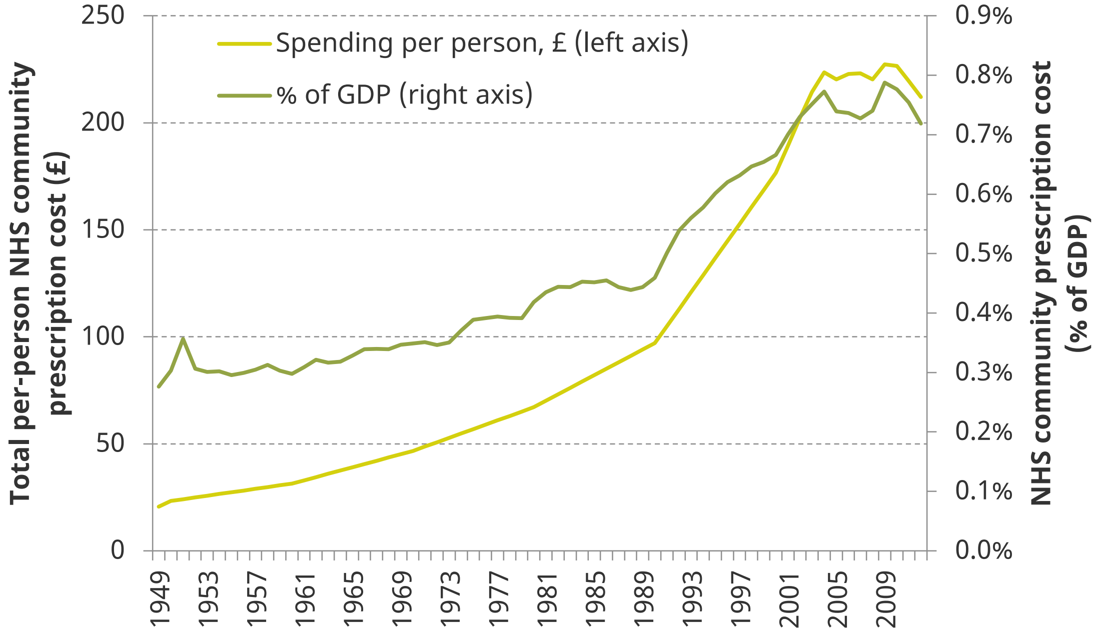
[17] In 1983, the United Kingdom Central Council for Nursing, Midwifery and Health Visiting set up a new professional register with four branches. This was followed in 1986 by Project 2000, which set out the move to diploma-level nurse training in colleges/universities

[18] OECD Health Statistics.

[19] As the earnings distribution is positively skewed, the mean wage is greater than the median wage. This explains why nurses can be at the 75th percentile in the wage distribution and still be at the mean wage. In addition, Table 2.1 uses the hourly pay distribution, whereas the OECD mean wage is based on annual salaries.

[20] E. Hawe and L. Cockcroft, *OHE Guide to UK Health and Health Care Statistics*, 2nd edition, Office of Health Economics, 2013.

Figure 2.10. Cost of NHS prescriptions dispensed in the community, UK (2018–19 prices)



Source: E. Hawe and L. Cockcroft, *OHE Guide to UK Health and Health Care Statistics*, 2nd edition, Office of Health Economics, 2013. OBR Economic and Fiscal Outlook March 2018.

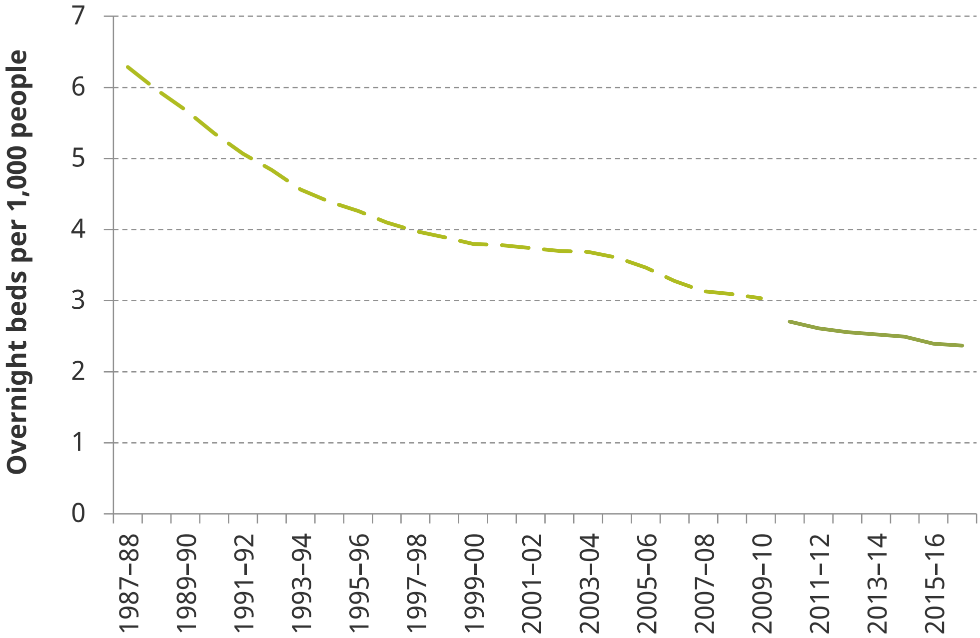
As mentioned earlier, less is known about hospital drug spending. From 2011–12 to 2016–17, the estimated cost (at list price) of prescriptions from hospital pharmacies rose by 70%. This is likely due to a combination of new, costly drugs and increases in the volume of prescriptions per patient.

In addition to new drugs, other technology advances have changed the way in which the NHS treats patients over the past 70 years. For example, advances in scanning technology have led to vast improvements in diagnosing particular conditions. Figure 2.11 shows how

Figure 2.11. CT scanners and MRI units per 1,000,000 people, UK

Source: OECD Health Statistics, 2015.

Figure 2.12. Overnight beds per 1,000 people in NHS hospitals, England



Source: Department of Health, 'Average daily number of available beds, by sector, England, 1987–88 to 2009–10'. NHS England, 'Average daily available and occupied beds timeseries, Q1 2010/11 to Q3 2017/18'. There is a series break in 2010–11 when the new time series is used. Population figures come from the ONS.

the numbers of two specific pieces of medical equipment – computed tomography (CT) scanners and magnetic resonance imaging (MRI) units – have changed since 2000. In 2014, the UK had 9.5 CT scanners and 7.2 MRI units per 1,000,000 people, considerably lower than the EU15 average of 24.1 and 17.2 per 1,000,000 people respectively. For most of the 2000s, when spending was growing at its fastest rate, the numbers of CT scanners and MRI units per capita were fairly constant. It is only since 2008 that there has been a rise in these medical technologies.

Another key non-labour input is the number of beds. Figure 2.12 shows that in 2016–17 the NHS had 2.4 beds per 1,000 people, less than half of the 6.3 beds per 1,000 it had in 1987–88. Although this large fall may give the impression that the NHS is providing less over time, as Section 2.3 shows, medical advances mean that people spend far less time in hospital nowadays. The occupancy rate has been fairly stable over time, at around 85%.[21]

2.3 Outputs

Inputs have increased, but what does this mean for the healthcare services provided by the NHS? In this section, we focus on how NHS activity has evolved, before looking in Section 2.4 at how this change in activity has affected patient outcomes. NHS activity covers all services provided to the general population by the NHS, including care received in hospitals, GP practices and community settings.

[21] E. Hawe and L. Cockcroft, *OHE Guide to UK Health and Health Care Statistics*, 2nd edition, Office of Health Economics, 2013.

Hospital activity

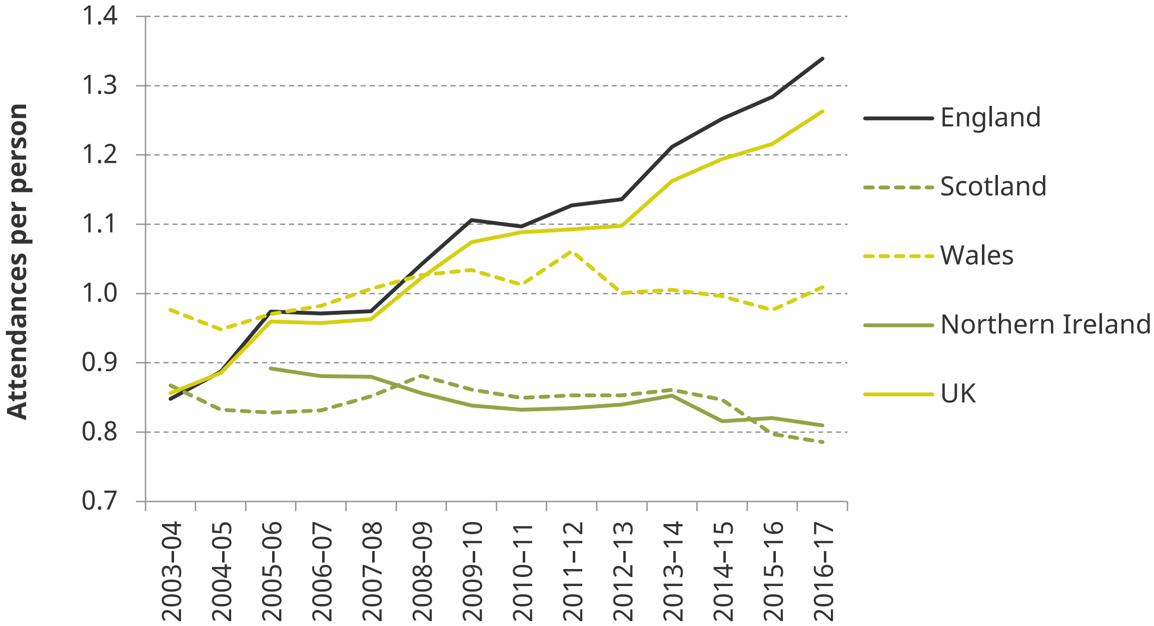
We saw earlier that spending on hospital and community health is a large and increasing share of total NHS expenditure. Hospital care is typically provided in either an outpatient or inpatient setting. Outpatient attendances include appointments with hospital consultants, as well as non-surgical treatments and diagnostic tests. Inpatient admissions include all hospital stays (day cases and overnight stays), and often involve a procedure. As a result, these visits are typically more resource-intensive than outpatient activity.

Figure 2.13 shows how consultant-led outpatient attendances per person evolved in England between 2003–04 and 2016–17. In 2003–04, there were 0.85 attendances per person. By 2016–17, this had increased by 57.9% to 1.34, an average annual increase of 3.6%.

The figure also shows how per-person outpatient appointments varied across other parts of the UK. The UK line tracks the pattern seen in England, growing by 3.0% per year on average. In contrast, activity was flat (or even declining) in other areas: attendances grew by 0.3% per year in Wales and fell by 0.8% and 0.9% (since 2005–06) per year in Scotland and Northern Ireland respectively. As a result, the annual number of outpatient appointments per person in England was 65–70% higher than that in Scotland and Northern Ireland in 2016–17.

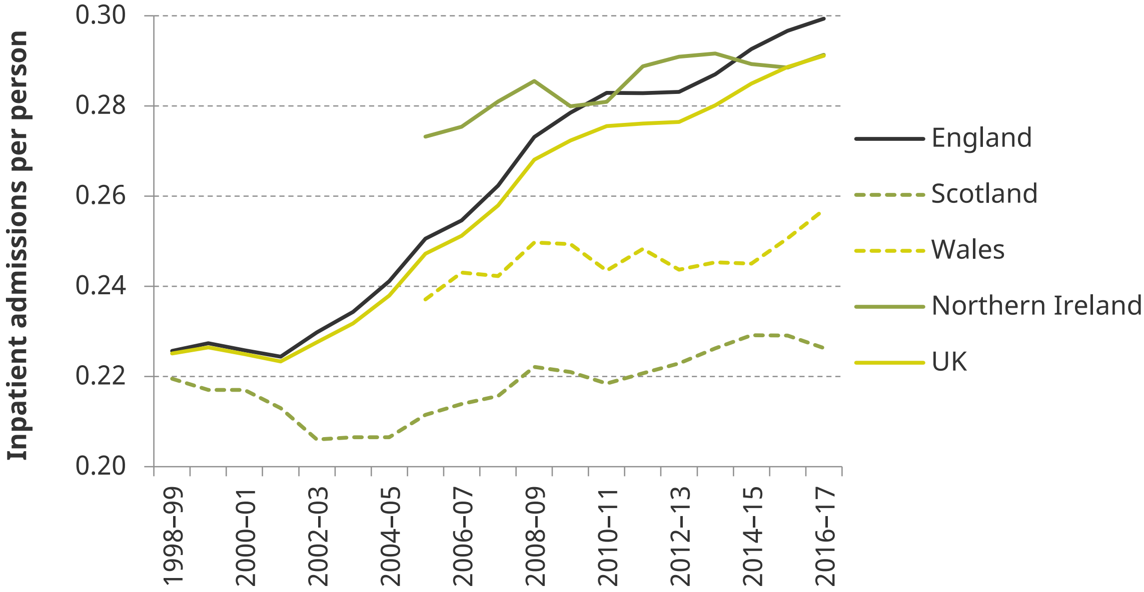
Figure 2.14 shows similar trends for inpatient admissions: between 1998–99 and 2016–17, inpatient admissions per person rose by 33% in England. Growth in admissions across the UK is entirely driven by England, with little growth in activity in the other parts of the UK.

Figure 2.13. Consultant-led outpatient attendances per person in England, Scotland, Wales and Northern Ireland



Source: Authors' calculations based on data from various sources. England – NHS Digital, 'Hospital episode statistics'. Scotland – ISD Scotland, 'Annual trends in outpatient consultant-led activity, 2007/08 – Jun-17p'; ISD Scotland, 'R044: specialty group costs: consultant outpatients'. Wales – StatsWales, 'Outpatient activity'. Northern Ireland – IAD, 'Consultant led outpatient services'. Population figures come from the ONS. In 2003–04 and 2004–05, UK refers to England, Scotland and Wales as data are not available for Northern Ireland.

Figure 2.14. Inpatient admissions per person in England, Scotland, Wales and Northern Ireland,1998 to 2017



Source: Authors' calculations based on data from various sources. England – NHS Digital, 'Hospital episode statistics. Scotland – ISD Scotland, 'Summary inpatient/day case activity by NHS Board of residence, 2007/08 – Jun-17p'; Audit Scotland 'Overview of Scotland's health and NHS performance in 2006/07'. Wales – PEDW, 'NHS hospital in-patients – all Welsh providers: headline figures. Northern Ireland – IAD, 'Acute episode-based activity statistics'. Population figures come from the ONS. For 1998–99 to 2004–05 inclusive, UK refers to England, Scotland and Wales as data are not available for Northern Ireland.

Table 2.2. Inpatient admissions by age group in England

Age group	1997 admissions	2015 admissions	Change (%)
0–19	1,745,463	2,210,881	27%
20–44	2,956,642	3,859,014	31%
45–64	2,074,208	4,203,964	103%
65–74	1,322,828	2,815,494	113%
75+	1,574,102	3,562,932	126%

Source: Authors' calculations based on data from NHS Digital, 'Hospital episode statistics'.

It is perhaps surprising that consultant-led outpatient attendances and inpatient admissions have risen only in England when we consider spending increases over the period. Figure 1.6 in Chapter 1 showed that per-person spending increased considerably in all parts of the UK. From 1998–99 to 2015–16, real per-person spending increased by 97% in England, 72% in Scotland, 68% in Wales and 57% in Northern Ireland. This means that the large increases in spending have not been met with corresponding growth in admissions everywhere in the UK. Only England, where the largest spending increases occurred, has seen a sustained rise in attendances and admissions per person.

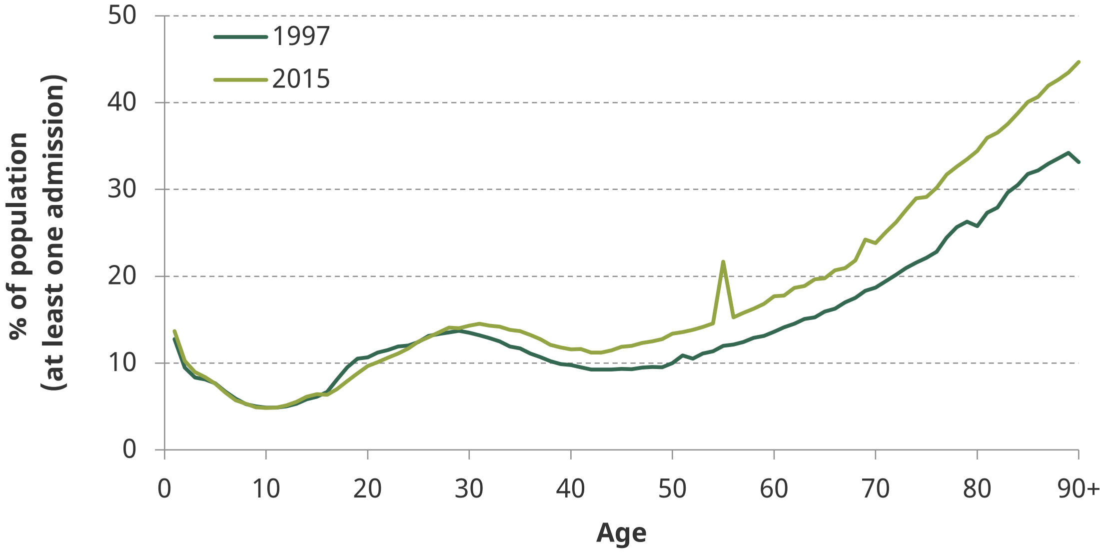
Hospital activity has increased substantially over time in England, particularly at older ages. Table 2.2 shows how admissions have changed for different age groups in England between 1997 and 2015. The number of admissions has more than doubled for individuals aged 45 and over, whilst growing by less than 30% for people under 45.

Differences in activity growth rates by age can be explained by three factors. First, as life expectancy has increased, the size of the older population has grown at a quicker rate than the size of the younger population since 1997. We would therefore expect larger increases in demand among the older population due to compositional changes.

Second, the probability of attending hospital in a given year has increased over time, but at a quicker rate for older individuals. Figure 2.15 shows the share of the English population at each age who had at least one inpatient admission in 1997 and 2015. In both years, the broad profile by age remains the same: the probability of attending hospital as an inpatient increases with age, with a rise and fall between ages 20 and 40 due to the use of maternity services by women in this age group. However, the share of the population attending hospital has increased at every age beyond 30 between 1997 and 2015. In 1997, 16% of all 65-year-olds had at least one inpatient admission. By 2015, this figure had risen to 20%. The large spike at age 55 in 2015 is due to the introduction of bowel scope screening as a precautionary measure for people of this age, leading to an inpatient admission for otherwise healthy individuals.

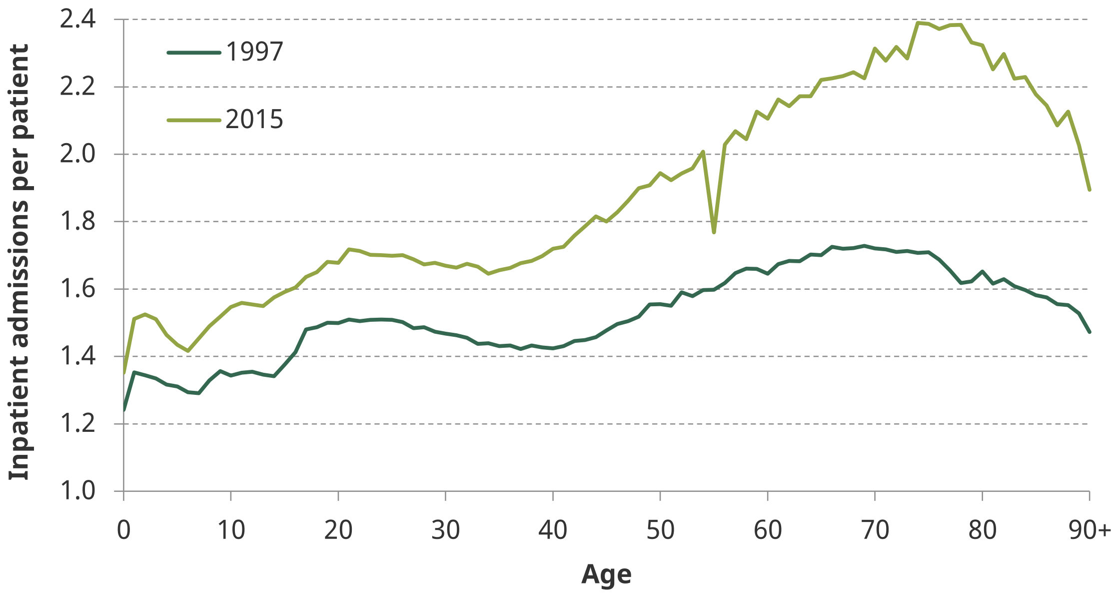
Third, in addition to the increased probability of being admitted at least once as an inpatient, the number of admissions among patients has also increased. Figure 2.16 shows how the number of inpatient admissions per patient for any given age has changed between 1997 and 2015. Even among patients (conditioning on having at least one inpatient visit), the number of admissions increases generally with age, until declining at ages above 80. For all ages, the number of inpatient admissions per patient has increased, and this gap also increases with age. As a result, older individuals have become both increasingly more likely to use inpatient services and more frequent users during this period. Again, the impact of the bowel screening programme can be seen at age 55, where a rise in the number of otherwise healthy patients reduces the average number of inpatient attendances for patients of that age in 2015.

Figure 2.15. Percentage of population (England) by age who had at least one inpatient admission (age 0 omitted)



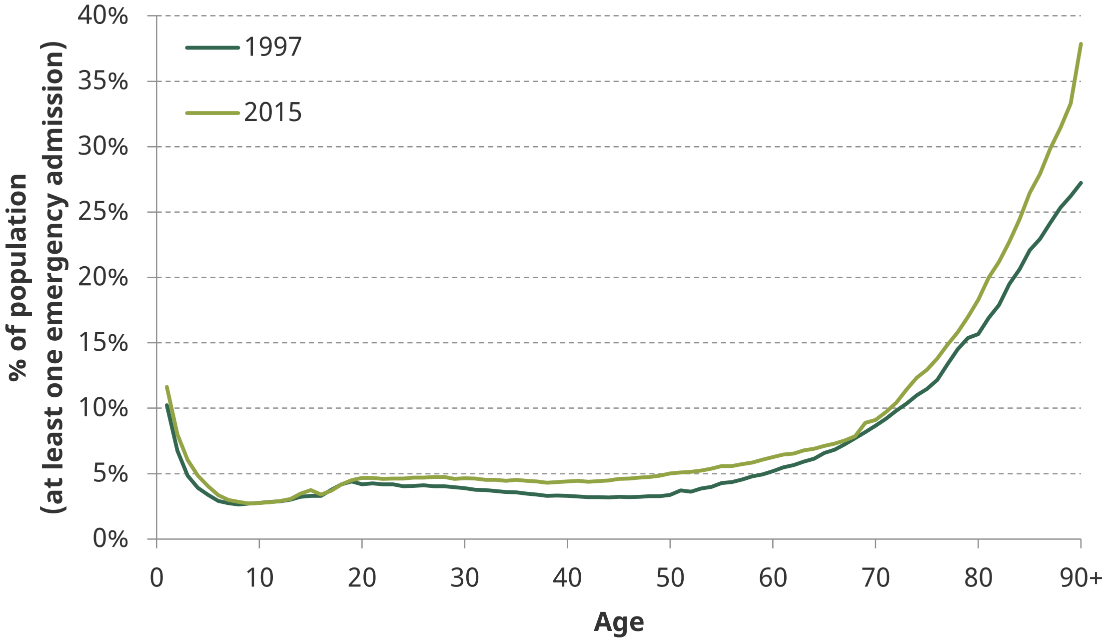
Source: Authors' calculations based on data from NHS Digital, 'Hospital episode statistics'. Population figures come from the ONS.

Figure 2.16. Number of inpatient admissions per patient (England) by age



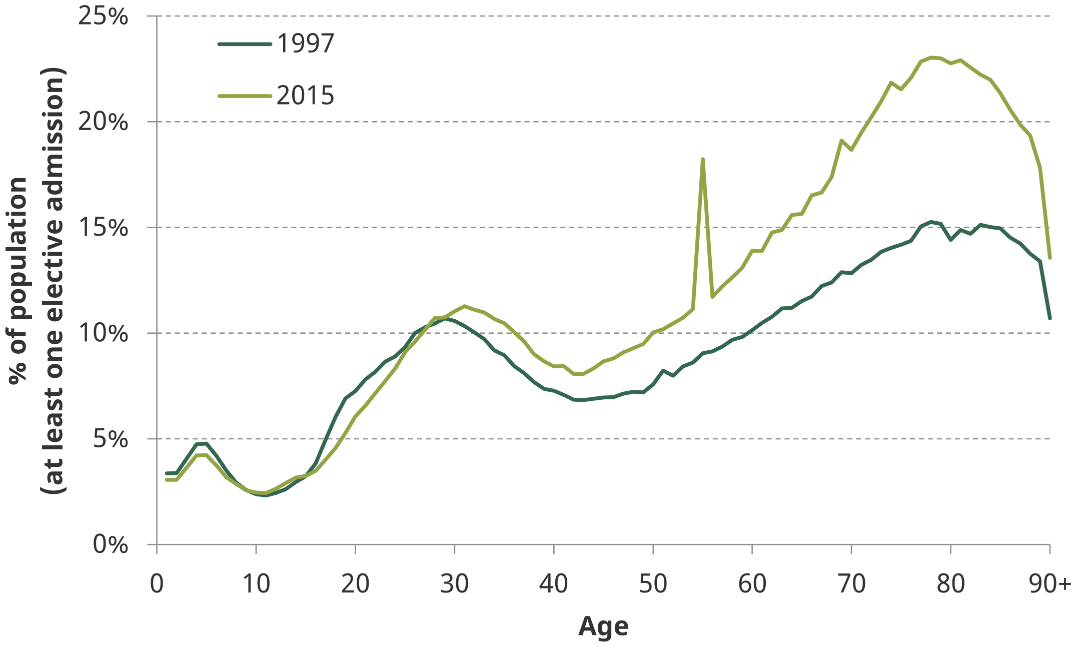
Source: Authors' calculations based on data from NHS Digital, 'Hospital episode statistics'. Population figures come from the ONS.

Figure 2.17. Percentage of population (England) by age who had at least one emergency inpatient admission (age 0 omitted)



Source: Authors' calculations based on data from NHS Digital, 'Hospital episode statistics'. Population figures come from the ONS. Emergency admissions defined by admission entry codes.

Figure 2.18. Percentage of population (England) by age who had at least one elective inpatient admission in 1997 and 2015 (age 0 omitted)



Source: Authors' calculations based on data from NHS Digital, 'Hospital episode statistics'. Population figures come from the ONS. Elective admissions defined by admission entry codes.

This increase in activity at different ages over time can be explored in two further ways. First, activity can be elective or emergency. Elective admissions are planned in advance, generally via a GP referral and a subsequent admission by a hospital consultant. Emergency patients are typically admitted through an accident and emergency (A&E) department. Figure 2.17 shows the share of the English population at each age who had at least one emergency admission in 1997 and 2015, while Figure 2.18 repeats this for elective admissions. This shows that the probability of receiving emergency treatment at a given age has changed little over time, with the exception of patients over 80 years old, for whom the probability of an emergency admission has increased. By contrast, Figure 2.18 shows that the probability of receiving elective treatment has increased at every age above 30, with particularly large increases at the oldest ages. This reflects both a general increase in NHS activity and, at older ages, a greater willingness and ability of the NHS to treat sicker individuals even for non-emergency surgery.

Second, we can study the conditions where the largest increases in activity have occurred over time. Table 2.3 provides a breakdown of inpatient activity in 2000–01 and 2015–16 by

Table 2.3. Number of inpatient episodes by disease type in England

Primary diagnosis	**Number of inpatient episodes**		**Change (%)**
	2000–01	**2015–16**	
Infectious diseases	153,629	493,383	221%
Blood	175,918	400,332	128%
Metabolic	153,631	348,336	127%
Respiratory	707,137	1,506,205	113%
Musculoskeletal	663,636	1,398,410	111%
Nervous system	238,247	448,820	88%
Genito-urinary	1,094,796	1,957,677	79%
Digestive system	1,304,899	2,301,412	76%
Perinatal	179,408	302,676	69%
Cancer	1,468,672	2,440,955	66%
External	735,241	1,213,838	65%
Eye/Ear	479,785	790,784	65%
Skin	277,514	399,244	44%
Circulatory	1,120,343	1,447,549	29%
Congenital	98,648	118,212	20%
Other	2,652,503	3,093,356	17%
Pregnancy	1,154,211	1,280,571	11%
Mental/Behavioural	238,267	252,885	6%
Total	**12,896,485**	**20,194,645**	**57%**

Source: NHS Digital, 'Hospital episode statistics'. Diseases are grouped by their ICD-10 classification chapter.

primary diagnosis.[22] It shows the number of episodes for different conditions in each year and the change over time, where an episode is defined as a period of time where an inpatient is under the care of a particular consultant. In all cases, there has been an increase in activity, with the number of episodes increasing by 57% over the 15-year period.

There is, however, considerable variation in activity growth across different disease types. The differential growth rates can be explained to a large extent by changes in demographics and public health. Diagnosis areas associated with old age, such as musculoskeletal and nervous system diagnoses, are increasing at a quicker rate than other areas. Similarly, increases in the prevalence of diabetes and related conditions have led to a large increase in admissions for metabolic diagnoses. There has also been a large increase in admissions for infectious diseases, mostly due to an increase in the incidence of septicaemia. Activity in other areas, such as pregnancy and mental health or behavioural conditions, has meanwhile grown at a much slower rate.

While the probability and frequency of using hospitals have increased, the amount of time spent as an inpatient has actually fallen considerably over time. Table 2.4 shows the average number of days spent in hospital among the population (not just patients) in different age groups in 1972, 1997 and 2015. For all age groups, there is a substantial fall, especially in the period between 1972 and 1997. In 1972, an average woman aged 75 years or older would spend 10 nights in hospital; by 1997, this has fallen by more than half to 4.3; and it then fell another 16% to 3.6 nights in 2015.

A key reason for this reduction is the development of new treatments and drugs. For instance, in 1972, someone admitted for heart disease would stay in hospital for weeks on nothing but painkillers.[23] Over the next 20 years, the development of statins, clot-busting drugs and beta blockers revolutionised the treatment of heart disease. This led to better outcomes for patients while simultaneously reducing the time spent in hospital recovering. In more recent years, the use of coronary artery bypass graft (CABG) and percutaneous coronary intervention (PCI) has led to even further reductions in time spent

Table 2.4. Bed days per person by age group and sex

Age group	Men			Women		
	1972	1997	2015	1972	1997	2015
0–19	0.6	0.3	0.3	0.6	0.3	0.3
20–44	0.5	0.3	0.2	1.3	0.7	0.4
45–64	1.4	0.7	0.5	1.2	0.6	0.4
65–74	3.3	1.9	1.3	3.0	1.6	1.0
75+	8.2	4.3	3.7	9.8	4.3	3.6

Source: Authors' calculations based on data from Department for Health and Social Security, *Sharing Resources for Health in England*, Report of the Resource Allocation Working Party, 1976 and from NHS Digital, 'Hospital episode statistics'. Population figures come from the ONS.

22 2000–01was used instead of 1997–98 as there is a substantial amount of missing data for primary diagnosis in 1997–98.

23 https://www.bhf.org.uk/research/heart-research-history/heart-attack-history.

in hospital. In 2014, half of all heart attack admissions were discharged in three days or less.[24]

Non-hospital activity

It must be noted that these figures only refer to hospital inpatient admissions. For some conditions (e.g. mental health), community and primary care spending is potentially more important. Although data on community health services are more limited, we are able to say something about how GP consultations and community prescriptions have evolved over time.

Table 2.5 shows the average number of GP consultations per person across different age groups in Great Britain in different years between 1980 and 2009. There is substantial variation in trends over time by age group. For the youngest age groups (0–4 and 5–15), there has been a large fall in consultations. In 1990, there were an average of 8.4 consultations for every 0- to 4-year-old; by 2009, this had fallen by over 50% to 4.1.

On the other hand, there has been a large increase in consultations at older ages. In 2009, there were nearly 8 consultations per person for people aged 65 or older. Total consultations per person were slightly lower in 2009 than in 1990. This is line with Figure 2.6, which showed very modest growth in the number of FTE GPs per 1,000 people between 1996 and 2014. At the same time, primary care spending increased relatively slowly, so there was no increase in activity.

In recent years, the NHS has stopped collecting data on the number of GP consultations. However, survey data indicate that GP activity has risen over the past few years.[25] This is in spite of a fall in primary care spending and consequently the number of GPs. A key reason for this increase in activity is a change in the composition of GP consultations, with an

Table 2.5. Average number of NHS GP consultations per person by age groups in Great Britain

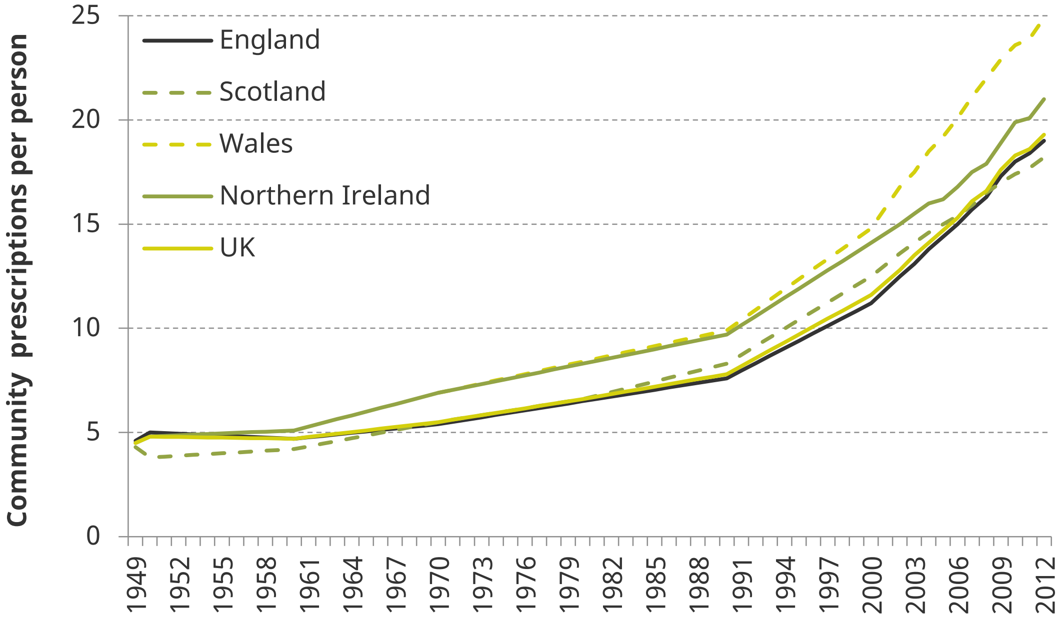
Age group	1980	1990	2000	2009
0–4	6.1	8.4	5.2	4.1
5–15	3.0	3.3	2.3	1.8
16–44	4.3	4.8	4.3	4.7
45–64	4.2	5.7	5.2	5.6
65–74	5.7	5.7	6.6	7.8
75+	6.7	7.2	6.8	7.7
Total	**4.4**	**5.2**	**4.7**	**5.0**

Source: E. Hawe and L. Cockcroft, *OHE Guide to UK Health and Health Care Statistics*, 2nd edition, Office of Health Economics, 2013.

[24] Authors' calculations from NHS Digital, 'Hospital episode statistics'.

[25] B. Baird, A. Charles, M. Honeyman, D. Maguire and P. Das, *Understanding Pressures in General Practice*, King's Fund, 2016, https://www.kingsfund.org.uk/publications/pressures-in-general-practice.

Figure 2.19. Community prescriptions per person in England, Scotland, Wales and Northern Ireland



Source: E. Hawe and L. Cockcroft, *OHE Guide to UK Health and Health Care Statistics*, 2nd edition, Office of Health Economics, 2013.

increase in telephone consultations in recent years. In 2014–15, telephone consultations accounted for 12% of GP consultations, up from 9% in 2010–11.[26]

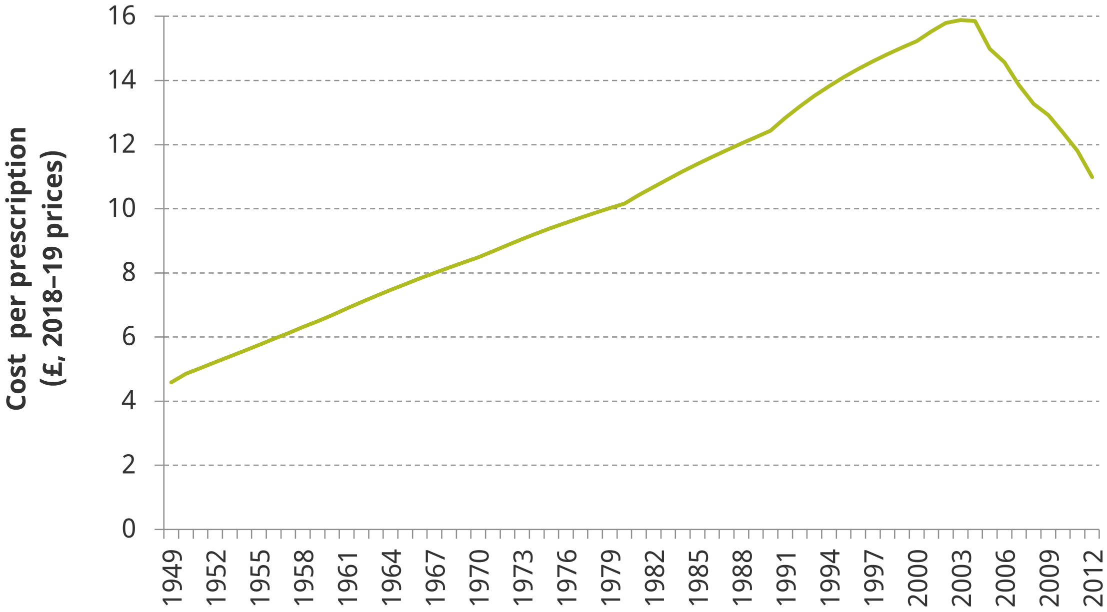
Another area of non-hospital activity we can look at is community prescriptions. Figure 2.19 shows how the number of community prescriptions per person has evolved since the founding of the NHS. It is clear that there has been a large increase over time. In 1949, there were, on average, fewer than 5 prescriptions per person, in all parts of the UK. By 2012, there were 19.3 prescriptions per person in the UK, and in Wales the prescription rate was even higher, at 24.9. This increase can largely be explained by two factors. First, medical advances mean that there are cost-effective drugs for many more conditions. Second, as the population ages, the prevalence of many conditions rises, increasing the consumption of drugs.

We have now seen that both the cost of prescriptions (Figure 2.10) and the number of prescriptions (Figure 2.19) have increased substantially over time. Figure 2.20 combines these two measures to show how cost (estimated list cost price) per prescription has changed since 1949. It grew steadily from 1949 to 2003, at an annualised growth rate of 2.3%. Since 2002, there has been a large reduction in the cost per prescription. In 2012, the average prescription cost £10.99, 31% lower than the figure in 2003 (£15.88).

Figure 2.20 shows the importance of medical advances in driving the cost of prescriptions. As new, better, more expensive drugs have been developed over time, the amount spent per prescription has risen. Although it is difficult to precisely categorise the extent of new drugs over time, a good indicator is the share of drugs that are branded (as opposed to

[26] Ibid.

Figure 2.20. Cost per community prescription (£), UK (2018–19 prices)



Source: Authors' calculations from data in E. Hawe and L. Cockcroft, *OHE Guide to UK Health and Health Care Statistics*, 2nd edition, Office of Health Economics, 2013.

generic). From 1957 to 2000, the majority of prescriptions were filled with branded drugs.[27] Since 2000, there has been a large shift towards generic drugs as patents have expired. In 2010, only 30% of prescribed items were dispensed as branded drugs. The shift towards generic drugs explains why total expenditure on prescriptions has stayed relatively constant since 2000. Although more and more drugs are being prescribed, an increasing share consists of cheaper, generic drugs (without any loss in quality).

2.4 What do funding increases mean for what the NHS delivers?

NHS productivity

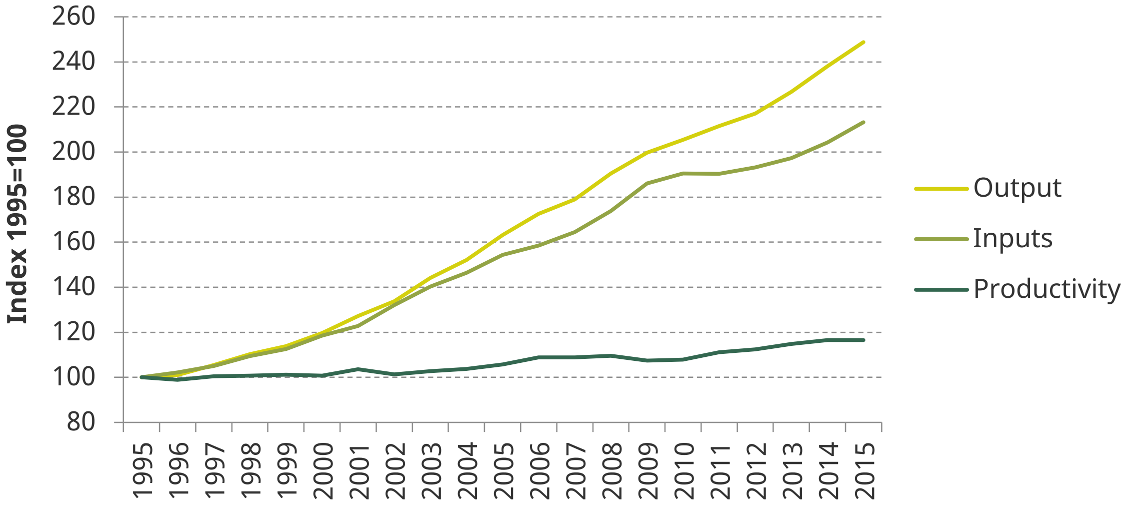
The previous sections have documented that the large increase in NHS funding since 1997 has been accompanied by an increase in a range of inputs and outputs. Figure 2.21 summarises these changes by setting out official measures of NHS inputs and (quality-adjusted) outputs between 1995 and 2015 from the ONS, comparing how outputs and inputs have changed since 1995.

Inputs are broken down into three components: labour, goods and services, and consumption of fixed capital. To produce a summary measure of total inputs, the growth rate is averaged across these components weighted by their share of total expenditure. Outputs include both a measure of cost-weighted activity (e.g. the volume of different types of health services) and a measure of how the quality of outputs changes over time.[28]

[27] E. Hawe and L. Cockcroft, *OHE Guide to UK Health and Health Care Statistics*, 2nd edition, Office of Health Economics, 2013.

[28] More details of how these indices are constructed are available from https://www.ons.gov.uk/economy/economicoutputandproductivity/publicservicesproductivity/articles/publicservicesproductivityestimateshealthcare/healthcare2015.

Figure 2.21. Public service healthcare outputs, inputs and measured productivity (quality-adjusted) indices, UK



Source: Figure 1b of Office for National Statistics, 'Public service productivity estimates, healthcare: 2015', 2018.

The figure shows that both inputs and outputs have more than doubled since 1995. The increase in outputs has slightly outpaced that of inputs, increasing by 4.7% per year over the 20-year period compared with an average annual increase of 3.9% in inputs. While measuring outputs accurately is difficult, particularly when adjusting for changes in 'quality', these measures suggest that the NHS has become somewhat more productive over time. In other words, the NHS produces more or better-quality healthcare for a given level of resources than it did in the past.

Over the whole period, NHS productivity growth averaged 0.8% per year. Growth was particularly weak between 1995 and 2009, averaging only 0.5% per year during a period when inputs were growing sharply. Since 2009, annual NHS productivity growth has averaged 1.4%. This is significantly above the average long-run growth rate, but remains below the annual productivity rate of 2.4% targeted by Simon Stevens in 2013.[29]

Measures of NHS performance

The NHS now does more than it ever has before. The increases in NHS funding in the 2000s were accompanied by explicit targets to improve NHS performance along a number of dimensions. The NHS Plan, published in 2002, set out an outline for future health delivery alongside a number of performance targets. These included, amongst many other objectives, reductions in waiting times for both planned and emergency treatment, and screening rate increases and mortality reductions for particular conditions.

But what has happened to the quality of services provided for patients and, ultimately, to patient outcomes? Measuring the quality of healthcare is an inherently difficult task. A myriad of measures can be used to measure different aspects of care quality, and different measures may provide different answers to the question of how well the NHS is performing. Regular updates on performance along multiple dimensions are provided by

[29] R. Crawford and G. Stoye, 'Challenges for health spending', in C. Emmerson, P. Johnson and R. Joyce (eds), *The IFS Green Budget: February 2015*.

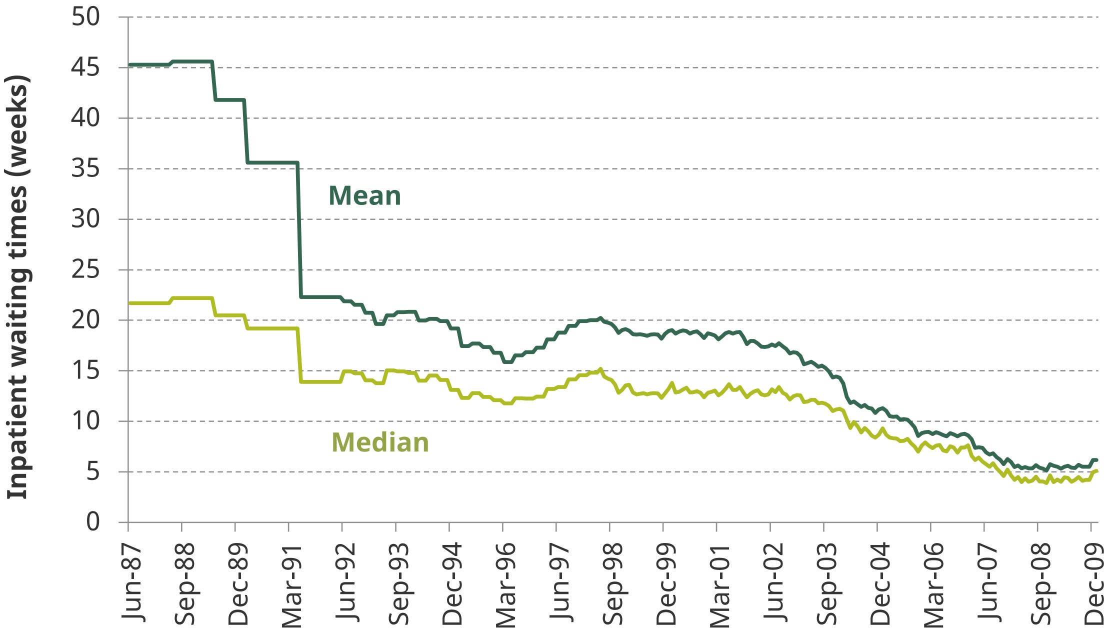
the Health Foundation and Nuffield Trust's QualityWatch and by the King's Fund Quarterly Monitoring Reports.[30]

It is important to note that while providing important information on certain aspects of NHS performance, many of these measures (and particularly those that are or have been explicitly targeted for improvements by governments) have the disadvantage that they divert attention to particular activity, while providing an incomplete picture of what is happening to other (non-measured) aspects of NHS performance.

One area in which the NHS has undoubtedly improved over the past 30 years is in how long individuals typically wait for elective (planned) treatment. Figure 2.22 shows how median and mean inpatient waiting times (the time elapsed between the decision to admit for treatment and actual admission) changed between June 1987 and January 2010. Waiting times initially fell heavily in the late 1980s: mean waiting times fell from 45 weeks in 1987 to 22 weeks in 1991. Waiting times also fell from 2002 onwards following the implementation of a set of (gradually strengthening) waiting times targets that accompanied the increases in health spending in the 2000s. By January 2010, median inpatient waiting times were 5.1 weeks, only 23% of their 1987 level.

From 2008, waiting times were measured and targeted in a stricter way: government targets stated that at least 90% of admitted patients (inpatients) and 95% of non-admitted

Figure 2.22. Inpatient waiting times (provider basis)

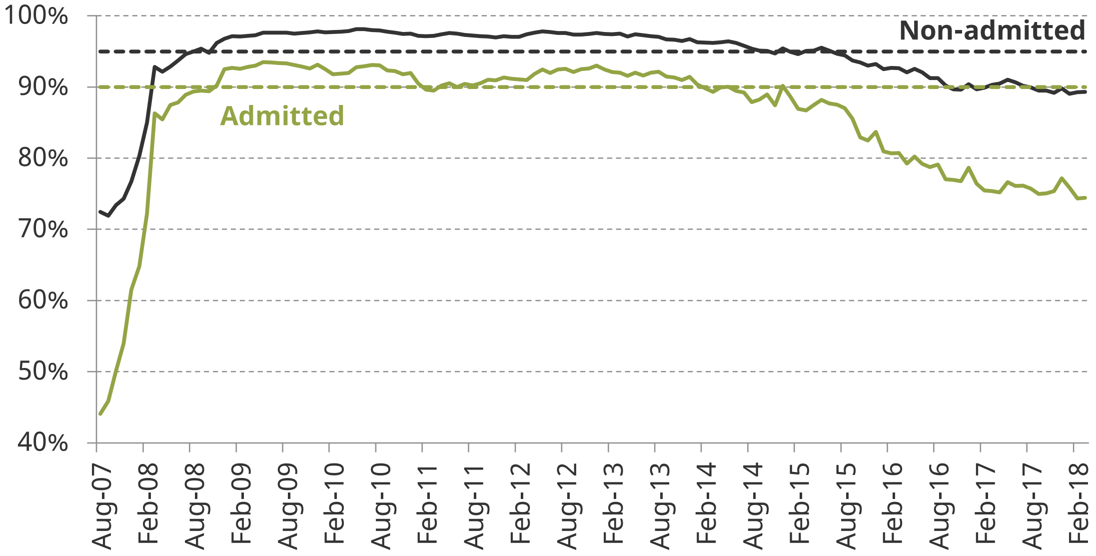


Note: Waiting times refer to the number of weeks elapsed between a consultant's decision to admit and the admission date. This measure of waiting times was replaced by a 'referral to treatment' measure in 2007, and reporting of this measure was discontinued in January 2010.

Source: Department of Health, 'Provider inpatient waiting times', http://webarchive.nationalarchives.gov.uk/20130104155640/http://www.dh.gov.uk/en/Publicationsandstatistics/Statistics/Performancedataandstatistics/HospitalWaitingTimesandListStatistics/index.htm.

[30] http://www.qualitywatch.org.uk/; https://www.kingsfund.org.uk/projects/quarterly-monitoring-report.

Figure 2.23. Percentage of inpatients and outpatients waiting no more than 18 weeks following referral



Note: Waiting times are measured on a referral to treatment basis, and measure the weeks elapsed between initial referral from a GP to an outpatient appointment and treatment (discharge for non-admitted patients, or an inpatient admission for admitted patients).

Source: NHS England, 'Consultant-led referral to treatment waiting times', extracted on 15 May 2018, https://www.england.nhs.uk/statistics/statistical-work-areas/rtt-waiting-times/rtt-data-2017-18/.

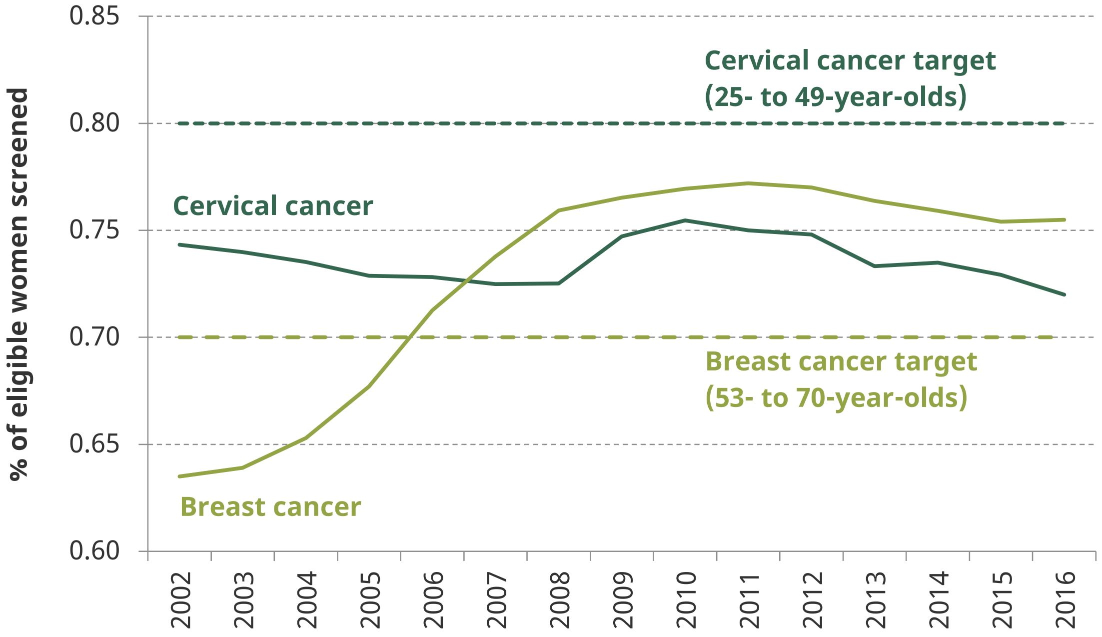
patients (outpatients) should wait a maximum of 18 weeks between the initial referral to hospital from their GP and the end of their treatment (either discharge or an inpatient admission). Figure 2.23 shows aggregate performance in England against this target between August 2007 and March 2018. Following the implementation of the target, performance on this measure quickly improved and the target was consistently met between 2009 and 2014.

In recent years, performance has fallen, with only 74.4% of admitted patients and 89.3% of non-admitted patients treated within 18 weeks in March 2018. This reflects recent pressures on the NHS. However, waiting times still remain very low in a historical context: the vast majority of patients now wait fewer than 18 weeks from initial referral from the GP to treatment, considerably shorter than waiting times through much of NHS history.

Another area targeted by successive policies, including the NHS Plan and subsequent National Cancer Strategy, was improving rates of cancer screening. Figure 2.24 shows screening rates for breast and cervical cancer between 2002 and 2016. For breast cancer, where a national mandate states that a minimum of 70% of women aged 53–70 should be screened, screening rates have substantially improved. In 2002, 63.5% of such women were screened. By 2016, this had increased to 75.5%. In contrast, cervical cancer screening rates for women aged 25–49 have actually declined over time, falling from 74.3% to 72.0% over the period. This is substantially below the national target of 80%, a target achieved by only one of 207 Clinical Commissioning Groups (CCGs) between April and June 2017.[31]

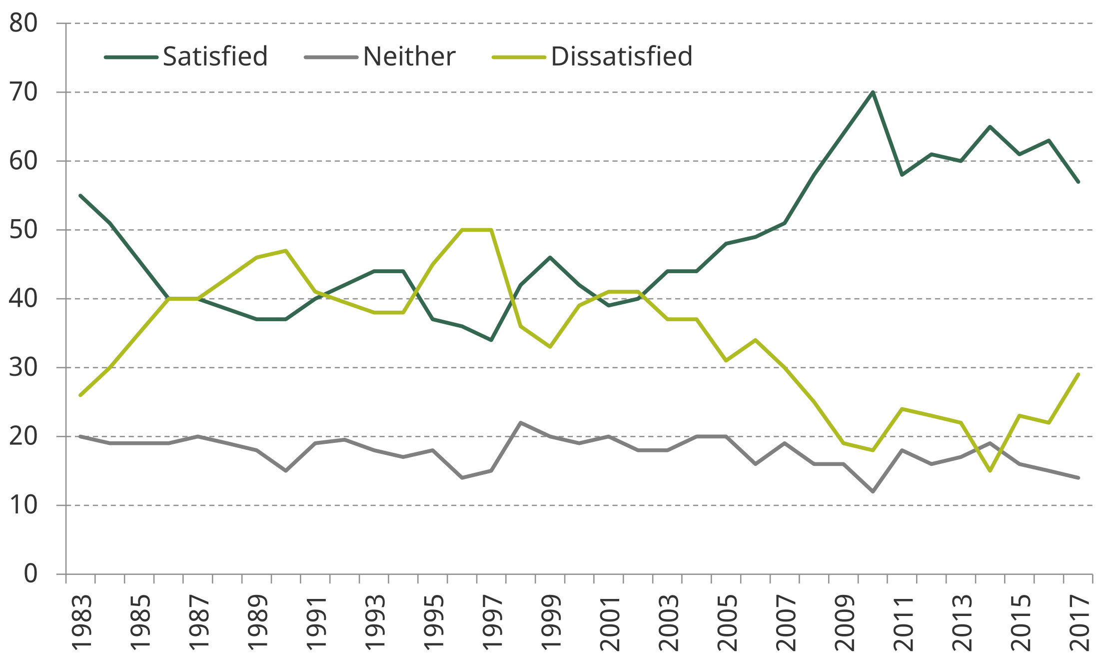
[31] http://www.pulsetoday.co.uk/clinical/clinical-specialties/cancer/only-one-ccg-met-the-cervical-cancer-screening-target-for-under-50s/20036179.article.

Figure 2.24. Screening rates for breast and cervical cancer



Source: QualityWatch, 'Breast and cervical cancer screening', http://www.qualitywatch.org.uk/indicator/breast-and-cervical-cancer-screening. Original data from NHS Digital.

Figure 2.25. Satisfaction with the NHS



Source: King's Fund analysis of British Social Attitudes Survey. Question asked: 'All in all, how satisfied or dissatisfied would you say you are with the way in which the National Health Service runs nowadays?'.

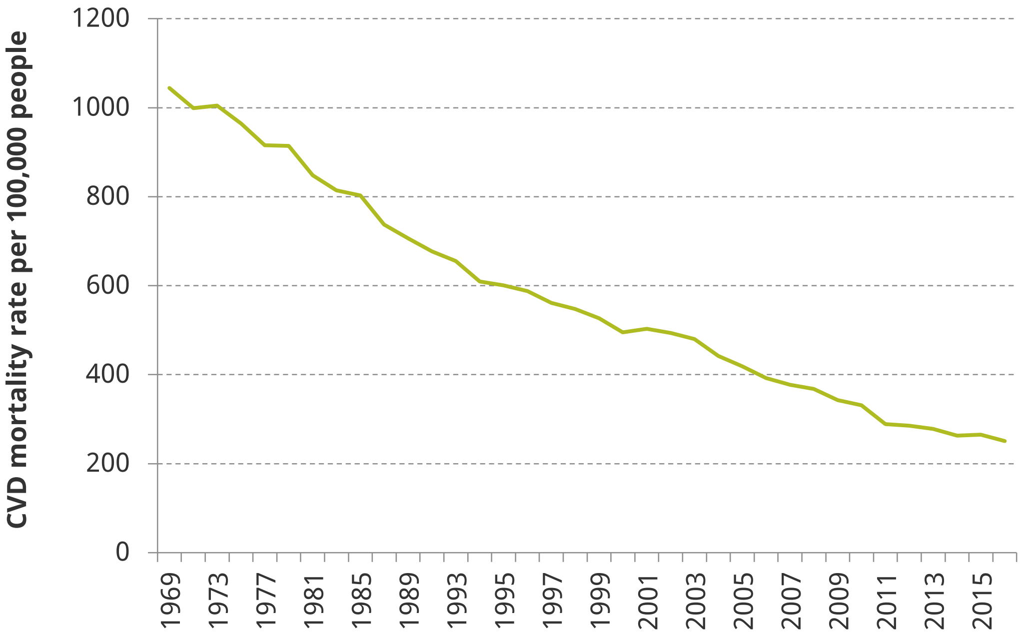
Another important measure of quality is popular satisfaction with the NHS. Figure 2.25 shows responses from the British Social Attitudes on public satisfaction with the NHS between 1983 and 2017. The proportion of the population reporting satisfaction dipped in the mid 1980s, before remaining around 40% until the early 2000s. Following the increase in NHS funding during the 2000s, the proportion of individuals reporting that they were satisfied with the NHS increased by a huge amount, rising from 39% in 2001 to 70% in 2010. Satisfaction has subsequently fallen in recent years but it remained higher in 2017 than it had been for the vast majority of the previous 30 years.

Health outcomes

The majority of measures suggest that both the quantity and the quality of health services have broadly increased over the past two decades. This raises the question of what has happened to patient outcomes as a result of these changes.

Isolating the impact of increased healthcare spending, and the wider provision of NHS services, on health outcomes is very difficult. Recent changes in the underlying health of the population and in widespread health technology (as noted in Chapter 1) make establishing causal links extremely challenging. Nevertheless, some studies have attempted to decompose the effect of increased population health through cross-country analyses. An OECD paper decomposes the rise in life expectancy from 1995 to 2015 over 35 OECD countries into different areas.[32] The authors find that a doubling in health spending is associated with a rise in life expectancy of 35 months. This is considerably more than the effect of halving smoking (8 months) and halving alcohol consumption (5 months).

Figure 2.26. Age-standardised mortality rate per 100,000 people from cardiovascular disease (CVD)



Source: Table 1.3 of British Heart Foundation, *CVD Statistics Compendium 2017*.

[32] C. James, M. Devaux and F. Sassi, 'Inclusive growth and health', OECD Health Working Paper 103, 2017, http://dx.doi.org/10.1787/93d52bcd-en.

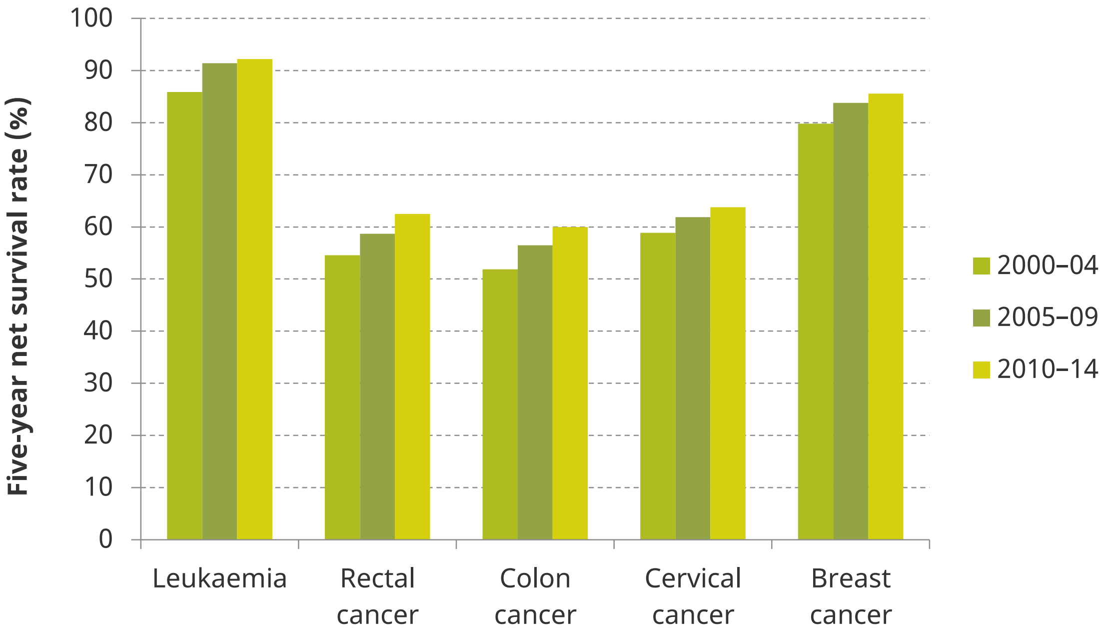
What is certainly true is that for many conditions, patient outcomes have improved over time. For example, mortality from cardiovascular disease (CVD) has more than halved over the past 50 years. Figure 2.26 shows the age-standardised mortality rate per 100,000 people from CVD over the period 1969 to 2016. In 1969, more than 1 in every 100 people in the population died from CVD, whilst in 2016 this rate had fallen by to 1 in every 400, a substantial reduction in mortality over time.

Changes in CVD mortality partly reflect long-run trends in the prevalence of the condition. However, even in the shorter run, reductions in mortality also reflect improvements in treatment of cardio conditions. For example, 30-day mortality rates following admission to hospital for a heart attack fell by 22% between 2008 and 2015, from 9.3% of patients to 7.3% of patients.[33]

Recent improvements in mortality rates are also observed across a range of different cancers. Figure 2.27 shows five-year survival rates after diagnosis for a number of cancers in 2000–04, 2005–09 and 2010–14. For all types, there has been an increase in the survival rate over the ten-year period. For example, colon cancer survival rates increased from 51.9% to 60.0% (an increase of 15.6%) from 2000–04 to 2010–14. This rise could be explained by a number of factors, including earlier detection due to increased screening or better management of the condition.

Despite these improvements over time, the OECD notes that the UK still lags behind many of its international comparators on a range of outcomes.[34] Although outcomes have improved quickly in recent years, survival rates for breast, cervical and colorectal cancer all

Figure 2.27. Five-year survival rates for different types of cancer, UK



Source: OECD Health Statistics 2015. Leukaemia refers to acute lymphoblastic leukaemia.

33 'Thirty-day mortality after admission to hospital for AMI based on unlinked data', OECD Health Statistics, extracted 15 May 2018, http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT#.

34 https://read.oecd-ilibrary.org/social-issues-migration-health/oecd-reviews-of-health-care-quality-united-kingdom-2016_9789264239487-en#page20.

remain below the OECD average, while hospital admission rates for diseases such as asthma and chronic obstructive pulmonary disease (COPD) are also unusually high by international standards. The NHS therefore still has some way to go in improving patient outcomes.

2.5 Conclusion

The huge increase in NHS funding since 1997 has been accompanied by strong growth both in the inputs used by the health service and in NHS activity. While growth in these areas has slowed in line with more modest spending increases since 2009–10, the NHS continues to reach new record highs in the amount of treatment it provides to patients.

Spending increases have not been equally allocated across different areas of spending. Between 1999–2000 and 2011–12, day-to-day health spending increased by an annual average of 5.5%. This is considerably above the spending increases on primary care (2.8% p.a.) and community prescribing (2.3%) over the same period, and has led to a shift in the health budget away from primary care towards hospitals. Since 2011–12, overall spending grew by 10%, while spending on primary care and community prescribing fell, further continuing this trend.

Staff costs are (and always have been) a major component of NHS costs. In 2016–17, they accounted for more than half of health spending in England, and growth in staffing costs since 2011–12 has been largely in line with overall spending growth. Meanwhile, spending on hospital drugs has rocketed.

Increases in inputs have been matched with very large changes in hospital activity. The probability of attending hospital for inpatient treatment has increased substantially at all ages above 30, with larger increases at older ages. This increase is even greater at older ages. In contrast, GP activity has seen little change over time.

These changes have been accompanied by large improvements in the quality of the NHS (along a number of dimensions) and better outcomes for patients. Mortality rates for a number of conditions have fallen since 2000, and NHS performance on a number of measures, including waiting times and patient satisfaction, has improved drastically over time.

However, the NHS still faces many challenges. Despite these improvements in performance, UK health outcomes still often lag behind those of many international comparators. And while the NHS continues to perform well relative to its own historical performance despite recent pressures, a continuation of these pressures over the next few years will make it harder for the NHS to continue to maintain, let alone improve, quality. Understanding these pressures and how they could be met is therefore crucial for policy going forward.