



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

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In association with

NHS CONFEDERATION



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Contents

Executive summary	i
1. UK health and social care spending	1
1.1 Introduction	2
1.2 Public spending on health	3
1.3 How does public spending on health vary across the UK?	7
1.4 International comparisons	9
1.5 Social care spending	11
1.6 Why might spending on health and social care increase over time?	15
1.7 Discussion	29
2. What does the NHS spend its money on?	30
2.1 Introduction	32
2.2 Inputs	32
2.3 Outputs	45
2.4 What do funding increases mean for what the NHS delivers?	54
2.5 Conclusion	61
3. Future pressures on the NHS and social care	62
3.1 Introduction	64
3.2 Methodology	65
3.3 Assumptions	69
3.4 NHS in England spending projections from 2018–19 to 2033–34	84
3.5 Implications for English NHS activity levels and the workforce	96
3.6 UK health spending projections	100
3.7 Comparison with other models	103
3.8 Pressures on social care	105
3.9 Conclusion	111
4. Options for funding health and social care	114
4.1 Introduction	117
4.2 What do these pressures mean for funding?	118
4.3 What are the public’s views on NHS funding?	120
4.4 Paying for increased spending using the existing funding system	122
4.5 Raising revenues through the tax system	129
4.6 Alternative proposals for raising revenue for the NHS	153
4.7 The social care challenge	163
4.8 Conclusion	167

Executive summary

On 5 July this year the NHS will be 70. In all its 70 years it has rarely been far from the headlines. It has been through more than its fair share of reforms, crises and funding ups and downs. Over that period, the amount we spend on it has risen inexorably. Yet, today, concerns about the adequacy of funding are once again hitting the headlines, as the health and social care systems struggle to cope with growing demand.

Looking forward, funding pressures are only going to grow. The population is getting bigger and older, and expectations are rising along with the costs of meeting them. Our analysis suggests that **UK spending on healthcare will have to rise by an average 3.3% a year over the next 15 years just to maintain NHS provision at current levels, and by at least 4% a year if services are to be improved. Social care funding will need to increase by 3.9% a year to meet the needs of an ageing population and an increasing number of younger adults living with disabilities.** If the widely acknowledged problems with England's social care system – of limited eligibility, low quality and the perceived unfairness of the current, uncapped, means test – did result in reform, spending on social care would need to increase at a faster rate.

If we are to have a health and care system that meets the expectations of the population, we need to understand how and why spending has risen over time, where the money is spent, how costs are likely to develop in the future, and how we might go about meeting those costs. That is the purpose behind this collaboration between the Institute for Fiscal Studies and the Health Foundation, in association with the NHS Confederation.

To start to grapple with those challenges, one needs first to grasp the sheer scale of the NHS and social care sector. **Public spending on health in the UK in 2016–17 was £149.2 billion (2018–19 prices). That's more than 7% of national income.** The government spent an additional £21.2 billion on adult social care in the same year. Add in private spending, and the health and social care sector accounts for more than 10% of the entire UK economy.

If it is a large part of the economy, health and care spending represents an even larger fraction of what government does. **19% of all government spending and 30% of spending on public services goes on health,**¹ 21% and 34% if you include adult social care spending.

Along with almost all other countries, we have chosen as a nation to spend an increasing fraction of our national income on health and care because the benefits of doing so are so great. But we have not always done so in a well-planned or coherent way. Periods of feast tend to be followed by famine. The last two decades have been an extreme example of that. **Planning for both feast and famine has been inadequate, and the consequences have been unnecessary costs, inefficiencies and uncertainty in the system.** We hope this work will lay the basis for a more coherent system of planning going forward. To achieve that, we will need consensus both on the value of an effective health and social care system and on how to raise revenue to fund it as the economy grows. We can't have

¹ We define spending on public services as public spending on everything other than debt interest and transfers through the social security system.

it for free. If we are to raise spending as indicated by this analysis then taxes will have to rise.

The history

Annual public spending on health didn't reach £20 billion (in today's prices) until the mid 1960s. It hit £40 billion in the mid 1980s, was at £80 billion by the turn of the century and now sits at £150 billion. **Not only has spending risen in real terms, it has taken a bigger and bigger chunk of the national economy**, rising from around 3% of GDP in the early 1960s to 4% during the 1970s and 1980s, 5% by the year 2000 and more than 7% by 2008. It represents 7.3% of national income today.

Table 1 tells the story of increasing spending since the foundation of the NHS. Spending growth has averaged 3.7% a year. Following a period of very rapid growth between 1996 and 2009, **over the last eight years health spending has grown more slowly than in any comparable period since the NHS was founded.**

Table 1. Annual average real growth rates in UK public spending on health, selected periods

Period	Financial years	Average annual real growth rate
Whole period	1949–50 to 2016–17	3.7%
Pre 1979 (various governments)	1949–50 to 1978–79	3.5%
Thatcher and Major Conservative governments	1978–79 to 1996–97	3.3%
Blair and Brown Labour governments	1996–97 to 2009–10	6.0%
Coalition government	2009–10 to 2014–15	1.1%
Cameron and May Conservative governments	2014–15 to 2016–17	2.3%

Source: See Table 1.1 in the report.

The recent period has not, however, been one in which the *relative* priority attached to health spending has diminished. **Relative to other areas of public spending, health spending has actually been *more* favoured since 2010 than it was in the previous decade.** Health spending has been rising as a share of total public spending on services by 2.1% a year since 2009–10, compared with a rate of increase of 1.1% a year between 1999–2000 and 2009–10. Health accounted for 23% of public service spending in 1999–2000, 26% in 2009–10 and 30% in 2016–17.

Within the UK, health spending is a devolved responsibility. Funding for public services in Wales, Scotland and Northern Ireland is determined by the Barnett formula, whereby changes in public spending in England result in changes in public spending budgets in Wales, Scotland and Northern Ireland, based on population size. The devolved administrations can then choose how to prioritise spending across health and other public services. Health spending per head is marginally lower in England and Wales than in

Scotland and Northern Ireland. **There has, however, been some convergence since 2010, with higher increases in England than elsewhere** as the Westminster government has given a higher priority to protecting health spending than have the devolved parliaments.

Spending on social care has followed a different pattern. Across the UK as a whole, **public spending on adult social care fell by nearly 10% between 2009–10 and 2016–17**, despite significant real increases in spending in Scotland.

In fact, the growth in both health and social care spending has slowed even more dramatically than the headline figures would suggest, once one takes account of relatively rapid population growth. Per-capita health spending has increased by just 0.6% a year between 2009–10 and 2016–17, as compared with 5.4% a year between 1996–97 and 2009–10, and 3.3% per year over the whole period between 1949–50 and 2016–17. Taking account of the ageing of the population since 2010, and the fact that older people make heavier demands on the health service, even this growth almost disappears – **age-adjusted per-capita health spending has risen by just 1% in total, or 0.1% a year, since 2009–10**. Per-capita adult social care spending has fallen by 2.2% per year over the same period.

The UK is certainly not alone in experiencing growing health spending. Across the OECD between 2000 and 2015, healthcare spending per person increased in real terms and outpaced the growth in GDP. This is true in countries with tax-funded health services and social insurance models. **UK spending as a share of GDP in 2015 was in line with the average of the EU15 countries.**

Where the money goes

Over time, all aspects of NHS spending have risen. The biggest element is spending on staff – doctors, nurses and others. Over the last 20 years, there has been an increase of more than 70% in the number of hospital doctors, and of more than 10% in the number of nurses, health visitors and midwives, per 1,000 population. Even so, **overall, the UK has fewer practising doctors per 1,000 people than any other EU15 country.**

Despite the more general increase in staff and doctor numbers, there has been barely any increase in the number of GPs, and in fact **the number of GPs per 1,000 population has been falling since 2010**. This pattern reflects decisions over where in the system money has been spent. Spending on hospitals rose much faster than spending on primary care during the 2000s, and **spending on primary care has actually fallen since 2010** in real terms.

It is unlikely that this rebalancing away from primary and community care makes sense in the long run. The NHS *Five Year Forward View* in 2014 set out a vision for the future of the health service in England. In response to population ageing and the rising burden of chronic disease, it argued for the NHS to provide more care closer to people's homes. It sought to shift care towards earlier diagnosis and more proactive management of health problems to prevent rather than simply manage ill health and hospitalisation. A sustainable, high-quality healthcare system is likely to involve more focus on supporting primary and community services, not less.

One of the great successes of the NHS in England since 2010 is that, despite very tight spending settlements, activity has risen substantially. In other words, productivity has grown and, unusually, **since 2010 measured productivity in the health service has been growing faster than productivity across the economy as a whole**. Whether this could be sustained over a longer period is unclear.

This growth in activity over time is of course a key driver of additional costs. As Figure 1 shows over the last 20 years, in addition to a population that is growing and ageing, **there has been an increase in the likelihood of people at any age having an inpatient admission**. The time each person spends in hospital, though, has been coming down continually for decades, partly as a result of new drugs and new surgical procedures. Between 1997 and 2015, for example, the average time spent in hospital per year for people over the age of 75 dropped by more than half a day, despite a 30% increase in the likelihood of spending some time in hospital.

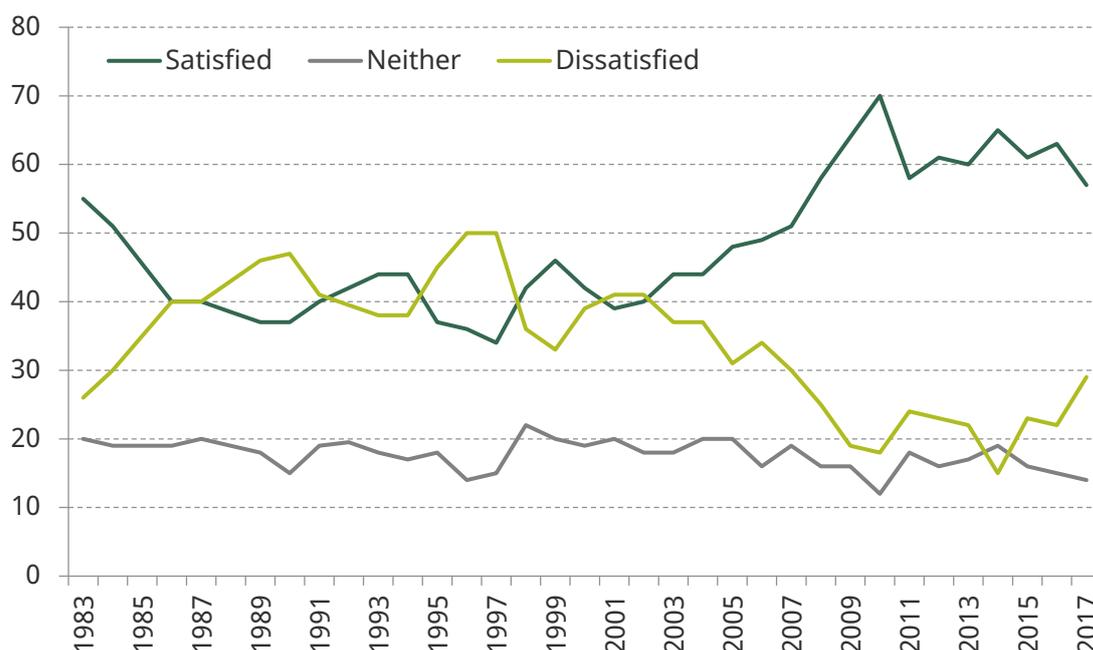
Figure 1. Percentage of population (England) by age who had at least one inpatient admission in 1997 and 2015 (aged 0 omitted)



Source: See Figure 2.15 in the report.

As well as funding more activity, big increases in spending during the 2000s were accompanied by dramatic falls in waiting times. Tighter funding conditions in recent years mean that waiting times have been creeping up again, and targets are being missed. For example, **by March 2018 only 74.4% of inpatients were treated within 18 weeks of referral, against a target of 90%**.

This remains a far better performance than was achieved in the 1990s and, in general, the NHS continues to perform far better on most measures than it did 20 years ago. **Recent increases in waiting times and other pressures on the service have started to mean that public satisfaction levels are beginning to fall**. Even so, public satisfaction remains at historically high levels, far above where it was before the funding increases of the 2000s (Figure 2).

Figure 2. Satisfaction with the NHS, 1983–2017

Source: See Figure 2.25 in the report.

Effectiveness of treatment has also been rising over time, with mortality rates from, for example, cardiovascular disease falling dramatically in recent decades. **Survival rates for a range of cancers have also continued to improve, though the UK still lags behind many international comparators in this respect.**

Future spending

Looking forward, health spending is likely to continue to rise. Simply continuing to provide the services we currently expect will become more expensive as the population grows and ages, prevalence of chronic conditions increases, and the prices of inputs, including the costs of drugs and the wages of doctors and nurses, go up.

Central estimates suggest that **by 2033–34 there will be 4.4 million more people in the UK aged 65 and over. The number aged over 85 is likely to rise by 1.3 million** – that’s almost as much as the increase in the entire under-65 population.

The burden of disease is also increasing. The number of people living with a single chronic condition has grown by 4% a year while **the number living with multiple chronic conditions grew by 8% a year between 2003–04 and 2015–16**. Looking forward, more of the UK’s population will be living with a chronic disease and very many with multiple conditions. This is because while life expectancy has been increasing, healthy life expectancy has not kept pace and the period of people’s lives spent in poor health has increased; particularly for the poorest. As a result, without major progress on the vision set out in the *Five Year Forward View*, **over the next 15 years spending in acute hospitals to treat people with chronic disease is expected to more than double.**

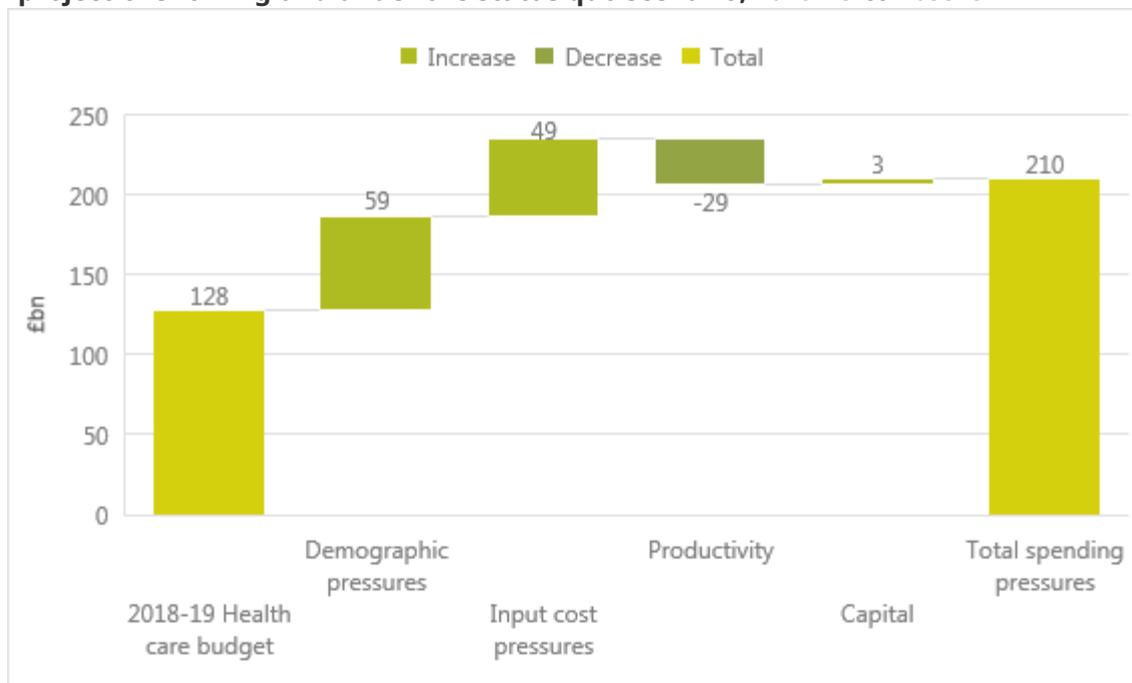
Tackling chronic disease is not just an economic issue. It has a substantial impact on quality of life and wider society. The NHS can do a lot, but **progress on improving the population’s health will require action on obesity, smoking, alcohol and the wider social determinants of health.**

As new treatments are introduced, the cost of drugs used in hospitals is also rising. Assuming new drug costs rise in line with recent experience, **for each person treated in hospital, the cost of their drugs would increase by 5.5% a year going forward.**

Pay will also need to rise at least in line with public sector average earnings if the NHS and the social care system are to recruit and retain the staff they need. The challenge for all healthcare systems is that, as a service sector, healthcare productivity over the longer term has traditionally lagged economy-wide productivity (the so-called Baumol effect). It is true of all healthcare systems, however they are funded (tax or social insurance) and however they are delivered (public, private or not-for-profit). **The gap between earnings growth and productivity is a key driver of spending pressures.**

Put all these pressures together and **UK health spending is likely to need to rise by around 3.3% a year over the next 15 years just to maintain current service levels.** That would mean an increase in spending of around £95 billion, from £154 billion today to £249 billion in 2033–34. This would increase health spending as a share of GDP from 7.3% to an estimated 8.9%. Figure 3 illustrates the importance of the different factors in pushing up spending over the period to 2033–34.

Figure 3. Contribution of different demand and cost pressures to overall spending projections for England under the status quo scenario, 2018–19 to 2033–34



Source: See Figure 3.8 in the report.

This rate of increase would be below the long-term rate of increase in health spending. It is nevertheless substantially above projected GDP growth. This reflects the importance of ageing and increased chronic disease over the next 15 years.

While spending will need to increase in each of the next 15 years, the scale of funding pressures is greater in the shorter term. After several years of historically low growth in spending, the NHS is under considerable financial strain. This is impacting on quality, with hospitals struggling to meet demand last winter and more than half of all NHS providers in deficit. Maintenance budgets and investment capital have been used to meet day-to-day running costs. Our modelling suggests that **spending increases will need to be front-loaded, with the NHS requiring increases averaging around 4% a year over the next five years to maintain provision at current levels and address the backlog of funding problems.**

Maintaining provision at current levels for 15 years is unlikely to be enough though. Over time, NHS services have improved as incomes and expectations have grown. We know that there are major areas of underprovision at present, not least in mental health. Just meeting waiting list targets and bringing capital spending more in line with OECD averages would also require additional funding relative to our status quo scenario. Put all this together and **a modernised NHS could require funding increases of 4% a year over the next 15 years: 5% a year for the next five years and 3.6% a year for the decade after.**

Our analysis suggests that **over the next five years, capital funding should grow at a faster rate than day-to-day spending**, by 11% a year in real terms compared with 4.7% for resource spending. Capital spending in the UK would increase by £5 billion by 2023–24. Some of this extra capital spending could improve quality of care – for example if it were invested in scanning technologies, which are so important for timely cancer diagnosis. But the principal case for a significant up-front investment in capital is to support the system to improve productivity. The NHS has a large backlog of maintenance, too much of its physical infrastructure is out of date, and there is much more to do to ensure rapid uptake of digital technologies.

Using analysis from the Personal Social Services Research Unit (PSSRU), we find that to keep up with the ageing of the population and growth in young adults living with disabilities will require public funding to increase by 3.9% a year across the UK over the next 15 years, increasing spending by around three-quarters. Spending on social care would increase from 1.1% of GDP in 2018–19 to 1.5% in 2033–34. This is based on maintaining the current system of eligibility and means-testing for social care in each of the four countries of the UK.

The system of means-testing for social care in England has been strongly criticised and the government is planning a Green Paper on social care reform in England in Summer 2018. Extending access to care, improving quality or reforming the means test, for example through capping care costs, would add to the estimated spending pressures.

If England introduced a cap on lifetime care costs and reformed the means test in line with the proposals in the Conservative party manifesto in 2017, this would add £6.7 billion to our estimated social care spending pressures in 2033–34.²

The lines between the health and social care systems are blurred by initiatives such as NHS Continuing Healthcare, which provides social care free of charge to the neediest individuals, and the Better Care Fund, which provides grants to local authorities to fund social care spending. The two systems cannot be considered in isolation.

Over the next 15 years, **if UK health service spending were to increase by 4% a year, in line with our modernised NHS scenario, spending as a fraction of national income would rise from 7.3% of GDP today to 9.9% in 2033–34** (based on the OBR's forecast for GDP growth of an average of 1.9% per year). Overall, that is faster growth than the long-run average, reflecting some catch-up after the recent period of slow growth and, again, demographic change.

This would take spending to around 10% of national income, 1 percentage point more than under the status quo scenario. Social care spending would also increase as a share of national income, from 1.1% to 1.5% of GDP over the next 15 years. Together this means that in 2033–34 in the UK we would devote 2–3 percentage points more of our national income to publicly funded health and care. However, it is important to note that this is not a lot more than countries such as Sweden, Germany and the Netherlands already spend on publicly funded health and social care.

These numbers are in a sense just illustrative. But they are based on the most detailed modelling yet, which builds up likely future costs from a microeconomic analysis of supply and demand factors. This is a different methodology from that used by the Office for Budget Responsibility, for example, which uses a top-down model. The results though are similar. **The OBR estimates that health spending will reach 8.7% of national income by 2033–34**, very slightly lower than our status quo estimate. Part of the difference is because the OBR assumes current plans will be kept to until the end of this parliament. After that, it has spending rising by 4% a year.

Of course, it is not just how much money that is spent that matters, but how well it is spent. Much needs to be done to improve productivity in the NHS. Well-targeted capital investment can be a major help but **the most urgent need is probably for a coherent, long-term workforce strategy**. In the short run, a lack of qualified clinical staff will be the biggest impediment to making effective use of additional funds.

Over the next 15 years, **the English NHS is likely to require 64,000 extra hospital doctors and 171,000 extra nurses** as part of overall workforce growth of 3.2% a year. This would be a big increase, but in line with previous rates of growth: the NHS workforce grew by 2.9% a year in the decade up to 2008.

If the NHS were able to successfully harness digital and other technologies, the workforce pressures would turn out to be lower than this. But if we are to have an effective health service in 15 years' time, we do need to start planning to have the requisite workforce today. **The workforce challenge in social care is just as great, with almost half a**

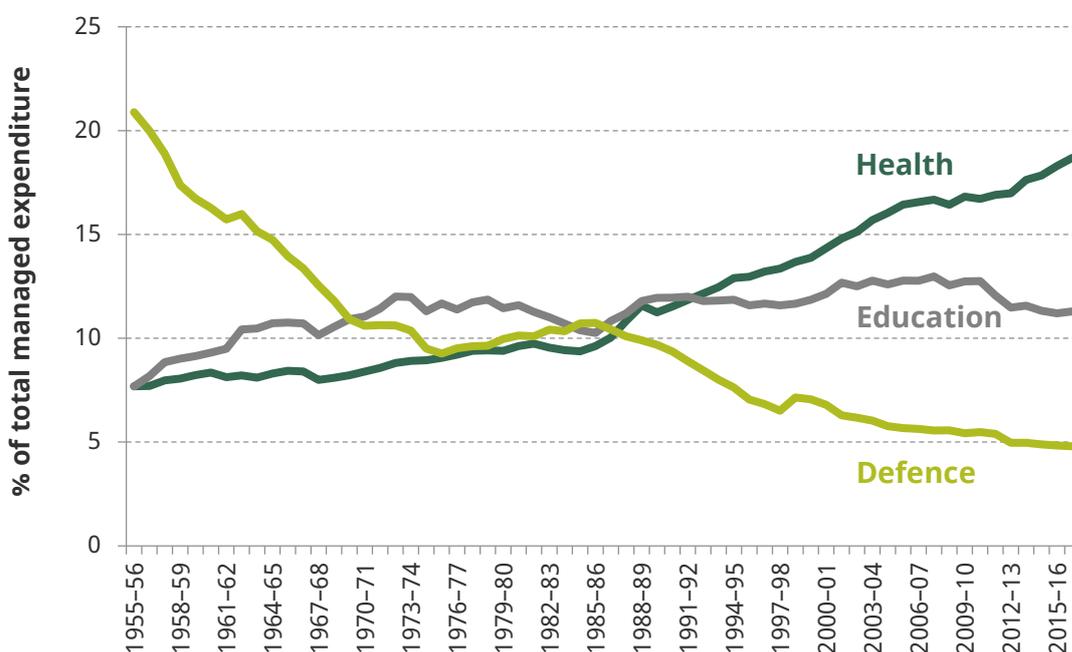
² <https://www.health.org.uk/publication/social-care-funding-options>.

million more staff required by 2033–34 (an increase of 2.2% a year). Taken together, the increases in demand for health and social care would see the number of people in the workforce employed in these two sectors rise from 10% today to 14% in 2033–34.

Paying for it

It is all very well pointing out that spending is likely to have to rise over the medium term. The question then arises as to how to pay for it. Taking health and social care together, it looks as though spending will need to rise by 2% of GDP over the next 15 years, and by 3% if we want improvements in the services offered. That means finding at least £40 billion of additional funding, and perhaps more than £60 billion.

Figure 4. Health, education and defence as shares of total spending



Source: See Figure 4.5 in the report.

In the past, we have effectively paid for increased government spending on health by cutting spending on other things. In fact, overall public spending as a fraction of national income is a bit lower today than it was in the late 1970s (39% of GDP today against 41.5% of GDP in 1978–79), despite the fact that health spending rose from 4% of national income to well over 7% over the same period. Spending on social security (including pensions) also rose. This was possible because we are today spending 6% of national income (equivalent to about £120 billion) less on a combination of defence, debt interest and housing than we were 40 years ago. Figure 4 illustrates how huge cuts to defence spending have helped fund a growing welfare state without requiring a sustained increase in the tax burden.

Going forward, it is extremely hard to see how we could repeat a similar trick. There is barely any defence or housing budget left to cut. Debt interest spending is likely to rise as interest rates rise. After eight years of austerity, there would appear to be no room to cut other big areas of spending. While increased borrowing could fund rising health spending

over the short term, **sustained increases in health and care spending will require increased revenues from somewhere.**

It is unlikely that a significant fraction of any additional health spending can be found from increasing current charges or introducing new ones – not unless we want a fundamentally different NHS. Social care is already highly reliant on private funding and most reform proposals imply less rather than more reliance on individual contributions.

The implication is clear: in the medium term, **if we want even to maintain health and social care provision at current levels, taxes will have to rise.**

It is hard to imagine raising this kind of money without increases in at least one of the three biggest taxes – income tax, National Insurance and VAT. By way of illustration, you can raise about £5 billion by increasing all the main rates of income tax by a penny, about £6 billion by putting a penny on VAT and about £10 billion if you put a penny on each of the main employee, self-employed and employer NI rates.

Of course there are plenty of other options for raising taxes, including the reversal of some of the corporation tax cuts implemented in recent years, some additional taxes on property and wealth, or increases in a myriad of smaller taxes. Any tax rises could take place gradually, as the share of national income required to meet pressures on health and social care increases over time.

To illustrate the scale of change likely to be required, note that on the assumptions about growth underlying this work, average household net incomes would rise by around 17% over the next 15 years. If taxes were to rise by 2% of GDP then net incomes would rise 14% instead and if taxes were to rise by 3% of GDP then net incomes would rise by 12.6%.

Tax increases of this scale are economically feasible. While it is at a historically relatively high level, at more than 34% of GDP, **the tax burden in the UK remains well below that in a number of other, economically successful, European countries**, including Germany and France. There is at least some evidence that such increases might also be politically feasible. In 2016, a plurality of respondents to the British Social Attitudes Survey said they would prefer higher overall taxes and spending, and a clear majority see health spending as the top priority for extra cash. There is also a clear preference among the public that any tax increase should be via the National Insurance system and/or earmarked specifically for the NHS.

There remain strong arguments in principle against an earmarked, or hypothecated, tax. **One would never want health spending to rise and fall with revenue from a particular tax.** One proposal would set a health budget for a parliament and set a tax rate at a level that was expected to raise enough to cover that budget. If it turned out to raise more, or less, then the Treasury would keep the surplus, or pay the extra from borrowing or general taxation. Something like this, perhaps through a reformed system of National Insurance contributions, could make for a politically feasible way of providing more funding for health and care. But, as ever, there are trade-offs. This would probably introduce additional inefficiencies, and even inequities, into the tax system. It would be hard to make it properly transparent. There would be challenges in a world where health and care spending, and in Scotland some tax decisions, are devolved matters. So **while**

some form of hypothecation is possible, and may make increased taxation more palatable, it is hardly a panacea.

There are additional challenges around social care funding. A large fraction of social care is currently paid for privately: 26% of domiciliary care recipients and 44% of care home residents paid for their own care in 2014–15. The state does not play its usual role in providing insurance against bad outcomes and many people face extremely high care costs in old age as a result and many may have unmet care needs. **Any rebalancing of the social care system looks likely to increase pressures on the public purse rather than reduce them.**

1. UK health and social care spending

Tom Lee and George Stoye (IFS)

Key findings

Public spending on health has increased more than tenfold in real terms since 1949–50, and the share of national income spent on health has doubled from 3.5% to 7.3%. Since 2009–10, public spending on health has increased at a lower rate than has been seen historically.

Spending has increased substantially over the past 70 years, a phenomenon common across developed economies. The UK now spends at around the EU15 average, due to the large increase in public spending from 2000 to 2009. Since 2009–10, public spending on health has fallen as a share of national income, though it is higher as a share of national income than it was in 2007–08 prior to the financial crisis.

Despite this recent slowdown in funding, health spending has been more favoured relative to other areas of public spending than it was in the previous decade. In 2016–17, almost 19p in every £1 spent by the government went on health, or 30p in every £1 spent on public services.

Health spending has been rising as a share of total public spending on services by 2.1% a year since 2009–10, compared with a rate of increase of 1.1% a year between 1999–2000 and 2009–10. Health accounted for 23% of public service spending in 1999–2000, 26% in 2009–10 and 30% in 2017–18.

Despite this relative protection, growth in health spending since 2009–10 has only just been enough to account for a growing and ageing population.

Per-person spending grew by 0.6% per year between 2009–10 and 2016–17, compared with average annual increases of 3.3% between 1949–50 and 2016–17. After taking into account population ageing, age-adjusted per-person spending has risen by just 0.1% a year since 2009–10.

Public spending on adult social care grew at an average rate of 5.7% per year in the 2000s, but has fared worse than the NHS in recent years, falling by 1.5% a year since 2009–10.

Differences in needs and generosity have led to large differences in spending per adult across England, Scotland, Wales and Northern Ireland. In 2015–16, social care spending per adult was 31% lower in England than in Scotland.

Health budgets across developed countries face a number of future budgetary pressures.

These pressures include rising expectations and income growth, demographic and health changes, and a range of cost pressures. Existing estimates suggest that new technology is a key driver of growth in spending.

1.1 Introduction

Public spending on health and related areas has changed vastly over the past 70 years. In 1949–50, the first financial year after the founding of the National Health Service (NHS) in July 1948, UK public spending on health was £12.9 billion (2018–19 prices). This was 3.5% of national income and accounted for 9.0% of total public spending.

Fast-forward 70 years and public spending on health and other related areas has increased monumentally. Health spending alone was £149.2 billion in 2016–17, with an additional £31.1 billion spent on social care and £48.3 billion on benefit payments to support individuals with disabilities and health conditions.³ Taken together, this constitutes 29.6% of public spending.

Despite these increases, public budgets for health and social care are coming under increasing pressure. Following large increases for both the NHS and social care during the 2000s, the years since 2009–10 have seen much slower growth in funding for the NHS and, in the case of social care, budget cuts. Between 1996–97 and 2009–10, public spending on health increased by 6.0% per year over and above economy-wide inflation. Similarly, funding for adult social care rose by 5.7% per year between 2001–02 and 2009–10. Since 2009–10, health spending has increased by only 1.4% per year, while adult social care funding has fallen by an annual average of 1.5%.

Despite the fact that, taking the whole period since 1996–97, spending growth, at 4.3% a year, has been above the long-term average of 3.7% a year, this recent slowdown in funding growth has been reflected in problems experienced by the NHS and local authorities. Performance along a number of measures – including various waiting times, delayed transfers of care between hospitals and social care providers, satisfaction with the NHS and provider deficits – has got worse in recent years, which has led to recent calls for funding increases.

In addition to these short-run pressures, the health and social care system faces a series of longer-term, and potentially more serious, challenges. Demographic pressures in the form of a growing and ageing population are only one part of this. Rising expectations, changing population health, and a range of cost pressures from wages and new technologies will all create substantial pressure on the public finances.

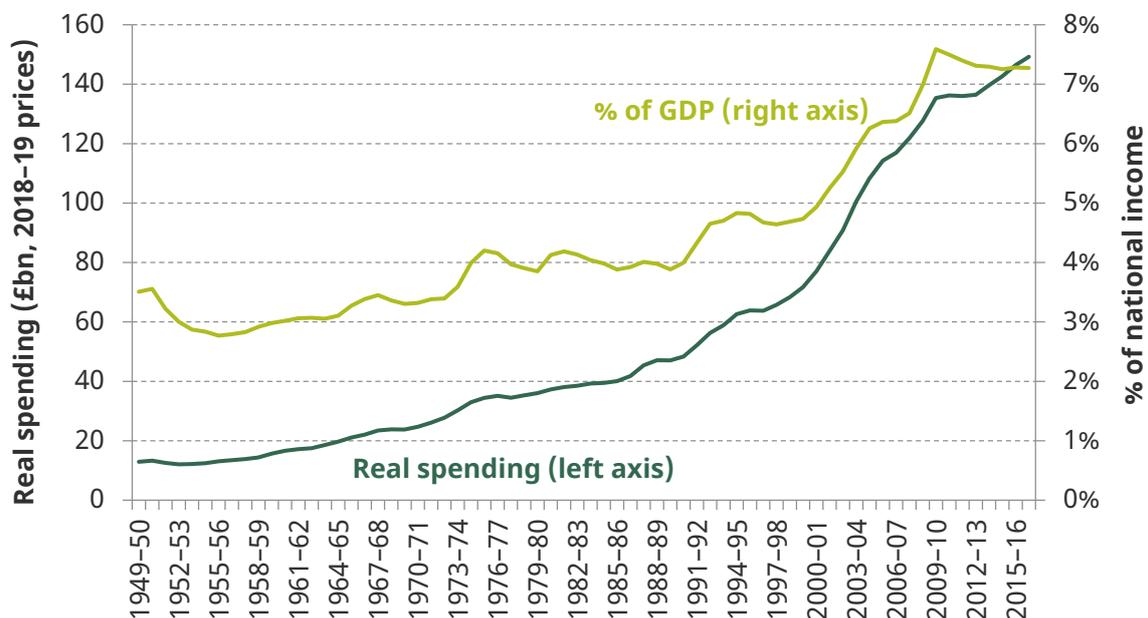
³ This includes incapacity and disability benefits, carer's allowance, industrial injuries benefits and associated housing benefit.

In this chapter, we consider how and why spending on health and social care has evolved over time. Section 1.2 considers how public spending on health in the UK has grown since the founding of the NHS. Section 1.3 describes how public spending on health varies across England, Scotland, Wales and Northern Ireland. Section 1.4 compares public and private health spending in the UK with that in other developed countries. Section 1.5 then examines how public spending on adult social care has changed over time. Section 1.6 sets out the reasons why health spending increases over time and presents the empirical evidence on drivers of previous growth in public spending. Section 1.7 concludes.

1.2 Public spending on health

Figure 1.1 shows how UK public spending on health evolved between 1949–50 and 2016–17, both in real terms (after accounting for economy-wide changes in prices) and as a share of national income.⁴ Between 1949–50 and 2016–17, UK public spending on health rose from £12.9 billion to £149.2 billion (2018–19 prices), an average real-terms increase of 3.7% per year. This increase in spending was substantially above the rate of wider growth in national income. As a result, public spending on health rose from 3.5% of national income in 1949–50 to 6.5% in 2007–08. It then peaked at 7.6% in 2009–10, following a large fall in national income after the 2008 financial crisis, since when it has fallen back to 7.3% in 2016–17.

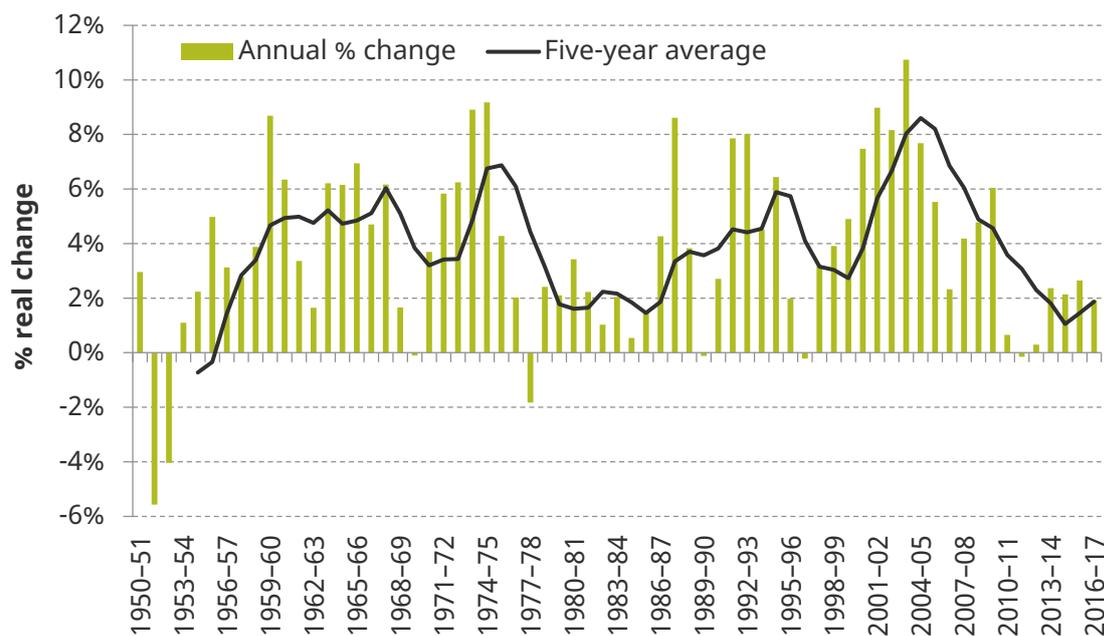
Figure 1.1. Annual UK public spending on health in real terms (2018–19 prices) and as a percentage of national income



Source: Nominal health spending data from Office of Health Economics (1949–50 to 1990–91) and HM Treasury *Public Expenditure Statistical Analyses* (1991–92 to 2016–17). Real spending refers to 2018–19 prices, using the GDP deflator from the Office for Budget Responsibility (OBR) in March 2018.

⁴ We use GDP deflators to account for inflation throughout this report. This is because health-specific measures of inflation are not available consistently over time. Health spending data begin in 1949–50, the first full financial year in which the NHS existed.

Figure 1.2. Annual growth rate in real UK public spending on health



Source: Authors' calculations using data from Figure 1.1.

Figure 1.2 shows the annual growth rate in real UK public spending on health in each financial year between 1950–51 and 2016–17. Over the entire period, it increased by an annual average of 3.7%. Real spending changes ranged from an increase of 10.7% in 2003–04 to a cut of 5.6% in 1951–52. Real-terms cuts have been rare, with only seven years in the entire history of the NHS experiencing reductions in spending. Large cuts took place in 1951–52 (–5.6%) and 1952–53 (–4.0%) as budgets fluctuated sharply in the early years of the NHS and some drug spending was shifted towards private spending following the introduction of prescription charges. In 1977–78, health spending fell by 1.8% as part of widespread cuts to public spending under the terms of a loan from the International Monetary Fund. In the other four years in which cuts occurred (1969–70, 1989–90, 1996–97 and 2011–12), these were modest, with none exceeding 0.5%.

There have been prolonged periods of more or less rapid growth in spending. Table 1.1 shows how spending increases varied across different governments. Since 1996–97, spending has increased at an average annual rate of 4.3%. But within this period, spending first increased rapidly (in the late 1990s and 2000s) before rising at a much slower pace after 2009–10. Average increases under the Labour governments between 1996–97 and 2009–10 were 6.0%, the greatest average annual increase of any government. Between 2009–10 and 2014–15, by contrast, spending increases averaged 1.1%, the lowest five-year average increase since the mid 1950s, and the lowest government average increase since the 1976–77 to 1978–79 Callaghan government (0.9% per year). Spending since 2014–15 has grown slightly more quickly, at 2.3% per year, but still below the long-run average of 3.7%.

While health spending has increased over time, so have the demands on the health service. One reason why demand has increased is that the population has grown by 131%, as shown in Figure 1.3. Population growth has varied over time, being stronger in the 1960s contrasted with little growth in the 1970s. It has been particularly strong in recent

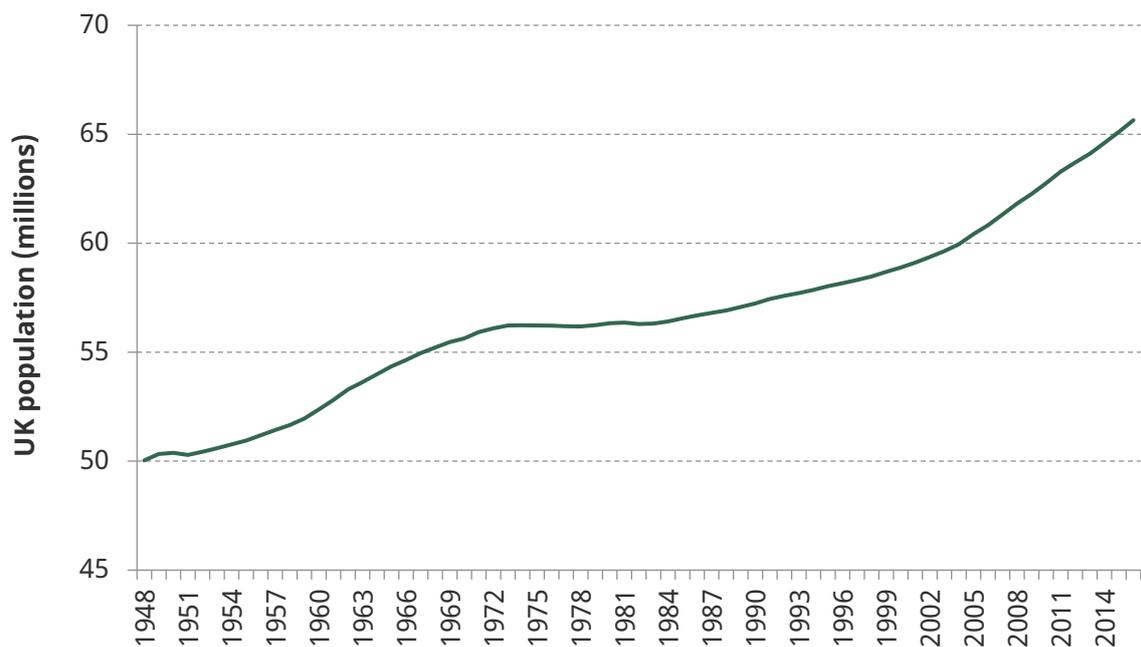
years, with annual average increases of 0.8% (twice the long-run average) between 2006 and 2016 driven by rising levels of immigration and an increased birth rate.⁵

Table 1.1. Annual average real growth rates in UK public spending on health, selected periods

Period	Financial years	Average annual real growth rate
Whole period	1949-50 to 2016-17	3.7%
Pre 1979 (various governments)	1949-50 to 1978-79	3.5%
Thatcher and Major Conservative governments	1978-79 to 1996-97	3.3%
Blair and Brown Labour governments	1996-97 to 2009-10	6.0%
Coalition government	2009-10 to 2014-15	1.1%
Conservative government	2014-15 to 2016-17	2.3%

Source: Authors' calculations using data from Figure 1.1.

Figure 1.3. UK population size

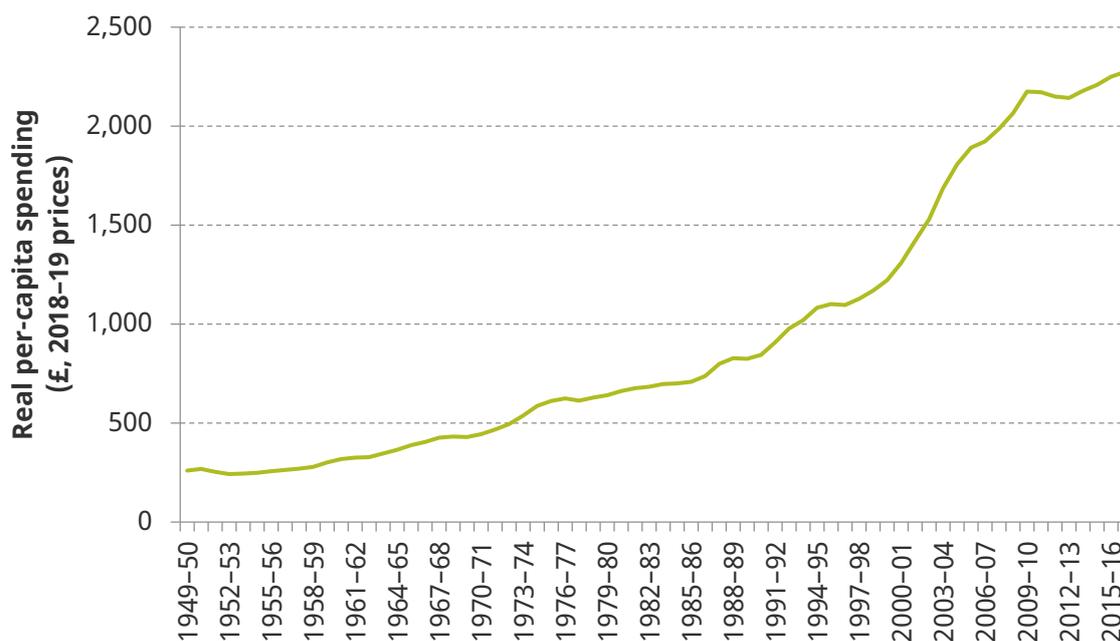


Source: Past UK population data available on an annual basis (but not financial year) from the Office for National Statistics (ONS) mid-year population estimates (June 2016 release),

<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/timeseries/ukpop/pop>.

⁵ Office for National Statistics, 'Overview of the UK population: July 2017', 2017, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/articles/overviewoftheukpopulation/july2017>.

Figure 1.4. Real per-capita public spending on health



Source: Nominal health spending data from Office of Health Economics (1949-50 to 1990-91) and HM Treasury *Public Expenditure Statistical Analyses* (1991-92 to 2016-17). Real spending refers to 2018-19 prices, using the GDP deflator from the OBR in March 2018. UK population data available on an annual basis (but not financial year) from the ONS mid-year population estimates (June 2016 release), <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/timeseries/ukpop/pop>.

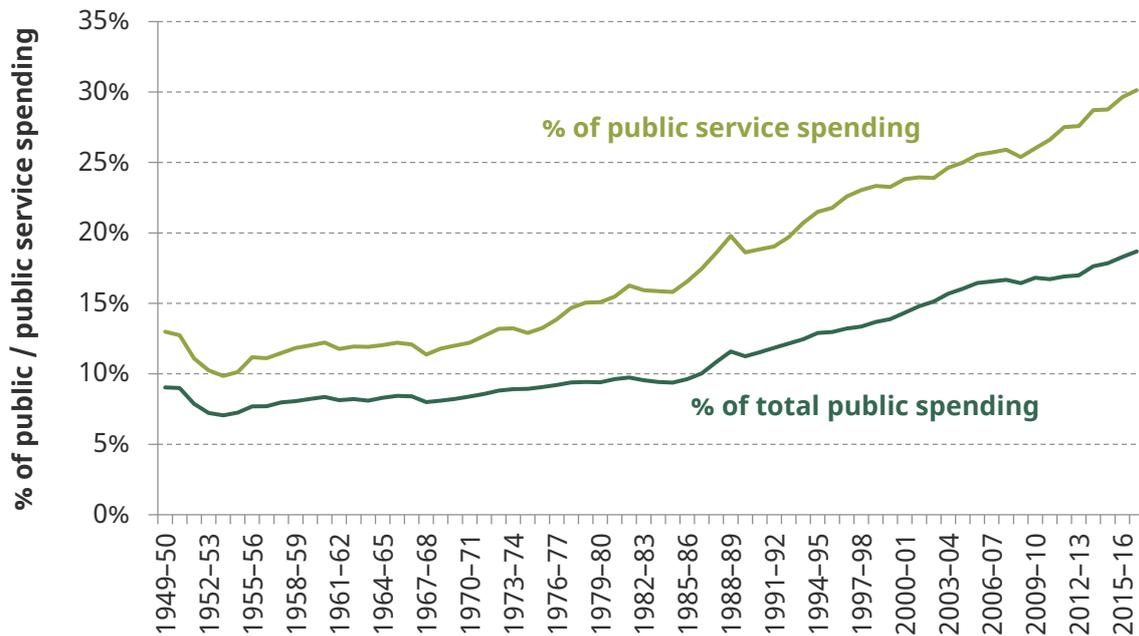
Figure 1.4 shows real per-person public spending on health between 1949-50 and 2016-17, which rose at an annual rate of 3.3% (compared with 3.7% for total health spending over the same period).

With high population growth and low overall spending growth, growth in per-capita spending has been particularly weak since 2009-10, increasing by just 0.6% a year between 2009-10 and 2016-17, as compared with 5.4% between 1996-97 and 2009-10 and 3.3% per year between 1949-50 and 2016-17.

Broader public spending has also increased over time. Figure 1.5 shows public spending on health as a percentage of total public spending and as a percentage of public service spending (which excludes spending on social security benefits, tax credits and debt interest). Over time, spending on health increased more quickly than spending on other areas, and so the share of public spending accounted for by health has increased.

Prior to the 1980s, this increase was relatively modest, with the largest increases in public spending directed towards education and state pensions. The growth in the share of public spending on health then accelerated from the mid 1980s. Between 1985-86 and 2016-17, health spending rose from 9.6% of total public spending to 18.7%. A similar increase is also seen when looking at health spending as a share of public service spending, rising from 16.6% to 30.1% over this period. This means that in 2016-17, almost 19p in every £1 spent by the government went on health, or 30p in every £1 spent on public services.

Figure 1.5. Annual UK public spending on health as a percentage of total public spending and of public service spending



Note: Public spending is total managed expenditure. Public service spending is defined as total public spending less spending on gross debt interest and less spending on benefits and tax credits.

Source: Health spending data as for Figure 1.1. Public spending and public service spending calculated from OBR Public Finances Database and Department for Work and Pensions Benefit Expenditure Tables.

It is interesting to note that the share of spending directed towards health has actually increased at a quicker pace since 2009–10, during a period of historically low increases in health spending, than during the 2000s. Between 2002–03 and 2009–10, health spending as a share of public service spending grew by 2.1 percentage points (a 9% increase), from 23.9% to 26.0% of service spending. Between 2009–10 and 2016–17, it grew by 4.1 percentage points (16%). So while health spending increased at a historically slow pace during this period, it has continued to be protected relative to other service spending, which was substantially cut as part of a wider government austerity programme.

1.3 How does public spending on health vary across the UK?

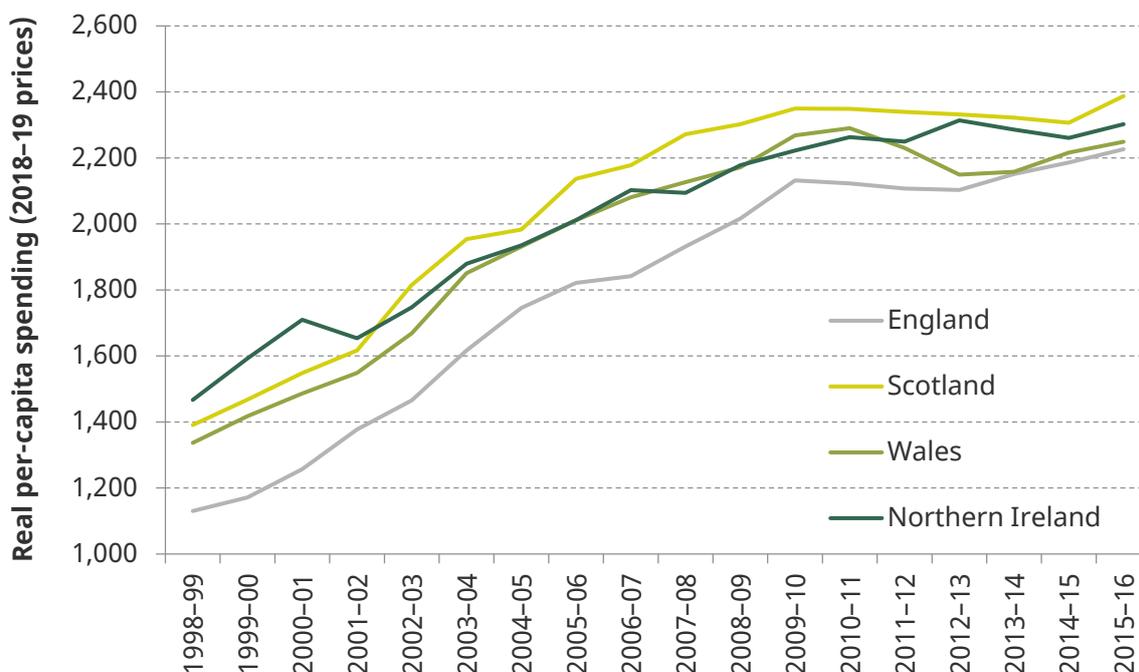
Different demographic compositions, socio-economic characteristics and underlying health mean that the need for healthcare varies across different parts of the UK. In addition, since 1999, the devolved administrations of Scotland, Wales and Northern Ireland have been responsible for local health spending decisions. As a result, as shown in Figure 1.6, per-person public health spending varies across the different parts of the UK. In 2015–16, it was highest in Scotland at £2,387. This compares with spending of £2,302 in Northern Ireland, £2,249 in Wales and £2,226 in England.

Per-person spending increased in all areas between 1998–99 and 2009–10, but at varying rates. Spending grew most in England, increasing by an annual average of 5.9% between 1998–99 and 2009–10. This compares with annual growth rates over the same period of

4.9% in Scotland and Wales and 3.9% in Northern Ireland. So while per-capita spending is lower in England than elsewhere, this gap has narrowed over time.

Growth in per-capita health spending has been much slower since 2009–10. Table 1.2 summarises changes in spending, population size and per-capita spending in England,

Figure 1.6. Real per-capita public spending on health in England, Scotland, Wales and Northern Ireland



Source: Authors' calculations using HM Treasury Public Expenditure Statistical Analyses 2007–17 and the March 2018 OBR GDP deflator.

Table 1.2. Changes in health spending, population and per-capita health spending between 2009–10 and 2015–16 in England, Scotland, Wales, Northern Ireland and the UK

	% change between 2009–10 and 2015–16		
	Real health spending	Population	Real per-capita health spending
England	9.6	5.0	4.4
Scotland	4.3	2.7	1.6
Wales	1.1	2.0	-0.9
Northern Ireland	7.0	3.3	3.6
UK	8.6	4.6	3.8

Source: Population data from ONS mid-year population estimates, 2009 and 2015; accessed through NOMIS on 23 March 2018. Nominal health spending from HM Treasury *Public Expenditure Statistical Analyses 2017*. Real spending refers to 2018–19 prices, using the GDP deflator from the OBR in March 2018. The changes in UK real health spending and real per-capita health spending only include UK health spending that takes place inside the UK.

Scotland, Wales and Northern Ireland over the period from 2009–10 to 2015–16. After taking into account population growth, per-capita spending increased by most in England, rising by 4.4% (0.7% per annum) compared with growth rates of 3.6% (0.6% p.a.) in Northern Ireland and 1.6% (0.3% p.a.) in Scotland. Per-capita spending fell slightly in Wales during this period, by 0.9% (0.1% p.a.).

The decisions taken over health spending in each part of the UK in recent years have also had wider consequences for public spending on other services across the country. The choice to protect NHS spending necessitated larger cuts in other departments to achieve overall spending reductions. So while NHS spending grew at a much slower rate in Wales than in England, spending in other areas (e.g. local government spending, which funds social care) experienced smaller cuts.⁶

1.4 International comparisons

Different countries spend varying amounts on healthcare. The differences may reflect differences in the organisation of care, different preferences for health, and variation in the overall levels of taxation and public spending in each country.⁷

Figure 1.7 shows how total (public and private) health spending in the UK, as a share of national income, compares with other countries in 2015.⁸ UK spending, at 9.5% of national income, was just above the unweighted EU15 average of 9.6% and just below the EU15 average of 10.2% when weighting spending by GDP for each country. However, this is substantially below figures for large economies such as the US (17.2%), Germany (11.3%) and France (11.0%), with much lower shares of GDP being devoted to health in the smaller economies of Greece (8.3%), Ireland (7.8%) and Luxembourg (6.3%). This means that if the UK wanted to spend the same proportion of national income on health as Germany in the next year, it would have to spend more than an additional £30 billion on health. Of course, GDP per person is also higher in Germany than in the UK. An even greater increase in spending would therefore be required to match the actual level of health spending per person in Germany.

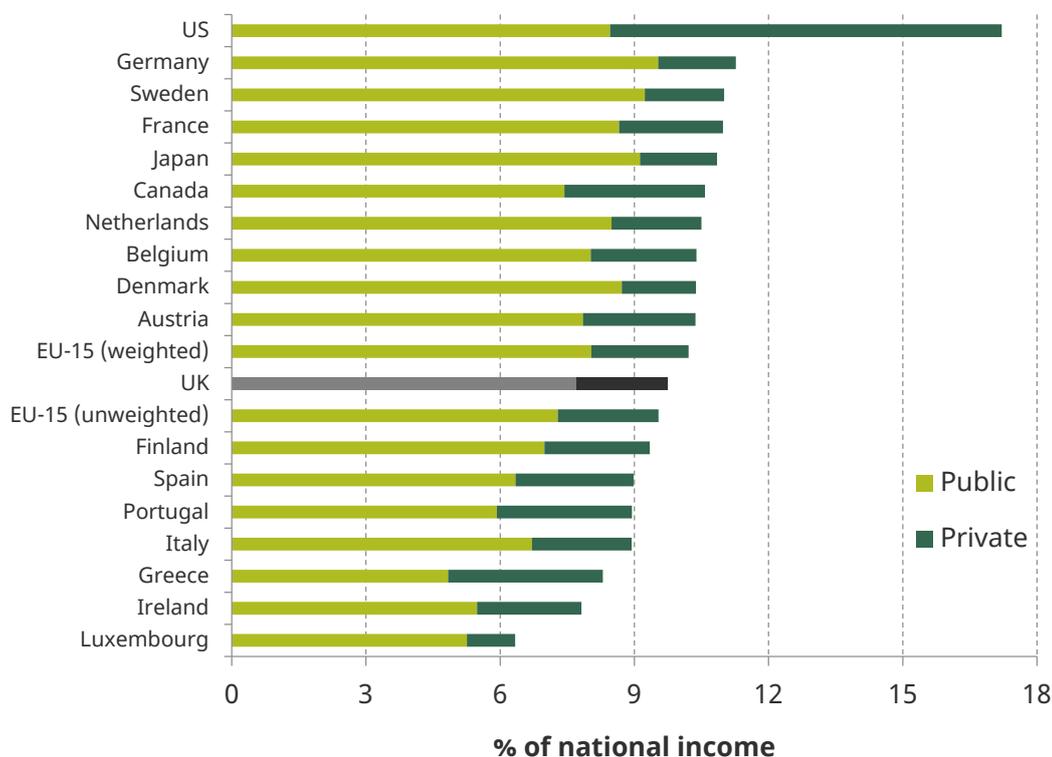
The figure also distinguishes the fractions of spending that are conducted through public and private channels. Public spending accounted for a slightly larger share of health and health-related long-term care spending in the UK (79%) than on average in the EU15 (76%). Private health spending in the UK was 2.0% of national income in 2016. The majority of this spending is out-of-pocket spending (1.5% of GDP) by consumers on medical goods (e.g. drugs, medical equipment, fitness and well-being aids) and spending on private

⁶ B. Deaner and D. Phillips, *Scenarios for the Welsh Government Budget to 2025–26*, IFS Report R83, 2013, <https://www.ifs.org.uk/comms/r83.pdf>.

⁷ See *OECD Reviews of Health Systems* for the different organisational structures of international healthcare systems: <http://www.oecd.org/els/health-systems/reviews-health-systems.htm>.

⁸ Figures in Section 1.4 are reported under the international definitions of the System of Health Accounts 2011. This is an internationally comparable definition, used by the OECD to compare spending across countries, and includes a number of health-related elements of social care spending. Public spending in the UK under this definition is higher than that used elsewhere in the report: 7.7% of GDP in 2016 as compared with 7.3% of GDP reported by HM Treasury in 2016–17.

Figure 1.7. Public and private health spending as a percentage of national income across the EU15 and G7 countries in 2016



Note: Figures for the UK differ from those in Figure 1.1 as health spending (as reported by the OECD) is measured on an internationally comparable basis. This measure includes spending on health services and products, in addition to spending on services and equipment for health-related long-term care. Figure 1.1 excludes most spending on long-term care, which is classified as ‘social care spending’ and instead included in Figure 1.8. EU15 averages are weighted (by GDP) and unweighted averages, and exclude the UK.

Source: OECD Health Statistics, http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT.

medical insurance (0.3% of GDP).⁹ At the end of 2015, 10.6% of the population were covered by some sort of private medical insurance,¹⁰ which gives access to duplicate services to those provided by the NHS but with shorter waiting times and access to private hospitals.

The US is a notable outlier in the proportion that is spent through private channels (51%). Despite this high share of private spending, the US still publicly spends a larger share of its national income on health (8.5%) through care programmes for the over-65s (Medicare) and for low-income people (Medicaid) than the UK (7.7%), with an additional 8.8% of GDP spent privately in the US.

While comparisons of spending do not necessarily reflect differences in the quality of care provided in different countries (with different costs of production and levels of health

⁹ Office for National Statistics, ‘UK Health Accounts: 2016’, 2018, <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthcaresystem/bulletins/ukhealthaccounts/2016>.

¹⁰ LaingBuisson, ‘Demand for PMI increases thanks to corporates’, Market Briefing, 2017, https://www.laingbuisson.com/wp-content/uploads/2017/01/HealthCover_13ed_market_briefing.pdf.

across countries), it is interesting to note that the UK has historically spent (and continues to spend) less on health than countries such as France and Germany. Indeed, these differences directly fed into policy in the 2000s when then Prime Minister Tony Blair promised to raise UK health spending to the European average by 2005.¹¹ Following this pledge, while health spending rose as a share of GDP in most EU countries over the next decade, spending in the UK increased at a quicker pace. These increases were therefore broadly in line with this pledge,¹² and they narrowed the gap in spending with France and Germany. While lower than in some countries, spending in the UK is now not low compared with that in other comparable countries on average.

1.5 Social care spending

Individuals with physical or learning disabilities, or physical or mental illnesses, often have difficulties with activities of daily living, such as cooking, washing and getting dressed. Social care includes a broad range of non-medical services that support people with these activities. This is distinct from healthcare, which treats underlying medical conditions, but both types of care are often required by the same individuals.

Unlike healthcare, the majority of social care is provided on an informal basis by family, friends or neighbours, or purchased privately. For example, among the population aged 65 and over in England in 2014–15, 23% of individuals reported receiving some sort of informal care.¹³ In addition to this, approximately half of individuals who reported receiving formal social care privately financed at least part of their care.

Publicly funded social care is available for individuals who meet the required eligibility criteria, including both a needs and a financial means test (see below for details of how this varies across the UK). In 2016–17, the UK government spent, mostly through local authorities, a total of £31.1 billion on social care for both adults and children.¹⁴ While much of the public discussion about the organisation and funding of social care centres upon care for individuals in old age, publicly funded social care is used by individuals of all ages and, in fact, only a minority goes on those aged 65 and over. Social care spending on children amounted to £9.9 billion (32% of the total). The remaining £21.2 billion was spent on adults, with approximately half of this spent on individuals aged 65 and over.¹⁵

¹¹ See *Hansard*, 28 November 2001, column 964, <https://publications.parliament.uk/pa/cm200102/cmhansrd/vo011128/debtext/11128-03.htm>.

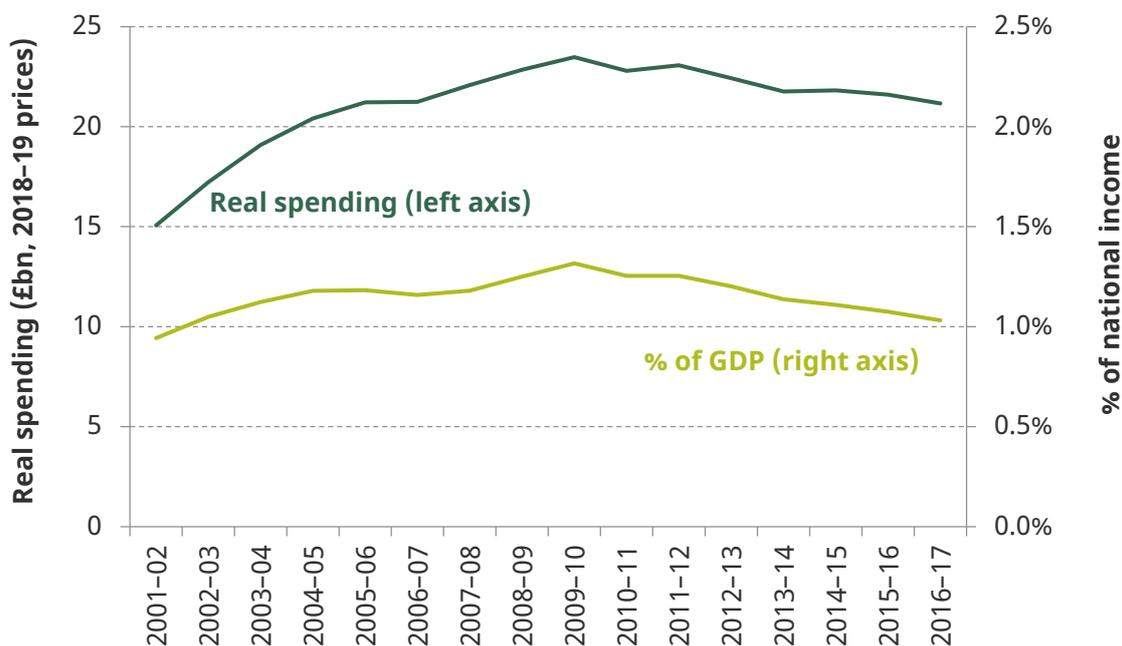
¹² R. Thorlby and J. Maybin, 'Health and ten years of Labour government', King's Fund Briefing, 2007, https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/health-ten-years-labour-government-achievements-challenges-may2007.pdf.

¹³ R. Crawford and G. Stoye, *The Prevalence and Dynamics of Social Care Receipt*, IFS Report R125, 2017, <https://www.ifs.org.uk/publications/8893>.

¹⁴ HM Treasury, *Public Expenditure Statistical Analyses 2017*, <https://www.gov.uk/government/statistics/public-expenditure-statistical-analyses-2017>.

¹⁵ Recipients of care under the age of 65 tend to have higher costs than individuals aged 65 and over. As a result, there are more recipients at older ages even though the costs are split equally. For example, in England, adults aged 18–64 represented 33% of adult social care recipients but accounted for half of all spending on adult social care. (For more details, see <http://digital.nhs.uk/catalogue/PUB30121>.)

Figure 1.8. Annual UK public spending on adult social care in real terms (2018–19 prices) and as a percentage of national income



Source: Nominal adult social care spending data from HM Treasury *Public Expenditure Statistical Analyses* 2007–17. Real spending refers to 2018–19 prices, using the GDP deflator from OBR in March 2018. Adult social care spending is defined as spending on personal social services minus personal social services spending on children and family and minus personal social services spending on unemployment.

Figure 1.8 shows annual UK public spending on adult social care between 2001–02 and 2016–17, both in real terms and as a percentage of national income.¹⁶ Social care spending initially follows a similar pattern to health spending, with large increases in public spending throughout the 2000s. Public spending increased by 56% from £15.1 billion in 2001–02 to £23.5 billion in 2009–10, an average annual real increase of 5.7%. This is mirrored by an increase in the share of national income spent on adult social care over the same period, rising from 0.9% in 2001–02 to 1.3% in 2009–10.

Spending on social care has fallen consistently since 2009–10. Between 2009–10 and 2016–17, spending fell by 9.9% (or 1.5% a year) to £21.2 billion. This pattern contrasts with public spending on health, which, although increasing at a historically slow pace, actually increased by 10.3% after accounting for economy-wide inflation over the same period.

In England, publicly funded social care is the responsibility of the local authority (LA). Since April 2015, national eligibility criteria have governed who is eligible for LA financial contributions towards care in their own home or in a residential care home.

Eligibility for public social care is judged on two separate criteria.¹⁷ First, there is a needs assessment. Since April 2015, this has been standardised across all LAs. Individuals with

¹⁶ Chapter 3 models pressures on adult social care and not children’s social care. As a result, we focus our discussion of spending on adult social care.

¹⁷ For a more detailed explanation of eligibility for local authority social care, see T. Jarrett, ‘Social care: paying for care home places and domiciliary care (England)’, Commons Briefing Paper SN01911, 2017, <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN01911>.

difficulties with at least two daily activities are judged to have sufficient need for assistance from the LA.

Second, all individuals who meet the needs assessment are subject to a financial means test. This determines who will pay for care: the individual, the LA or a combination of the two. The financial means test has two components, with individuals expected to contribute to the cost of their care if they have a sufficient level of income, assets or both.

Individuals receiving LA care are expected to contribute to the costs of their care from their income (although some income is exempt from this test). Individuals make contributions to the point at which they have a minimum weekly income remaining. The minimum income differs across residential home and non-residential home care recipients. The minimum income for residential home care recipients is currently £24.90. For others it is set higher, and is equivalent to basic levels of income support or guarantee credit element of pension credit, plus an additional sum.¹⁸

In addition to their income (i.e. even if income is zero), individuals face an asset test. Individuals with eligible assets above the 'upper threshold' – set at £23,250 in 2015 – must pay for all care. Individuals with assets between the 'upper' and 'lower' threshold – set at £14,250 – pay for some of their care, with the remaining costs met by the LA. Individuals with assets below the lower threshold (and with sufficiently small income) do not pay anything towards care.

The definition of assets varies according to the care received by an individual. The value of their primary residence is not included in the asset test if the individual is receiving care in their own home. Similarly, the value of this property is not included in the asset test if the individual is receiving care in a residential home, but a dependant (e.g. their spouse) still lives in the property.¹⁹

The organisation and funding arrangements for adult social care vary across the different parts of the UK. In Scotland and Wales, as in England, health and social care are largely provided separately, with adult social care the responsibility of LAs.²⁰ In Northern Ireland, where health and adult social care have been structurally integrated since 1973, social care is provided by five Health and Social Care Trusts (HSCTs).

Variability in eligibility across England, Scotland, Wales and Northern Ireland arises from differences in the thresholds used for the tests and in the types of care or services that are covered by the tests (and which are exempt). These differences are summarised in Table 1.3.

In Scotland, fewer services are covered by the financial means test. Individuals who are judged to need personal or nursing care do not contribute to payments towards this care. However, the financial means test still remains for residential care. In Northern Ireland, residential care is not means-tested but domiciliary care (or care in a private residence) is.

¹⁸ T. Jarrett, 'Social care: paying for care home places and domiciliary care (England)', Commons Briefing Paper SN01911, 2017, <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN01911>.

¹⁹ Since 2015, individuals have been allowed to take out deferred payment schemes to fund care, borrowing money against the value of their house which is recouped after the recipient dies. This means that individuals do not need to sell their house to fund their care as a result of the asset test.

²⁰ There are 152 LAs with social care responsibilities in England, 32 in Scotland and 22 in Wales.

Table 1.3. Social care eligibility criteria in England, Scotland, Wales and Northern Ireland

	England	Scotland	Wales	N. Ireland
Organisation				
Number of responsible organisations	152 LAs	32 LAs	22 LAs	5 HSCTs
Needs test?	Yes	Yes	Yes	Yes
Income test?	Yes	Yes	Yes	Yes
Asset test?	Yes	Yes	Yes	Yes
Lower asset test threshold	£14,250	£16,500	-	£14,250
Upper asset test threshold:	£23,250	£26,500	£30,000 ^a	£23,250
Services covered by the means test				
Personal care	Yes	No	Yes	Yes
Nursing care	Yes	No	Yes	Yes
Residential care	Yes	Yes	Yes	No

^a The upper means test of £30,000 applies to those in receipt of residential care. The corresponding number for recipients of domiciliary care is £24,000. However, there is a cap on weekly payments, of £70, for domiciliary care recipients.

Note: Personal care includes help with everyday activities that does not require qualified nursing or medical care. Nursing care covers services provided by a qualified nurse. Residential care includes care in a nursing home or residential care facility.

Source:

For details of the means test in England, see T. Jarrett, 'Social care: paying for care home places and domiciliary care (England)', Commons Briefing Paper SN01911, 2017,

<http://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN01911>.

For Wales, see S. Boyce, 'Paying for adult social care in Wales: debate and reform', Research Briefing, National Assembly for Wales, 2017, <http://www.assembly.wales/research%20documents/17-009/17-009-web-english.pdf>.

For details of the means test and free personal care in Scotland, see Care Info Scotland,

<http://www.careinfoscotland.scot/>.

For a summary of social care arrangements in Northern Ireland, see Citizens Advice,

<https://www.citizensadvice.org.uk/nireland/family/looking-after-people/social-care-and-support-ni/>.

The asset thresholds are also set at different levels. In Scotland, the upper and lower thresholds are set at a more generous level – individuals with assets below £16,500 do not pay anything for care (subject to having sufficiently low income). In Wales, there is only one threshold. This means that individuals must pay for all residential care if they have assets above £30,000, or all domiciliary care if they have assets above £24,000. However, in Wales, there is a cap on weekly payments set at £70 for domiciliary care recipients.

Perhaps unsurprisingly given the different organisation and eligibility criteria, there is considerable variation in per-capita spending across the different parts of the UK. Table 1.4 shows public spending per adult in England, Scotland, Wales and Northern Ireland in 2011–12 and 2015–16. Spending per person in England in 2015–16 was 31% below the level in Scotland, a gap which has grown from 19% in 2011–12. The gap between spending in England and Northern Ireland is even greater. These changes in the gaps reflect both differences in choices about social care spending in recent years, and differential

Table 1.4. Social care spending per head in England, Wales, Scotland, Northern Ireland and the UK: real spending (2018–19 prices) and percentage change between 2011–12 and 2015–16

	Real per-capita adult social care spending		
	2011–12	2015–16	% change (2011–12 to 2015–16)
England	398	365	-8.2%
Scotland	492	530	7.7%
Wales	495	486	-1.8%
Northern Ireland	482	555	15.1%
UK	456	415	-9.1%

Source: Population data from ONS mid-year population estimates, 2009 and 2015; accessed through NOMIS on 23 March 2018. Nominal health spending from HM Treasury *Public Expenditure Statistical Analyses 2017*. Real spending refers to 2018–19 prices, using the GDP deflator from the OBR in March 2018. The changes in UK real social care spending and real per-capita health spending only include UK health spending that takes place inside the UK. Adult social care spending is defined as spending on personal social services minus personal social services spending on children and family and minus personal social services spending on unemployment.

population growth and ageing, in the different parts of the UK, with England implementing larger cuts to social care and experiencing a larger increase in its over-18 population.

In addition to the variation in spending across the UK, there is also considerable variation in spending and the quality and quantity of care provided even within individual parts of the UK. For example, there is considerable variation in adult social care spending across local authorities in England. In 2015–16, 10% of LAs spent less than £325 per adult, while 10% spent more than £445 per adult (in 2016–17 prices).²¹ The past seven years have seen considerable variation in cuts to spending across different LAs.²² This in part reflects different pressures on local budgets, with differential levels of reliance on central government grants (which saw large cuts over this period) and different abilities to raise tax revenue from local sources (e.g. council tax), as well as variation in the choices made by different LAs over which services to prioritise.

1.6 Why might spending on health and social care increase over time?

Health spending has increased substantially over time. But why has spending increased so much? There are a number of potential drivers of spending:

- *Rising incomes and expectations:* As income increases, demand for more and better-quality healthcare increases. As a result, spending is likely to increase over time. However, what happens to the share of income spent on health as income rises is less

²¹ D. Phillips and P. Simpson, *National Standards, Local Risks: The Geography of Local Authority Funded Social Care, 2009–10 to 2015–16*, IFS Report R128, 2017, <https://www.ifs.org.uk/publications/9122>.

²² Ibid.

certain. Many projections (including those of the OBR) assume that, abstracting from other pressures, a constant share of national income would be spent on health as incomes rise. But it is possible that a growing share will be spent if additional health spending is a priority as we get richer.

- *Demographic changes:* As the population grows and ages, demand for care increases. Older individuals typically require more, and more expensive, care than younger individuals. It has been estimated that health spending in England would need to increase by 1.3% a year between 2009–10 and 2019–20 simply to keep pace with projected demographic change over this period.²³
- *Population health:* Changes in the underlying health of individuals of a given age will also impact spending over and above demographic changes. For example, an increase in the prevalence of chronic conditions such as diabetes at particular ages would increase the burden on the health service. Underlying rates of conditions are related to wider health behaviours, such as obesity, smoking and drinking, and future health spending demands will reflect trends in these behaviours.
- *Cost pressures:* In addition to demand pressures, the cost of providing a given level and quality of healthcare will also change over time. One major source of cost pressure is wages for NHS staff as pay rises. These increases are often required to maintain competitiveness with wages being offered in the wider economy, rather than necessarily reflecting productivity improvements in the NHS. New medical technologies and drugs are also likely to increase costs as the number and quality of treatments provided by the NHS expand over time.

We now explore each of these potential drivers of health spending in more detail, setting out the reasons why these factors could increase spending and the empirical evidence on these impacts.

Rising incomes and expectations

One factor driving increased health spending over time is income growth. As incomes rise, individuals demand more, better-quality, healthcare-related goods and services. As a result, health spending increases as a country becomes richer.

However, the extent to which additional income is spent on health is uncertain. In the UK and most developed countries, increases in health spending have outstripped general economic growth (as demonstrated by the rising share of national income spent on health in Figure 1.1), but this could be explained by a number of other factors aside from income (as discussed below).

The income elasticity of demand for health – which captures what proportion of increases in income is spent on health – is therefore a key determinant of future spending. An elasticity of 1 indicates that the share of income spent on health remains constant as the country becomes richer. In other words, health spending would rise in line with national income. An income elasticity below (above) 1 means that, all else equal, health spending

²³ D. Luchinskaya, P. Simpson and G. Stoye, 'UK health and social care spending', in C. Emmerson, P. Johnson and R. Joyce (eds), *The IFS Green Budget: February 2017*, <https://www.ifs.org.uk/uploads/publications/budgets/gb2017/gb2017ch5.pdf>.

would rise at a slower (quicker) rate than national income. The value of the income elasticity is therefore important in modelling future increases in health spending and in determining the role of income growth in previous growth of health expenditures.

Most forecasters of health spending use an income elasticity of around 1.²⁴ The OBR and US Congressional Budget Office both use an income elasticity of 1 for their long-run projections.²⁵ The European Commission uses an elasticity of 1.1,²⁶ while the OECD uses an income elasticity of 0.8.²⁷ The OECD estimates would imply that a third of health spending growth in the UK between 1995 and 2009 could be explained by income growth.²⁸

Demographics

As noted in Section 1.2, the number of people living in the UK has grown over time. The population has also aged. Table 1.5 shows the size of the population by age group in 1953,

Table 1.5. UK population size and age composition

	Population size (millions)			% of total population		
	1953	1985	2016	1953	1985	2016
Total	50.6	56.6	65.6	100%	100%	100%
Aged 0–14	11.5	10.9	11.7	22.8%	19.2%	17.8%
Aged 15–39	17.3	21.2	21.1	34.2%	37.6%	32.2%
Aged 40–64	16.1	15.9	21.0	31.9%	28.0%	32.0%
Aged 65–84	5.4	7.9	10.2	10.6%	13.9%	15.6%
Aged 85+	0.2	0.7	1.6	0.5%	1.2%	2.4%

Source: UK population data on an annual basis (but not financial year) from ONS: 1953 and 1985 data from <https://www.ons.gov.uk/aboutus/transparencyandgovernance/freedomofinformationfoi/populationbyagegenderrandethnicity>; 2016 data accessed through the NOMIS website on 28 March 2018.

²⁴ A range of empirical estimates exist for the income elasticity. Estimates using individual-level data typically produce values below 1 (e.g. J. Newhouse and the Insurance Experiment Group, *Free for All? Lessons from the RAND Health Insurance Experiment*, Harvard University Press, 1993; D. Acemoglu, A. Finkelstein and M. Notowidigdo, 'Income and health spending: evidence from oil price shocks', *Review of Economics and Statistics*, 2013, 95, 1079–95). In contrast, estimates using national-level data often produce values greater than 1 (U. Gerdtham and B. Jonsson, 'International comparisons of health expenditure: theory, data and econometrics analysis', in *Handbook of Health Economics*, 11–53, Elsevier, 2000; R. Hall and C. Jones 'The value of life and the rise in health spending', *Quarterly Journal of Economics*, 2007, 122, 39–72).

²⁵ Office for Budget Responsibility, *Fiscal Sustainability Report: January 2017*, <http://obr.uk/fsr/fiscal-sustainability-report-january-2017/>; Congressional Budget Office, *The 2016 Long-Term Budget Outlook*, 2016, <https://www.cbo.gov/publication/51580>.

²⁶ European Commission, 'The 2015 Ageing Report: economic and budgetary projections for the 28 EU Member States (2013–2060)', *European Economy*, 2015, 3, May.

²⁷ C. de la Maisonneuve and J. Oliveira Martins, 'A projection method for public health and long-term care expenditures', OECD Economics Department Working Paper 1048, 2013, <http://dx.doi.org/10.1787/5k44v53w5w47-en>.

²⁸ The OECD decomposition splits average health increases into three parts: (i) an age effect – which takes spending per age at a given year and asks how the age composition of the population has changed over time; (ii) an income effect – which simply multiplies per-capita income growth by the chosen income elasticity, in this case 0.8; and (iii) a residual – which includes everything else, including policy choices, which may or may not be driven by rising income and expectations.

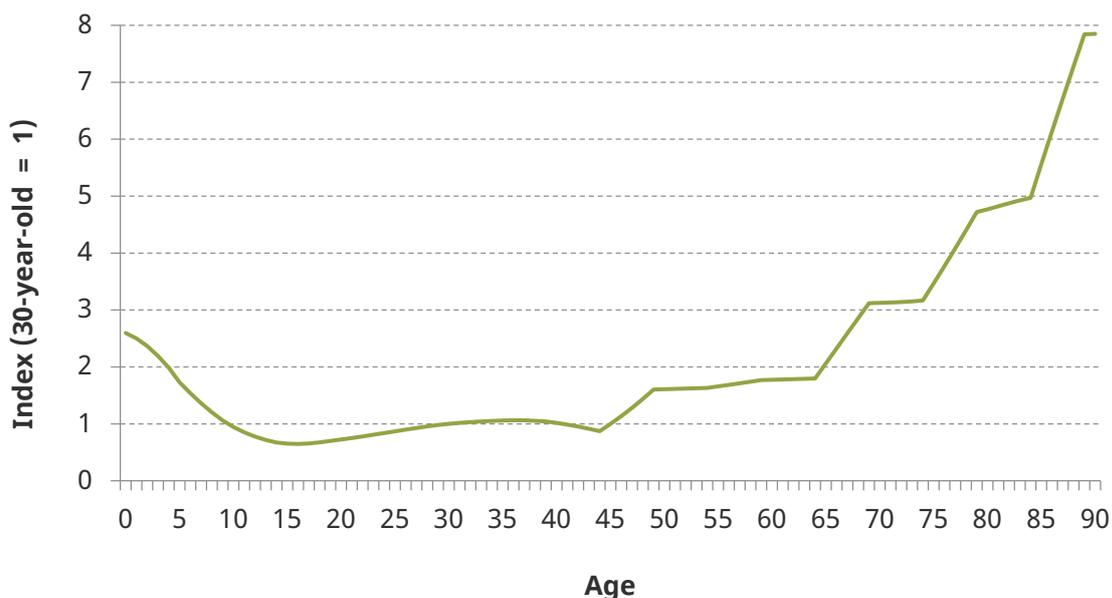
1985 and 2016. While the size of the population aged 15–64 increased by about a quarter, the number of individuals aged 65–84 almost doubled between 1953 and 2016, increasing from 5.4 million in 1953, to 7.9 million in 1985 and to 10.2 million by 2016. There are also now 1.6 million people aged 85 and above – an eightfold increase on the figure in 1953, when there were only 0.2 million individuals in this age group.

The share of the population accounted for by these older groups has therefore increased substantially over time. In 2016, 65- to 84-year-olds accounted for 15.6% of the population, an increase of 5 percentage points from 1953, and individuals aged 85 and above accounted for 2.4% of the population in 2016. Over the same period, the share of the population aged under 40 has decreased.

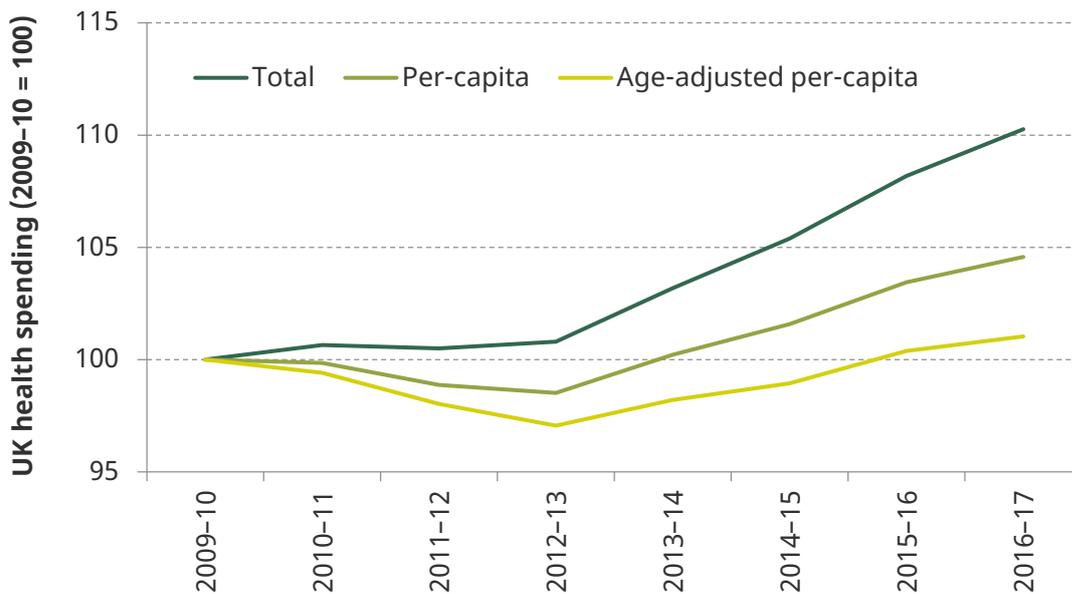
These demographic changes are in part explained by the ageing of a particularly large birth cohort: as the large baby-boomer cohort born after the end of the Second World War age, the share of the population accounted for by individuals at older ages will increase. In addition to this, longevity at older ages has risen considerably in recent decades. The next few years are therefore likely to see continued increases in the share of the older population.

These demographic changes mean that the NHS now serves more people and, in particular, a greater number of older individuals. Figure 1.9 shows how, according to the OBR, average annual spending on individuals of different ages in the UK in 2021–22 is projected to compare with the average annual spending on a 30-year-old in the same year. Average spending on 65-year-olds is projected to be roughly double that on 30-year-olds. This ratio increases sharply at older ages, with average spending on 85-year-olds projected to be five times, and average spending on 90-year-olds almost eight times, average spending on 30-year-olds. Treating a population with a larger share of older individuals, and particularly those aged 80 and above, will therefore cost much more than treating a population mostly composed of working-age individuals.

Figure 1.9. Age profile of UK public spending on health (relative to a 30-year-old)



Source: Chart 3.7 of OBR *Fiscal Sustainability Report: January 2017*. Projected costs in 2021–22 are reported for individuals of each age between 0 and 90 years, relative to the average cost of treating a 30-year-old in the UK.

Figure 1.10. Real-terms UK health spending (2009–10 = 100)

Note: Total, per-capita and age-adjusted per-capita spending in 2009–10 each take the value 100.

Source: Authors' calculations using UK health spending from HM Treasury *Public Expenditure Statistical Analyses 2017* (<https://www.gov.uk/government/statistics/public-expenditure-statistical-analyses-2017>) for all years between 2009–10 and 2016–17, ONS population projections (June 2016), ONS mid-year population estimates (2009 to 2016) and age spending weights from the Office for Budget Responsibility *Fiscal Sustainability Report: January 2017* (<http://budgetresponsibility.org.uk/fsr/fiscal-sustainability-report-january-2017/>).

We can combine this profile with the latest population estimates and projections to examine how recent spending and planned future spending (in the short term) compare with estimated demographic pressures. Figure 1.10 presents the results of this exercise. It shows how changes to UK health spending between 2009–10 and 2016–17 compare with the demographic pressures over this period. Real health spending increased by 10.3% (or 1.4% per annum on average), compared with population growth of 5.4% over this period (0.8% p.a.), and so per-capita spending increased by 4.6% (0.6% p.a.). After accounting for changes to the age composition of the population, real age-adjusted per-capita spending increased by only 1.0% (0.1% p.a.). This suggests that recent spending increases have been almost entirely absorbed by demographic pressures, leaving very little for any other increase in demands on the NHS.

Population health

The above calculations rely on the assumption that the shape of the age profile shown in Figure 1.9 (i.e. the ratio of spending between different age groups) has remained relatively constant over time. This appears to be a reasonable assumption in the short run and comparisons with the cost curve used in the 2002 Wanless Review indicate a similar pattern of spending by age in the late 1990s, even if overall spending has changed considerably.²⁹ However, going forward, there is still considerable uncertainty over how the demands placed by individuals of different ages on the NHS might change. The

²⁹ See chart C.6 of D. Wanless, *Securing our Future Health: Taking a Long-Term View – Final Report, 2002*, <https://www.yearofcare.co.uk/sites/default/files/images/Wanless.pdf>. Figures are not completely comparable with the numbers reported in Figure 1.9 as they cover Hospital and Community Health Services only (and therefore exclude other sources of healthcare expenditure included in the OBR projections).

relative costs of these individuals will depend on how the underlying health of individuals of a given age changes over time. Older individuals in future may be increasingly healthy, and therefore require relatively less spending (compared with younger individuals) than they do now. On the other hand, individuals may spend increasing periods of time in relatively poor health (which requires NHS treatment), particularly as technology develops to allow us to treat a greater range of conditions. The relative size of these effects will therefore have important consequences for future spending pressures. Box 1.1 explains the impacts in more detail.

Box 1.1. How will underlying health change as individuals live longer?

One key determinant of future health spending will be the underlying health of individuals at any given age. In particular, the length of time that individuals spend in good or ill health is a key driver of future healthcare costs. If additional years of life are spent in good health, healthcare costs may be simply delayed to an older age. If the additional years are, in part, spent in poor health, requiring additional treatment for a longer period of time, then overall costs are likely to increase. These two scenarios are summarised in the following way:

- a) *Compression of morbidity*: As life expectancy rises, individuals could spend the same number of years or fewer in ill health. This means that additional years of life are spent in good health, with costly treatment delayed until an older age. For example, improvements in medical treatments could reduce the prevalence of certain conditions, and reduce the costly expense associated with care. This would lead to an overall decrease in health spending for an individual of a given age (assuming nothing else changed about the care they received). However, overall costs could still increase as health use is unlikely to be zero even in the additional years of (relatively healthy) life.
- b) *Expansion of morbidity*: As life expectancy rises, individuals might spend more time in ill health. This could occur if, for example, new medical treatments reduced mortality from particular conditions (and so extend life expectancy) but do not fully cure a disease. This would lead to an overall increase in health spending for an individual of a given age.

The OBR assumes that the health of an individual of a given age and sex does not change over time in its central projections of future health spending. This makes an implicit 'expansion of morbidity' assumption, as some of the additional years of life will be spent at least partially in ill health. A paper from the OBR shows that using an alternative, 'compression of morbidity' assumption, where all longevity gains are translated into years of good health, reduces forecast pressures on health spending by 1% of GDP in 2065–66.^a

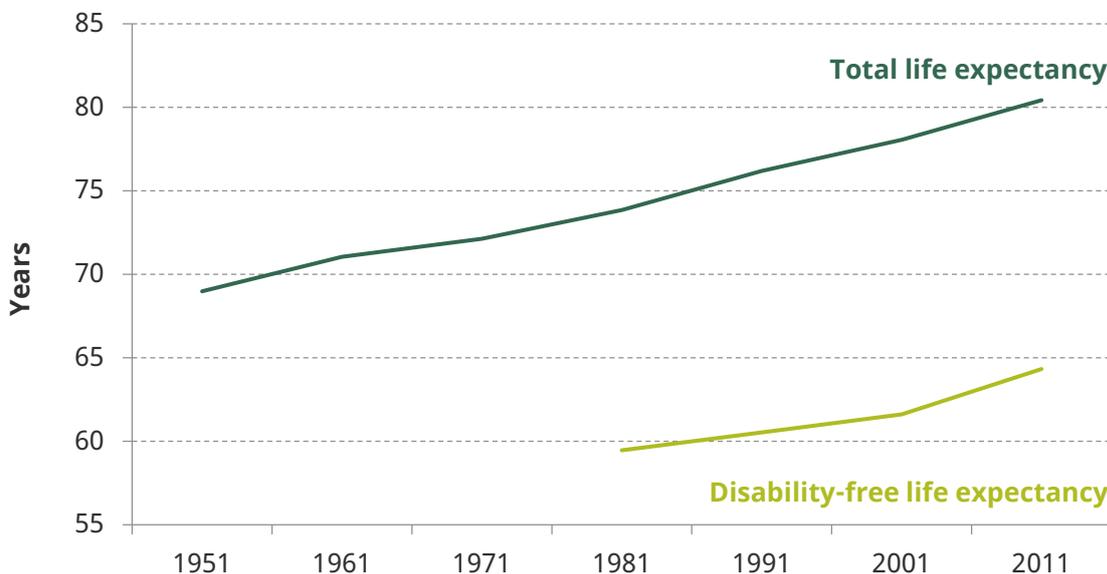
^a Chart 3.4 of M. Licchetta and M. Stelmach, 'Fiscal sustainability and public spending on health', OBR Fiscal Sustainability Analytical Paper, 2016, http://obr.uk/docs/dlm_uploads/Health-FSAP.pdf.

The empirical evidence on how spending changes at older ages is mixed. A growing body of literature suggests that age is not the driving factor, but costs are instead caused by proximity to death.³⁰ This suggests that many of the costs at older ages are associated with being in the last few years of life, rather than being a certain age. As a result, increases in life expectancy may simply delay costs to a later date, as opposed to creating new costs. For example, this would mean that spending on the average 80-year-old could decrease as life expectancy rises, as they would have a lower probability of dying in the next year than an 80-year-old had in the past. As a result, demographic change would put less pressure on NHS spending than suggested above.

In contrast, trends in total and disability-free life expectancy suggest that at least some additional years of life are associated with ill health (and therefore increased cost for the NHS). Figure 1.11 shows how life expectancy and disability-free life expectancy (at the time of birth) have increased over time. In 1951, an individual could expect to live almost 70 years. By 2011, this has increased to over 80 years. However, the proportion of life spent disability-free has remained roughly constant over time, at around 80%. As a result, requirements for care are expected to rise in a similar proportion to longevity.

Much of the recent increase in life expectancy has come from increased longevity at older ages. Figure 1.12 shows life expectancy at age 65 for men and women in the UK between 1982 and 2016. In 1982, a 65-year-old man could expect to live for an additional 13 years on average, and a woman of the same age could expect to live 17 years. By 2016, these had increased to 18.5 years for men and 21 years for women – annual average increases of 1.1% and 0.6% respectively.

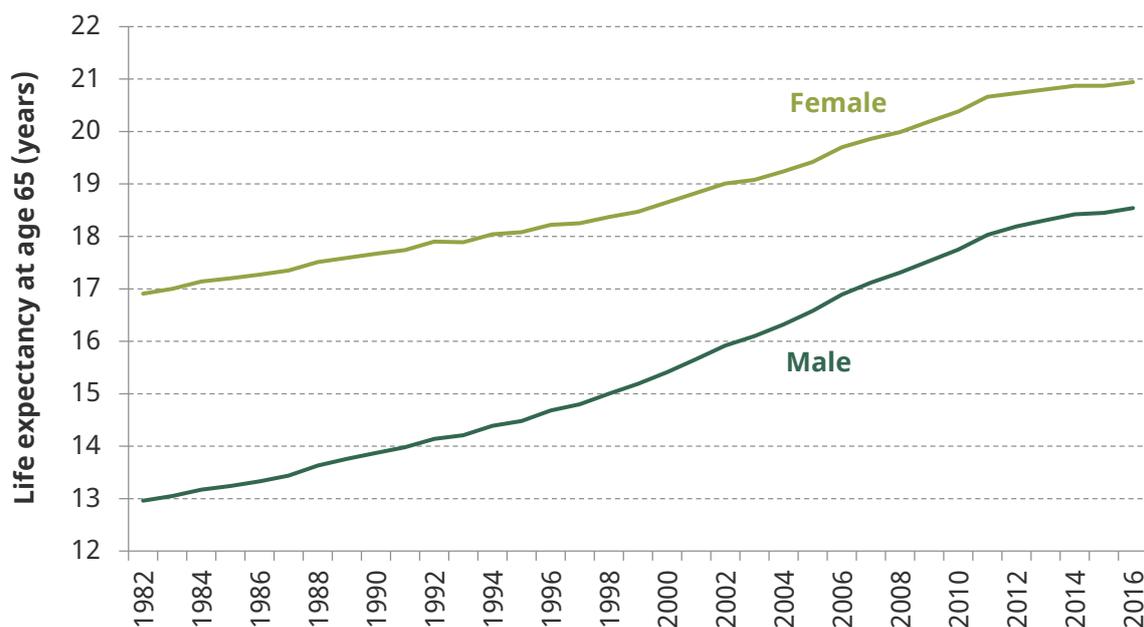
Figure 1.11. Total and disability-free life expectancy at birth



Source: ONS, 'Healthy life expectancy in Great Britain: 2001', *Health Statistics Quarterly*, 23, Autumn 2004. ONS, 'Healthy life expectancy (HLE) and disability-free life expectancy (DFLE), in the United Kingdom, at birth and at age 65, 2000–2002 until 2009–2011'. ONS, 'How has life expectancy changed over time?'

³⁰ See, for example, P. Zweifel, S. Felder and M. Meiers, 'Ageing of population and health care expenditure: a red herring?', *Health Economics*, 1999, 8, 485–96.

Figure 1.12. Male and female life expectancy at age 65 in the UK



Source: Figures 5a and 5b of Office for National Statistics, ‘National life tables, UK: 2014 to 2016’, 2017, <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/bulletins/nationallifetablesunitedkingdom/2014to2016#life-expectancy-at-older-ages>.

Again, the evidence suggests that overall increases in longevity are associated with more years spent in ill health. In England, between 2006 and 2008, a man aged 65 could expect to live a further 17.6 years of life, 7.7 years (43.6%) of which would be spent with disability.³¹ By 2010–12, this had risen to 18.6 remaining years for a 65-year-old man, 7.9 (42.7%) of which would be spent in disability. For women, expected years with a disability increased from 9.7 (47.9% of remaining life expectancy) to 9.9 years (46.7%) over the same period. This suggests that although some additional years of life at older ages are spent disability-free, there is also an expansion in the number of years spent in ill health, and this is likely to increase pressures on the NHS and social care.

There is also considerable geographic variation in both total life expectancy and the proportion of this spent with a disability. Life expectancy at age 65 is lower in Scotland than in the rest of the UK for both men and women, and these gaps have grown since the 1980s.³² Within England, between 2010 and 2012, a man living in the South East had a life expectancy of 19.2 years at age 65, 61.3% of which was spent disability-free. This compares

³¹ Office for National Statistics, ‘Disability-free life expectancy (DFLE) and life expectancy (LE): at age 65 by region, England’, 2016, <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/datasets/disabilityfreelifeexpectancydfleandlifeexpectancyatage65byregionengland>.

³² Office for National Statistics, ‘Health state life expectancies, UK: 2014 to 2016’, 2017, <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/healthstatelifeexpectanciesuk/2014to2016>; Office for National Statistics, ‘Life expectancy at birth and at age 65 for the UK and local areas in Scotland’, <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies/datasets/lifeexpectancyatbirthandage65bylocalareasintheunitedkingdomtable2ukandlocalareasinscotland>.

to 17.6 years in the North East, of which only 51.3% would be spent disability-free.³³ Such inequalities mean that the pressures on the NHS associated with underlying population health and demographic change will vary considerably across the country.

The role of the NHS – and the resources required to fund this – in future will depend both on the underlying needs of the population and the improved ability of the NHS to treat different conditions. The treatments provided by the NHS have changed considerably over time as a result of both an improved ability to treat many conditions (see below) and a changing disease burden among the population.

One illustration of the changing disease burden among patients is provided by Table 1.6, which shows the most common (primary) causes of death in England and Wales in 1950, 1975, 2000 and 2016. In 1950, almost half of all deaths were due to cardiovascular disease. A further sixth of individuals died from cancer and one-ninth from respiratory disease. The share of deaths attributed to cardiovascular disease has fallen by more than half since 1975, from 51.3% to 25.5%. Deaths from cancer rose to 28.5% in 2016, so that it now accounts for more deaths than cardiovascular disease. Deaths from other age-related diseases have also increased in recent years. These include dementia, accounting for 12% of deaths in 2016 (although the recent increase in deaths attributed to dementia is partly as a consequence of better recording of dementia in recent years).

Table 1.6. Mortality prevalence (% of total deaths) in England and Wales

	1950	1975	2000	2016
Cardiovascular	48.9	51.3	38.6	25.5
Cancer	17.1	21.2	25.0	28.5
Respiratory	11.3	13.9	17.4	13.8
Other	22.7	13.5	18.9	32.3
<i>of which:</i> Dementia ^a			1.7	12.0

^a Recording practices for dementia have improved over time. No data for dementia prevalence are available for 1950 and 1975.

Source: ONS, 'Causes of death'. Changes in the International Classification of Diseases (ICD) make it difficult to categorise deaths. The following ICD codes were used to create the consistent categories over time:

1950 (ICD-6) – cardiovascular: 3310–3349, 4000–4549, 4560–4689, 7820–7829; respiratory: 2400–2419, 4700–5279; cancer: 1400–2209, 2220–2399, 2940–2949.

1975 (ICD-8) – cardiovascular: 3900–4441, 4444–4589, 7820–7829; respiratory: 4600–5199; cancer: 1400–2089, 2100–2399.

2000 (ICD-9) – cardiovascular: 3900–4599; respiratory: 4600–5199; cancer: 1400–2399; dementia 2900–2905, 3310.

2016 (ICD-10) – cardiovascular: category I; respiratory: category J; cancer: category C, category D where three-digit numerical code ≤489; dementia: category F where three-digit numerical code ≤30, category G where three-digit numerical code ≥300 and ≤309.

³³ Office for National Statistics, 'Disability-free life expectancy (DFLE) and life expectancy (LE): at age 65 by region, England', 2017, <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/datasets/disabilityfreelifeexpectancydfleandlifeexpectancyatage65byregionengland>.

Morbidity – the conditions that patients suffer from – has also changed considerably over time. This is reflected in the change in the number of patients requiring treatment for some of the conditions listed in Table 1.6: data from the British Heart Foundation indicate that the percentage of inpatient episodes for men accounted for by cardiovascular disease decreased from 15% in 1961 to 10% in 2009–10. In contrast, 6% of episodes were linked to cancer in 1961, rising to 11% by 2009–10.³⁴ We explore further how these changes in morbidity are reflected in changes in NHS activity in Chapter 2.

Changes in morbidity are also reflected in a wider change in the types of conditions treated by the NHS. For example, when it was first set up, the NHS dealt with many cases of infectious disease, such as measles and mumps.³⁵ Due to vaccinations, these conditions now require little hospital treatment. Another example that reflects the development of medical practice over time is the declining number of tonsillectomies. In the 1950s, 200,000 of these were performed each year.³⁶ As medical research has shown that they are only clinically appropriate under certain circumstances, numbers have fallen and fewer than 50,000 tonsillectomies were carried out in 2012–13.

There has been a particular increase in the prevalence of age-related illnesses. The number of patients with dementia and Alzheimer's has increased drastically over recent years, in part reflecting the increased number of individuals living to older ages. A recent study found that in 2015 over 8% of all 80- to 89-year-olds have a dementia diagnosis, up from 6% just eight years earlier in 2007.³⁷

These changes in the disease burden mean that the range of services provided by the NHS must also change over time. Future changes in the amount and type of treatment provided by the NHS will also depend on the health behaviours of the population. The last 70 years have seen dramatic changes in consumption patterns and lifestyles, with declining smoking rates and alcohol consumption, higher rates of obesity and increasingly sedentary lifestyles. The 60% fall in tobacco consumption over the past 40 years³⁸ will decrease the prevalence of related conditions, including a number of types of cancer. However, the effect of reduced smoking rates on the amount of care provided by the NHS in future is ambiguous: while cancer treatment is expensive, smokers who die at a younger age do not incur costly treatment for other conditions at a later date. Some empirical evidence suggests that the lifetime healthcare costs for smokers are lower than those for non-smokers even though, on an annual basis, their care is more expensive.³⁹

³⁴ P. Scarborough, K. Wickramasinghe, P. Bhatnagar and M. Rayner, *Trends in Coronary Heart Disease 1961-2011*, London, British Heart Foundation, 2011.

³⁵ M. J. Goldacre and J. J. Maisonneuve, 'Hospital admission rates for measles and mumps in England: historical perspective', *The Lancet*, 2013, 382(9889), 308–9.

³⁶ Royal College of Surgeons, 'Is access to surgery a postcode lottery?', 2014.

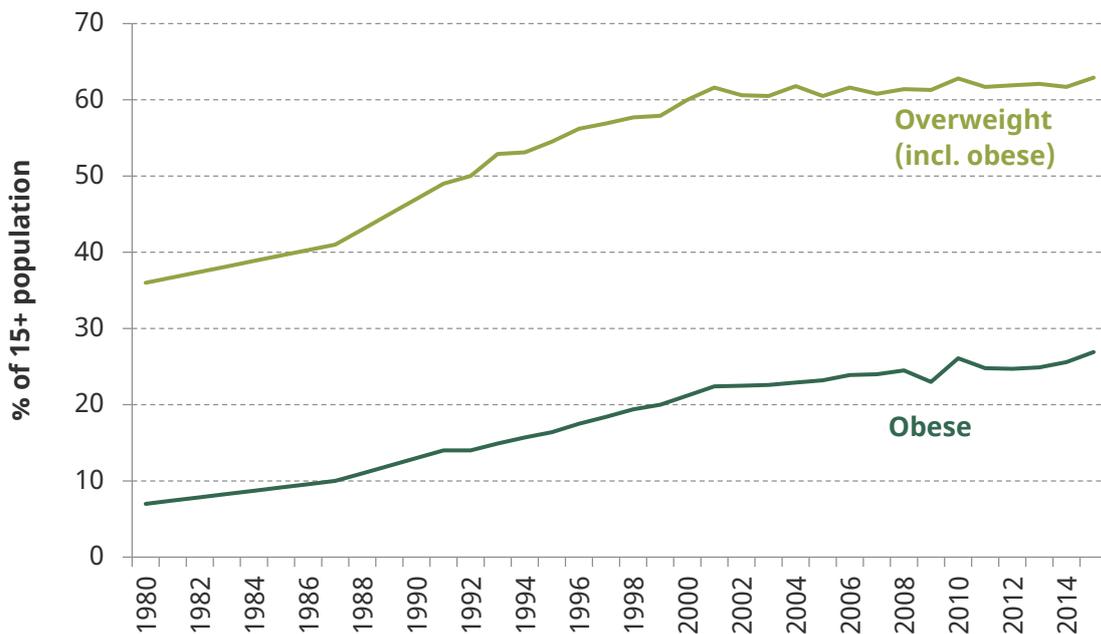
³⁷ K. Donegan, N. Fox, N. Black, G. Livingston, S. Banerjee and A. Burns, 'Trends in diagnosis and treatment for people with dementia in the UK from 2005 to 2015: a longitudinal retrospective cohort study', *The Lancet Public Health*, 2017, 2(3), e149–56.

³⁸ OECD Health Statistics, http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT.

³⁹ J. Barendregt, L. Bonneux and P. van der Maas, 'The health care costs of smoking', *New England Journal of Medicine*, 1997, 337, 1052–7.

J. Tiihonen, J., K. Ronkainen, A. Kangasharju and J. Kauhanen, 'The net effect of smoking on healthcare and welfare costs. A cohort study', *BMJ Open*, 2012, 2(6), e001678, doi: 10.1136/bmjopen-2012-001678.

Figure 1.13. Shares of people aged 15+ who are overweight (BMI \geq 25) and obese (BMI \geq 30)



Note: Overweight includes individuals with a BMI of 25 or above (this includes individuals who are classified as obese). Obese includes individuals with a BMI of 30 or above.

Source: OECD Health Statistics, http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT.

Figure 1.13 shows how the shares of the population who are overweight and obese (categorised by Body Mass Index, or BMI) have evolved from 1980 to 2015. In 1980, 36% of the population were overweight, and of these only a fifth (7% of the total population) were obese. By 2015, 63% were overweight. Obesity has quadrupled over the period: in 2015, over one in four people were considered obese (40% of those classified as overweight). While the exact effect of this trend on future health spending is unknown, obesity is linked to an increased prevalence of a range of conditions, including diabetes and associated complications.⁴⁰ Public health is therefore likely to play an important role in determining future healthcare costs.

Cost pressures

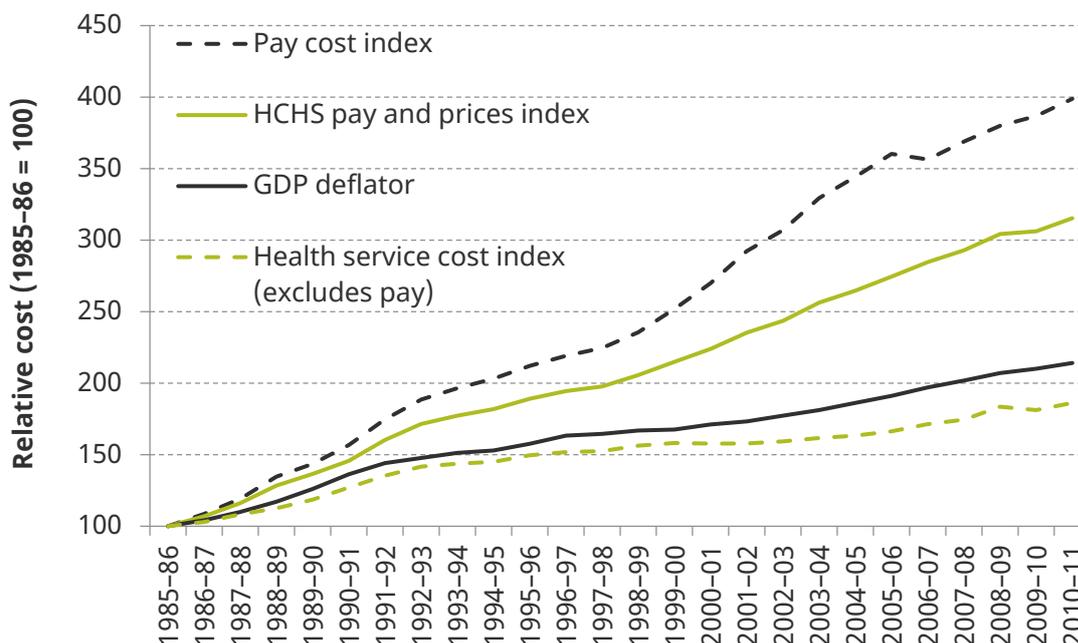
In addition to the demand pressures outlined above, the NHS faces a number of pressures that change the cost of providing a given level of (quality-adjusted) healthcare. Indeed, most empirical studies find that these cost pressures have played a greater role in driving increases in health spending than the demand pressures discussed above. We explore two sources of cost pressure in more depth: the relative costs of providing healthcare (compared with economy-wide inflation) and changes in medical technology.

Relative healthcare costs

Figure 1.14 shows how the costs associated with Hospital and Community Health Services (HCHS) inputs changed relative to economy-wide inflation (as measured by the GDP deflator) between 1985–86 and 2010–11.

⁴⁰ A. H. Mokdad, E. S. Ford, B. A. Bowman, W. H. Dietz, F. Vinicor, V. S. Bales and J. S. Marks, 'Prevalence of obesity, diabetes, and obesity-related health risk factors, 2001', *JAMA*, 2003, 289(1), 76–9.

Figure 1.14. NHS Hospital and Community Health Services (HCHS) pay cost index and health service cost index, 1985–86 to 2010–11



Note: The pay cost index is a weighted average of increases in unit staff costs for each of the staff groups within the HCHS sector. Pay cost inflation tends to be higher than pay settlement inflation because of an element of pay drift within each staff group (i.e. there is a tendency for there to be a gradual shift up the incremental pay scales). The health service cost index measures the price change for 41 sub-indices of goods and services purchased by NHS Hospital and Community Health Services, weighted according to the proportion of total expenditure that they represent. These pay index figures are not comparable with those from 2011–12 onwards due to a change in methodology in that year.

Source: Department of Health, 'NHS Hospital and Community Health Services (HCHS) pay cost index and health service cost index, 1985–86 to 2010–11', www.info.doh.gov.uk/doh/finman.../2015.16%20Pay%20&%20Price%20series.xlsx. The GDP deflator is from the OBR in March 2018.

The pay cost index shows how the cost of labour has developed since 1985–86 (set at a base level of 100). This provides a weighted average of increases in the cost of employing one member of staff for each of the staff groups within the HCHS sector. It therefore captures both increases in the entire NHS salary scales (which are determined by the overall NHS pay settlement) and compositional changes in the workforce that arise from increased average seniority and from changes in the skill mix of the workforce (e.g. changes in the ratio between doctors and nurses). The health service cost index shows how prices for non-labour goods and services (medicines, medical technology etc.) have changed over the same period. This is a weighted average of the price change of 41 groups of goods and services used by the HCHS sector.

The figure also shows the GDP deflator, so we can compare the two indices with this to examine how input prices have developed relative to economy-wide inflation. Over the period, the change in the cost of non-labour goods and services purchased by the NHS (2.5% per year) has been similar to – and if anything run slightly below – economy-wide inflation (3.1% per year), with the health service cost index just below the GDP deflator series. In contrast, pay has increased much more quickly than economy-wide inflation, with an annual average increase of 5.7% in the pay cost index. This represents an average

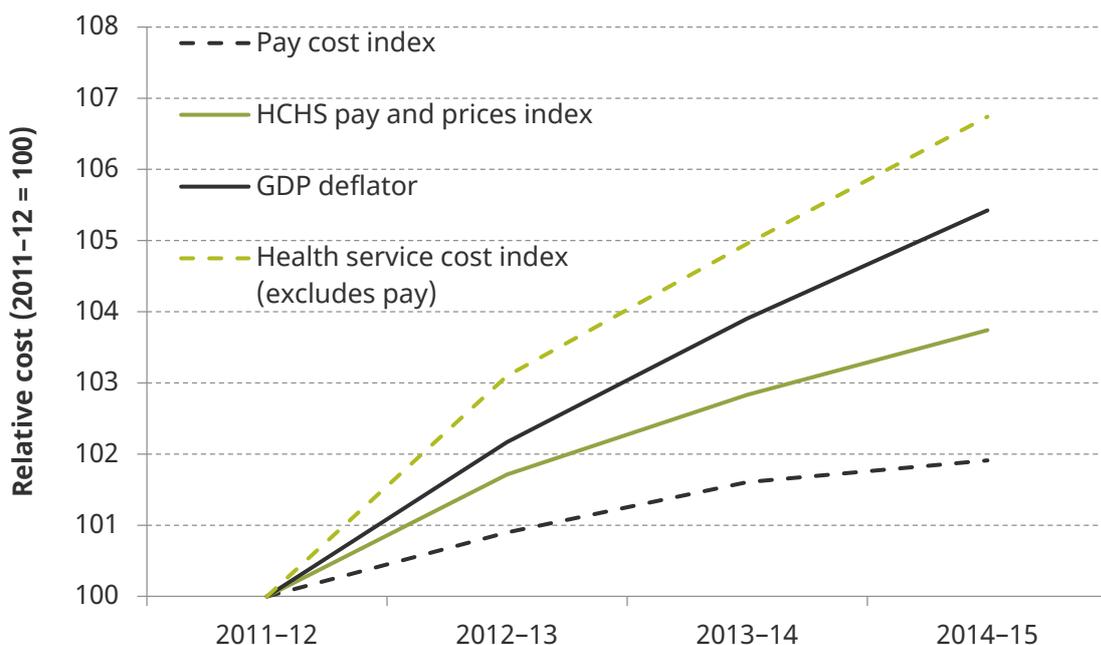
real increase – i.e. over and above economy-wide inflation – in the cost of NHS labour of 2.6% per year between 1985–86 and 2010–11.

The two indices are then combined in the HCHS pay and prices index, using the proportion of total expenditure represented by each category as a weight, to measure the overall change in the cost of inputs. The majority of HCHS costs arise from labour, and so the overall cost index is closer to the pay cost index than to the other index. We can see that the overall cost index increased by 4.7% per year between 1985–86 and 2010–11, which means that over a 25-year period the real cost of providing healthcare grew substantially.

Assuming that increases in pay do not simply reflect a more skilled workforce, using this measure of NHS-specific inflation instead of the GDP deflator would imply that real health spending, adjusted for the costs of inputs into health, grew by 3.4% per year between 1985–86 and 2010–11, as compared with the 5.0% per year increase shown in Figure 1.1. However, as noted above, some of the increases in pay will reflect an increasing level of seniority or a higher proportion of skilled staff within the NHS workforce over time. To the extent that these pay increases reflect higher productivity within the NHS, this measure will overstate NHS inflation.

Due to methodological changes in the pay cost index after 2010–11, we cannot directly compare changes in costs before and after this financial year. Figure 1.15 therefore compares how costs have changed since 2011–12, and how these costs have changed compared with economy-wide inflation. It shows a different pattern in costs from that for the earlier period: the pay cost index increases at a slower rate (0.6% per year) than economy-wide inflation (1.8%). In contrast, the health service cost index increases faster (2.2% per year). Combining these indices, the HCHS pay and prices index rose at a slower pace (1.2% per year) than economy-wide inflation.

Figure 1.15. NHS Hospital and Community Health Services (HCHS) pay cost index and health service cost index, 2011–12 to 2014–15



Note and source: See Figure 1.14. These pay index figures are not comparable with those from 2015–16 onwards due to a change in the source of pay data and classifications of staff groups.

The recent pattern in labour costs can in part be explained by pay restraint within the NHS (and the wider public sector). Pay for most NHS staff was frozen between 2010–11 and 2013–14, and increases have been capped at 1% since. Recent announcements – including a pay deal for staff of Agenda for Change contracts from 2018–19 – look set to loosen this restraint somewhat, increasing cost pressures going forward.

Medical technology

Technological improvements allow the NHS to provide treatment for a broader range of conditions or to deliver better outcomes relative to existing treatments. These include the development and introduction of new drugs and the use of new machines. For example, the introduction of magnetic resonance imaging (MRI) scanners in 1980 vastly improved the ability of doctors to detect and to treat more effectively a range of conditions, while the continued introduction of new drugs has ensured that cancer treatment has continued to evolve over time.

In some cases, new developments in technology reduce the costs of providing a given level of healthcare. However, many technological improvements are thought to (at least temporarily) increase costs. New technologies may be used to treat previously untreatable conditions (e.g. a new cure for Alzheimer's) or replace an existing treatment and provide better outcomes (e.g. a new cancer drug). While having these options available is clearly a good thing, taking the options up creates a new cost or increases existing costs for treating particular conditions. Demand for these treatments may also increase if there is a reduction in any side effects. This could also increase future costs if individuals who survive the initial condition also require additional treatment for other conditions in future.

Understanding the impact of technology on healthcare costs has been a major focus of an empirical literature in economics.⁴¹ These studies vary in their approach, and in the period and range of treatments studied. As a result, while most studies point to an important role for technology in driving costs, the estimates span a large range. A paper examining the role of technology in driving healthcare cost increases in the US between 1940 and 1990 estimates that technology explains 60% of health spending increases over the period.⁴² This is slightly larger than another estimate, that technology explained almost half of spending increases over the same period in the US.⁴³

In the UK, the Wanless Review estimated that technology explained a fifth of spending increases over the previous two decades.⁴⁴ The report also noted that the UK has historically been slow to adopt new technologies, and stronger growth in technology costs would be required in the 2000s and beyond to catch up with the medical technological abilities of other developed countries.

⁴¹ For a summary, see M. Chernew and J. Newhouse, 'Health care spending growth', in *Handbook of Health Economics: Volume 2*, 1–43 Elsevier, 2011.

⁴² J. P. Newhouse, 'Medical care costs: how much welfare loss?', *Journal of Economic Perspectives*, 1992, 6(3), 3–21.

⁴³ D. M. Cutler, 'Technology, health costs, and NIH', National Institutes of Health Roundtable on the Economics of Biomedical Research, 1995.

⁴⁴ Page 171 of D. Wanless, *Securing our Future Health: Taking a Long-Term View – Interim Report*, 2001, http://webarchive.nationalarchives.gov.uk/+http://www.hm-treasury.gov.uk/consult_wanless_final_2001.htm.

1.7 Discussion

The last 70 years have seen very large increases in public spending on health. In particular, under the Labour governments in the late 1990s and 2000s, public spending on both health and social care grew at a rapid pace, before slowing after 2009–10. As a result of these changes, the UK spends more on healthcare than it ever has before. We now also look more like our EU neighbours in terms of the amount spent, but still lag behind large economies such as the US, Germany and France.

While recent years have seen historically slow increases in health spending, the share of public spending devoted to health has continued to grow. Indeed, due to flat spending elsewhere, the share of public spending on services that goes to the NHS has continued to increase at a rapid pace – an average growth rate of 2.1% per year between 2009–10 and 2016–17. This is almost double the pace at which this share of spending grew in the 2000s, a period of historically high increases in NHS funding.

Despite these increases, the NHS has begun to show signs of strain. Meanwhile, social care funding has fallen in real terms since 2009–10, cuts which are larger when factoring in demographic change. And such pressures are not purely a short-term phenomenon, with a host of demographic and non-demographic pressures pushing up spending needs.

These findings raise a series of questions about the NHS and social care. These include: What could an additional increase in NHS funding buy in terms of inputs and outputs? How large are the pressures on NHS and social care budgets, and what does this imply for future spending requirements? How might we raise additional funding in future to meet these pressures? We now turn to answering these questions in the remainder of this report.

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.⁴⁵ 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.⁴⁶

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

⁴⁵ 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.

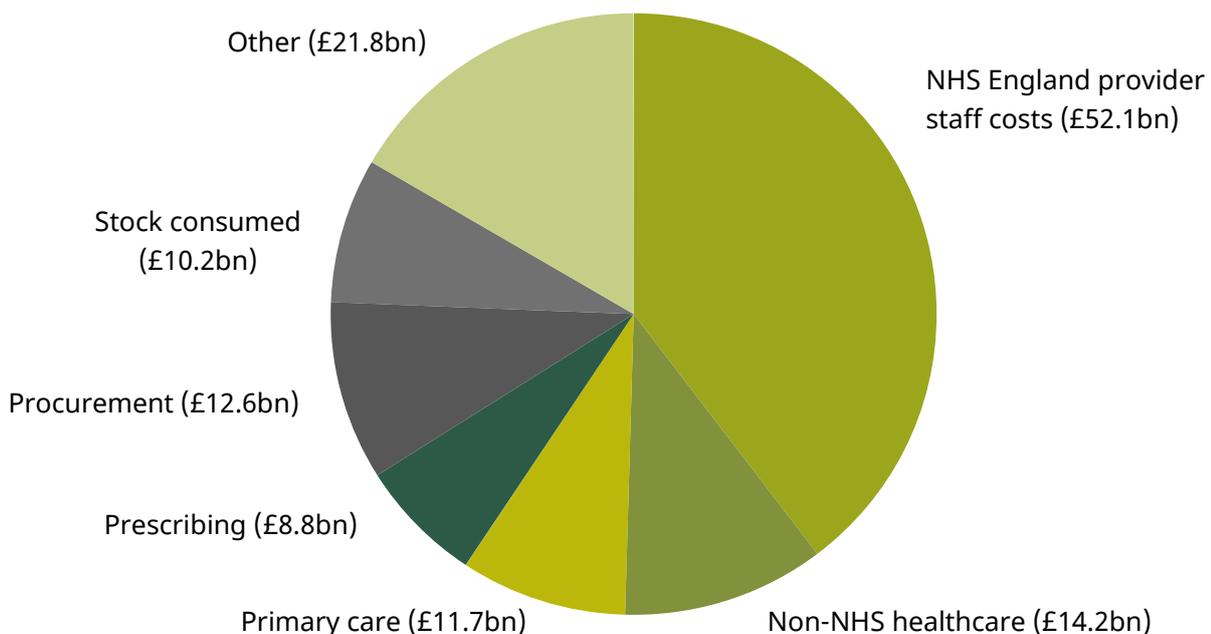
⁴⁶ Figure 2.1 reports gross spending. As a result, its total is more than the net £124.6 billion figure reported above, which takes into account non-tax revenues (such as prescription fees and private patient income) and inter-department transfers.

September 2017, there were over 1 million full-time equivalent employees in the HCHS.⁴⁷ 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.⁴⁸ 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,⁴⁹ 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 ophthalmology (£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_annual_accounts_2016_2017_web_version.pdf. GDP deflators from the Office for Budget Responsibility (OBR) in March 2018.

⁴⁷ NHS Hospital & Community Health Service (HCHS) monthly workforce statistics – Provisional Statistics – staff in Trusts and CCGs, NHS Digital, September 2017.

⁴⁸ 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>.

⁴⁹ 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>.

covers the staffing costs of 33,000 full-time-equivalent GPs⁵⁰ and 90,000 general practice staff.⁵¹

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 2016–17.⁵² 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.⁵³

‘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 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

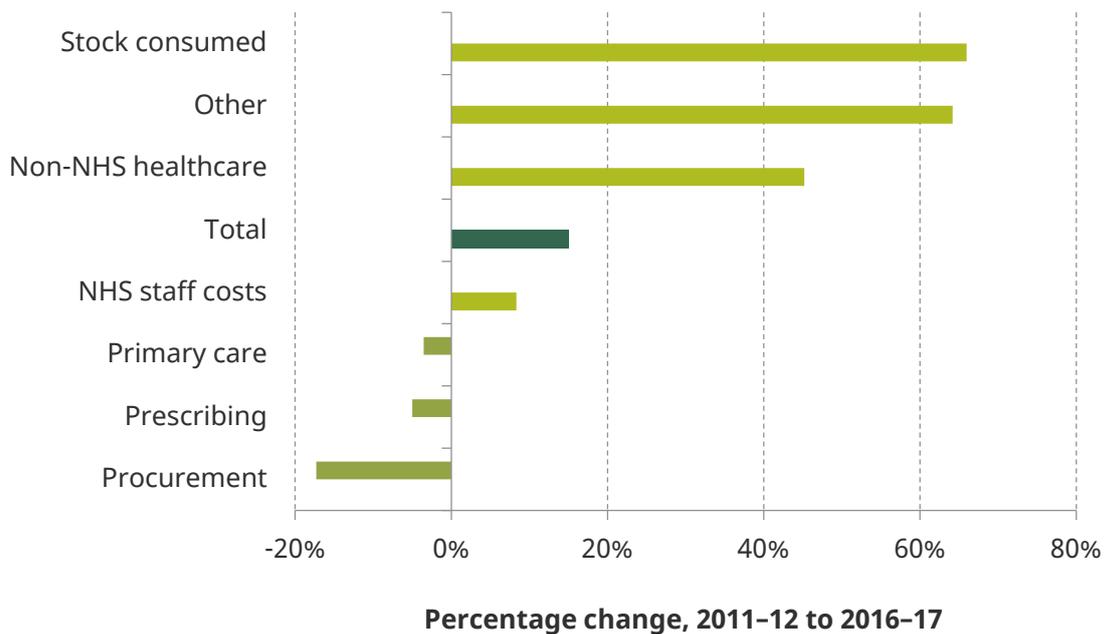
⁵⁰ GPs refer to practitioners excluding registrars.

⁵¹ NHS England, ‘The Review Body on Doctors’ and Dentists’ Remuneration: NHS England’s evidence for the 2018 Review’, 2018.

⁵² NHS Digital, ‘Prescribing costs in hospitals and the community, England 2016/17’, 2017.

⁵³ 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>.

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/212977/23_735_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.

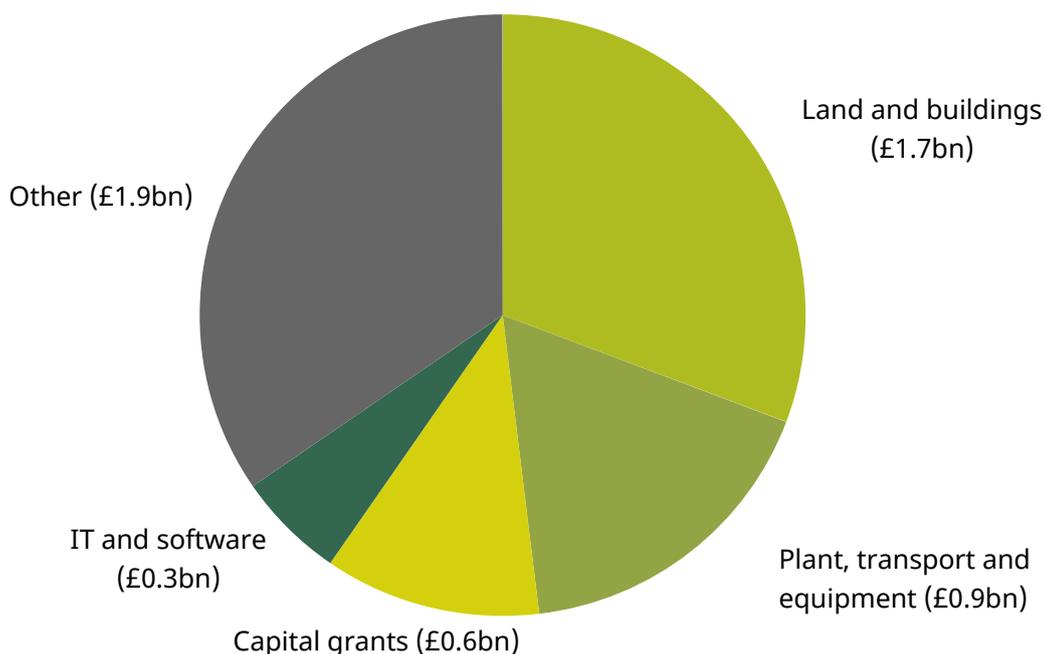
NHS staff costs, the largest area of expenditure, grew by 8% over the five-year period. This increase is roughly in line with the increase in overall public spending on health, which rose by 10% from 2011–12 to 2016–17.

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.⁵⁴

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 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.

⁵⁴ NHS England, *Better Procurement Better Value Better Care*, 2013.

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.⁵⁵ 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.⁵⁶

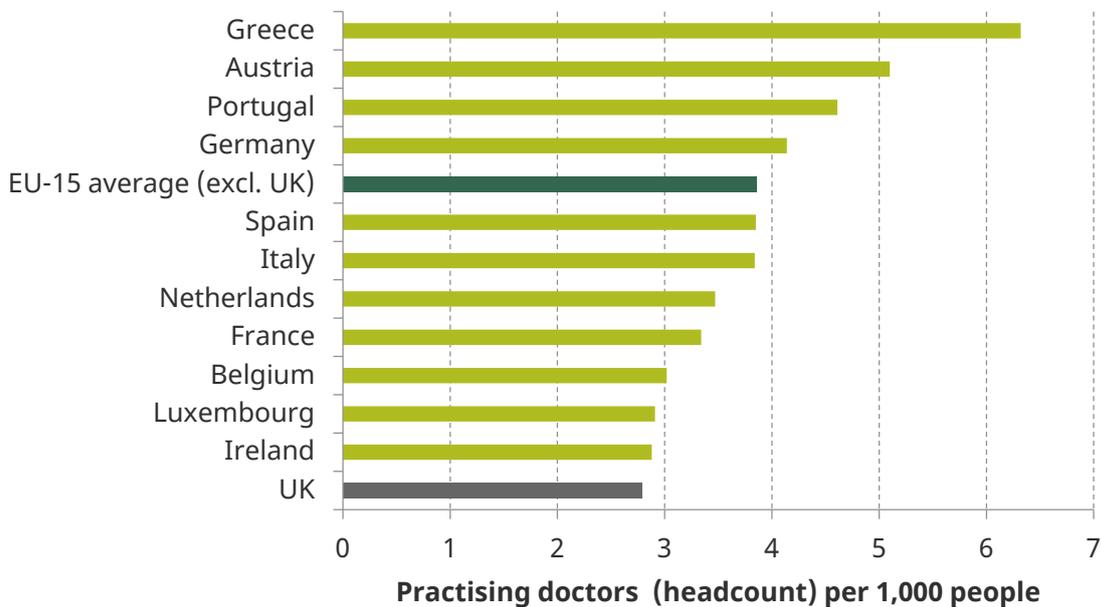
We now examine how key inputs have changed over time. Given the importance of labour in providing healthcare, we first examine trends in the size and composition of the workforce before examining other inputs.

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

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.

⁵⁵ <https://www.health.org.uk/chart-nhs-capital-spending-falls-third-year-row>.

⁵⁶ 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>.

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%.⁵⁷ 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.

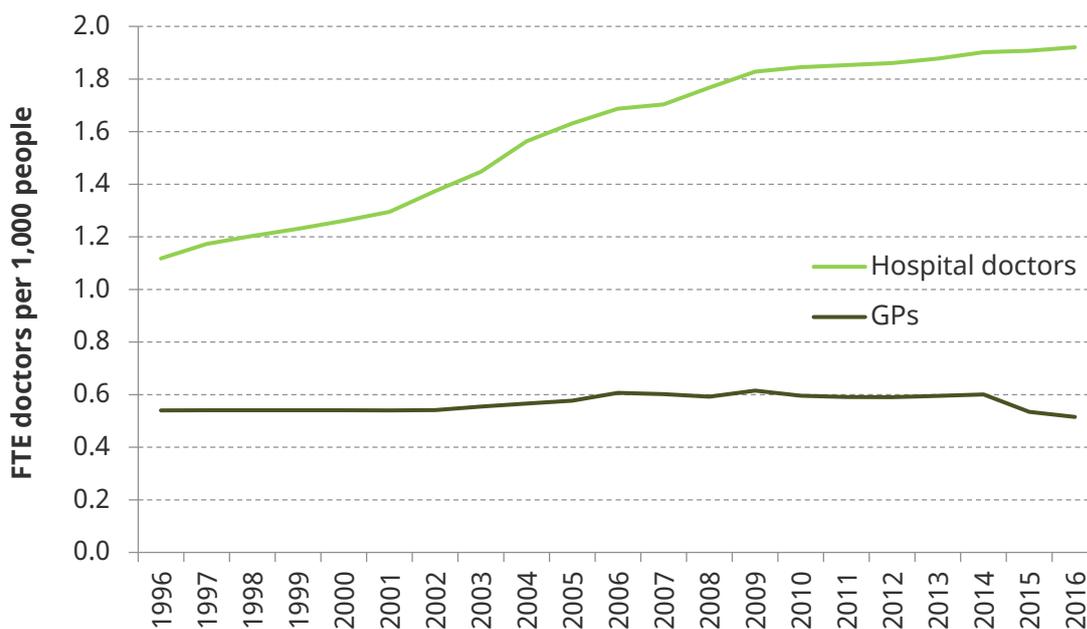
Within England, we can distinguish between GP and hospital doctors, and adjust for the proportion of doctors that work part-time. Figure 2.6 shows the number of FTE hospital doctors and GPs per 1,000 people in each year between 1996 and 2016. The number of FTE hospital doctors per 1,000 people has risen 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

⁵⁷ See Figure 2.6 for source.

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.

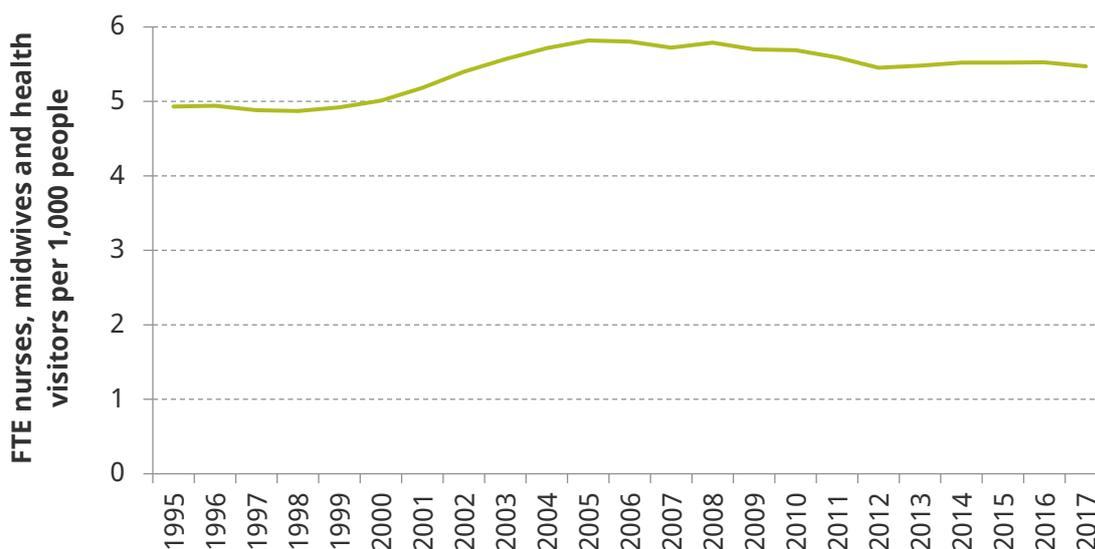
Source:

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



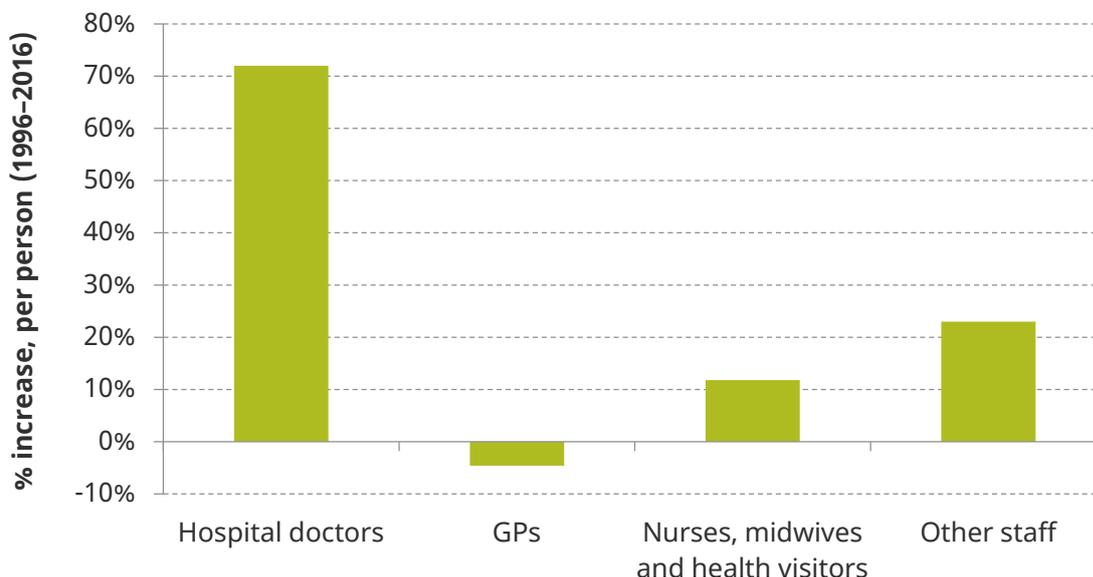
Source: NHS Hospital and Community Health Services (HCHS): Staff in NHS Trusts, SHAs, PCTs, Support Organisations and Central Bodies in England by Strategic Health Authority area and main staff groups. NHS Hospital & Community Health Service (HCHS) monthly workforce statistics – Provisional Statistics – 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 people⁵⁸), 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.⁵⁹

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 2016.⁶⁰ 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 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.

⁵⁸ Using latest year available from <https://data.oecd.org/healthres/nurses.htm>.

⁵⁹ OECD Health Statistics.

⁶⁰ 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.

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.

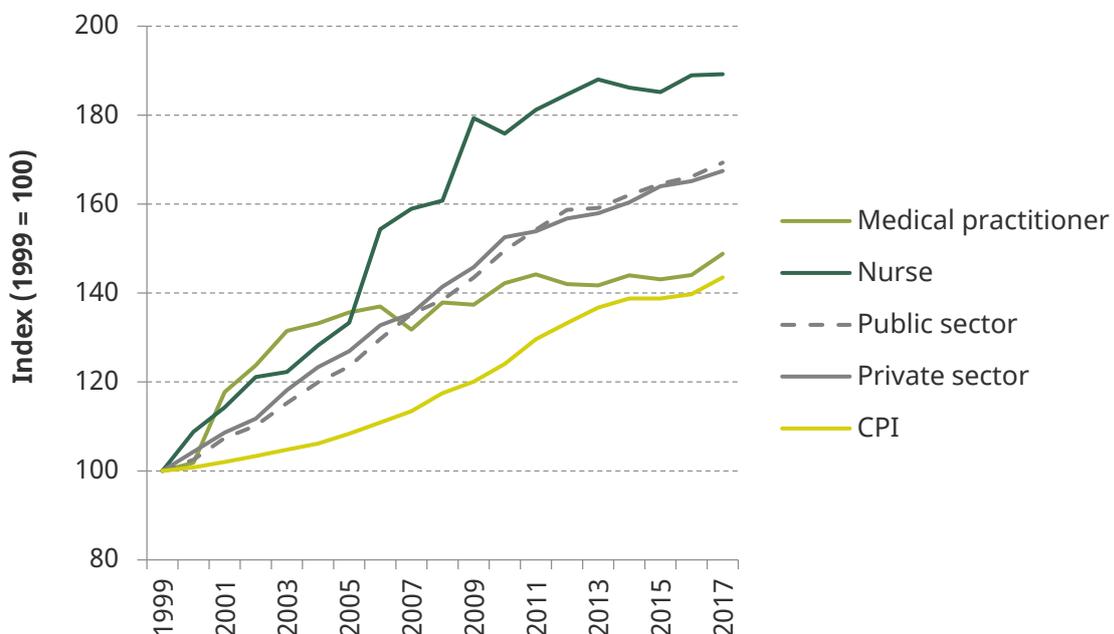
Pay

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:				Median hours of work per week (2010)
	1980	1990	2000	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.⁶¹ 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 3.0.⁶²

⁶¹ 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

⁶² OECD Health Statistics.

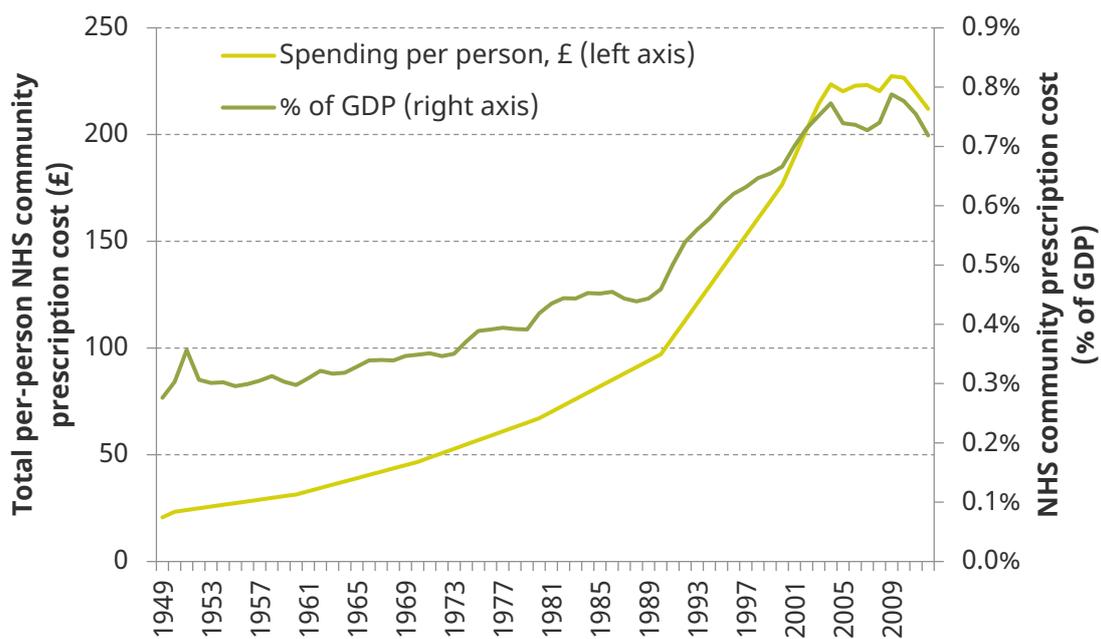
In the same year, UK nurses earned approximately the mean wage, slightly lower than the EU15 average, where nurses earned 14% more.⁶³

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.⁶⁴ This trend is discussed further in Section 1.3.

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.

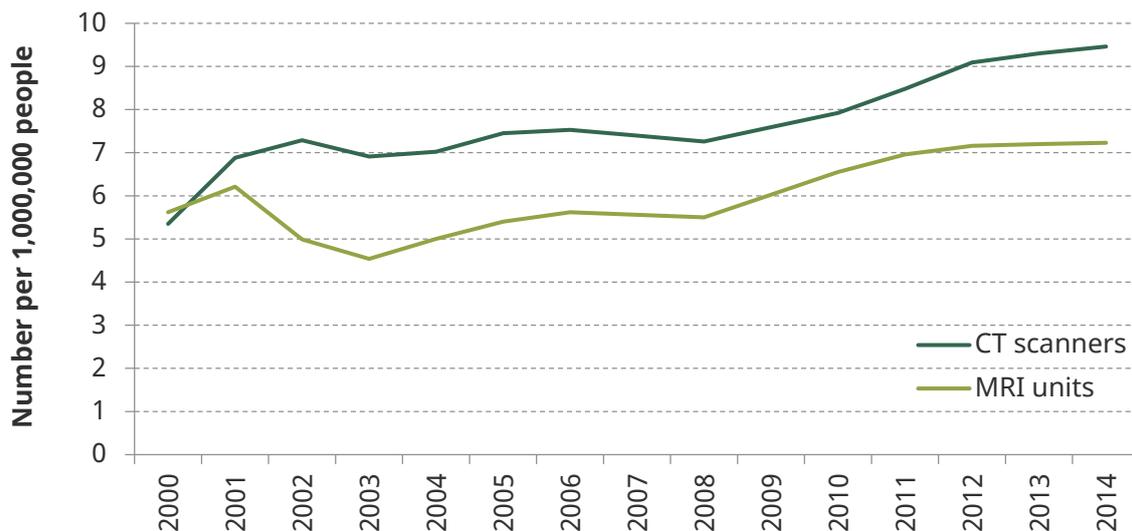
⁶³ As the earnings distribution is positively skewed, the mean wage is greater than the median wage. This explains why nurses can be at the 75th percentile in the wage distribution and still be at the mean wage. In addition, Table 2.1 uses the hourly pay distribution, whereas the OECD mean wage is based on annual salaries.

⁶⁴ E. Hawe and L. Cockcroft, *OHE Guide to UK Health and Health Care Statistics*, 2nd edition, Office of Health Economics, 2013.

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.

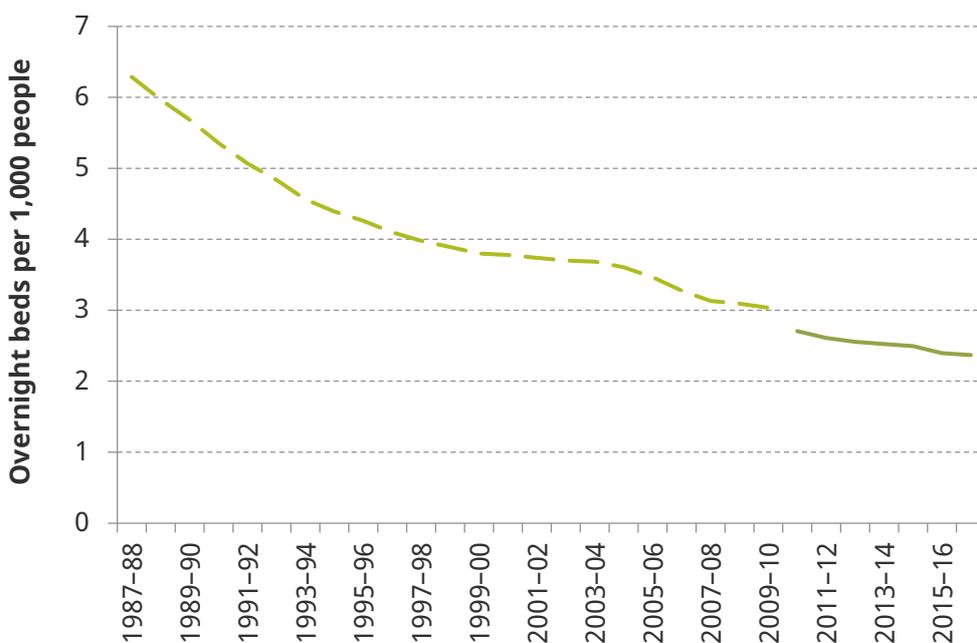
In addition to new drugs, other technology advances have changed the way in which the NHS treats patients over the past 70 years. For example, advances in scanning technology have led to vast improvements in diagnosing particular conditions. Figure 2.11 shows how

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%.⁶⁵

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.

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.

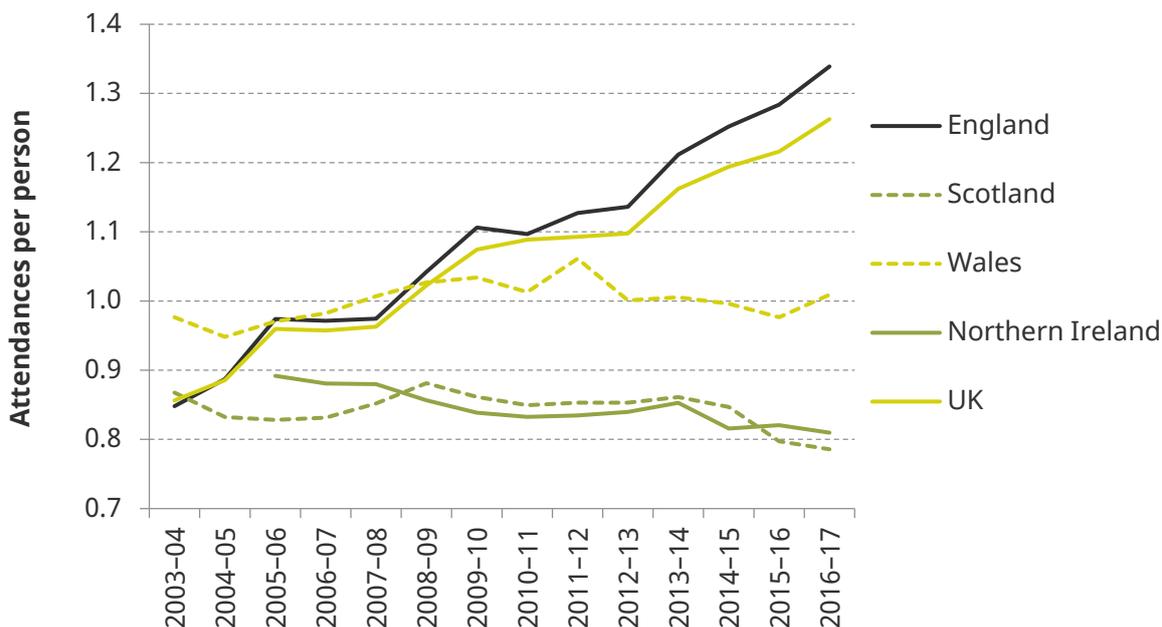
Figure 2.13 shows how consultant-led outpatient attendances per person evolved in England between 2003–04 and 2016–17. In 2003–04, there were 0.85 attendances per person. By 2016–17, this had increased by 57.9% to 1.34, an average annual increase of 3.6%.

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.

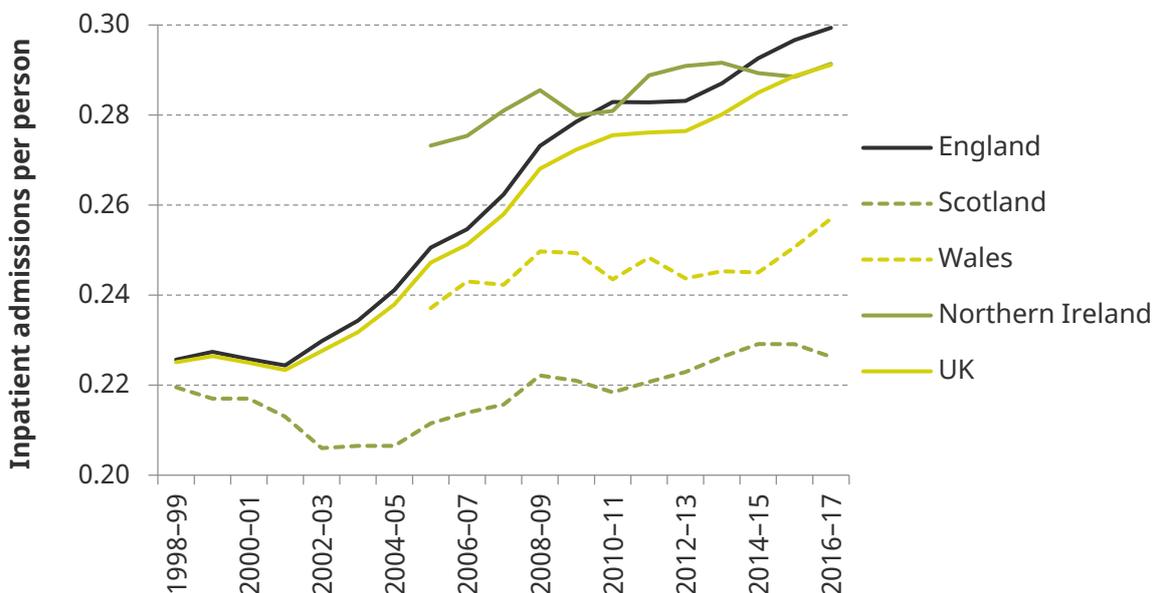
⁶⁵ E. Hawe and L. Cockcroft, *OHE Guide to UK Health and Health Care Statistics*, 2nd edition, Office of Health Economics, 2013.

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.

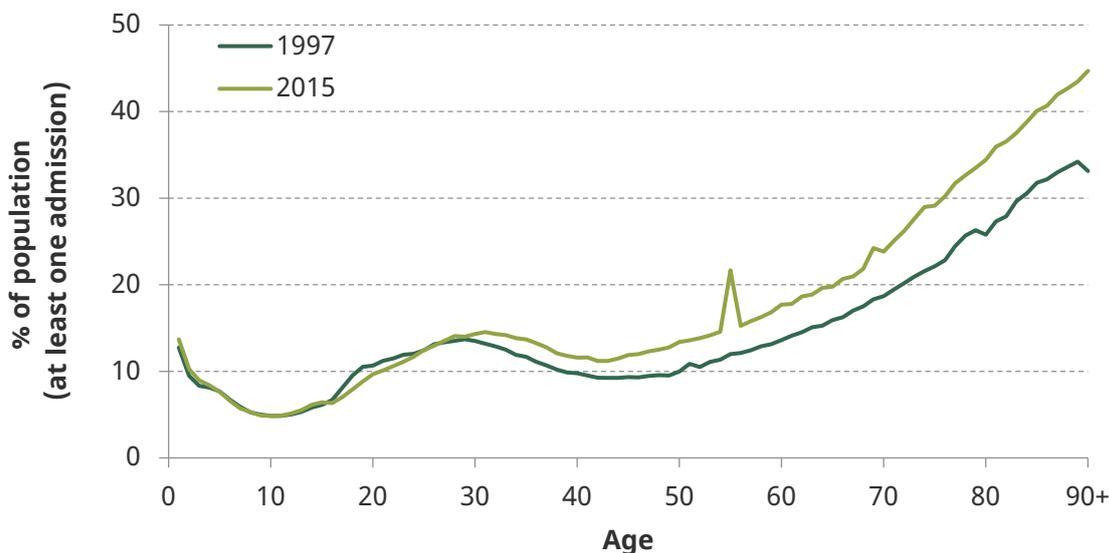
Differences in activity growth rates by age can be explained by three factors. First, as life expectancy has increased, the size of the older population has grown at a quicker rate than the size of the younger population since 1997. We would therefore expect larger increases in demand among the older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

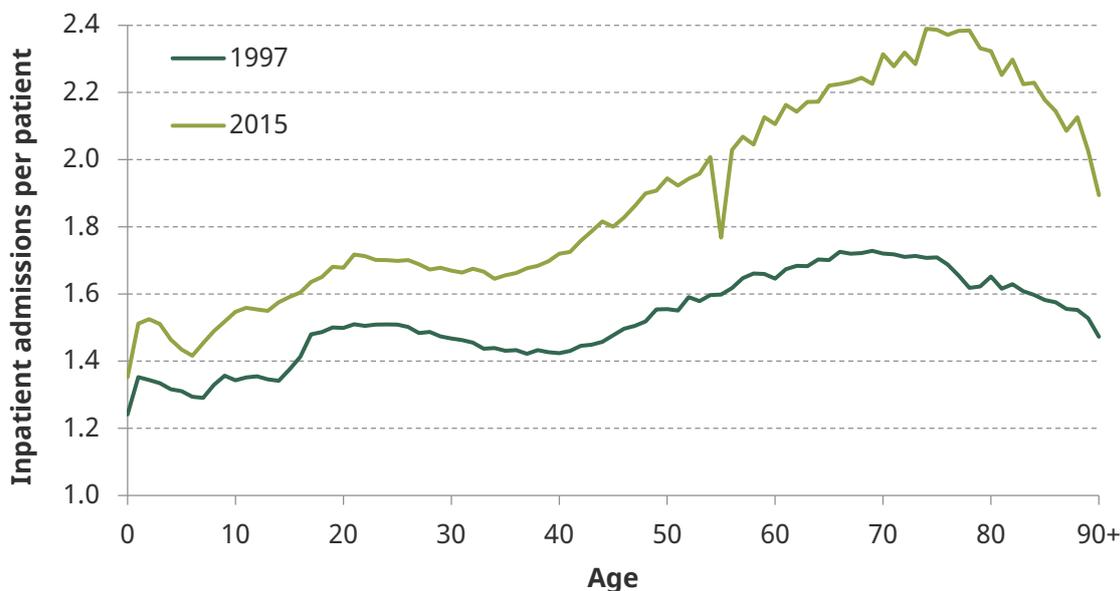
and this gap also increases with age. As a result, older individuals have become both increasingly more likely to use inpatient services and more frequent users during this period. Again, the impact of the bowel screening programme can be seen at age 55, where a rise in the number of otherwise healthy 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)



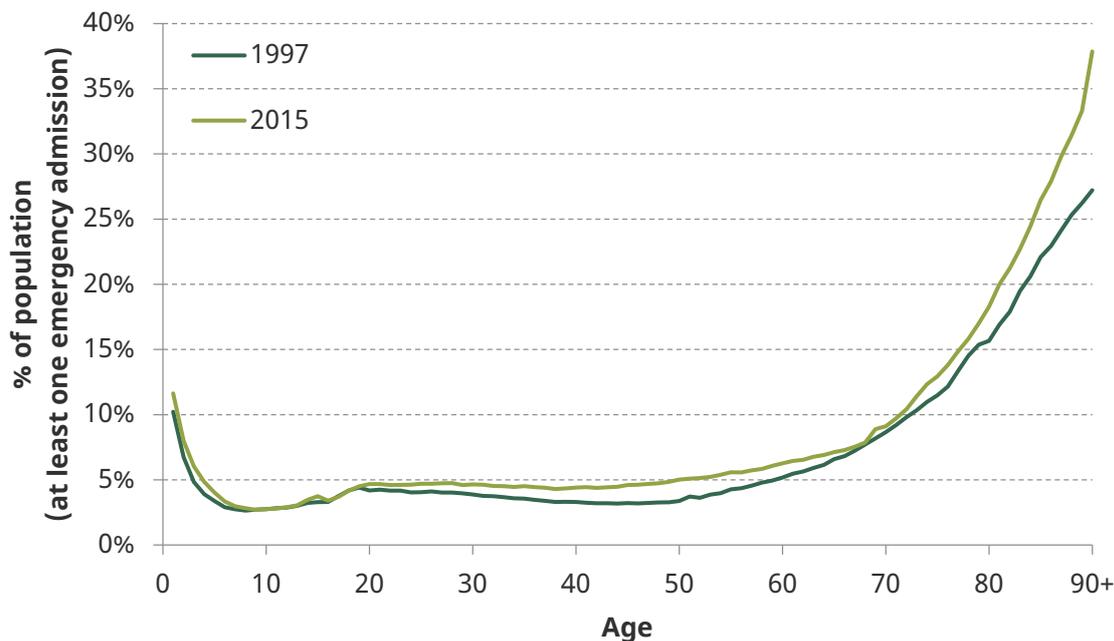
Source: Authors' calculations based on data from NHS Digital, 'Hospital episode statistics'. Population figures come from the ONS.

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



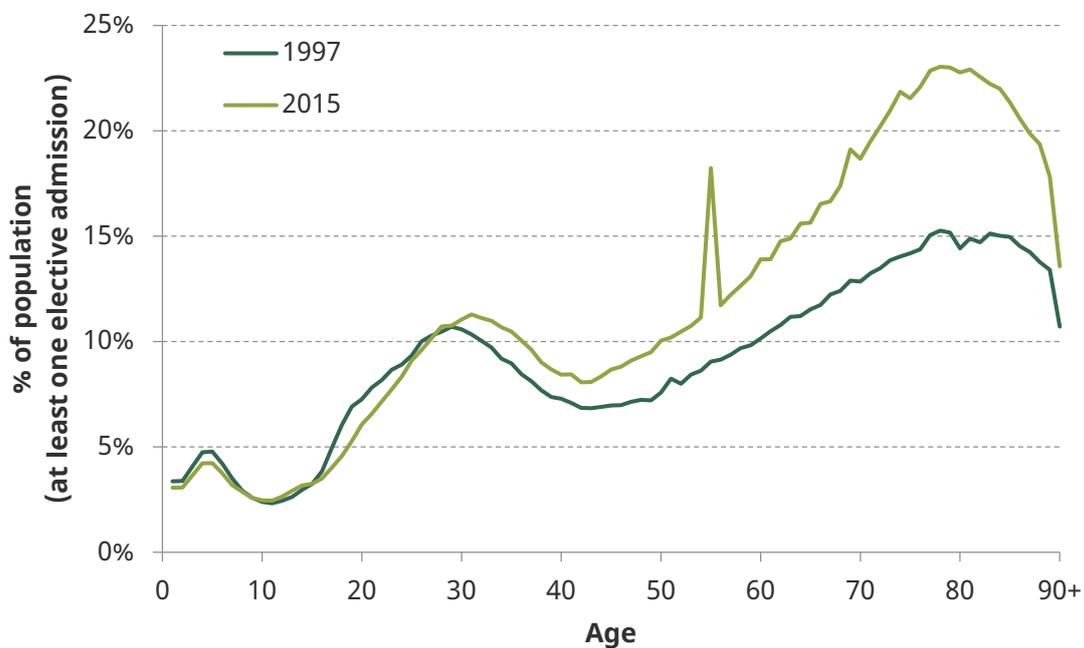
Source: Authors' calculations based on data from NHS Digital, 'Hospital episode statistics'. Population figures come from the ONS.

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.⁶⁶ 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.⁶⁷ 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.

⁶⁶ 2000–01 was used instead of 1997–98 as there is a substantial amount of missing data for primary diagnosis in 1997–98.

⁶⁷ <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.⁶⁸

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.⁶⁹ 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

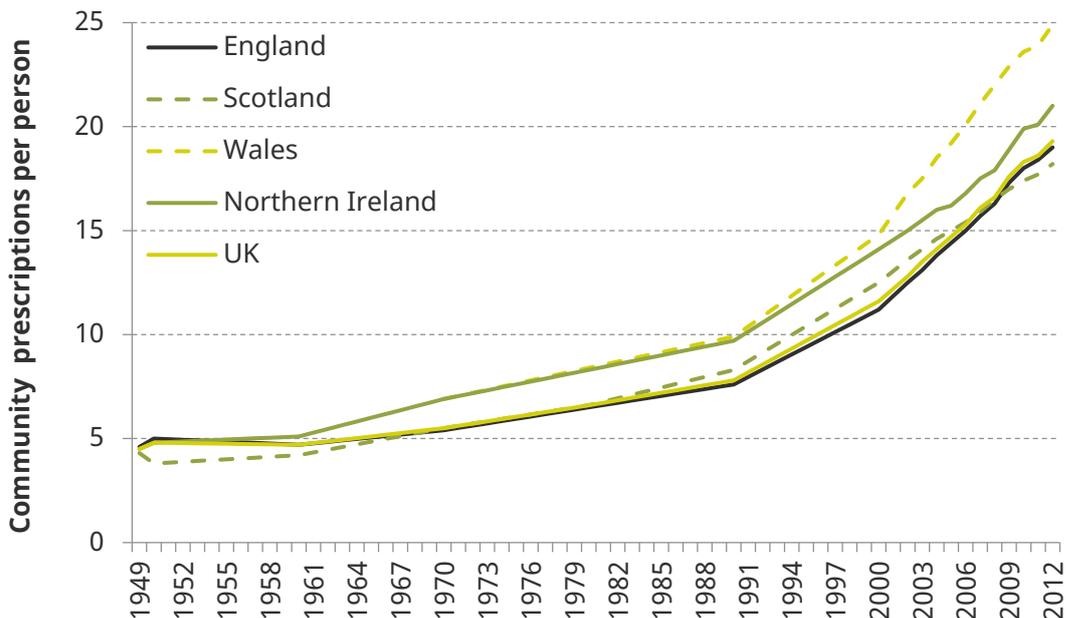
Age group	1980	1990	2000	2009
0–4	6.1	8.4	5.2	4.1
5–15	3.0	3.3	2.3	1.8
16–44	4.3	4.8	4.3	4.7
45–64	4.2	5.7	5.2	5.6
65–74	5.7	5.7	6.6	7.8
75+	6.7	7.2	6.8	7.7
Total	4.4	5.2	4.7	5.0

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

⁶⁸ Authors' calculations from NHS Digital, 'Hospital episode statistics'.

⁶⁹ 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 2010–11.⁷⁰

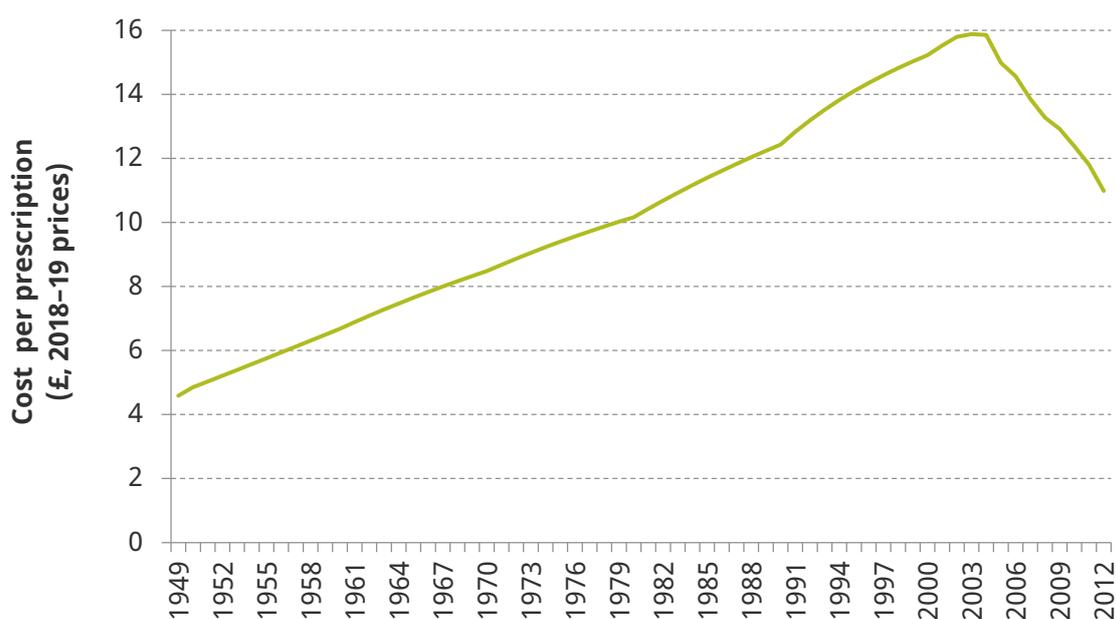
Another area of non-hospital activity we can look at is community prescriptions. Figure 2.19 shows how the number of community prescriptions per person has evolved since the founding of the NHS. It is clear that there has been a large increase over time. In 1949, there were, on average, fewer than 5 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

⁷⁰ 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.⁷¹ 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

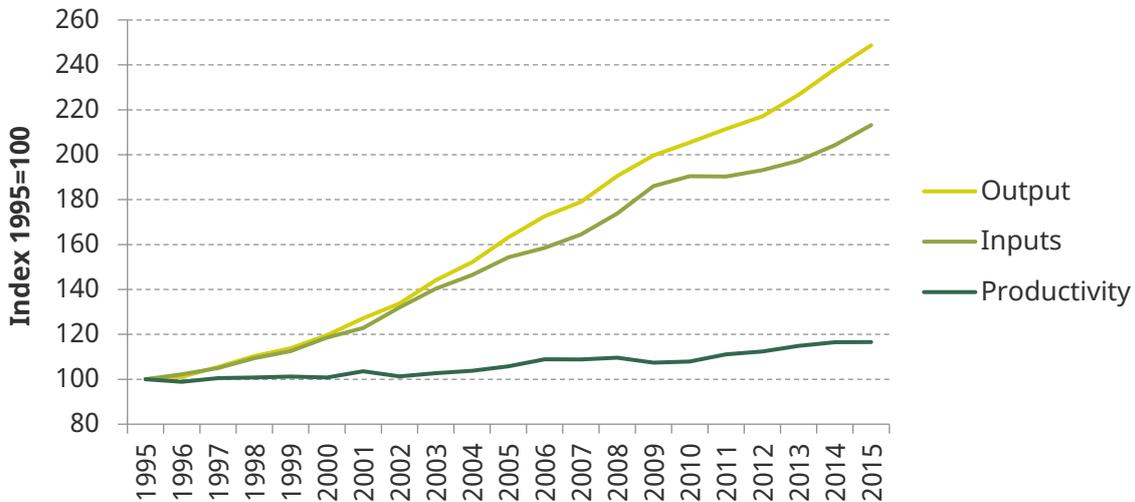
The previous sections have documented that the large increase in NHS funding since 1997 has been accompanied by an increase in a range of inputs and outputs. Figure 2.21 summarises these changes by setting out official measures of NHS inputs and (quality-adjusted) outputs between 1995 and 2015 from the 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.⁷²

⁷¹ E. Hawe and L. Cockcroft, *OHE Guide to UK Health and Health Care Statistics*, 2nd edition, Office of Health Economics, 2013.

⁷² 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 2013.⁷³

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

⁷³ R. Crawford and G. Stoye, 'Challenges for health spending', in C. Emmerson, P. Johnson and R. Joyce (eds), *The IFS Green Budget: February 2015*.

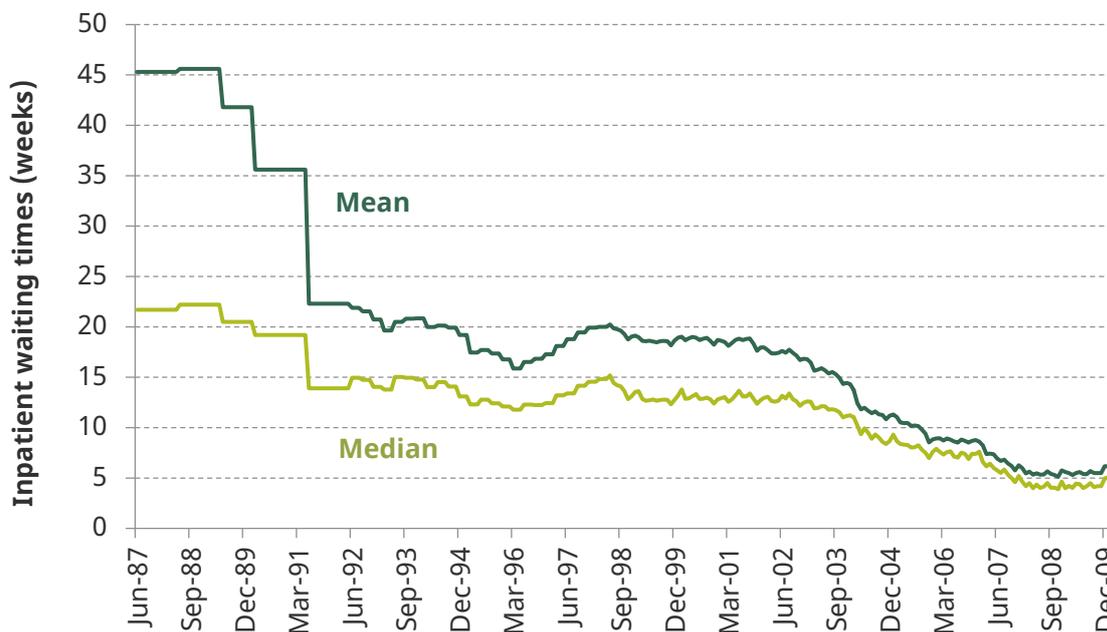
the Health Foundation and Nuffield Trust’s QualityWatch and by the King’s Fund Quarterly Monitoring Reports.⁷⁴

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)

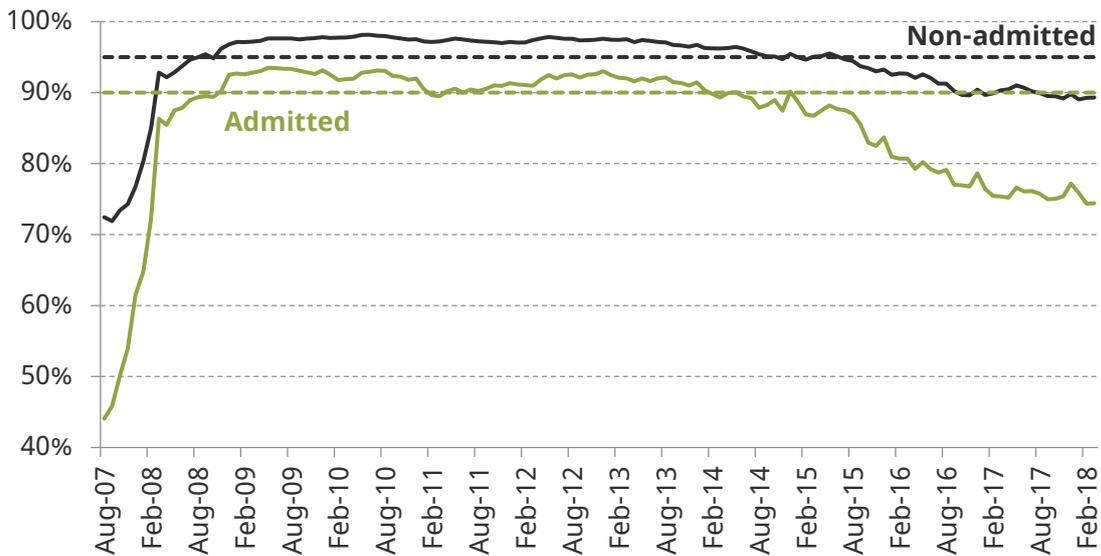


Note: Waiting times refer to the number of weeks elapsed between a consultant’s decision to admit and the admission date. This measure of waiting times was replaced by a ‘referral to treatment’ measure in 2007, and reporting of this measure was discontinued in January 2010.

Source: Department of Health, ‘Provider inpatient waiting times’, <http://webarchive.nationalarchives.gov.uk/20130104155640/http://www.dh.gov.uk/en/Publicationsandstatistics/Statistics/Perfomancedataandstatistics/HospitalWaitingTimesandListStatistics/index.htm>.

⁷⁴ <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/>.

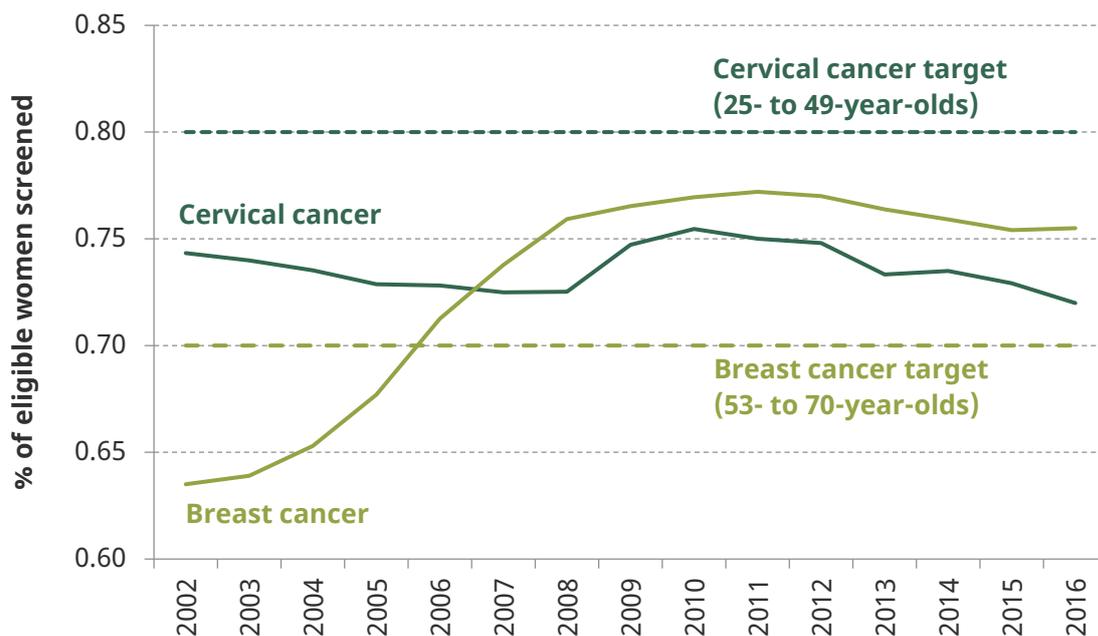
patients (outpatients) should wait a maximum of 18 weeks between the initial referral to hospital from their GP and the end of their treatment (either discharge or an inpatient admission). Figure 2.23 shows aggregate performance in England against this target between August 2007 and March 2018. Following 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 2017.⁷⁵

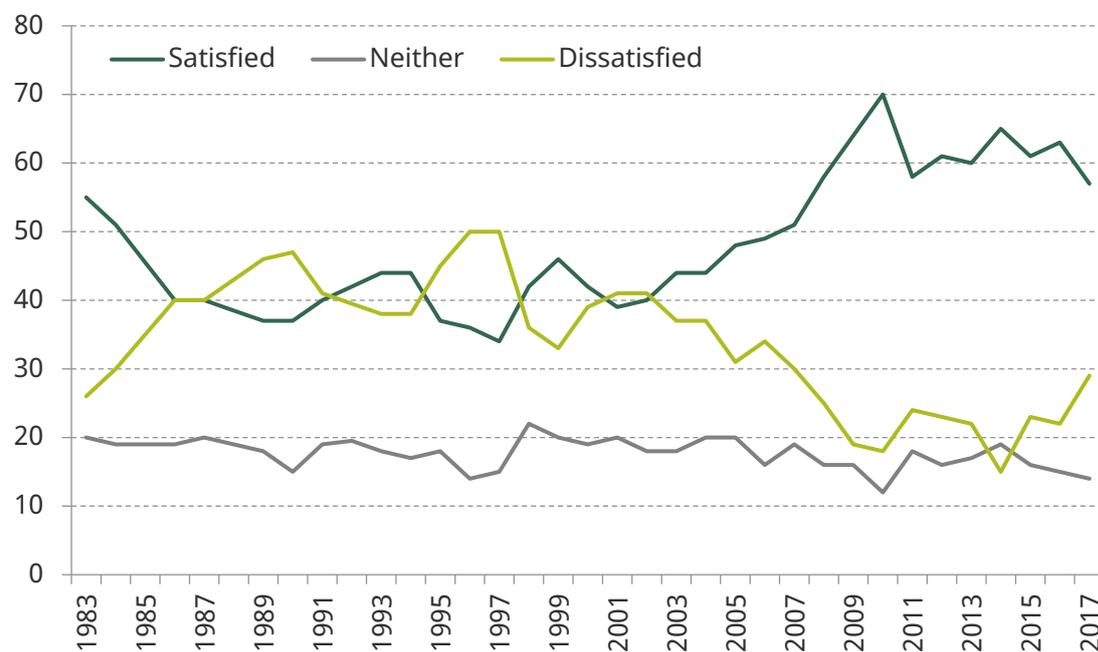
⁷⁵ <http://www.pulsetoday.co.uk/clinical/clinical-specialties/cancer/only-one-ccg-met-the-cervical-cancer-screening-target-for-under-50s/20036179.article>.

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?'

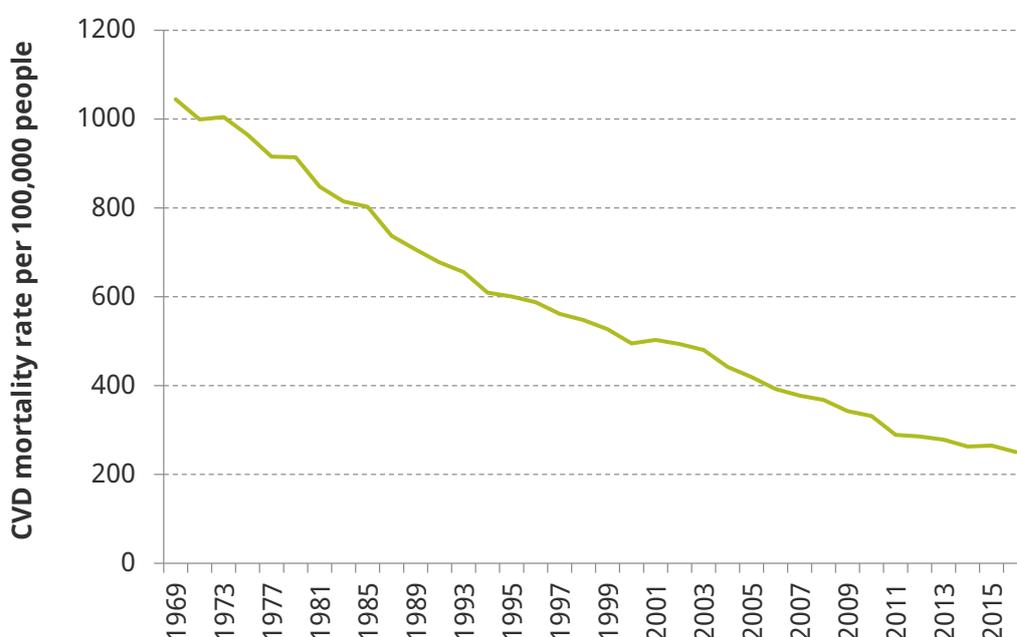
Another important measure of quality is popular satisfaction with the NHS. Figure 2.25 shows responses from the British Social Attitudes on public satisfaction with the NHS between 1983 and 2017. The proportion of the population reporting satisfaction dipped in the mid 1980s, before remaining around 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.⁷⁶ 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*.

⁷⁶ 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>.

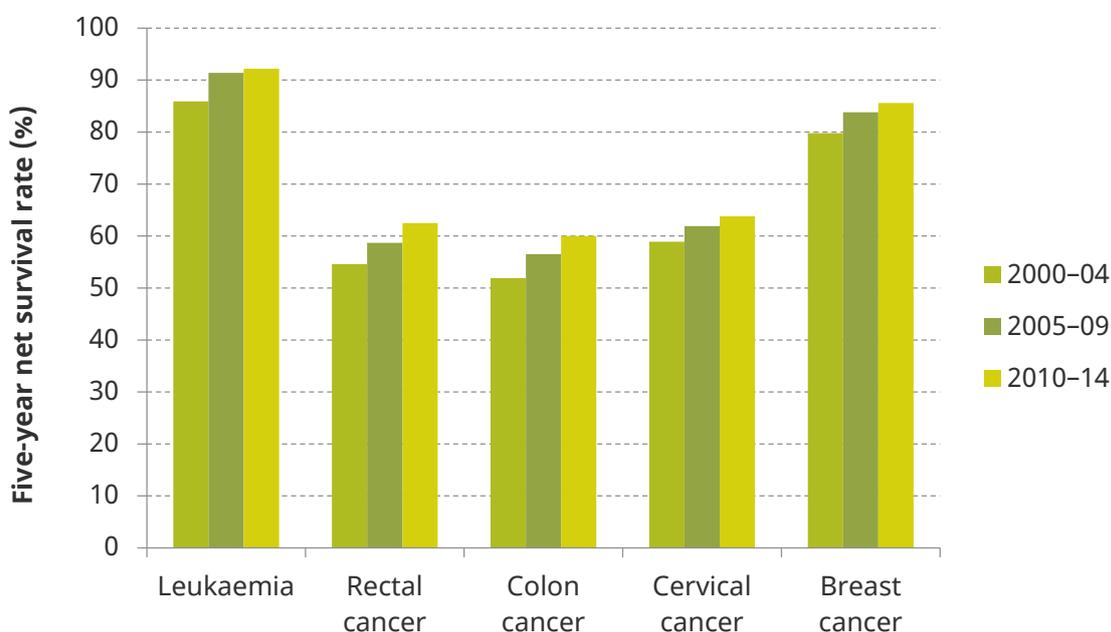
What is certainly true is that for many conditions, patient outcomes have improved over time. For example, mortality from cardiovascular disease (CVD) has more than halved over the past 50 years. Figure 2.26 shows the age-standardised mortality rate per 100,000 people from CVD over the period 1969 to 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.⁷⁷

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.⁷⁸ 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.

⁷⁷ '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#.

⁷⁸ 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.

3. Future pressures on the NHS and social care

Anita Charlesworth, Zoe Firth, Ben Gershlick and Toby Watt (The Health Foundation)

Key findings

Without major changes to the way healthcare is provided, meeting the needs of a growing and ageing population would require hospital activity to increase by a projected almost 40% over the next 15 years.

It is estimated that there will be 5.9 million more people in the UK in 2033–34 than in 2018–19. The number of people aged 65 and over is growing three times faster than the number aged under 65 – 4.4 million more aged 65 and over and 1.5 million more under-65s. The burden of disease is also increasing. More of the UK’s population will be living with a chronic disease and very many with multiple conditions, further adding to health and care demand pressures. This will have major implications for NHS workforce and capacity.

To maintain quality and access to care at current levels for the growing and ageing population, health services in England would need an estimated 3.3% in additional funding per year over the next 15 years.

This is the result of the growing and ageing population, rising chronic disease but also additional pay and price pressures which are not projected to be fully offset by productivity improvements. If pay grows in line with projections of public sector earnings (1.7%), it would increase at more than twice the long-run trend in healthcare productivity in the UK (0.8%).

If the NHS in England is to meet waiting times targets for A&E and inpatient care, deliver parity of esteem for mental health and invest in modern technology and facilities, health spending would need to increase by a projected 4.1% per year over the next 15 years.

Over the next 15 years, if the NHS is to improve the quality and range of care provided, spending would need to increase at a faster rate. Modernising the NHS to deliver improved outcomes could include: returning to the NHS constitutional standards for access to hospital services; significant progress towards the commitment to parity of esteem for mental health services; additional capital investment to upgrade NHS infrastructure, including scanners for cancer diagnosis; more investment in public health; and higher pay for NHS staff. There may be scope to offset some of these additional pressures with a sustained increase in the rate of productivity growth (at 1.4% a year).

Healthcare funding has not kept pace with demand and cost pressures in recent years.

The healthcare budget in England is £128 billion in 2018–19, following the announcement of additional funding in the Chancellor of the Exchequer's Autumn 2017 Budget. The NHS has built up unfunded, underlying cost pressures over recent years as funding has increased by less than demand. Over half of NHS hospitals are in deficit and capital investment and maintenance have been postponed to meet day-to-day running costs. To modernise the NHS, resource spending in England would need to increase by a projected 4.7% a year and capital funding 11.0% over the next five years. Even without modernisation, our projections show spending in England would need to increase by a projected 4.1% for day-to-day running costs and 2.3% for capital.

Demographic and non-demographic pressures mean that maintaining current standards would require spending to increase by a projected 3.3% a year over the next 15 years. Modernising the NHS would require funding to grow by a projected 4.0% a year. Under these scenarios, healthcare spending would increase as a share of GDP from 7.3% in 2018–19 to 8.9% or 9.9% respectively in 2033–34.

Demographic and non-demographic pressures would see healthcare spending across the UK increase from £154 billion in 2018–19 to £278 billion in 2033–34 if the NHS is modernised. As a result, the NHS would continue to consume an increasing share of GDP – in line with the trend over the last 70 years, other projections from the OBR and OECD, and consistent with expected trends in other EU15 and G7 countries.

To maintain social care services at the levels available in 2015–16 would require spending to increase by a projected 3.9% a year over the next 15 years.

Social care is facing high growth in demand pressures, which are projected to rise by around £18 billion by 2033–34, at an annual rate of 3.9%. This is a combination of growing and ageing populations, rising numbers of people living longer with long-term conditions, and rising costs of providing care services. Spending on social care would therefore grow as a share of GDP from 1.1% in 2018–19 to 1.5% 15 years later.

The NHS is projected to need at least 179,000 more staff over the next five years if services grow in line with demand pressures. This is more than 100,000 more staff than the NHS is expecting to be able to recruit and retain over the next five years.

If the NHS workforce grows in line with activity under the modernised scenario, then it would require a projected additional 179,000 staff over the next five years, rising to 639,000 full-time-equivalent additional staff by 2033–34. This would include 171,000 extra nurses and health visitors and a total 343,000 extra professionally qualified clinical staff.

3.1 Introduction

Chapter 1 charted the path of NHS spending since its inception, showing that, in common with countries across the EU and G7, healthcare spending in the UK has increased at a faster rate than inflation and GDP. As a result, publicly funded health spending is now 7.3% of national income (2018–19). In this chapter, we set out the results of economic modelling of current patterns of healthcare utilisation and costs, alongside trends in the key drivers of healthcare spending, to project future spending pressures for the NHS. We look forward 15 years from the NHS's 70th anniversary to the NHS at 85, and chart how the spending pressures evolve in five-year bands. The detailed component-based models we

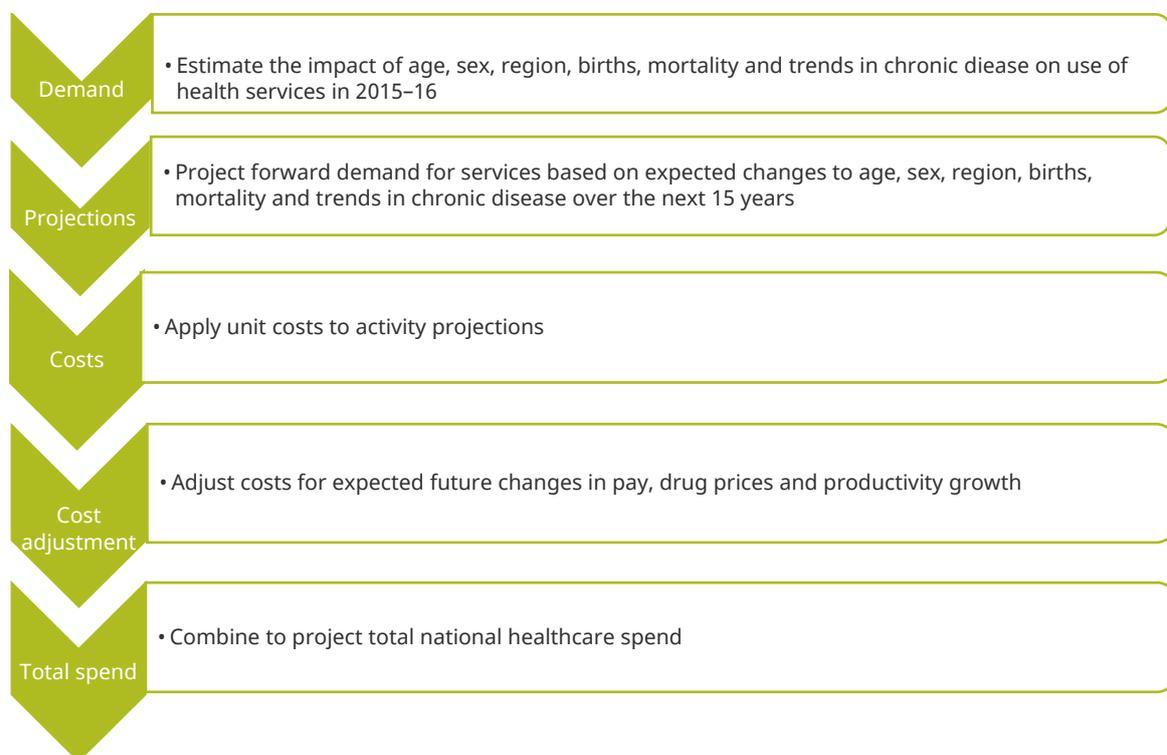
use to estimate spending pressures are based on projections of activity and their cost. We also set out the implied changes to utilisation of healthcare and what that might mean for the workforce. With the ageing of the population, it is increasingly important that healthcare services are planned and managed in an integrated way with social care services. We therefore also set out projections for social care spending from colleagues at the Personal Social Services Research Unit (PSSRU) over the same 15 years.

3.2 Methodology

This chapter presents the results of a detailed component-based economic model of the demographic and non-demographic determinants of healthcare spending. The model uses data on the use of health services and the cost of delivering care in the English NHS in 2015–16, to understand how healthcare cost and utilisation vary with people’s age, sex, mortality and patterns of chronic disease, given current standards of access and quality of care, and the way in which services are delivered. It is significantly different from many existing projections of health spending, which are based on ‘top-down’ estimates (see Box 3.1).

The service delivery model includes factors such as: the balance of hospital-based, primary and community care; the mix of care provided in outpatient departments, as day cases or as inpatient admissions; and how long people stay in hospital.

Figure 3.1. Steps for producing total NHS spending projection



Source: Health Foundation analysis plan.

Box 3.1. Top-down models of long-term spending on healthcare

The Office for Budget Responsibility (OBR) projects healthcare spending. These projections and those of international bodies^a use top-down modelling techniques to project healthcare expenditure.

Top-down models identify three main drivers of healthcare spending:

- demographic factors – changes in the size, age structure and burden of ill health;
- income effects;
- other cost pressures, which include technological advance and rising relative prices.^b

These methods assume that alongside demographic changes, non-demographic factors are a major contributor to rising healthcare costs. The leading non-demographic factors are morbidity, pay and price pressures, and the impact of rising income.

Within the burden of disease in the population, morbidity is a key driver of health spending. Chapter 1 showed that life expectancy has increased over the last 70 years. How much of that extra life expectancy is spent in good or poor health is an important determinant of healthcare spending. The OBR model explores the impact of different scenarios for morbidity – an expansion of morbidity means more years in ill health; a compression of morbidity means fewer years in ill health. Its central projection assumes an expansion of morbidity, continuing recent trends in health status.

The other important factor identified in top-down models of healthcare spending is the Baumol effect. William Baumol hypothesised that in service sectors such as healthcare, it is harder to increase productivity than it is in capital-intensive manufacturing sectors, but wage growth has to be broadly consistent between sectors for recruitment and retention purposes. The OECD and the OBR both assume there is a Baumol effect for healthcare, with pay increasing faster than productivity growth.

As UK national income (GDP) has increased over time, society has prioritised improvements in healthcare in line with that growing prosperity. This effect is measured by calculating the income elasticity of demand for healthcare. Various estimates have been made of the income elasticity of demand for healthcare – with most putting it at or just above 1. The OBR uses an elasticity of 1, meaning demand for healthcare rises in line with GDP growth – making healthcare in the UK a ‘normal good’, i.e. a good for which demand increases when income increases.

^a European Commission, ‘Public expenditure on health: its growing importance, drivers and policy reforms to curb growth’, in *2013 Report on Public Finances in EMU, European Economy 4*, July 2013. OBR, ‘Fiscal sustainability analytical papers – 2016’, <http://obr.uk/fsr/fiscal-sustainability-analytical-papers-july-2016/>. OECD, *Fiscal Sustainability of Health Systems: Bridging Health and Finance Perspectives*, September 2015. IMF, ‘Public expenditure reform: making difficult choices’, *Fiscal Monitor*, April 2014.

^b OBR, ‘Drivers of rising health spending’, 2015, <http://obr.uk/box/drivers-of-rising-health-spending/>.

^c Y. Feng, T. Watt, A. Charlesworth, G. Marsden, A. Roberts and J. Sussex, ‘What determines the health care expenditure of high income countries? A dynamic estimation’, *Applied Economics and Finance*, 2017, 4(6), 1–16.

The NHS provides a wide range of services for the population, all of which face differing patterns of demand. To reflect this, we have modelled services separately, including inpatient (separated into emergency and planned elective and day case) hospital care, outpatient hospital care, A&E attendances, community care, primary care prescribing, mental health and primary care services (GP, dentistry, pharmacy and ophthalmology). This allows for greater flexibility for testing scenarios around how patterns of service provision might change. The modelling approach can be split into five steps, as shown in Figure 3.1.

Our model for acute care (inpatient, outpatient and A&E) is the most detailed. We are significantly hampered by major gaps in the data for community and primary care as there are no robust national data on the amount of care provided in these settings. There is little evidence on how care needs vary with patient characteristics, such as chronic conditions.

In our component-based model we can model many of the factors identified in top-down models in more detail. The factors we directly model are shown in Table 3.1.

We use these detailed models to estimate a base case scenario, which we call the ‘status quo’. Our status quo scenario looks at demographic changes, pay and price pressures with some offsetting productivity improvement. This provides an estimate of the minimum level of spending required to maintain the range and quality of current services at the level in 2015–16, without allowing for increasing expectations as the country gets richer (the income effect) or major new advancements in technology. Under this scenario, quality of care will not improve and public satisfaction is likely to decline.

As the top-down models used by the OBR and others show, this is unlikely to be realistic. Income effects and new technologies are important drivers of healthcare spending. We therefore also model a scenario that explores how the income elasticity of demand and new technology might affect pressures on healthcare over the next 15 years. We characterise the income elasticity of demand as the underlying factor that leads to rising expectations for quality of and access to care. We call this the ‘modernised NHS’ scenario. Our modernised scenario sets out a projection of NHS funding over the next 15 years in which the health service meets rising expectations for the quality and range of care provided and in which services adopt new technological advances. This is not a radical upgrade of the NHS and is unlikely to put us in the forefront of other European countries when it comes to either spending or outcomes.

Table 3.1. Key drivers of healthcare spending modelled in our component-based approach

Demographic factors	Supply factors
Changing size and age structure of the population	Real earnings growth for NHS staff
Burden of ill health	Productivity
	Drug price inflation

Source: OBR, ‘Drivers of rising health spending’, 2015, <http://obr.uk/box/drivers-of-rising-health-spending/>; Health Foundation analysis.

In this chapter, we present the results of our two scenarios for healthcare spending pressures as point estimates. These are projections, not forecasts. The projections are subject to considerable uncertainty – population estimates for the future change regularly, technological advance is non-linear and patterns of chronic disease may be different depending on public attitudes to risk factor behaviours such as smoking, alcohol consumption, diet and exercise. This uncertainty is unavoidable, but healthcare services need to plan for the future: capital investment, service redesign, medical and nursing education and training all have long-term horizons – for example, it takes more than 10 years to train a consultant. Making good decisions under uncertainty requires a sophisticated understanding of how different drivers of healthcare might affect funding, outcome, workforce and delivery. The evidence base for this is currently weak; it is not drawn together systematically and is not updated on a regular basis as underlying drivers change. This major gap should be addressed to help put the NHS on a more sustainable footing.

It is important to recognise that our model provides projections of the path of future spending pressures for the NHS, assuming that current patterns of care and recent trends are a reasonable guide to the future. Over the medium term, these modelling approaches tend to be a fairly reliable guide to the future, but they are much less reliable in the short term. They cannot anticipate ‘shocks’ to the system that require what is provided and the cost of care to adapt quickly and diverge from the trend. The amount spent is, of course, a political decision based on the priorities and preferences of the government and the population. Our projections reflect the spending implications of the current model of delivery of healthcare, with some improvement in productivity. They are not necessarily a model of the costs of the ideal or optimal model for delivering healthcare.

Data

We use a number of different data sources, as set out in Box 3.2. We use this detailed modelling of the English NHS as the basis of UK-wide projections. We gross up estimated England spending pressures to the UK by calculating the health spend per head in 2015–16 for each country using data from Public Expenditure Statistical Analyses (PESA)⁷⁹ and ONS population data.⁸⁰ We increase spending per head for Scotland, Wales and Northern Ireland at the same rate as the modelled projected growth in spend per head for England. Multiplying the projected spend per head by the corresponding population projections for each constituent country (other than England) gives the total NHS spend for each year up to 2033–34. The sum of spend over all constituent countries gives the estimated projected UK health spend.

⁷⁹ Table 9.11 of HM Treasury, *Public Expenditure Statistical Analyses 2017*, <https://www.gov.uk/government/statistics/public-expenditure-statistical-analyses-2017>.

⁸⁰ Office for National Statistics, ‘Table A1-4, Principal projection – England summary’, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/tablea14principalprojectionenglandsummary>.
Office for National Statistics, ‘Table A1-5, Principal projection – Wales summary’, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/tablea15principalprojectionwalessummary>.
Office for National Statistics, ‘Table A1-6, Principal projection – Scotland summary’, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/tablea16principalprojectionscotlandsummary>.
Office for National Statistics, ‘Table A1-7, Principal projection – Northern Ireland summary’, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/tablea17principalprojectionnorthernirelandsummary>.

Box 3.2. Data sources

In this analysis, we use data from a number of different sources to build as complete a picture as possible of NHS and social care spending and activity. Full details of data sources are provided through the chapter.

Our model for the NHS has six core components: acute care, community care, primary care, prescribing, mental health and maternity. For acute care, we use pseudonymised patient-level Hospital Episode Statistics (HES), which are administrative data containing details of all admissions, outpatient appointments and A&E attendances at NHS hospitals in England. For community care, we take activity data from the NHS Reference Costs. For primary care activity, we use a combination of Q Research and GP Patient Survey data. The number of prescribing items dispensed is taken from NHS Digital Prescription Cost Analysis. For mental health prevalence data, we use the prevalence of common mental disorders, taken from the Adult Psychiatric Morbidity Survey. All activity was costed using NHS Reference Costs, except for primary care activity (costed using data from the Personal Social Services Research Unit) and prescribing (costed using data from NHS Digital Prescription Cost Analysis).

Population, fertility and mortality estimates (including projections) are all sourced from the Office for National Statistics (ONS).

Data for expected pay after 2020–21 are from the OBR, while data up to that point are based on modelling the impact of the proposed Agenda for Change pay deal using data from NHS Digital and the NHS Staff Council.

The English health budget was sourced from Department of Health (DH) accounts, grossed up to the UK using data from PESA. All economic variables, including GDP and the GDP deflator, are taken from the OBR's 2018 Economic and Fiscal Outlook.

Unless otherwise stated, all figures are in 2018–19 prices, although our detailed modelling is based on patterns of use for 2015–16 as this is the latest year for which highly disaggregated data are available. We uprate our figures to the current financial year (2018–19) as our base year.⁸¹

3.3 Assumptions

To model projected health spending pressures, we make assumptions about future changes in demography, chronic disease patterns, quality and access to care (reflecting changing expectations and new technology), input costs and productivity. We model two scenarios – status quo and modernisation. Some areas (demographic trends) are the same in both scenarios. In other areas (pay and productivity), we model higher values in the modernised scenario, to reflect its higher ambition. There are additional areas (mental health, NHS constitutional standards, capital spending and public health spending) where we model no changes in the status quo, but explicitly model service improvements and

⁸¹ Note that 2018–19 figures are projected estimates based on 2015–16 activity data and 2016–17 cost share data. UK figures are grossed up from England data based on health spend per head.

Table 3.2. Projections modelling assumptions for the status quo and modernised scenarios

	Status quo	Modernised NHS
Population pressure	ONS central projections for population growth ^a	As in status quo
Chronic conditions	Continuation of the rising trend in chronic conditions – by age and sex – since 2003–04 ^b	As in status quo
Drug costs	5.5% real annual increase in hospital unit drug costs ^c	As in status quo
Pay	Annual real pay bill per head grows by 1.9% to 2020–21, moving to 1.7% from 2021–22. This reflects modelled earnings growth, followed by NHS earnings growing in line with OBR expectations for public sector earnings.	Annual real pay bill per head grows by 1.9% to 2020–21, moving to 3.0% from 2021–22. The higher pay allows some catch-up to be permitted to NHS staff after low levels of pay increases in recent years.
Productivity	0.8% throughout the period: long-run average public service healthcare productivity growth for the UK (1995–2015) ^d	0.8% until 2018–19 (as in status quo). 1.4% from 2019–20: returning to and maintaining the higher rate of public service healthcare productivity growth achieved since 2010. ^d
Mental health	Treated prevalence stays at 39%. ^e Annual prevalence growth is 0.6% from a baseline of 15.7%. ^e	Number of people with a mental health condition receiving NHS care increases to 70% from a current rate of 39%. ^e
Constitutional standards	No catch-up to meet standards set out in NHS constitution. Activity grows in line with demand.	A&E activity increases to meet 95% within four-hour target, with emergency inpatient admissions increased in line. ^f Planned inpatient care activity growth to avoid increased wait times and clear care backlogs. ^g Outpatient activity to increase in line with planned admissions.
Capital	Capital spending grows in line with plans until 2020–21, and then at the same rate as total day-to-day health spending (RDEL)	Capital spending increases to 0.5% of GDP between 2019–20 and 2023–24, in line with the OECD average ^h
Public health	Public health maintains its current share of total RDEL	Public health (public health local authority grants) grows at 1ppt above RDEL growth

Notes to Table 3.2

^a Office for National Statistics, 'National population projections: 2014-based statistical bulletin', 2015, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2015-10-29>.

^b Health Foundation analysis of Hospital Episode Statistics.

^c Health Foundation analysis of NHS Digital Prescription Cost Analysis and NHS Digital Hospital Episode Statistics online.

^d Office for National Statistics, 'Public service productivity estimates, healthcare: 2015', <https://www.ons.gov.uk/economy/economicoutputandproductivity/publicservicesproductivity/articles/publicserviceproductivityestimateshealthcare/healthcare2015>.

^e <https://digital.nhs.uk/data-and-information/publications/statistical/adult-psychiatric-morbidity-survey/adult-psychiatric-morbidity-survey-survey-of-mental-health-and-wellbeing-england-2014>.

^f <https://www.health.org.uk/blog/winter-coming-how-much-would-it-cost-keep-pressure-down>.

^g R. Findlay, 'The cost of restoring 18 week waits', November 2017, <https://www.hsj.co.uk/finance-and-efficiency/revealed-the-cost-of-restoring-18-week-waits/7021025.article>.

^h https://www.oecd-ilibrary.org/social-issues-migration-health/data/oecd-health-statistics_health-data-en.

additional investment in the modernised scenario to reflect rising expectations and new technology.

In this section, we explain the assumptions underpinning our projections and the rationale for choosing to model them in this way.

Population change

The population of the UK and its constituent countries has changed significantly over the last 70 years, and ONS projections show that further changes are expected. Health spending pressures will increase with the size of the population and with changes to the age profile. At present in England, healthcare spending per person is £2,400; however, this varies considerably across the life course. The figure is less than £1,000 per person for people aged up to 50. For people older than 50, costs then rise steeply: spending per head on those aged over 65 is more than three times spending per head on the under-65s.

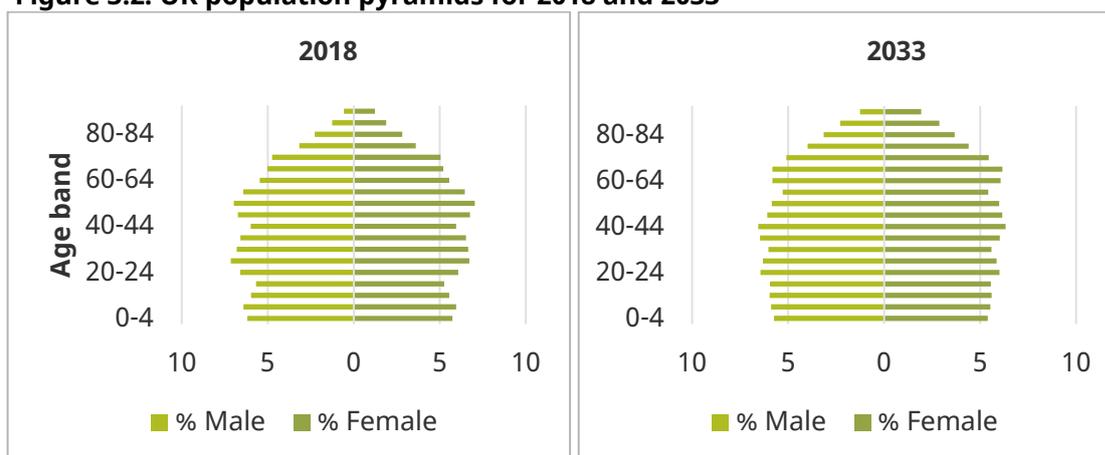
Table 3.3 shows the population size of the UK and its constituent countries now, and the expected size in 15 years' time based on ONS projections. The UK is projected to have 5.9 million more people in 2033 than today. This represents average growth of 0.6% a year. Of the constituent countries, England is expected to have the highest annual average growth rate, of 0.6%, and Wales the lowest with 0.3%.

Table 3.3. Projected population growth from 2018 to 2033

	Population size (million)				
	UK	England	Wales	Scotland	Northern Ireland
2018	66.5	56.1	3.1	5.4	1.9
2033	72.4	61.5	3.3	5.6	2.0
Annual average growth	0.6%	0.6%	0.3%	0.3%	0.4%

Source: ONS 2014 projections – Office for National Statistics, '2014 principal population projections', <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections>.

Figure 3.2. UK population pyramids for 2018 and 2033



Source: Office for National Statistics, ONS 2014 principal projections – UK: 2014 based, 2017, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/z1zippedpopulationprojectionsdatafilesuk>.

As well as the size of the population, there have also been – and will continue to be – significant changes in the age and sex structure of the UK population. Figure 3.2 shows the current age and sex structure of the UK population and also what we expect in 2033, using data from ONS.

The number and percentage of the population by age group are shown in Table 3.4. Of note is the ageing population. The number of people aged 65 or over is expected to increase from 12.2 million (18% of the population) in 2018 to 16.7 million (23%) in 2033. Population growth over the next 15 years is heavily skewed towards older age groups. In 2033, there are expected to be 4.4 million more people aged 65 and over in the UK population, but just 1.5 million more under-65s.⁸²

Table 3.4. UK demographic composition: number and % of population by age

	Population size (million)		% of total population	
	2018	2033	2018	2033
Total	66.5	72.4	100%	100%
Aged 0–14	11.9	12.3	17.9%	17.1%
Aged 15–39	21.3	21.8	32.0%	30.1%
Aged 40–64	21.1	21.6	31.7%	29.8%
Aged 65–84	10.6	13.7	15.9%	18.9%
Aged 85+	1.7	3.0	2.5%	4.2%

Source: Office for National Statistics, ONS 2014 principal projections – UK: 2014 based, 2017, <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/z1zippedpopulationprojectionsdatafilesuk>.

⁸² It is not just ageing itself that increases healthcare costs but also the mortality rate. Those in their last year of life are often high-cost users of the health system. Using data from ONS mortality projections, in 2018 466,000 deaths were expected in England increasing to 536,000 in 2033, an average annual growth rate of 1%.

Chronic conditions

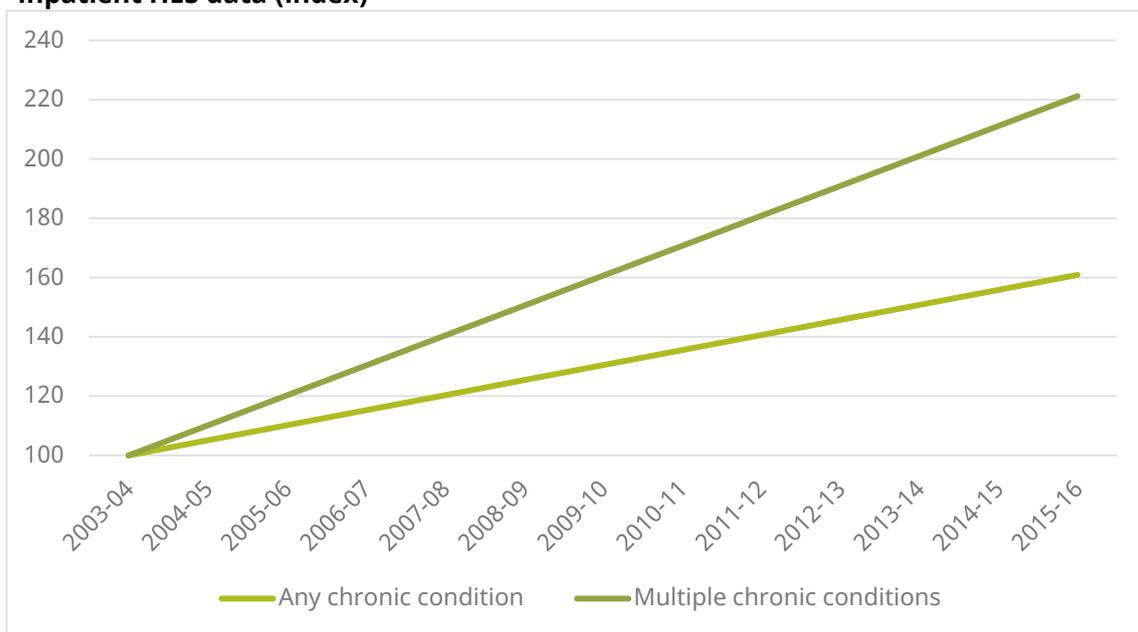
All other things being equal, the number of people living with chronic conditions is likely to increase in proportion to the growth and ageing of the population. But this has not been true over the last 70 years: the number of people with chronic conditions is growing faster than population growth and ageing. This is because, within age groups, the *prevalence* of chronic conditions – the percentage of people within that age group with a chronic condition – has been increasing.

Medical advances, public health interventions and lifestyle patterns mean the health problems that provide the greatest burden of disease are now long-term chronic health conditions, rather than the accidents and infectious diseases that dominated at the start of the NHS.

We model 10 such chronic conditions, selected based on the Department of Health chronic disease management compendium of information, with additions based on expert guidance. These are chronic obstructive pulmonary disease (COPD) or asthma, arthritis, cancer, diabetes, coronary heart disease (CHD) or heart failure, renal disease, epilepsy, stroke, mental ill-health and dementia. Figure 3.3 shows the trend in key chronic diseases between 2003–04 and 2015–16 for inpatients aged 65 and over.

In addition to a general increase in prevalence, there has also been a rise in the prevalence of people living with multiple chronic conditions. While the number of people living with a single chronic condition⁸³ has grown by 4% a year – outpacing population growth – the number living with multiple chronic conditions has grown by 8% a year

Figure 3.3. Growth in chronic conditions for patients aged 65 and over identified in inpatient HES data (index)

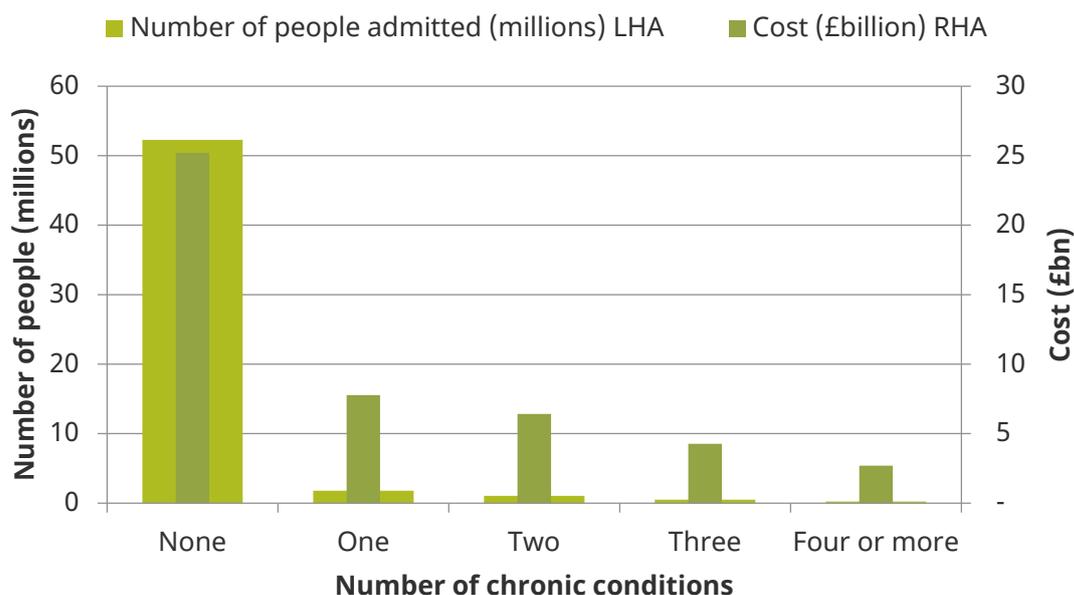


Note: Analysis of inpatient admissions only

Source: Health Foundation analysis of Hospital Episode Statistics.

⁸³ As identified in inpatient HES data.

Figure 3.4. Projected cost of admissions, England, 2018–19 (status quo)



Source: Health Foundation analysis of NHS Reference Costs data and NHS Digital, ‘Hospital Episode Statistics’, <https://digital.nhs.uk/data-and-information/data-tools-and-services/data-services/hospital-episode-statistics>.

between 2003–04 and 2015–16. People with multiple health problems are more costly to treat (see Figure 3.4). For this reason, we also model combinations of chronic conditions.

As set out in Chapter 1, a key driver of this within-age-group rise in the prevalence of chronic conditions is changing lifestyles. Unhealthy behaviours such as low levels of physical inactivity, poor diet, smoking and alcohol consumption have varied over the last 70 years; in recent years, smoking rates have fallen but obesity levels have increased, possibly offsetting the positive impact of this improvement. These behaviours are risk factors for chronic conditions – for instance, smoking increases people’s likelihood of asthma and COPD.

Projecting trends in ‘health behaviours’ is challenging. The impact on the NHS is even harder to predict. Reducing the prevalence of risky health behaviours would reduce the costs of treating associated diseases, but is likely to increase overall healthcare costs as longevity improves.⁸⁴ Scenarios of reducing alcohol consumption even suggest increasing costs of treating alcohol-related cancers (e.g. breast cancer) as people are more likely to survive long enough to develop them.

After 70 years of technological progress and access to healthcare, people are much more likely to survive with a chronic condition as medical advances improve survival rates. In both the status quo and modernised scenarios, we assume that recent trends in the prevalence of chronic conditions within age and sex bands continue. We assume that while there may be some improvement in some population risk factors, such as smoking and alcohol consumption rates, over the next 15 years, overall there will continue to be an expansion in morbidity. This is consistent with the OBR and OECD model assumptions.

⁸⁴ For example, see J. Tiihonen, J., K. Ronkainen, A. Kangasharju and J. Kauhanen, ‘The net effect of smoking on healthcare and welfare costs. A cohort study’, *BMJ Open*, 2012; 2(6), e001678, doi: 10.1136/bmjopen-2012-001678.

Box 3.3. Identifying people with chronic conditions

In our economic model, we identify people with chronic conditions using inpatient records. Many people with a chronic health problem will only need GP care, not inpatient hospital care, in a given year, so we cannot identify all the healthcare costs associated with chronic conditions.

Hospital inpatient admissions, while a smaller component of all healthcare activity than GP visits (there are 300 million GP visits a year compared with 17 million hospital admissions), are much more expensive, with an average GP consultation costing around £40 compared with over £1,000 for an inpatient admission. Hospital admissions therefore account for a large share of total NHS spending.^a Data on diagnoses are not recorded in the same way in outpatient and A&E data; for this reason, our estimates of chronic conditions will be below national prevalence rates and, in turn, the modelled outpatient growth may be underestimated. Overall, our estimates of the impact of chronic conditions on future health spending are likely to reflect the minimum.

^a PSSRU, 'Unit costs of health & social care 2017', 2017, <https://kar.kent.ac.uk/65559/>.

NHS Improvement, 'Reference costs', 2017, <https://improvement.nhs.uk/resources/reference-costs/>.

Drug costs

The drugs bill in the NHS – the total cost of medicines dispensed in primary care and used in hospitals – has historically grown faster than inflation.⁸⁵ This is being driven by two things: increases in the number of drugs prescribed (volumes) and increases in the average unit cost of those drugs (prices).

Part of the increase is due to population growth and ageing, as well as improvement in diagnosis of certain conditions. The cost of the drugs associated with additional activity due to population growth and ageing is captured within our estimates of demographic effects.

But the volume increase also partly results from an increase in the number of medical conditions amenable to treatment with medicines: as new, cost-effective medicines are discovered and recommended by the National Institute for Health and Care Excellence (NICE), costs rise. This is the impact of new technology, which in top-down models is part of the residual effect. The Department of Health and Social Care's Accelerated Access Review highlights that medical advance is not expected to slow over coming years. The number of new medicines is expected to increase and more than 100 new products are projected to be launched in 2018. This is over three times the number launched in 2010.⁸⁶

⁸⁵ 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>.

⁸⁶ *Accelerated Access Review: Final Report – Review of Innovative Medicines and Medical Technologies*, 2016, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/565072/AAR_final.pdf.

These new drugs will be for a wide range of conditions, but within cancer care, since 2000, 183 drugs have been recommended for use by NICE.⁸⁷

While this is a spending pressure, advances in drug treatment have been an important factor in improved outcomes for patients over the last 70 years, as set out in Chapter 1.

The volume of drugs is increasing in both hospital and primary care settings, but the trends in unit costs are very different. New medicines impact hospitals disproportionately, partly as they are increasingly focused on areas of specialist care such as cancer. Primary care prescribing is more concentrated on drugs that have been available for many years and that have reached the end of their patent, allowing competition and generic alternatives. New medicines tend to be more expensive, to reflect the high cost of research and development as well as the lack of generic (non-‘brand name’) alternatives.

This impact can be seen with drug costs rising sharply in recent years in hospitals – where the newer, more innovative technologies are trialled, with more complex, invasive procedures. In contrast, in primary care, the cost of prescribing items has fallen over time, although volumes have increased. The cost per item has fallen from £15 in 2004 to £9 in 2016 in real terms.⁸⁸

There have been attempts to limit the costs of new drugs. For example, the voluntary Pharmaceutical Price Regulation Scheme has attempted to mitigate price increases for branded drugs by triggering reimbursement from pharmaceutical companies once NHS spending on these drugs reaches predefined limits. Equally, there has been the introduction of the budget impact test, meaning new products costing more than £20 million a year to the NHS would be subject to commercial negotiation, with access potentially delayed if a deal to lower the cost cannot be reached.

However, as the number of conditions amenable to pharmaceutical treatment continues to increase, meaning more drugs are dispensed and new drugs are introduced, and the average price of these new medicines stays high, it is likely that the unit cost of drugs in NHS hospitals will continue to rise. This is not due to ‘inflation’ (the additional price is not a like-for-like comparison; the basket of drugs being bought and their attributes and benefits are different over time) but is a technology effect, which we can only measure via price.

Therefore, our economic model holds unit costs in the primary care sector constant in real terms (assuming no relative price inflation for existing drugs) but projects a 5.5% real-terms annual increase in hospital drug unit costs.⁸⁹ This is based on recent trends in the total cost of hospital drug prescribing, removing activity growth. This would suggest that the current level of technological improvement is maintained.

⁸⁷ Total including those with complete recommendations, for specific circumstances or for use in the Cancer Drugs Fund (<https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-technology-appraisal-guidance/summary-of-decisions>).

⁸⁸ Health Foundation analysis of NHS Digital, ‘Prescription cost analysis, England 2017’, 2018, <https://digital.nhs.uk/data-and-information/publications/statistical/prescription-cost-analysis/prescription-cost-analysis-england-2017>.

⁸⁹ This figure is a Health Foundation analysis of provider accounts in 2016–17 taking account of activity growth from Hospital Episode Statistics online.

Pay

Pay is the single largest cost of delivering healthcare, accounting for around two-thirds of NHS spending. Any change in pay therefore has major implications for total cost pressures on the NHS. In our model, increasing real-terms pay growth by 1 percentage point a year would cost the NHS an additional £18 billion by 2033–34. To estimate pay growth between 2016–17 and 2020–21, we combine actual pay bill assumptions from NHS Improvement⁹⁰ with an estimate of the impact of the new pay deal for Agenda for Change staff. This includes an estimate of pay drift,⁹¹ which is assumed to match the average rate since 2011–12.

Our assumptions for 2021–22 onwards differ between the status quo and modernised scenarios.

In the status quo scenario, from 2021–22 until 2033–34, our assumption is that NHS pay growth will match the OBR's estimates of public sector earnings increases, which see real pay increases between 2021–22 and 2033–34 of 1.1% at the start of the decade and 2% a year in real terms by the end of the period.

As a result, we estimate the pay bill per FTE is likely to increase by an annual average of 1.9% to 2020–21, and 1.7% from 2021–22 to 2033–34, above inflation.

Pay for most NHS staff has been capped or frozen since 2010–11. As set out in Chapter 1, this has led to real-terms pay decreases; the NHS pay cost index increased by 2% in cash terms between 2011–12 and 2014–15, while whole-economy inflation increased by 5%. Consumer price inflation, which affects NHS staff living standards, rose by 6%.

Over this period, significant problems around the recruitment, retention and morale of staff have surfaced. Current total NHS vacancies for nurses, midwives and allied health professionals are almost 42,000 (9.4%) and some vacant shifts (about 8%) remain uncovered.⁹² The percentage of nurses leaving the NHS for reasons other than retirement increased from 7.1% in 2011–12 to 8.7% in 2016–17. This means that 5,000 more nurses left NHS employment than in 2011–12. Had the rate remained at 2012 levels, we would have 16,000 more nurses working in the NHS today.⁹³

For all staff at NHS trusts, the median stability index⁹⁴ has decreased from 89% in 2010–11 to 85% in 2016–17.⁹⁵ In the latest staff survey, the largest drop in satisfaction for NHS staff related to pay, with satisfaction falling by 6 percentage points to the lowest levels in the

⁹⁰ NHS Improvement, '2017/18 and 2018/19 National Tariff Payment System', 2017, <https://improvement.nhs.uk/resources/national-tariff-1719/>.

⁹¹ Drift is the term for changes to pay over and above the basic pay settlement. This includes staff progression to higher bands.

⁹² NHS, *Facing the Facts, Shaping the Future: A Draft Health and Care Workforce Strategy for England to 2027*, 2017, <https://hee.nhs.uk/sites/default/files/documents/Facing%20the%20Facts%2C%20Shaping%20the%20Future%20E2%80%93%20a%20draft%20health%20and%20care%20workforce%20strategy%20for%20England%20to%202027.pdf>.

⁹³ Ibid.

⁹⁴ The percentage of staff from the beginning of a year who are still at the trust at the end. Excludes doctors in training.

⁹⁵ J. Buchan, A. Charlesworth, B. Gershlick and I. Secombe, *Rising Pressure: The NHS Workforce Challenge*, Health Foundation, <https://www.health.org.uk/publication/rising-pressure-nhs-workforce-challenge>.

last decade. NHS Improvement analysis suggests around 14% of staff leave due to the pay/reward package.⁹⁶

The OBR expects public sector earnings growth to reach 4.2% in cash terms in 2033–34 (2% after whole-economy inflation, as measured by the GDP deflator) from 2.8% in cash terms in 2021–22 (1.1% after inflation). If NHS earnings grew in line with this, as in our status quo, this would be real-terms growth in pay, but would not make up for lost earnings since 2009–10.

If staff had received pay increases of 2% in real terms since 2009–10, the earnings per FTE would have been about 20% higher in 2016–17 than they were. To make up for the earnings lost over this period would require unprecedented sustained increases in pay after 2021–22. For our modernised NHS scenario, we assume some catch-up for the real earnings lost during the years of austerity. In the modernised NHS scenario from 2021–22, we assume pay per head will increase by 3% in real terms and that this may improve recruitment, retention and morale.

The NHS and social care workforce combined total is approaching 3 million staff – making up around 1 in 10 of the entire workforce. If the NHS grows in line with projected activity, this total is likely to grow. Around 62,000 NHS staff in England are nationals of other EU countries (5.6%). Such staff are likely to become harder to recruit after Britain exits the EU. The combination of these factors makes it even more important that pay remains competitive to attract enough skilled staff.

Productivity

Productivity is the relationship between the volume of outputs and the volume of inputs. A more productive system can achieve a set level of required output (e.g. activity) with less input (e.g. staff). Likewise, in a more productive system, the same number of staff (an input) could produce more activity (an output).⁹⁷

As the Baumol effect highlights (Box 3.1), the degree of pay growth that can be offset by productivity is critical for the long-term path of healthcare spending as a share of GDP. Increases in the costs of delivering care can be offset through increased productivity. Estimates of the productivity of the health service vary, and most analyses focus on the English NHS. The latest research from York finds that NHS productivity increased between 2004–05 and 2015–16 and has been positive since 2009–10.⁹⁸

ONS produces estimates of the trend in public service productivity. These data show the growth in quality-adjusted healthcare outputs produced and inputs used for the UK. For our projections model, in the status quo scenario, we assume productivity increases in line with the long-run trend of UK public service healthcare productivity of 0.8%. This is the ONS estimate of productivity growth between 1995 and 2015. It assumes no major, sustained increase or decrease in the trend rate of healthcare productivity in the UK.

⁹⁶ Where a reason for leaving is stated.

⁹⁷ S. Lafond and A. Charlesworth, *Hospital Finances and Productivity: In a Critical Condition?* Health Foundation, 2015, <https://www.health.org.uk/publication/hospital-finances-and-productivity-critical-condition>.

⁹⁸ A. Castelli, M. Chalkley and I. Rodriguez Santana, 'Productivity of the English National Health Service: 2015/16 update', University of York, Centre for Health Economics (CHE), Research Paper 152, https://www.york.ac.uk/media/che/documents/papers/researchpapers/CHERP152_NHS_productivity_update2015_16.pdf.

Real-terms reductions in pay may impact on recruitment, retention and morale. This is one of the factors that may negatively impact productivity and may be one of the reasons why the latest data from York suggest English NHS productivity grew very little between 2014–15 and 2015–16. In a labour-intensive industry such as health, changes in productivity are largely driven by changes in the productivity of its workforce. Equally, hospital consultant productivity fell by an average of 2.3% a year between 2009–10 and 2015–16.⁹⁹

Studies on staff turnover in the health sectors of different countries vary in approach, but point to significantly increased costs and potentially negative impacts on care outcomes.¹⁰⁰ There are costs due to the recruitment and training process but there are opportunity costs associated with people's time running the recruitment, time spent with vacant posts, and duplication and lack of continuity in patients' care.

If the NHS could increase pay to improve recruitment and retention and to reduce turnover alongside a concerted effort to improve the work–life balance for staff, it might be possible to increase productivity and reverse some of the recent falls in labour productivity.

The government's productivity framework identifies five drivers that interact to underlie long-term productivity performance: investment, innovation, skills, enterprise and competition.¹⁰¹ These drivers are generally the areas targeted when policies attempt to improve productivity.

As such, rising pay will not be the only source of improved productivity. Increasing investment in capital, mental health and public health, as well as alleviating pressure on A&E through meeting NHS constitution standards, as in our modernised scenario, would likely increase NHS productivity.

In the modernised scenario, we therefore assume a higher rate of productivity growth from 2019–20, at 1.4%. This would represent returning to and maintaining the higher level of productivity growth achieved since 2010.¹⁰² Higher productivity may be possible but there is little evidence that it has been sustained in the NHS. This is a stretching target – almost double the 20-year average of UK-wide productivity growth.

⁹⁹ S. Lafond, A. Charlesworth and A. Roberts, *A Year of Plenty? An Analysis of NHS Finances and Consultant Productivity*, Health Foundation, <https://www.health.org.uk/sites/health/files/YearOfPlenty.pdf>.

¹⁰⁰ C. B. Jones, 'The costs of nurse turnover: part 1: an economic perspective', *Journal of Nursing Administration*, 2004, 34, 562–70, <https://www.ncbi.nlm.nih.gov/pubmed/15632752>.

¹⁰¹ Chapter 3 of Office for National Statistics, *The ONS Productivity Handbook*, <https://www.ons.gov.uk/ons/guide-method/method-quality/specific/economy/productivity-measures/productivity-handbook/productivity-theory-and-drivers/chapter-3---productivity-theory-and-drivers.pdf>.

¹⁰² Office for National Statistics, 'Public service productivity estimates, healthcare: 2015', <https://www.ons.gov.uk/economy/economicoutputandproductivity/publicservicesproductivity/articles/publicservicesproductivityestimateshealthcare/healthcare2015>.

Mental health

The Adult Psychiatric Morbidity Survey (APMS) provides periodic data on the prevalence of common mental disorders.¹⁰³ In 2014, 15.7% of the adult population had a common mental health disorder, up from 15.1% in 2007 – an annual average increase in prevalence of 0.6%. Of these, only 4 in 10 people received treatment (the treated prevalence).

As the NHS Five Year Forward View for Mental Health identified,¹⁰⁴ patients with mental health conditions do not have the same standards of access to cost-effective healthcare as patients with physical conditions. The health system is working towards parity of esteem between physical and mental health conditions. For the status quo scenario, we maintain the 2014 figure of 4 in 10 (39.4%) treated prevalence. For the modernised NHS scenario, we assume the public and political decision-makers will want to see significant progress towards parity of esteem over the next 15 years. To explore the cost of this, we model what would happen to NHS spending if we increased treated prevalence to 70%.

We assume this prevalence growth is representative of all mental health conditions and apply the treated prevalence across all mental health services for common mental disorders. Although we can use administrative hospital data to identify mental health as a chronic condition, the activity data for mental health within these data sets are weak. Instead, we use activity data from the Mental Health Minimum Dataset (MHMDS) bulletin 2016–17 to estimate the number of people treated in the NHS for common mental health problems and psychotic and organic mental health conditions.¹⁰⁵

To find the cost of mental health, we use NHS Reference Costs, which categorise some mental health activity and unit costs into clusters that correspond to MHMDS. We apply the cost data to the activity data for 2016–17 and apply this to ONS population projections to create a mental health spending projection up to 2033–34.

NHS constitutional standards

The NHS Constitution for England was first published in January 2009, following a recommendation from Lord Darzi's report *High Quality Care for All*.¹⁰⁶ It contains a set of guidelines, policy pledges for the NHS and descriptions of legal rights for patients and staff. It says, 'You have the right to access certain services commissioned by NHS bodies within maximum waiting times, or for the NHS to take all reasonable steps to offer you a range of suitable alternative providers if this is not possible'.¹⁰⁷

These waiting times include starting consultant-led treatment within a maximum of 18 weeks from referral for non-urgent conditions and being seen by a cancer specialist within a maximum of two weeks from GP referral for urgent referrals where cancer is suspected.

¹⁰³ NHS Digital, 'Adult Psychiatric Morbidity Survey: survey of mental health and wellbeing, England, 2014', 2016, <https://digital.nhs.uk/data-and-information/publications/statistical/adult-psychiatric-morbidity-survey/adult-psychiatric-morbidity-survey-survey-of-mental-health-and-wellbeing-england-2014>.

¹⁰⁴ Mental Health Taskforce, *The Five Year Forward View for Mental Health*, 2016, <https://www.england.nhs.uk/wp-content/uploads/2016/02/Mental-Health-Taskforce-FYFV-final.pdf>.

¹⁰⁵ Table 3.1 of NHS Digital, 'Mental Health Bulletin: 2016-17 Annual Report, 2017', <https://digital.nhs.uk/data-and-information/publications/statistical/mental-health-bulletin/mental-health-bulletin-2016-17-annual-report>.

¹⁰⁶ http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_085825.

¹⁰⁷ <https://www.gov.uk/government/publications/the-nhs-constitution-for-england>.

In addition, there is a pledge in the constitution that at least 95% of patients attending A&E departments should be seen, treated and admitted, transferred or discharged within four hours of arrival.¹⁰⁸

The NHS has been struggling to meet a number of the constitutional standards in recent years and, while more patients are being seen in an acute setting than ever before, performance against these standards has been deteriorating. In 2017–18, 2.8 million patients spent longer than four hours in A&E, an increase of 240,000 from 2016–17 and 2.4 million from 2007–08. As a result, only 88.4% of patients were treated within four hours in 2017–18.¹⁰⁹

The NHS is also struggling to meet constitutional standards for time to planned treatment. At the end of 2017–18, 491,000 (12.8%) patients awaiting consultant-led treatment had been waiting longer than 18 weeks, considerably below the standard that at least 92% should have been waiting 18 weeks or less.¹¹⁰ It is now two years since the NHS in England last achieved the standard for planned treatment, and five years since the A&E standard was met annually. On cancer, performance has generally been better but the NHS has not met the critical standard that at least 85% of patients should start treatment within 62 days of being referred with suspected cancer by a GP since 2013–14.¹¹¹

These constitutional standards have maintained their importance under severe strain. They have been maintained for over a decade under three separate governments – Labour, the Conservative and Liberal Democrat coalition, and the current Conservative government. The standards are deliverables in the government’s mandate to NHS England, and are described as ‘must dos’ for 2017–19 in the NHS operational planning guidance.¹¹² Waiting times are also a priority for the public and patients, with a recent poll highlighting waiting times as people’s biggest concern by far (70%) when going to their local A&E department.¹¹³

The modernised NHS scenario includes our estimate of the cost of consistently meeting these constitutional standards. It includes estimates of the additional hospital activity (outpatient appointments and planned admissions) and extra emergency admissions.

The NHS needs to treat 170,000 more patients in hospital each year to avoid further increases in waiting times.¹¹⁴ This is roughly 1.1% of the planned inpatient activity in 2015–16 (the base year for which we have detailed activity data).¹¹⁵ In our modernised scenario, we therefore increase planned inpatient activity by 1.1% every year to 2033–34, in addition to growth estimates resulting from changing population and chronic conditions.

¹⁰⁸ <https://www.gov.uk/government/publications/supplements-to-the-nhs-constitution-for-england>.

¹⁰⁹ <https://www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/ae-attendances-and-emergency-admissions-2018-19/>.

¹¹⁰ <https://www.england.nhs.uk/statistics/statistical-work-areas/rtt-waiting-times/rtt-data-2017-18/>.

¹¹¹ <https://www.england.nhs.uk/statistics/statistical-work-areas/cancer-waiting-times/>.

¹¹² NHS, *NHS Operational Planning and Contracting Guidance, 2017-2019*, 2016, <https://www.england.nhs.uk/wp-content/uploads/2016/09/NHS-operational-planning-guidance-201617-201819.pdf>.

¹¹³ <http://reader.health.org.uk/NHS-and-social-care-polling/introduction>.

¹¹⁴ R. Findlay, ‘The cost of restoring 18 week waits’, 2017, <https://blog.gooroo.co.uk/2017/11/the-cost-of-restoring-18-week-waits/>.

¹¹⁵ <https://www.gov.uk/government/statistics/hospital-admitted-patient-care-activity-2015-to-2016>.

Pressures on elective waiting times have been building for some time, which means a non-recurring clearance of the existing backlog of activity would be required: an estimated 600,000 admissions in 2018–19,¹¹⁶ or 3.9% of the activity experienced in our most recent year of data. This clearance would not be possible overnight; we therefore increase activity by a further 600,000 admissions phased in over the period 2019–20 to 2023–24.

We expect that the additional elective admissions could lead to a similar number of additional outpatient appointments. We therefore also increase expected outpatient activity over and above our status quo projections.

In 2015–16, 91.9% of A&E patients were either admitted or discharged within four hours.¹¹⁷ We therefore increase A&E activity in our modernised NHS projection to recover the 3.1 percentage point shortfall below target. This increase over baseline projections occurs between 2019–20 and 2023–24. In 2015–16, around 400,000 patients were not admitted within four hours. We assume that the additional 3.1 percentage points of A&E activity from 2019–20 to 2023–24 will result in 400,000 additional emergency admissions each year.

Capital

The UK currently spends £6 billion on publicly funded healthcare capital. This is low compared to other similar countries, as Figure 3.5 shows.

Capital investment is important for productivity but also for improving outcomes. The UK performs comparatively poorly in survival rates for a number of the most common cancers. A significant part of these poorer outcomes has been attributed to late diagnosis. While GP referrals for the two-week cancer wait pathway have increased, access to scanning services for diagnosis is an issue.¹¹⁸ The UK has 9.5 CT scanners per 1,000,000 population, less than half the OECD average of 26. It would cost up to £1 billion to bring the UK into line with the OECD average provision of CT scanners. The UK has 7.2 MRI machines per 1,000,000 population, less than half the OECD average of 16. It would cost up to £600 million to bring the UK into line with the OECD average provision of MRI machines.¹¹⁹

Investment in capital is essential for maintaining quality of care, achieving future transformation and improving productivity. This applies to a wide variety of items, ranging from buildings and land to machinery and IT, as well as depreciation and private finance initiative (PFI) costs.¹²⁰

¹¹⁶ R. Findlay, 'The cost of restoring 18 week waits', 2017, <https://blog.gooroo.co.uk/2017/11/the-cost-of-restoring-18-week-waits/>.

¹¹⁷ <https://www.england.nhs.uk/statistics/statistical-work-areas/ae-waiting-times-and-activity/statistical-work-areas/ae-waiting-times-and-activity/ae-attendances-and-emergency-admissions-2015-16-monthly-3/>.

¹¹⁸ Cancer Taskforce, *Achieving World-Class Cancer Outcomes: A Strategy for England 2015-2020*, https://www.cancerresearchuk.org/sites/default/files/achieving_world-class_cancer_outcomes_-_a_strategy_for_england_2015-2020.pdf.

¹¹⁹ OECD Health Statistics, 2015.

¹²⁰ Department of Health, *Annual Report and Accounts 2016/17*, 2017, <https://www.gov.uk/government/publications/department-of-health-annual-report-and-accounts-2016-to-2017>.

Figure 3.5. Gross fixed capital formation in the healthcare sector as a share of GDP, 2015 (or nearest year)

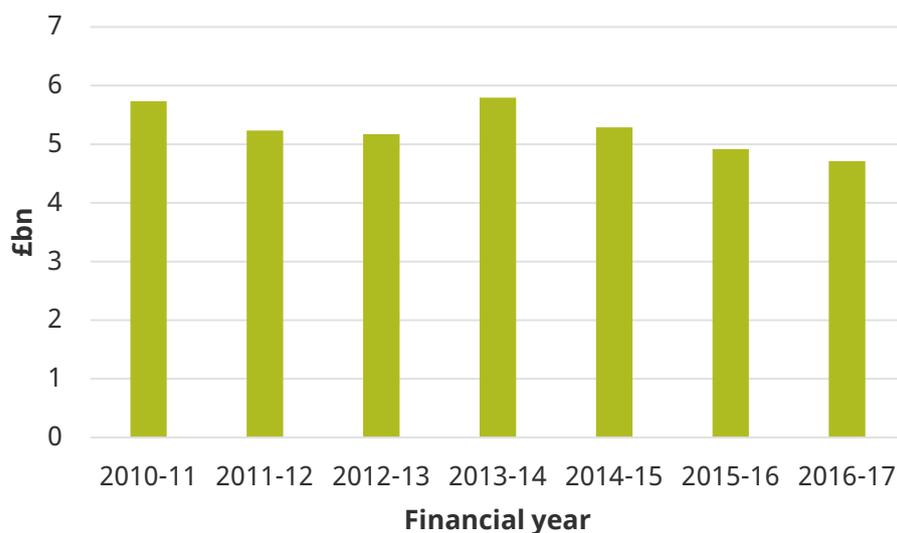


¹ Refers to gross fixed capital formation in ISIC 86: Human health activities (ISIC Rev. 4).

² Refers to gross fixed capital formation in ISIC Q: Human health and social work activities (ISIC Rev. 4).

Source: OECD, 'Gross fixed capital formation in the healthcare system', 2018, http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT.

Figure 3.6. NHS capital spending in England (2018–19 prices)



Source: Department of Health, *Annual Report and Accounts 2016/17*, 2017, <https://www.gov.uk/government/publications/department-of-health-annual-report-and-accounts-2016-to-2017>; Health Foundation, 'Autumn Budget 2017: what it means for health and social care', 2017, <https://www.health.org.uk/publication/autumn-budget-2017-what-it-means-health-and-social-care>.

Prior to 2009–10, there was a 10-year period of significant increases in capital investment as a percentage of the total budget.¹²¹ However, spending on capital has declined in recent years – total capital spending was £1 billion lower in 2016–17 than in 2010–11 (see Figure 3.6). Since a rise in spend in 2013–14, capital spending has decreased by an average of 6.7% a year.

Decreasing capital expenditure has both financial and service impacts on providers. Trusts may not be able to purchase new equipment, and they may also face difficulties in making repairs and maintenance to existing facilities.

In 2016–17, there was an estimated maintenance backlog for hospital estates and facilities of £5.7 billion, up from £5.3 billion in 2015–16. Of this, £2.8 billion represents backlog that is high or significant risk, up from £2.5 billion in 2015–16. The risk ratings for estates refer to risks related to clinical service and safety.¹²² In our status quo scenario, capital spending grows in line with projected spending on day-to-day running costs, maintaining the current share of total health spending. In the modernised NHS scenario, capital spending is increased to match the 0.5% of GDP spend on healthcare capital across the OECD. This is an increase of around one-third in real terms over a five-year period.

Public health

Since 2013–14, the majority of healthcare funding for health promotion and disease prevention has been distributed via a ring-fenced grant to local authorities. In addition, Public Health England (PHE) oversees the national public health programme covering major vaccination programmes and surveillance and public health emergencies. Funding through the public health grant has fallen in real terms by 3.2% a year from £2.9 billion in 2013–14 to £2.6 billion in 2017–18.¹²³ This is despite the recognition in the NHS Five Year Forward View that there was an urgent need to radically upgrade prevention and public health. Chapter 1 shows that the UK has one of the highest rates of obesity in the EU15,¹²⁴ and while smoking and alcohol consumption are falling in the UK, many countries perform much better.

In our status quo scenario, public health spending grows in line with the overall healthcare budget. In the modernised scenario, we increase public health funding (PHE and the public health grant) by 1 percentage point more than the overall growth in the healthcare budget, so that public health funding accounts for 4% of health spending in 2033–34, up from 3% in 2018–19. This would be an increase of £4.6 billion, returning the public health budget to 2013–14 levels in real terms. In our modernised scenario, public health spending increases from £4.7 billion in 2018–19 to £9.3 billion in 2033–34.

3.4 NHS in England spending projections from 2018–19 to 2033–34

In our status quo scenario, the combined impact of demographic and non-demographic changes is projected to increase English publicly funded health spending by an average of

¹²¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/607725/Naylor_review.pdf

¹²² J. Appleby, 'NHS urgent facilities repairs: is your hospital on the critical list?', *BMJ*, 2017, 359, j5479.

¹²³ Health Foundation, 'Autumn Budget 2017: what it means for health and social care', 2017, <https://www.health.org.uk/publication/autumn-budget-2017-what-it-means-health-and-social-care>.

¹²⁴ EU15 countries are the first 15 countries that joined the EU.

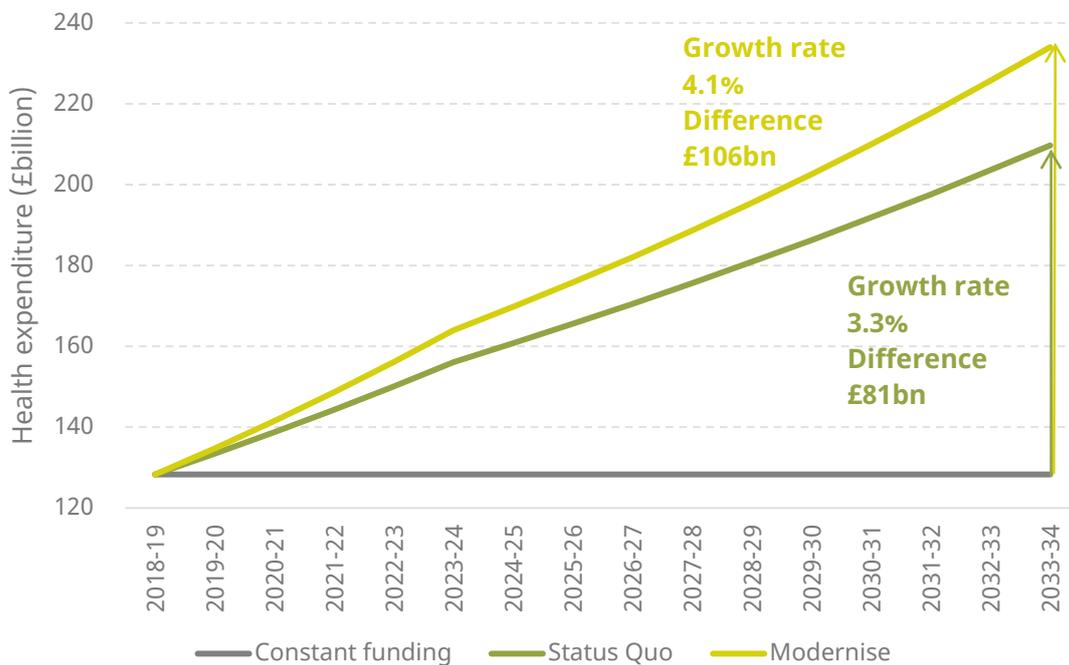
3.3% a year between 2018–19 and 2033–34. This would allow quality and access to care to be maintained at 2015–16 levels per person, taking account of ageing, rising chronic disease and modest pay and drugs pressures offset by some productivity growth. This amounts to a real-terms increase in spending from £128 billion in 2018–19 to £210 billion in 2033–34. In this section, we discuss projections for the NHS in England because our data and modelling rely on England; in Section 3.6, we gross up to whole UK cost projections.

The status quo scenario would not provide sufficient funding to return waiting times to their target levels, support improvements to quality and outcomes or modernise the physical infrastructure of the health service. If the NHS were to be improved in line with the modernised scenario, spending is projected to grow at 4.1% a year, from £128 billion to £234 billion in the same period.

Table 3.5 shows a breakdown of the extent of projected demand pressures after 5, 10 and 15 years under both the status quo and modernised NHS scenarios.

In this section, we describe in detail how different demographic and non-demographic pressures on the health service have led to the spending growth that is estimated to affect the NHS in England if we continue in the status quo. We then discuss the projected spending implications of moving to a modernised NHS and the relative spending impact of different improvements to the NHS.

Figure 3.7. Projected England health expenditure under the status quo and modernising scenarios



Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

Table 3.5. NHS spending pressures in England: status quo and modernised NHS

	Status quo			Modernised NHS		
	2018–19 to 2023–24	2018–19 to 2028–29	2018–19 to 2033–34	2018–19 to 2023–24	2018–19 to 2028–29	2018–19 to 2033–34
Total spending pressures	£28bn	£53bn	£81bn	£36bn	£67bn	£106bn
Annual average growth	4.0%	3.5%	3.3%	5.0%	4.3%	4.1%
of which:						
Resource	£27bn	£51bn	£78bn	£31bn	£62bn	£99bn
Annual average growth	4.1%	3.5%	3.4%	4.7%	4.2%	4.0%
Capital	£1bn	£2bn	£3bn	£4bn	£5bn	£7bn
Annual average growth	2.3%	2.7%	2.8%	11.0%	6.4%	5.0%

Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

Spending pressures under the 'status quo' scenario

In 2018–19, the total Department of Health budget for England is set at £128 billion. Our projections show that to meet core demand and cost pressures, this would need to grow by 64% to £210 billion in 2033–34, an increase of £81 billion. Of this, £59 billion is the result of demand factors (population growth and need), £49 billion from pay and hospital drug spending growth and £3 billion from capital growth. These increases are offset by £29 billion of productivity gains.

The overall increase amounts to an average growth rate of 3.3% a year from 2018–19 to 2033–34.

We project a higher rate of healthcare spending growth to occur in the next five years. Figure 3.9 shows the contribution of different drivers of spending pressures over the shorter period from 2018–19 to 2023–24. We project that to maintain access and quality of care at 2015–16 levels, spending would need to increase from the 2018–19 budget of £128 billion to £156 billion in 2023–24. This increase of £28 billion is made up of £21 billion from demand and demographics (including current underlying, unmet funding pressures), £14 billion from pay and hospital drug cost growth and £0.8 billion from capital growth, offset by £9 billion of productivity gains.

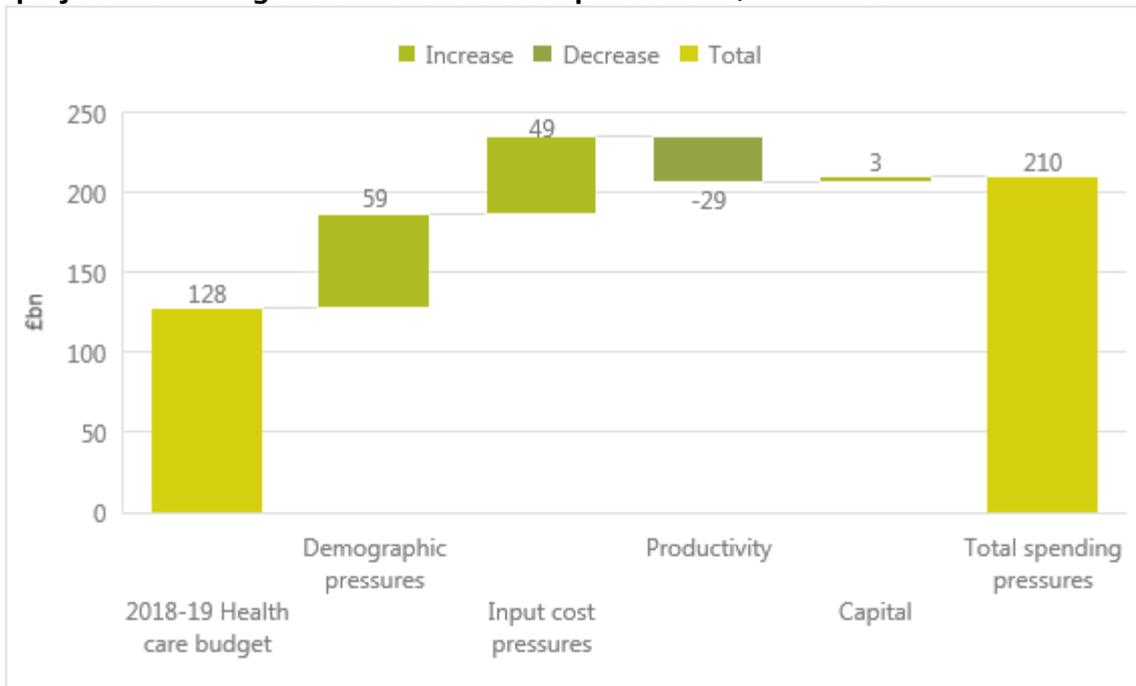
Our model is based on patterns of care in 2015–16. Using this model, we project healthcare demand in 2018–19 to be higher than the actual healthcare budget set for England following the 2017 Autumn Budget. In the recent period of low spending growth, the NHS has been unable to fund demand pressures on a sustainable basis. The service is therefore building up unfunded, underlying cost pressures, which it is managing through short-term cost containment measures. Across the NHS, there is recognition that headline financial data appear more robust than core financial performance and the NHS has an underlying deficit.¹²⁵ We assume that, alongside meeting new funding pressures, there is a

¹²⁵ National Audit Office, *Financial Sustainability of the NHS*, HC 785, Session 2016–17, <https://www.nao.org.uk/wp-content/uploads/2016/11/Financial-Sustainability-of-the-NHS.pdf>.

need to make good the underlying cost and demand pressures to put the NHS on a sustainable footing.

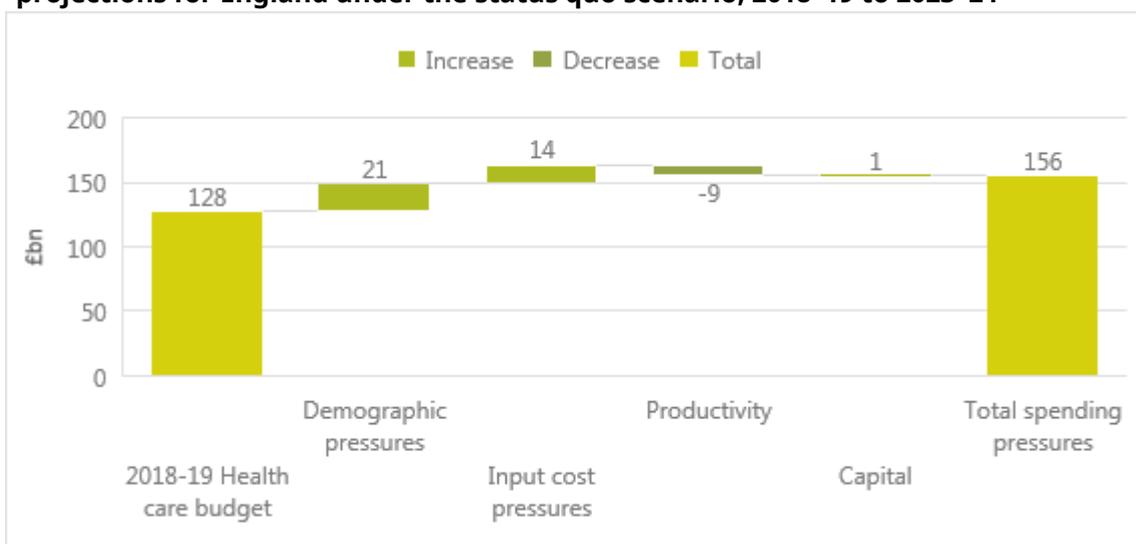
It is important to distinguish this unmet demand pressure as separate from demographics and other demand pressures, as it is a function of past funding decisions, not new

Figure 3.8. Contribution of different demand and cost pressures to overall spending projections for England under the status quo scenario, 2018–19 to 2033–34



Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

Figure 3.9. Contribution of different demand and cost pressures to overall spending projections for England under the status quo scenario, 2018–19 to 2023–24



Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

demand or cost pressures. We estimate that the existing build-up of underlying cost pressures that would need to be covered to return the NHS to 2015–16 levels of service is around £6 billion in England in 2018–19. This is presented as part of the £21 billion demographic pressures in Figure 3.9.

In the following subsections, we set out the impact of the different drivers of health spending in England under the status quo scenario. We will then present a detailed analysis of the additional cost pressures in the ‘modernised NHS’ scenario.

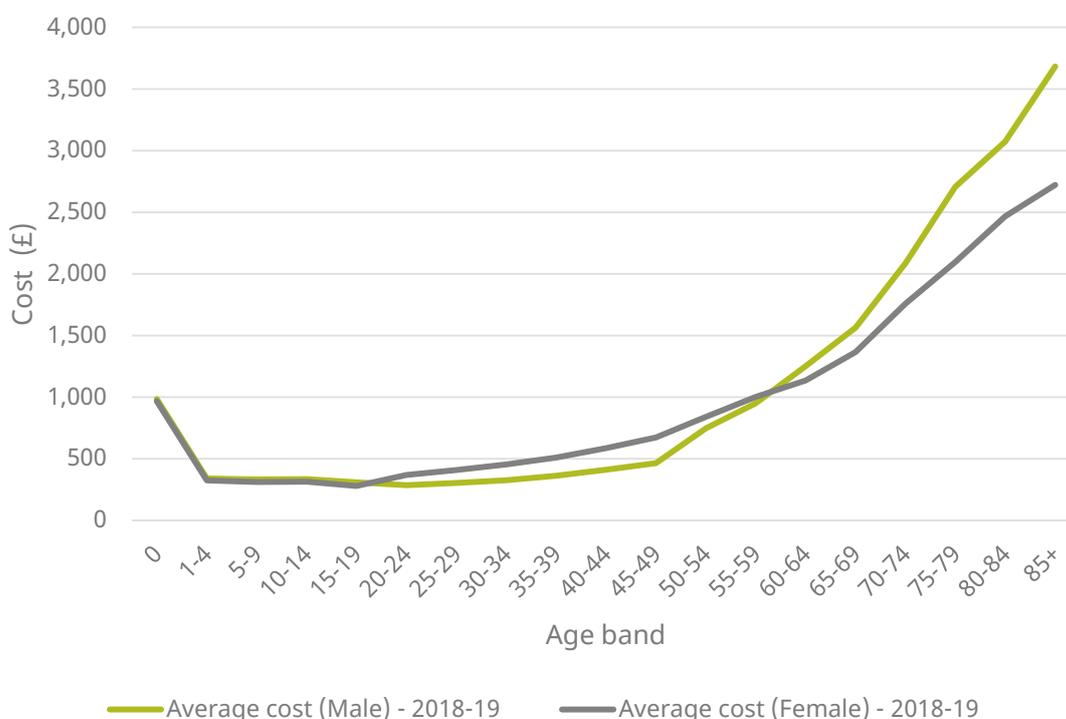
Demographic pressures in acute care

Increased life expectancy is one of the great triumphs of the 20th century but it has implications for the cost of healthcare. In general, the likelihood of a person needing hospital services, and associated healthcare spending, rises as they age. Acute care costs therefore dramatically increase at older ages.

For both men and women, the average cost of acute care per person increases dramatically from the age of 50, with costs increasing for men from £465 per head at 45–49 to £3,683 when they are over 85. Women have a less steep increase, partly due to the additional cost of maternity care, but also because their hospital costs in old age tend to be lower than for men, at £2,722. An increase in the size of the elderly population is therefore likely to be a major driver of increasing healthcare costs.

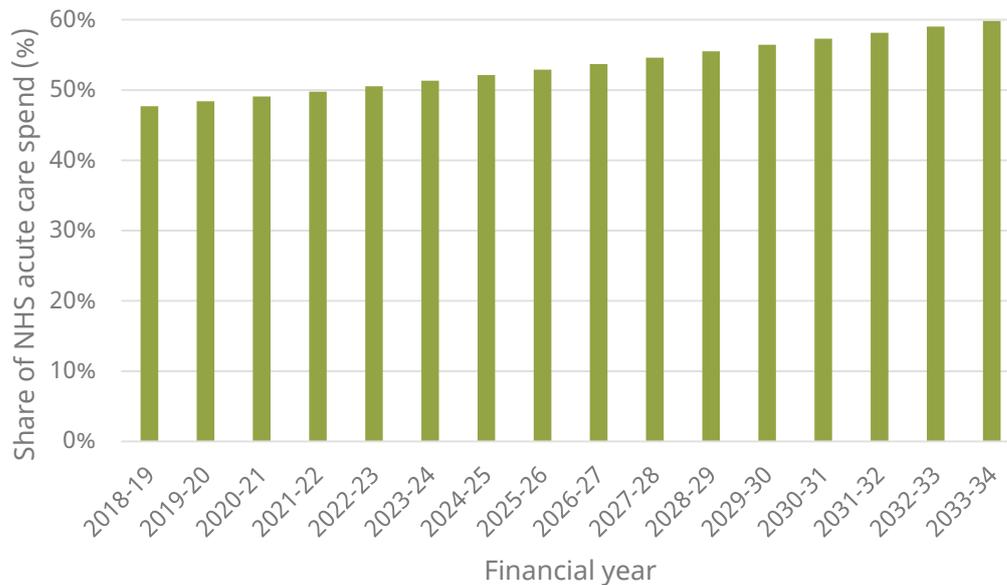
These higher costs associated with older acute care users increase funding pressure on the health service in 2033–34. Figure 3.11 shows the change in the share of acute health spend on people aged 65 and over in England between now and 2033–34, if the NHS

Figure 3.10. Average annual cost of acute care in England by age and sex, 2018–19



Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data.

Figure 3.11. Projected share of NHS acute care spend in England for people aged 65 and over



Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data.

maintains quality and access to care but responds to demand pressures from population change and modest cost pressures (the status quo scenario). As the population ages, the share of total NHS acute spending on those aged 65 and over rises from 48% in 2018–19 to 60% in 2033–34. Within this, acute spending on the over-65s is projected to more than double in the next 15 years, from £24 billion to £52 billion.

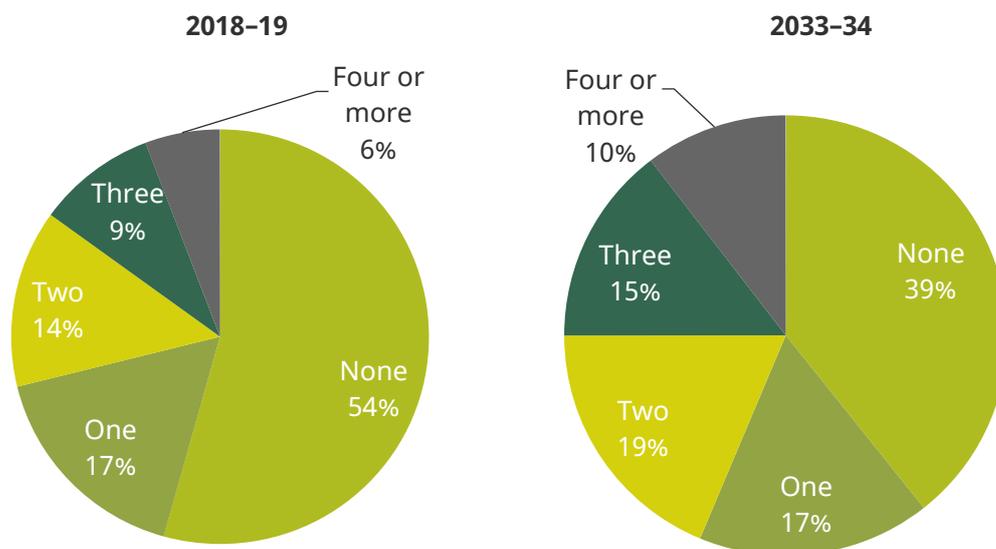
Chronic conditions in acute care

The proportion of patients with multiple chronic conditions has increased in recent years, and this trend is projected to rise over the next 15 years. Figure 3.12 shows that the proportion of acute costs associated with people with chronic conditions is expected to rise from 46% to 61% over this period, an increase of 15 percentage points. Acute spending on patients with chronic conditions will increase by around £30 billion, an average annual growth rate of 6%.

Due to medical advances, chronic conditions have become more treatable and some people now live much longer lives with such conditions. As longevity with these conditions increases, we project a reshaping of the age cost curve, in which the costs of caring for older people increase (on a per-capita basis) relative to the costs for the rest of the population.

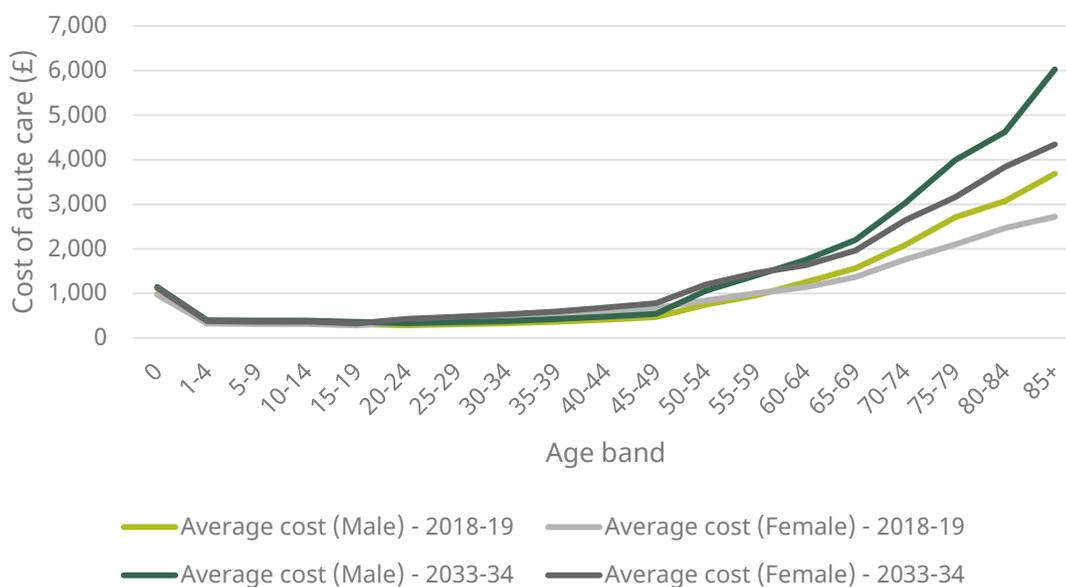
Figure 3.13 compares age cost curves for acute care in England in 2018–19 and 2033–34. For all years, costs increase with age (after the relatively high cost for newborns), but this gradient is steeper in 2033–34 than in 2018–19. Increases in chronic conditions, particularly multiple chronic conditions, are a key driver of the higher projected acute cost for older people in 2033–34.

Figure 3.12. Projected proportion of costs from those admitted to hospital in England who have a common chronic condition



Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data.

Figure 3.13. Projected average annual cost of acute care in England by age and sex, 2018-19 and 2033-34

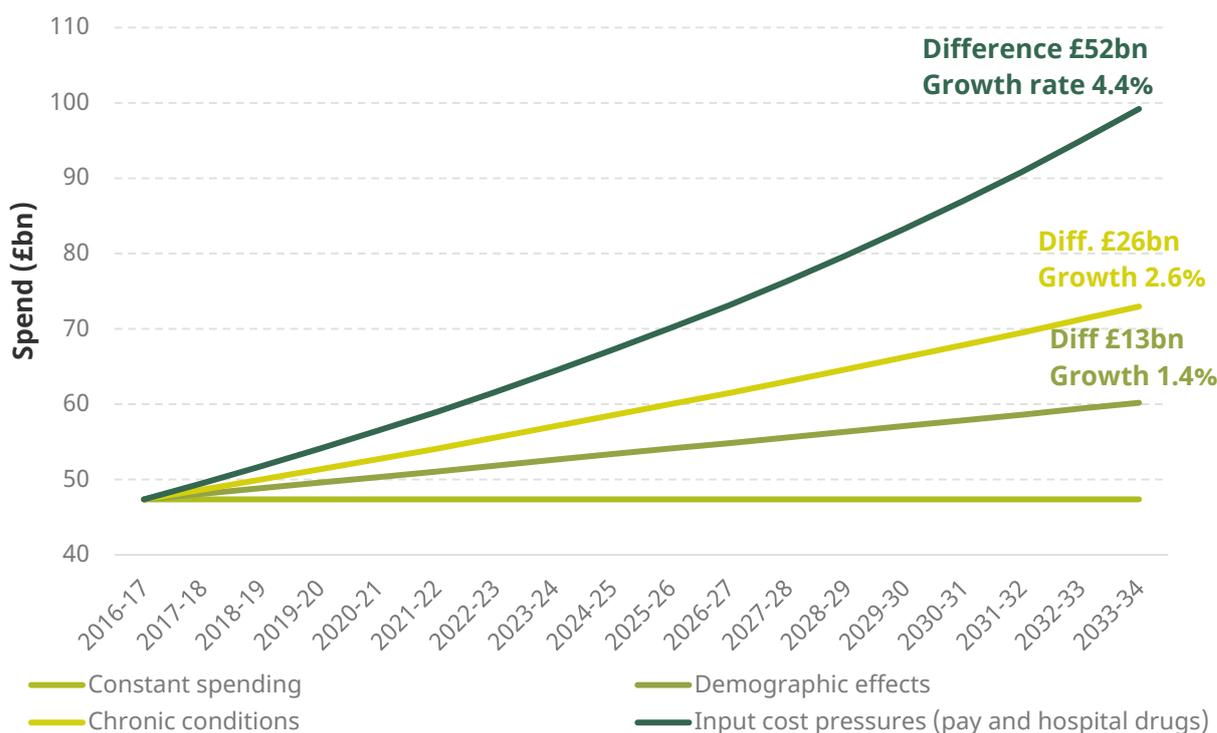


Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data.

Relative pay, prices and productivity

Staff costs accounted for 62.5% of all acute hospital costs in 2016-17. NHS staff pay has fallen compared with comparable skilled wages in recent years. In the status quo, we assume that real-terms pay in the NHS in England grows by 1.9% to 2020-21, in line with the Agenda for Change pay deal, then 1.7% thereafter. Pay increases are responsible for £40 billion of the £49 billion input cost pressures in 2033-34.

Figure 3.14. Projected NHS acute care spending pressures in England (status quo scenario) without any productivity gains



Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

Drug cost pressures are greatest in hospitals, as new medicines tend to be focused on care provided in these settings. Drugs prescribed by GPs and other primary and community staff tend to have lower unit costs and, over recent years, spending has been falling. We estimate that between 2018–19 and 2033–34, hospital prescribing costs (adjusting for hospital activity) will grow at 5.5% per year. In the period from 2009–10 to 2016–17, total hospital drug costs increased by 9.89%, while hospital activity grew at 4.34%. In both the status quo and modernising scenarios, drug costs grow at a faster rate than projected NHS spending. Under the status quo, hospital drug costs grow from 5% of RDEL in 2018–19 to 6% in 2033–34.

Productivity in healthcare has been relatively low compared with that in other sectors due to its high proportion of skilled labour as an input. Long-term productivity is estimated to be 0.8% for healthcare in the UK.¹²⁶ If the health service in England is able to maintain this level of productivity gain, then it will save an estimated £9 billion by 2023–24 and £29 billion by 2033–34.

Aggregate acute care spending pressures

Our projections show that over the next 15 years, English NHS spending on acute care would need to grow by an average of 1.4% to keep pace with demographic pressures; this includes both population growth of around 0.6% a year and ageing. Adding the pressures

¹²⁶ Office for National Statistics, 'Public service productivity estimates, healthcare: 2015', <https://www.ons.gov.uk/economy/economicoutputandproductivity/publicservicesproductivity/articles/publicservicesproductivityestimateshealthcare/healthcare2015>.

from a rising burden of chronic conditions means we project NHS spending on acute care would need to grow by an average of 2.6% per year to keep pace with demographic change including chronic disease.

Accounting for rising pay and drug costs, NHS spending on acute care would need to grow by an average of 4.4% to keep pace, without any offsetting productivity improvement. If productivity improvements continue to be delivered at the 0.8% a year achieved between 1995 and 2015, projected acute pressures would be lower, at an overall growth rate of 3.6% between 2018–19 and 2033–34.

Total healthcare spending pressures in England

Total healthcare spending pressures depend on the impact of demographic and non-demographic change across all healthcare sectors, not just acute hospitals. In Table 3.6, we present the percentage and absolute increases in spending for each area of healthcare under the status quo assumptions. Due to different recent trends and activity levels, as well as a different input mix, each area of spending is projected to grow at a different rate.

Due to an inability to model the prevalence of chronic conditions explicitly, cost pressures in community and primary care are almost certainly underestimated. Given the low level of births projected by the ONS over the next 15 years, maternity costs are projected to experience the slowest growth in cost pressures.

Table 3.6. Spending growth rates and share of spending by service area in England under the status quo scenario

Service area	Annual spending growth, 2018–19 to 2033–34	2018–19, £ billion (share of spending)	2033–34, £ billion (share of spending)
Acute care	3.6%	60.1 (45%)	102.1 (49%)
Community care	2.7%	14.4 (11%)	21.6 (10%)
Primary care	3.2%	8.9 (7%)	14.2 (7%)
Mental health	1.8%	11.6 (9%)	15.2 (7%)
Primary care prescribing	2.1%	10.1 (8%)	13.7 (7%)
Maternity	0.3%	4.0 (3%)	4.1 (2%)
Public health	3.0%	4.6 (3%)	7.2 (3%)
Capital	2.8%	6.4 (5%)	9.6 (5%)
Other	2.9%	14.3 (11%)	21.8 (10%)
Total		134.2^a (100%)	209.7 (100%)

^a This £134 billion is our projected figure and includes the £6 billion additional spending, on top of the £128 billion budget for 2018–19, required to meet recent unmet demand from 2015–16.

Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

In addition to direct patient services and public health, healthcare spending includes capital investment. We add projections for capital to derive the projected growth in the total healthcare budget.

Spending projection for English healthcare if the NHS is modernised between 2018–19 and 2033–34

Our modernised scenario for health services in England:

- increases capital expenditure to match the OECD average as a proportion of GDP;
- increases acute activity to return to NHS constitutional standards;
- increases productivity to 1.4% per year;
- increases pay growth to 3.0% above inflation after the Agenda for Change pay deal;
- improves treatment rates for mental health towards parity of esteem;
- increases spending on public health.

Improved quality

Healthcare in England has experienced a period of low funding growth since 2010. In that time, we have seen evidence of a reduction in quality of service in some key areas, such as waiting times. We therefore attempt to model the cost implications of returning to prior levels of care quality for hospital spending and improvements in key priority areas of unmet need, including mental health.

Mental healthcare treatment rates in the modernised scenario are assumed to increase from 39% to 70%. Under this assumption, spending more than doubles to £27.0 billion in 2033–34, adding £12 billion to the status quo scenario.

NHS constitutional standards have been a steadfast series of targets for health service performance but the NHS is not consistently achieving these waiting times standards. Returning to meet these standards, from a baseline of 2015–16 activity, is projected to cost an additional £2 billion in 2023–24. This would be additional to the £6 billion of unfunded underlying demand pressures between the current planned budget in 2018–19 and our status quo projections.

Higher value

In times of austerity, less visible areas of spending have borne the brunt of cost-saving programmes. The NHS in England has been moving money from capital investment to meet day-to-day running costs, staff pay has been capped or frozen since 2010–11, and public health spending has fallen by 12% since 2013–14.

Healthcare staff pay growth has fallen well below its long-run average of 2% per year in real terms. In the modernised scenario, we assume that pay grows faster than whole-economy earnings. In 2010, doctors were the third-best-paid occupation across the workforce as a whole; by 2015, they had fallen to eleventh.¹²⁷ We assume some 'catching up of relative pay'. This would add £23 billion to the pay bill by 2033–34.

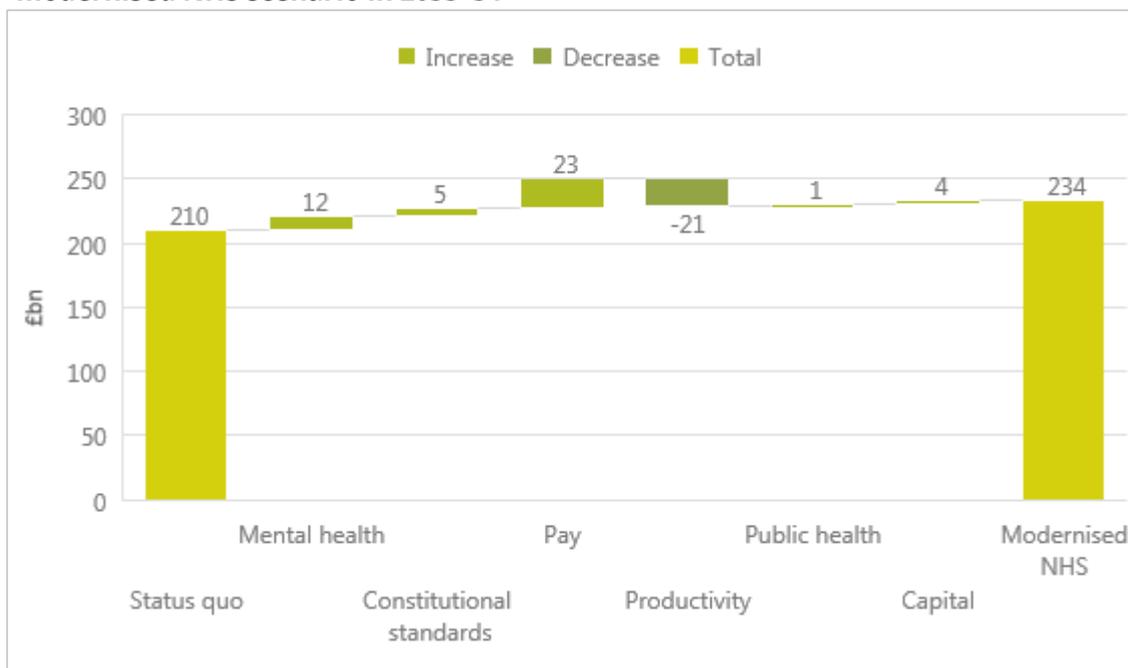
¹²⁷ A. Bryson and J. Forth, *Wage Growth in Pay Review Body Occupations*, Report to the Office of Manpower Economics, 2017
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/623810/Wage_Growth_in_PRB_Occupations_-_final_report_3_.pdf.

Additional capital investment and public health spending may generate productivity savings. In addition, we assume a link between pay and productivity. Our central hypothesis is that high turnover, unstable staffing, and recruitment and retention problems have resulted in a reliance on temporary staff and a suboptimal skill mix, which has undermined labour productivity growth. Securing enough staff with high-level skills, reducing churn and reducing reliance on temporary staffing is likely to require some restoration of relative pay rates compared with other occupations.

The ONS calculates that the NHS in England experienced high levels of productivity growth at 1.4% per year between 2011–12 and 2015–16.¹²⁸ If the additional capital can be spent effectively, and wage growth promotes a better work environment with a less stretched healthcare workforce, it may be possible to return to and maintain this recent rate of productivity growth from 2019–20, saving the service an additional £21 billion in 2033–34 compared to the status quo assumption of 0.8%.

We project that the effect of these combined assumptions – a programme of modernising the NHS – would add £24 billion to spending pressures faced by the English NHS, over and above the core pressures set out in the status quo scenario, in 2033–34. To meet those pressures, English health spending would need to be £234 billion in 2033–34 – an annual increase of 4.1% over the next 15 years.

Figure 3.15. Contribution of spending pressures for England health budget under the modernised NHS scenario in 2033–34



Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

¹²⁸ Office for National Statistics, 'Public service productivity estimates, healthcare: 2015', 2018, <https://www.ons.gov.uk/economy/economicoutputandproductivity/publicservicesproductivity/articles/publicservicesproductivityestimateshealthcare/healthcare2015>.

Figure 3.16. Contribution of spending pressures for England health budget under the modernised NHS scenario in 2023-24

Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

Table 3.7. Cost growth rates and share of spending by service area in England under the status quo and modernised NHS scenarios

Service area	Annual spending growth, 2018-19 to 2033-34	2018-19, £ billion (share of spending)	2033-34, £ billion (share of spending, status quo)	2033-34, £ billion (share of spending, modernised)
Acute care	4.0%	60.1 (45%)	102.1 (49%)	107.8 (46%)
Community care	3.0%	14.4 (11%)	21.6 (10%)	22.3 (10%)
Primary care	3.4%	8.9 (7%)	14.2 (7%)	14.6 (6%)
Mental health	5.8%	11.6 (9%)	15.2 (7%)	27.0 (12%)
Primary care prescribing	1.5%	10.1 (8%)	13.7 (7%)	12.5 (5%)
Maternity	0.4%	4.0 (3%)	4.1 (2%)	4.2 (2%)
Public health	4.8%	4.6 (3%)	7.2 (3%)	9.3 (4%)
Capital	4.9%	6.4 (5%)	9.6 (5%)	13.3 (6%)
Other	3.2%	14.3 (11%)	21.8 (10%)	22.9 (10%)
Total		134.2^a (100%)	209.7 (100%)	234.1 (100%)

^a This £134 billion is our projected figure and includes the £6 billion additional spending, on top of the £128 billion budget for 2018-19, required to meet recent unmet demand from 2015-16.

Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

To deliver the modernised NHS scenario, we have assumed that major changes would need to occur in the next five years; contributing drivers are shown in Figure 3.16. To move from the status quo to the modernised NHS scenario in 2023–24, an additional £9 billion of health spending would be required (above the status quo), with key increases in mental health, pay and capital.

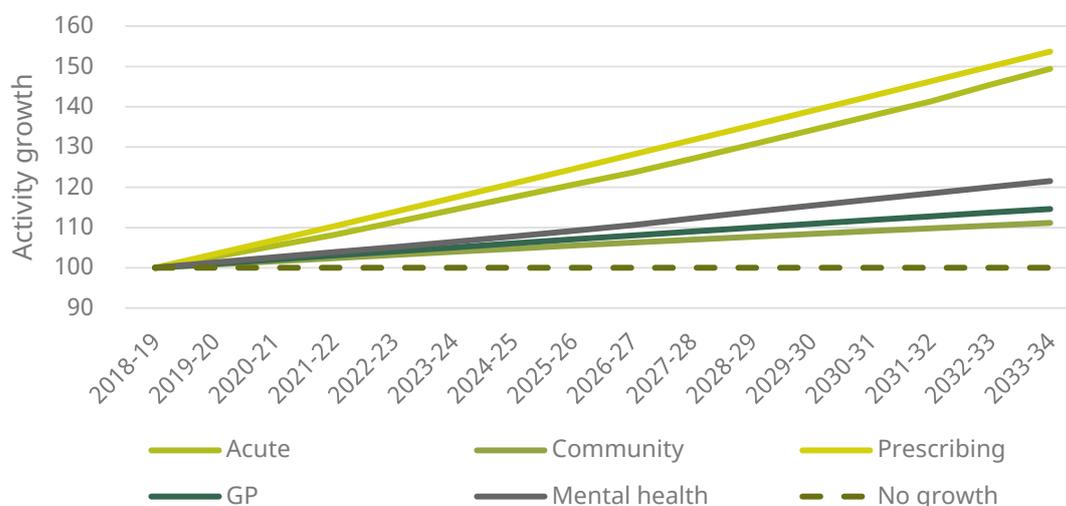
Modernising the NHS has implications for the relative spending growth of different areas of the service, as shown in Table 3.7. From 2018–19 to 2033–34, mental health and public health take an increasing share of English healthcare spending. Acute care grows as a share spending, but not as much as under the status quo: this is because the spending required to improve waiting times performance back to the NHS constitutional standards is relatively small compared to the projected growth in mental health spending.

3.5 Implications for English NHS activity levels and the workforce

The status quo scenario shows that the combined effect of population growth, ageing and an increased burden of chronic disease is that hospital activity will grow substantially over the next 15 years. Our model projects that in the status quo scenario, emergency admissions would almost double over the next 15 years. This would have major implications for the capacity needed in the health service. This is without significant changes to demand through better disease prevention and health promotion action and/or radically different models of care. While it may be possible to ‘bend’ the demand curve, our projections show that changes would need to be very substantial if acute activity were not to increase.

Figure 3.17 shows the projected annual growth in all the areas of healthcare activity in the status quo scenario from 2018–19 to 2033–34. Where the service area is made up of component parts – for example, community or acute care – we present the activity growth cost weighted by sub-area. The volume of primary care prescribed drugs is projected to increase the most, at 2.9% per year. This is followed by cost-weighted acute activity, which is projected to increase at 2.7% per year.

Figure 3.17. NHS acute activity growth in England (status quo scenario)



Source: Health Foundation analysis of data outlined in Box 3.2.

Table 3.8. Activity growth rates and staff cost shares by service area in England, in the status quo scenario

Service area	Annual average activity growth, 2018–19 to 2033–34 (%)	Staff cost share of service 2016–17 (%)
Acute care	2.7	60.1
Community care	0.7	66.3
Primary care	0.9	62.5 ¹²⁹
Mental health	1.3	73.7
Primary care prescribing	2.9	NA
Maternity	0	60.1

Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

Acute activity is the area in which we have the most complete data, allowing us to identify patients with chronic conditions and estimate their associated increase in costs. Over the next 15 years spending in acute hospitals to treat people with chronic disease is expected to more than double. For the remaining areas of healthcare, we are unable to model increases in the prevalence of chronic conditions. We therefore increase activity per head at the trend rate of recent growth (as discussed in Section 3.3). We project lower levels of cost-weighted activity growth for community care (0.7%), primary care (0.9%) and mental health (1.3%) (without the major expansion set out in our modernised NHS scenario).

As shown in Table 3.8, staff costs are a large portion of total healthcare spending, accounting for over half of costs in each service area. Our projections model is therefore sensitive to assumptions about real pay growth over the next 15 years. For example, in England, an additional 1% on the rate of growth in real-terms pay adds around 0.6 percentage points to total annual spending growth. This amounts to an additional £18 billion in the status quo scenario by 2033–34.

At the end of 2017, the NHS in England employed 1.2 million people in Hospital and Community Health Services (HCHS). While this headcount has increased by 3% – 35,000 people – over the last eight years, filling 4.7% more full-time-equivalent jobs, the growth in the workforce has not kept pace with rising demand. As set out in Section 3.3, the population has grown, aged and become more medically complex.

The number and mix of staff required to provide care in the future are highly uncertain. The impact of having to provide significantly more care may be offset by productivity improvements, including through changes in skill mix, new roles and changes in the way care is delivered.

Using the changes in activity implied in the modernised NHS scenario, we estimate the number of staff needed to keep up with these increases in activity based on the current model of care and productivity. We increase the numbers of staff working in different

¹²⁹ We are unable to obtain data on staff cost levels as a share of total cost for GPs. We therefore use the average rate for the rest of the service.

Table 3.9. Growth in selected NHS staff groups in England in the modernised scenario (FTE)

	2018-19	2023-24	2028-29	2033-34	Annual growth	Extra FTEs, 2018-19 to 2033-34	% change
Hospital and Community Health Services total, including:	1,069,400	1,248,500	1,459,600	1,708,600	3.2%	639,200	60%
Professionally qualified clinical staff, including:	577,000	673,200	786,300	919,700	3.2%	342,700	59%
HCHS doctors	112,000	130,100	151,200	175,900	3.1%	63,900	57%
Nurses and health visitors	283,500	331,200	387,500	454,200	3.2%	170,700	60%
Support to clinical staff	320,300	374,400	438,200	513,800	3.2%	193,500	60%
NHS infrastructure support	167,500	195,700	228,900	268,000	3.2%	100,400	60%
Primary care total, including:	127,700	133,700	140,100	146,700	0.9%	19,000	15%
GPs	35,600	37,300	39,000	40,900	0.9%	5,300	15%
Nurses in GP practices	16,000	16,800	17,600	18,400	0.9%	2,400	15%

Note: Columns do not sum to totals as only selected staff groups are shown.

Source: Health Foundation Analysis based on NHS Digital Electronic Staff Record data, and Healthcare Workforce Statistics, September 2017.

areas – acute trusts, community providers and mental health trusts – separately (along with other staff at ambulance trusts and CCGs) and then combine them to project overall workforce growth.

If the NHS workforce grows in line with activity in the modernised scenario, it would require an additional 179,000 FTE staff over the next five years, rising to an additional 639,000 FTE staff by 2033–34. This would include 171,000 extra nurses and health visitors and a total 343,000 extra professionally qualified clinical staff.

This represents a significant increase on current staffing levels, equivalent to growing the workforce by over half over a 15-year period. This is not unprecedented; the NHS workforce grew by 78% between 1951 and 1971 and by 83% between 1961 and 1981.¹³⁰ More recently, the NHS workforce grew by 2.9% a year on average between 1998 and 2008 – similar to the 3.2% a year implied by our model for the period 2018–19 to 2033–34.

This does not include the independent sector workforce, which is small but accounts for about 50,000 FTE staff.

These workforce numbers assume no productivity gain as we do not know how much of the productivity gain in recent years has reduced the demand for labour. Opportunities for labour-saving productivity gains will occur, for example, through IT or the substitution of drug-based treatments for surgical interventions. If realised, they would allow the NHS to provide the same amount of care with fewer staff. It may also be that the marginal number of staff needed to provide care decreases with the number of staff there are; there may be economies of scale in administrative functions or ways of absorbing some increase in the number of patients or procedures. Our estimates are therefore likely to be an overestimate of staffing numbers. However, offsetting that are countervailing pressures to reduce bed occupancy rates, allow some staff such as GPs more time with each patient and increase ward staffing ratios. These could increase the staff needed to provide care for the same number of patients.

Modelling by Health Education England suggests a similar growth in the workforce is required. In its model, the number of FTE staff grows to just over 1.3 million by 2026–27. It also projects potential future supply, with the gap between demand and supply being 118,000 posts by 2026–27.¹³¹

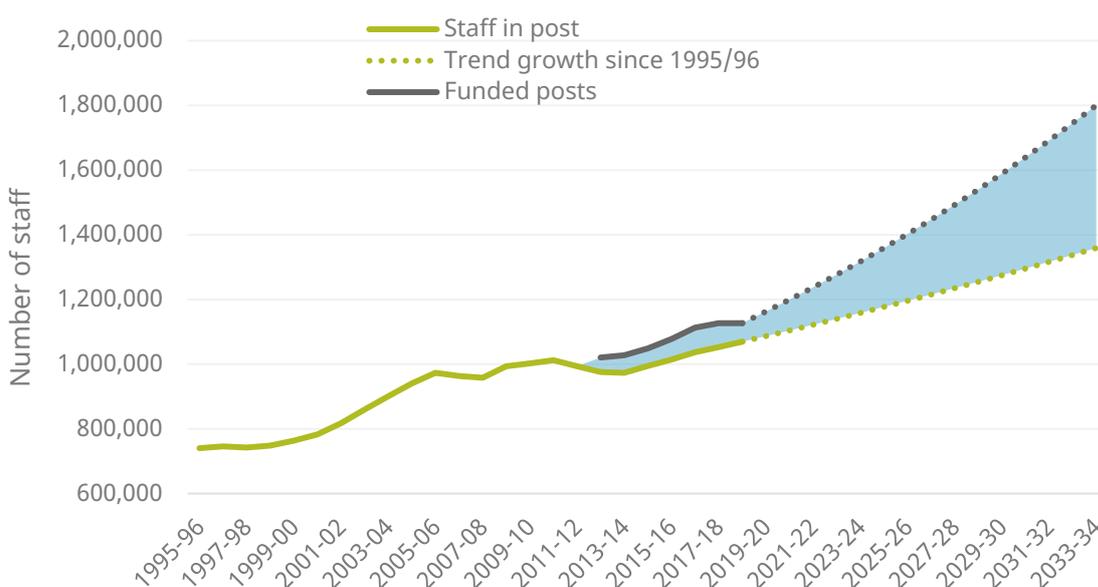
If we assume the number of staff in post grows at the average rate since 1995–96 and compare that with the number of additional funded posts needed to keep pace with activity growth in our model, we see a gap between supply and demand of 440,000 posts by 2033–34, as shown in Figure 3.18.

Activity in primary care is projected to grow by 0.9% a year, and in social care by 2.2% (see Table 3.14 later). For primary care, this would imply that a further 19,000 FTE staff, including 5,300 GPs, may be required to keep pace with activity. As set out in Section 3.8, for social care, which has a larger workforce than the NHS, an additional 458,000 FTE staff

¹³⁰ E. Hawe, 'Sixty years of the NHS: changes in demographics, expenditure, workforce and family services', Office of Health Economics, 2008, https://www.ohe.org/system/files/private/publications/312%20-%20Sixty_Years_NHS_9-2008.pdf.

¹³¹ Health Education England, *Facing the Facts, Shaping the Future: A Draft Health and Care Strategy for England to 2027*, 2018, <https://hee.nhs.uk/our-work/workforce-strategy>.

Figure 3.18. Potential gap between supply and demand of staff in the English NHS



Source: NHS Digital; Health Education England; Health Foundation modelling

would be required. Many of these will be in the private sector, although around 37,000 will be directly employed by local authorities.

Taken together, the number of HCHS NHS staff and the workforces in primary care and social care in England may need to grow by over a million FTEs by 2033–34. This is growth of 47% overall, or 2.6% a year.

3.6 UK health spending projections

Using our projections for the NHS in England, we gross up spending to UK levels. We hold constant the current relative levels of spending per person across the four nations of the UK, as set out in Chapter 1. But we assume the increase in spending per head projected for England applies for the whole of the UK. Table 3.10 shows the spending projections in England and these uplifted to UK levels under the status quo scenario.

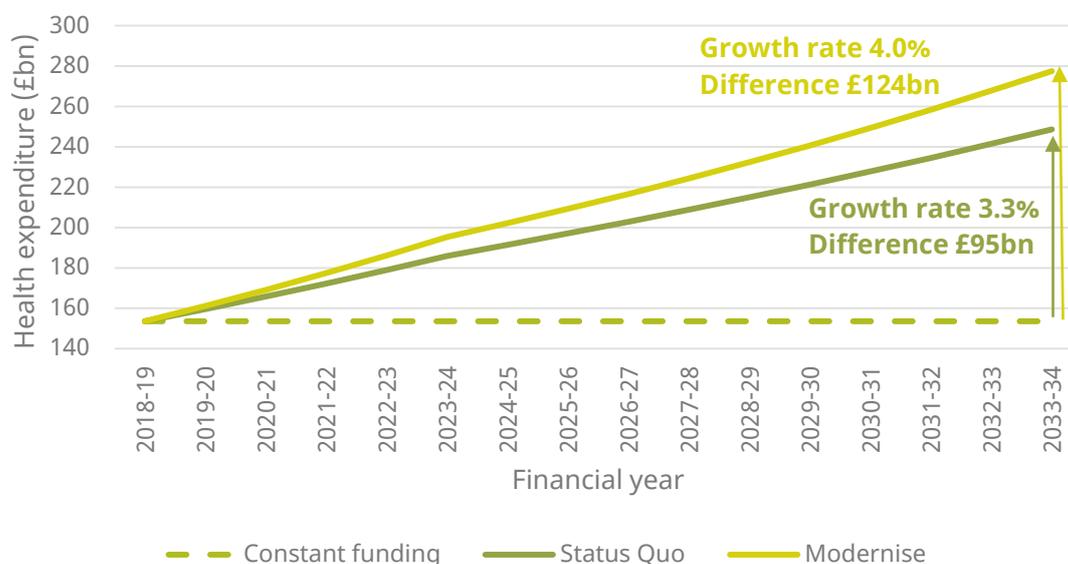
In our status quo scenario, the combined impact of demographic and non-demographic changes is projected to create pressures equivalent to an average annual increase in UK

Table 3.10. Total projected health spending in England and uplifted to the UK under the status quo scenario

	2018–19	2023–24	2028–29	2033–34
Total projected spending pressures in England	£128bn	£156bn	£181bn	£210bn
Total projected spending pressures in the UK	£154bn	£186bn	£215bn	£249bn

Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

Figure 3.19. Projected UK health expenditure under the status quo and modernising scenarios



Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

health spending of 3.3% between 2018–19 and 2033–34 to maintain quality and access at 2015–16 levels. This amounts to a real-terms increase in spending from £154 billion in 2018–19 to £249 billion in 2033–34.

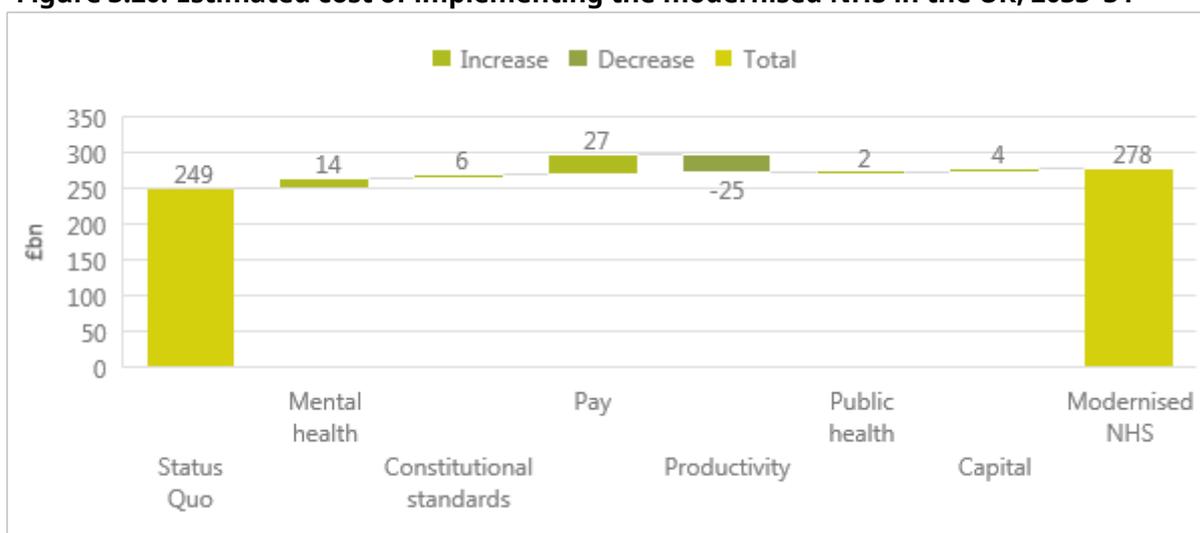
If the NHS were to be improved in line with the modernised scenario, spending in the UK would grow at 4.0% a year, from £154 billion to £278 billion in the same period. This would help to create an improved service with a sustainable workforce that is able to better meet constitutional standards and the goal of parity of esteem for mental health.

Table 3.11. NHS spending pressures in the UK: status quo and modernised NHS scenarios

	Status quo			Modernised		
	2018-19 to 2023-24	2018-19 to 2028-29	2018-19 to 2033-34	2018-19 to 2023-24	2018-19 to 2028-29	2018-19 to 2033-34
Total spending pressures	£32bn	£61bn	£95bn	£42bn	£79bn	£124bn
Annual average growth	3.9%	3.4%	3.3%	4.9%	4.2%	4.0%
of which Resource	£31bn	£59bn	£91bn	£37bn	£72bn	£116bn
Annual average growth	4.0%	3.5%	3.3%	4.6%	4.1%	4.0%
Capital	£1bn	£2bn	£4bn	£5bn	£6bn	£8bn
Annual average growth	2.2%	2.6%	2.7%	10.9%	6.3%	4.9%

Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

Figure 3.20. Estimated cost of implementing the modernised NHS in the UK, 2033–34



Source: Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

Table 3.11 shows the spending projections for the UK in both the status quo and modernised NHS scenarios.

We estimate the spending implications for each country of the UK if the NHS were modernised along similar lines to England across the other devolved governments. Combining the estimates, we find that projected demand pressures in the UK in 2033–34 increase from £249 billion under the status quo to £278 billion under the modernised scenario.

Figure 3.20 presents the additional cost of rolling out the modernised NHS to the whole UK. In order to estimate the increase to the UK, it is assumed that each country experiences a proportional change in per-capita costs to that estimated for the modernised NHS in England. For instance, the cost of increasing mental health treatment prevalence in line with our assumptions is £12 billion in England and £14 billion for the whole of the UK. Pay is still the biggest driver of additional spending, at £27 billion, but it is almost completely recovered in productivity savings, provided the UK service is able to maintain the recent 1.4% rate of productivity growth in England.

Table 3.12. NHS spend as a share of GDP

	Healthcare share of GDP under status quo	Healthcare share of GDP under modernised NHS
2018–19	7.3%	7.3%
2023–24	8.2%	8.6%
2028–29	8.6%	9.3%
2033–34	8.9%	9.9%

Source: Health Foundation analysis of Hospital Episode Statistics, NHS Reference Costs data and OBR nominal GDP. For more detail, see Box 3.2.

In both the status quo and the modernised scenarios, demand and cost pressures are such that the UK would need to spend a higher proportion of GDP on the health service. The UK currently spends 7.3% of GDP on publicly funded healthcare. In the status quo scenario, this is projected to grow to 8.9% by 2033–34, while in the modernised scenario it takes a higher share, at 9.9%.

3.7 Comparison with other models

There have been a number of attempts to project spending pressures in the NHS. These have mostly been models that take a ‘top-down’ approach based on changes in demographics, national income and ‘other cost pressures’, including changes in technology or productivity. Our model considers many of the same drivers of spending pressures, but does so in a ‘bottom-up’ way based on granular data about the healthcare usage of different types of people.

Estimates of future health spending pressures range between 3% and 4% a year in real terms. This is consistent with long-run spending on the NHS, which has grown by 3.7% a year on average since 1948.

Using the assumptions about activity, pay and productivity changes from the status quo scenario, we project an increase in spending pressures on the UK health service of 3.3% per year from 2018–19 to 2033–34. This is below the average rate at which NHS spending increased in its first 70 years. If the NHS increased productivity growth, pay, capital investment and public health spending in line with the modernised scenario, we project that spending would grow at a faster rate of 4.0%.

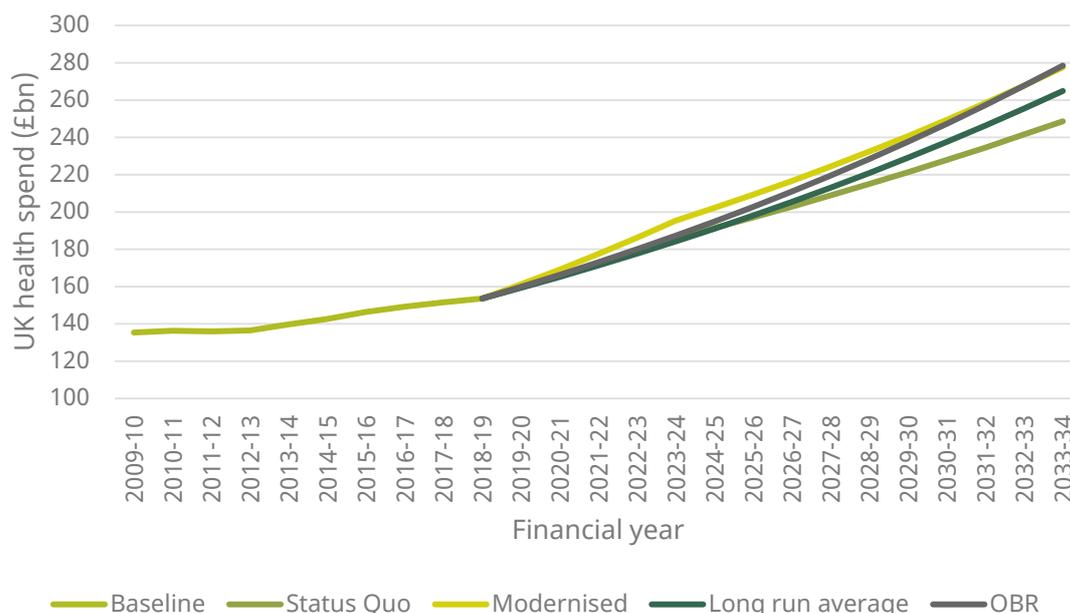
The OBR does not model healthcare spending pressures for the period during which there are firm government spending plans – instead modelling planned spending during that period.¹³² The OBR’s projections methodology is used to project spending pressures after the current spending review period. For comparison purposes, we wish to assess how our healthcare spending projections compare with those that would be derived using the OBR’s methodology. To do this, we have taken the OBR’s growth rate from 2021–22 to 2033–34 and applied it to the whole period. This should allow us to more accurately compare the average growth rate in spending pressures, rather than the impact of current spending plans.

Under this method, if health spending grew in line with the OBR’s central projection, it would, on average, grow at a similar rate to that in our modernised scenario, at 4.0% a year.

However, spending in the modernised scenario would grow faster in earlier years to reflect the front-loaded spending in certain areas. The modernised NHS scenario is also consistent with the Institute for Public Policy Research (IPPR)’s projection model for the English NHS, which has a growth rate in health demand pressures of around 3.8%

¹³² M. Licchetta and M. Stelmach, ‘Fiscal sustainability and public spending on health’, OBR Fiscal Sustainability Analytical Paper, 2016, http://obr.uk/docs/dlm_uploads/Health-FSAP.pdf.

Figure 3.21. Alternative projections of health spending in the UK



Source: OBR Fiscal Sustainability Report 2017; OBR Economic and Fiscal Outlook 2018; Office of Health Economics (OHE) historical health expenditure; Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

between 2016–17 and 2029–30. IPPR’s method is based on forecasting acute spending growth and applying this rate to the remaining health spending.¹³³

In our model, around half of these spending pressures arise from demographic pressures from the growing and ageing population and the increased prevalence of chronic conditions, particularly multi-morbidity. In the status quo scenario, these pressures account for 55% of total spending pressures, before productivity improvements (see Figure 3.8). This includes some catch-up spending in early years to reflect spending pressures between 2015–16 and 2018–19, which were not funded and have accumulated as underlying pressures.

The OBR in its analysis concluded that ‘There remains considerable uncertainty over the contribution of demographic, income and other cost pressures among the drivers of health spending’ but also that ‘the impact of ageing on health spending has been relatively small historically’.¹³⁴ This is reflected in the variation between projections in the split between these different drivers. For example, the OECD found that real public health spending per capita in OECD countries between 1995 and 2009 was mainly driven by rises in income and other non-demographic drivers, rather than demographic effects.¹³⁵ Of the annual average growth rate in per-person spending over this previous period of 4.6%, just 0.2% was demographics while other cost pressures accounted for 2.8%.

¹³³ Institute for Public Policy Research, ‘The Lord Darzi review of health and care: interim report’, 2018, <https://www.ippr.org/research/publications/darzi-review-interim-report>.

¹³⁴ M. Licchetta and M. Stelmach, ‘Fiscal sustainability and public spending on health’, OBR Fiscal Sustainability Analytical Paper, 2016, http://obr.uk/docs/dlm_uploads/Health-FSAP.pdf.

¹³⁵ C. de la Maisonneuve and J. Oliveira Martins, ‘A projection method for public health and long-term care expenditures’, OECD Economics Department Working Paper 1048, 2013, <http://dx.doi.org/10.1787/5k44v53w5w47-en>.

The relative pressures are sensitive to the approach taken to projections. In the OECD projection and in most models where the 'other cost pressures' category is included, this accounts for the majority of pressures. What this category consists of varies, but increasing relative healthcare costs and the effect of technological advances (e.g. medical equipment and pharmaceuticals) are the main drivers.

In the OBR's 2016 Fiscal Sustainability Analytical Paper, this 'other' category accounts for between 69% and 81% of total cost pressures (between 2020 and 2060) in its different scenarios.

One reason demographics are a bigger driver in our model than in others is that we explicitly model the impact of chronic conditions, whereas for most other models this is expected to be captured by 'other cost pressures' or not at all. We also include in the demographics some catch-up spending in early years to reflect spending pressures between 2015–16 and 2018–19. Because our method is bottom-up, we do not explicitly model income elasticity (countries choosing to spend more as their income grows); this is partly captured in our modernised scenario through increased spending reflecting growing expectations.

The estimates from our model are consistent in magnitude with existing projections, which suggests that spending pressures grow by around 3–4% a year over the medium term. Our use of a bottom-up model using patient-level data and explicit modelling of the impact of chronic conditions points to more of this growth being due to demographics than indicated by previous models.

3.8 Pressures on social care

Social care is the personal care and support required by some people because of needs arising from their age, illness, disability or other circumstances. Support is provided in residential and nursing homes, people's own homes and in other community settings. In the UK in 2015–16, £21.7 billion was spent on net public provision of adult social care (after accounting for private contributions). We estimate that the budget for adult social care will be £23.5 billion in 2018–19.

It is projected that spending on adult social care in the UK will reach £41.5 billion in 2033–34. This implies that an increase in spending of £18 billion is required to meet demand pressures associated with the access and quality levels from 2015–16.

The support provided and the financial arrangements vary across the four countries of the UK. For instance, in Scotland, there is a system of free personal care for everyone over the age of 65 who needs it. In England, publicly funded social care is provided under a means-tested system where only those with a low level of financial and housing assets are eligible. Table 3.13 shows spending on adult social care per capita in the UK across the four countries.¹³⁶

¹³⁶ In 2018–19 figures, from PESA.

England currently spends the least per capita, at around 25–30% less than the others, with the majority of spending on working-age adults. Scotland, Wales and Northern Ireland spend a higher proportion on social care for adults over the age of 65.

Table 3.13. UK adult social care spend per head across the four nations, 2015–16

	England	Scotland	Wales	Northern Ireland
Adult social care spend per head	£310	£452	£408	£447
Share of social care spent on older adults	48%	61%	51%	62%

Note: Figures are in 2018–19 prices.

Source: NHS Digital for England, PESA for Scotland, Wales and Northern Ireland.

Box 3.4. PSSRU social care model

Researchers at PSSRU (which is based at LSE) have created a model of adult social care activity and funding based on the current system in England. It can be used to project total spending on both young adults and older people in need of publicly funded social care and has been used by the Department of Health^a and the Office for Budget Responsibility to inform social care policy.

Importantly, the PSSRU’s model produces a projection of the current system under the latest available data and does not make specific forecasts about the future. The projections indicate the costs of the system based on the following specific assumptions and trends in population and activity:

- The growth in population by age and gender changes in line with ONS 2016-based principal population projections.
- Real GDP rises in line with OBR projections.
- Unit costs of care increase as per OBR assumptions about productivity.
- Marital status rates change in line with the Government Actuary’s Department (GAD) 2008-based marital status and cohabitation projections, except that they remain constant for people with learning difficulties.
- There is a constant ratio of single people living alone to single people living with their children or with others, and of married people living with only a partner to married people living with a partner and others.
- PSSRU does not assume any productivity gains in its projection modelling.
- Pay is assumed to rise in line with OBR projections for rises in average earnings.

^a Now known as the Department of Health and Social Care.

Services are provided by an estimated 20,300 organisations,¹³⁷ delivering care from around 40,400 establishments.¹³⁸ The majority are in the private or not-for-profit sectors. Some care is paid for through private arrangements and some commissioned and arranged by local authorities. As a result, comprehensive national data on all social care activity and funding are limited.

Researchers at the Personal Social Services Research Unit (PSSRU)¹³⁹ have developed a cohort-based microsimulation model to project future social care activity and costs based on available data. This model is considered state-of-the-art in the analysis of social care in England, and is widely used in this area of research.¹⁴⁰ Box 3.4 contains more details about the model.

The PSSRU model estimates that cost and demand pressures for publicly funded adult social care will rise by an average of 3.7% a year in real terms between 2015 and 2030.¹⁴¹ This is slightly lower for younger adults, at 3.6% a year, compared with 3.7% a year for people aged 65 and over.

Demand and cost pressures in England

Figure 3.22 shows projected net spending on adult social care in England based on the PSSRU model. Spending is projected to grow from £17.1 billion in 2015–16 to £33.2 billion in 2033–34. This is an increase of £16 billion, almost doubling the entire adult social care budget in England, with growth at an annual rate of 3.7%. The increase is due to a combination of the growing and ageing population, rising numbers of people living longer with long-term conditions, and rising costs of providing care services.

A recent clarification of the law means staff must be paid at least the minimum wage during sleep-in shifts, but this is not included in the PSSRU modelling. We account for it by including an additional cost in backpay of £400 million in 2017–18 and an additional £100 million cost pressure in future years.

The PSSRU model can also project demand and cost pressures for publicly funded social care for both older and younger adults. In 2015–16, publicly funded social care for the elderly in England cost around £8 billion. Pressures on care for the elderly are projected to catch up with spending on younger adults, growing at 3.9% per year compared with 3.6%.

In the period from 2015–16, we estimate the budget for adult social care will not keep pace with demand pressures. Using NHS Digital data and local government core spending, we

¹³⁷ <https://www.nao.org.uk/report/the-adult-social-care-workforce-in-england/>.

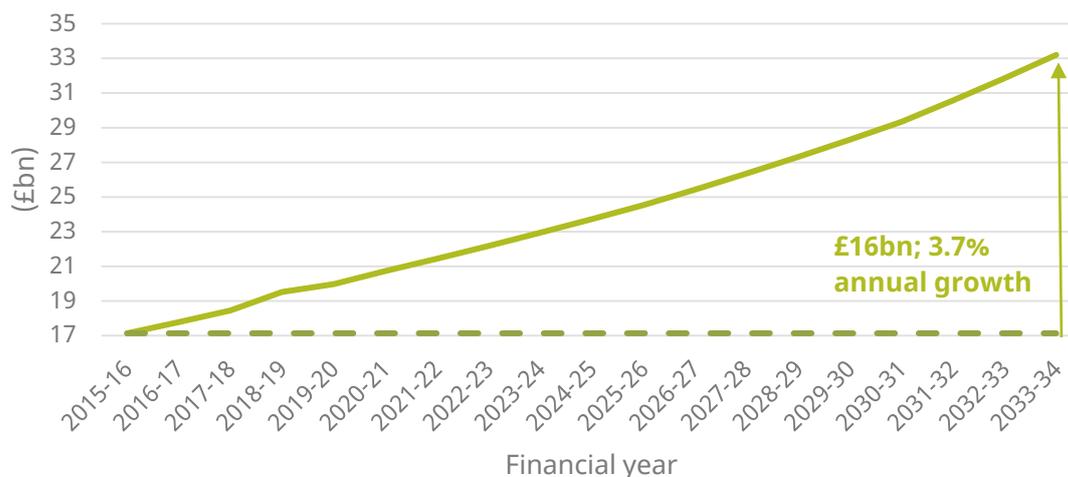
¹³⁸ <https://www.skillsforcare.org.uk/NMDS-SC-intelligence/Workforce-intelligence/publications/The-size-and-structure-of-the-adult-social-care-sector-and-workforce-in-England.aspx>.

¹³⁹ Based at the London School of Economics and Political Science (LSE).

¹⁴⁰ Data on social care use in 2015–16, as well as the projections used, are from an update to PSSRU, 'Projections of demand for and costs of social care for older people and younger adults in England, 2015 to 2035', 2015, www.pssru.ac.uk/pub/DP2900.pdf. These data were provided by the PSSRU.

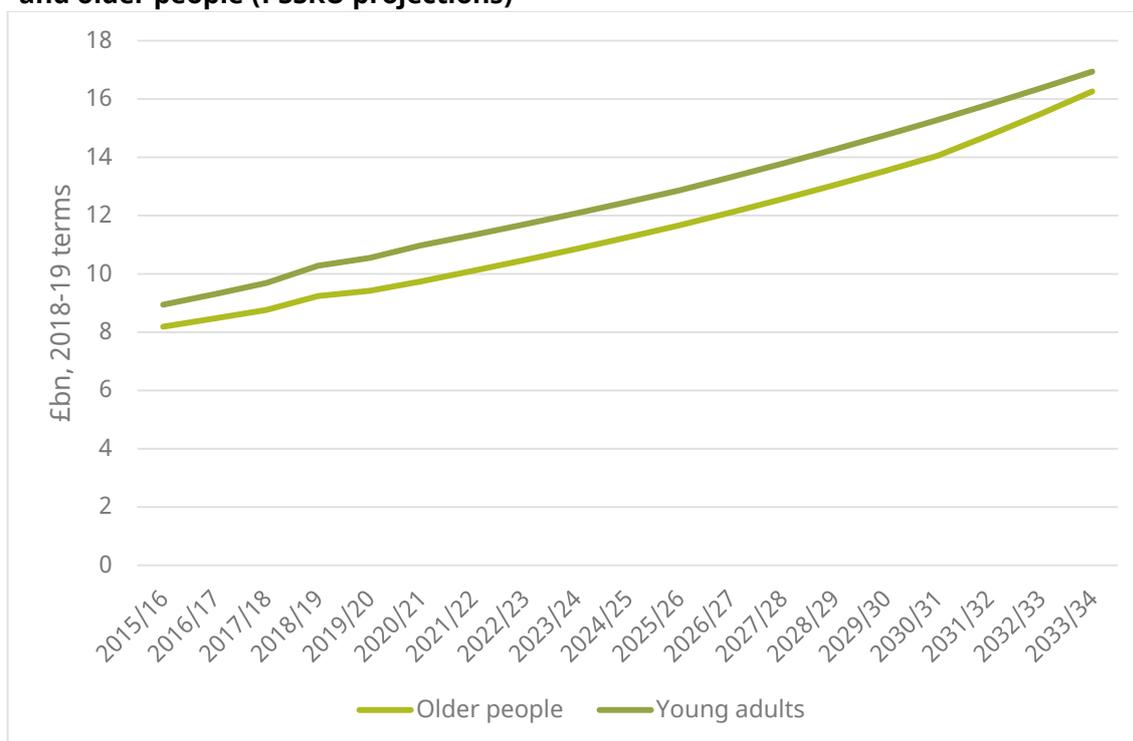
¹⁴¹ This includes the increase in the national living wage – as a large number of social care workers are paid at or close to minimum wage, they benefit from the increases announced in the 2015 Comprehensive Spending Review.

Figure 3.22. Demand and cost pressures for publicly funded social care in England (PSSRU)



Source: Health Foundation analysis using PSSRU projections (<https://www.health.org.uk/sites/health/files/Social-care-funding-options-May-2018.pdf>), including local authority social care spending (<https://www.gov.uk/government/statistics/local-authority-revenue-expenditure-and-financing-england-2017-to-2018-budget>) and ONS population projection.

Figure 3.23. Social care demand and cost pressures in England for working-age adults and older people (PSSRU projections)



Source: Health Foundation analysis using PSSRU projections (<https://www.health.org.uk/sites/health/files/Social-care-funding-options-May-2018.pdf>), including local authority social care spending (<https://www.gov.uk/government/statistics/local-authority-revenue-expenditure-and-financing-england-2017-to-2018-budget>) and ONS population projection.

estimate the social care budget in 2017–18 and 2018–19.¹⁴² This includes increases in the Improved Better Care Fund and use of the local authority precept for social care. These figures, placed in 2018–19 real terms for England, are £17.9 billion and £18.6 billion respectively, which gross up to UK-wide amounts of £22.6 billion in 2017–18 and £23.5 billion in 2018–19.

Given the budget growth from 2015–16 to 2018–19, we estimate that, in order to keep pace with demand pressures, from 2018–19 to 2033–34 the budget in England would need to rise by £14.6 billion. This figure is based on 2015–16 levels of access and quality in the publicly funded social care system – i.e. without reform to a system that has been strongly criticised, with the government planning a Green Paper on social care reform this summer.

Reform to the system, however, is likely to come at a cost: recent savings have been made in England by holding the means-test limits constant in nominal terms, therefore reducing the number of people who are eligible for state-funded care. Per-capita funding for adult social care in England has fallen from highs in 2009–10; even to return to levels of access and care quality then, it is estimated that an additional £9.9 billion would be required in 2033–34 on top of the current pressures of £14.6 billion. In a recent report, the Health Foundation also estimate that to introduce Free Personal Care, as in Scotland, would cost an extra £4.3 billion in 2015–16, while the ‘Cap and Floor’ which limits lifetime social care costs and adjusts the means test (similar to the model proposed by the Conservative party in the 2017 general election) could cost £3.2 billion more.¹⁴³ Introducing these models would mean that the £14.6 billion increase in 2033–34 would grow by £6.7 billion to £21.3 billion for the Cap and Floor model and by £9.1 billion to £23.7 billion for Free Personal Care.

Demand and cost pressures in the UK

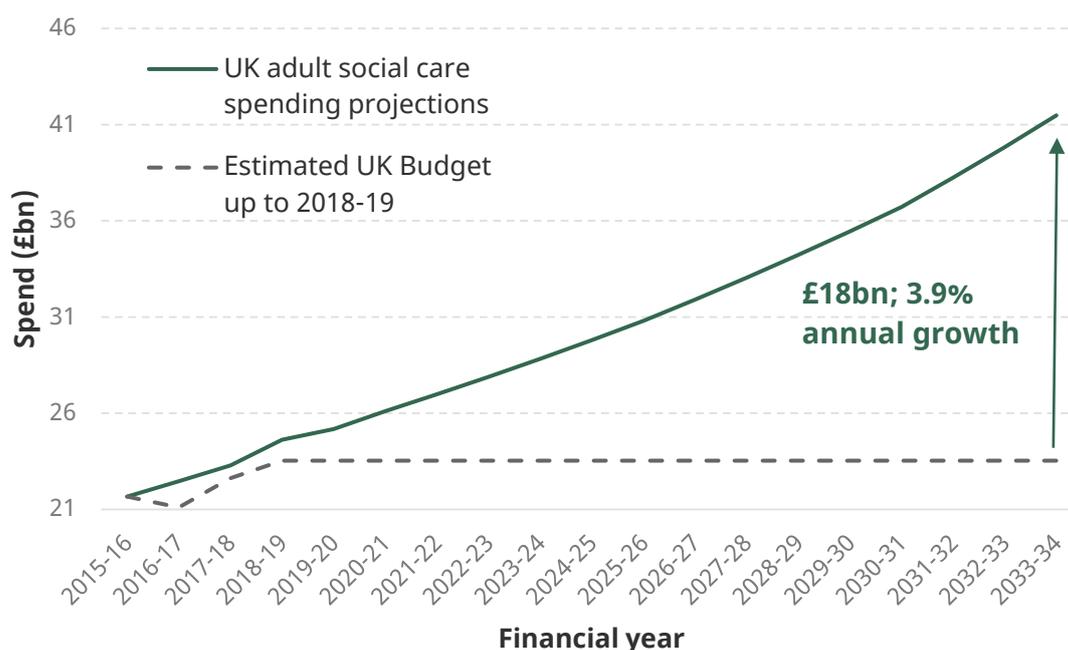
The 3.7% projected current pressures from PSSRU in England amount to a 3.1% increase in spend per capita per annum. To estimate UK-wide cost pressures, we apply the 3.1% per-capita growth to the different levels of spend per head across the four countries.

Figure 3.24 presents the projected increase in UK spending on adult social care, based on the growth in spending projected in England. We compare the UK projections with the estimated budget for 2018–19. In order to keep pace with demand pressures based on adult social care activity from 2015–16, the budget for social care in the UK will need to grow by an estimated £18 billion from 2018–19 to 2033–34, at an annual average growth rate of 3.9%.

¹⁴² Full details of this estimation can be found in <https://www.health.org.uk/publication/social-care-funding-options>.

¹⁴³ <https://www.health.org.uk/sites/health/files/Social-care-funding-options-May-2018.pdf>.

Figure 3.24. Projections of adult social care spending in the UK



Source: Health Foundation analysis using PSSRU projections (<https://www.health.org.uk/sites/health/files/Social-care-funding-options-May-2018.pdf>), including local authority social care spending (<https://www.gov.uk/government/statistics/local-authority-revenue-expenditure-and-financing-england-2017-to-2018-budget>), ONS population projection and PESA.

Implications for the social care workforce

The social care workforce is a larger workforce than the NHS’s, with around 1.1 million FTE workers in 2016. As the demand for social care grows, with a growing, ageing and increasingly co-morbid population, more staff will be required to provide care. If staff numbers grow in line with the activity growth implied by PSSRU’s model, then an additional 458,000 staff would be required by 2033–34. Many of these will be in the private sector, although around 37,000 will be directly employed by local authorities. This would mean growing the social care workforce by around 2.2% a year.

Table 3.14. Possible growth in the social care workforce (FTE)

	2018–19	2023–24	2028–29	2033–34	Annual growth	Extra FTEs, 2018–19 to 2033–34	% change
All job roles	1,160,326	1,296,350	1,448,320	1,618,106	2.2%	457,800	39%
Local authority – all jobs	94,080	105,109	117,431	131,198	2.2%	37,117	39%

Source: Health Foundation Analysis using PSSRU projections, and Skills for Care ‘The size and structure of the adult social care sector and workforce in England, 2017’

3.9 Conclusion

The economic modelling work undertaken for this study sets out projections of future healthcare spending pressures. These show that NHS funding will need to increase by 3.3% a year at the very least, if quality and access to care are to be maintained at 2015–16 levels due to a growing and ageing population and a rising burden of chronic disease, against a backdrop of pay and drug costs pressures which improvements in productivity cannot fully offset. This is above expected GDP growth but below the historic increases in funding. Without any major improvements in quality or access to care, to keep pace with population change and input cost pressures, the NHS will need to take a larger share of national income. The alternative is that standards of care will decline.

Aiming just to maintain quality and access standards at the current level for the next 15 years would be a low bar, and a marked change from the first 70 years of the NHS's history, which have seen continuous progress and improvement. This would leave healthcare in the UK in a very different place from other EU15 and G7 nations.

If the NHS is to continue to improve care, health spending will need to increase by around 4.0% a year in real terms over the next 15 years, as set out in our modernised scenario. This would allow the NHS to meet a wider range of needs, improve outcomes in key areas such as cancer, focus more on upstream prevention and improve productivity. This extra spending would modernise the NHS and, although it would increase spending, it could deliver greater value than the status quo scenario, with higher productivity and improvements in mental health treatment, which may have benefits beyond the NHS.

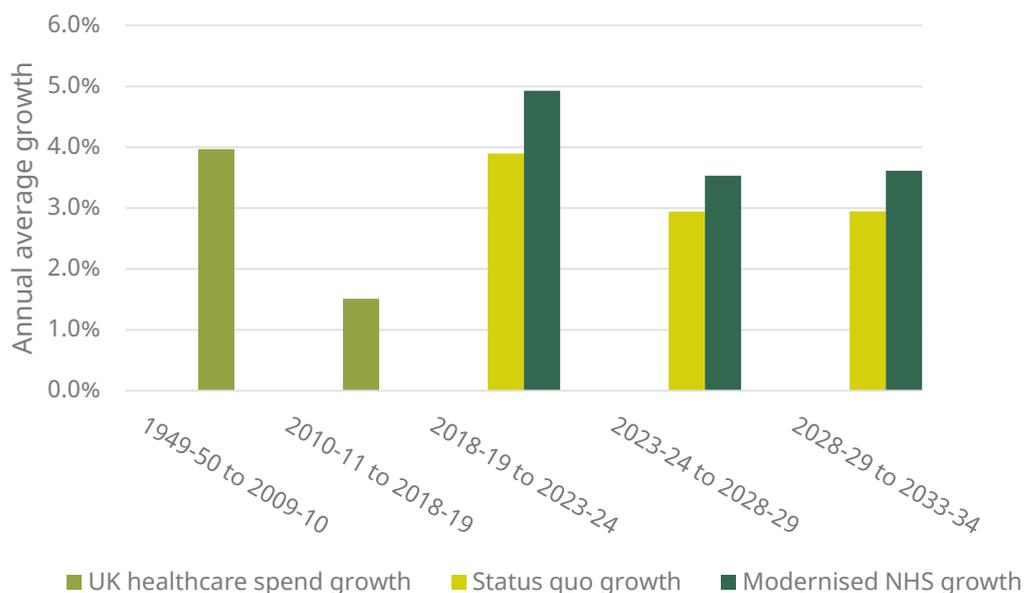
This modernised NHS scenario would see healthcare spending rise at a similar rate to the growth implied by the OBR's top-down projection modelling approach of 4.0% a year, and a slightly higher rate than the long-term trend of 3.7% a year since the NHS's inception.

From the NHS's inception to 2009–10, healthcare spending grew at just under 4% a year compared to GDP growth of 2.8% a year. Since then, both GDP and health spending have increased, but at a much lower rate than in the past. Our analysis suggests quality and access to care cannot be sustained if this low rate (1.5% a year) of health funding growth is continued beyond 2018–19.

The challenge is that these years of low healthcare funding growth have left the NHS with a backlog of cost pressures. More than three-quarters of NHS acute trusts are in deficit, waiting times standards are not being met, capital investment has been cut and, as a result, hospitals are building up large backlog maintenance programmes and working with out-of-date equipment. Investment in public health and prevention has fallen. Putting the NHS on a sustainable footing therefore requires a period of 'catch-up' funding growth. As Figure 3.25 shows, this would mean increasing health spending by around 5% a year for the next five years, after which funding growth would return to levels slightly below the pre-recession average.

Providing 'catch-up' funding over this period is likely to be challenging as GDP growth is forecast to be comparatively low over the next five years. The level of GDP growth is a key driver of healthcare spending – it influences pay and expectations. Before the 2007–08 recession, health spending grew by an average of 1.2 percentage points above GDP growth. Our analysis suggests the gap between GDP growth and health spending growth

Figure 3.25. Historical and projected healthcare growth



Source: OHE, OBR, Health Foundation analysis of Hospital Episode Statistics and NHS Reference Costs data. For more detail, see Box 3.2.

under the modernised scenario will be greater over the next 15 years, at around 2.1 percentage points. Part of the reason for this is that the next 15 years are a period of significant ageing in the population. Chronic disease is also expected to rise, drug costs are increasing with medical advance, and the scope to continue holding down nurses', doctors' and other NHS staff pay is limited.

One of the key issues for policymakers will be the pace of change and scale of ambition for improvement. Addressing the backlog of capital spending needs, waiting times problems and underlying financial problems is essential, but will consume considerable resource. If the government wants to address those problems and deliver marked improvements in quality of care over the next five years, it will have to resource a period of 'catch-up' funding which is higher than the growth rates across the remaining years.

The projections show what might be needed to deliver care in the next 15 years in the way we deliver care today, in terms of the balance of hospitals, primary care and community services. They imply a substantial expansion in hospital activity and therefore more staff.

They are also predicated on maintaining current roles and responsibilities of doctors, nurses and allied health professionals. There is evidence, however, that this would not be the best model of care to meet patient needs or use resources. Technology will facilitate new ways of working, new models of care and new roles for staff. These should be embraced.

Alongside any increased funding, significant changes would need to be made to use resources well. If the NHS is not to build a substantial number of new hospitals to meet rising demand, care models will need to be transformed so that care is based closer to people's homes. Expectations of the impact of changing models on the need for emergency hospital care will need to be realistic.

There will need to be a clear plan for how to spend additional funding, aligned with more effective workforce plans and prioritisation of extra resources. Practical support for staff and organisations tasked with implementing new models of care, policy and regulatory changes will also be needed to deliver transformative change. This approach would ensure that when the NHS reaches its 85th anniversary, additional spending has been translated into improved health and value for money. The scale of this task should not be underestimated.

4. Options for funding health and social care

Elaine Kelly and Ben Zaranko (IFS)

Key findings

The pressures – from a growing and ageing population, from rising expectations and from increasing cost pressures – facing the NHS over the next 15 years are substantial.

Meeting the pressures under the Health Foundation’s ‘modernised NHS’ scenario, which allows for modest improvements in NHS services, would increase expenditure on health by an estimated 2.6% of GDP by 2033–34. This is equivalent to £56 billion in today’s terms, or £2,000 per year for each household in the UK. These figures are substantially larger than recent political pledges to the NHS.

Just maintaining services at their current level is deemed to require a substantial increase in funding, much of which would need to be found in the next five years.

Meeting the Health Foundation’s less generous ‘status quo’ scenario, which is deemed sufficient to maintain services at current levels, would require an estimated additional 1.6% of GDP by 2033–34, with 0.9% of GDP of this required by 2023–24. This increase is equivalent to £20 billion, or £700 per year per household in the UK, in 2018–19 terms.

On top of this, meeting the needs of an ageing population and a growing number of younger adults living with disabilities would require a considerable increase in social care funding.

If the current funding system is maintained, meeting the pressures on social care would require an estimated increase in funding of 0.4% of GDP by 2033–34, equivalent to around £8 billion in today’s terms, or £280 per year for each household in the UK. If the system is reformed to increase the generosity of the public offer, spending on social care would need to increase by even more.

In the past, rising health spending has effectively been paid for through reductions in spending on other services, particularly defence. It is difficult to see how this could be continued going forward.

Meeting the scale of the expected pressures while keeping public spending as a share of GDP constant would be difficult to achieve, not least because many other areas of government have been cut substantially since 2009–10.

There are signs that there is now an increased willingness from the public to pay more in tax.

The revenue needed to fund the ‘status quo’ scenario over the next five years is equivalent to the amount that would be raised by increasing all rates of income tax by around 5 pence, or increasing the main rate of VAT from 20% to 24%, or increasing all main rates of NICs, including employer NICs, by 2–3 pence.

Even eliminating the defence budget entirely would still not free up sufficient resources to fund the ‘modernised NHS’ scenario. Reducing defence spending at all as a share of national income may not be an option if the government is to continue to meet its international commitments.

Meeting the pressures under the ‘modernised NHS’ scenario while keeping overall public spending unchanged as a share of GDP would require cuts to non-NHS spending of 10%. Even meeting just the ‘status quo’ scenario would require average cuts of 6.7%. Achieving these would be made harder by the fact that other spending on pensioners is subject to similar demographic pressures to health and social care.

Nearly two-thirds of tax revenue is raised by the three largest taxes: income tax, National Insurance contributions (NICs) and VAT. Given the scale of the funding challenge facing health and social care, meeting the pressures through increased tax revenue would likely involve an increase in at least one of these taxes.

These changes are merely illustrative and, in practice, some combination of tax increases would most likely occur. Other options include the reversal of tax cuts made since 2010 or changes to taxes that could raise revenue from particular groups – such as richer or older individuals – or ones that make the overall tax system more efficient.

Relying solely on increased taxation to pay for a 'modernised NHS' would increase the UK tax burden as a share of GDP to historically high levels.

The UK tax burden is already at a high level by historical standards. But further tax increases of this scale are economically feasible. Even if the UK raised an additional 3.0% of GDP in tax, the tax burden would remain well below that in other European countries. It is notable that the UK already spends a high fraction of tax revenues on health relative to comparable European countries. Tax-funded increases in health spending, while maintaining spending in other areas, would increase this fraction further.

The public may prefer that any tax increase should be hypothecated for the NHS. However politically attractive, there remain strong economic arguments against such an approach.

There is no reason why we would want any particular tax to rise over time in line with health spending, nor any reason why we would want to tie health spending to the revenues from any one tax, which are likely to rise and fall over time. There are possible ways around this, but they risk introducing additional complexity, inefficiency and inequity into the tax system.

The NHS makes limited use of user charges compared with health systems elsewhere. There is little public appetite for increased charges, though the exemption criteria are in need of review.

In particular, the exemption of those aged between 60 and the state pension age from NHS charges seems difficult to justify when the state pension age – and retirement ages – are rising alongside increasing longevity at older ages. However, refining current eligibility criteria is unlikely to raise a substantial amount of money.

There are unique challenges around social care. Unlike the NHS, publicly funded social care is heavily means-tested and many people face substantial costs for their care. And, unlike the NHS, social care is a local responsibility with no national budget.

The government needs to think not just about the overall level of public spending on social care, but also how that funding is structured, who qualifies for public support, and how much those who do not qualify should be expected to pay. This is an area where setting out a clear direction of reform would help individuals to plan.

4.1 Introduction

The difficulties faced by the NHS and social care this winter have been a focus of much public and political discourse. Surveys of public opinion suggest that the public perceive that the NHS has a funding crisis, and the majority are prepared to pay more tax to fund increased NHS spending.

Since the beginning of austerity in 2010, NHS spending has grown at the slowest rate in its history, while social care spending in England has fallen in real terms and failed to keep pace with demand. Over the same period, NHS performance against its own targets has deteriorated, and over 400,000 fewer older people accessed publicly funded social care in 2016–17 than in 2009–10.

Chapter 3 of this report quantifies the additional funding that would be required to meet the expected pressures on health and social care. In order to deliver the Health Foundation's 'modernised' scenario, with modest improvements to NHS services and higher pay for staff, spending on health would need to rise from its current level of 7.3% of GDP to 9.9% of GDP in 2033–34. This increase is equivalent to an estimated £56 billion in 2018–19 prices, or an additional £2,000 extra per household per year. Of this, an estimated £34 billion or an additional £1,200 per household per year would be required just to maintain the 'status quo', including missed performance targets and slower pay growth for staff. On top of any additional funding for the NHS, meeting the needs of an ageing population and an increasing number of younger adults living with disabilities would require spending on social care to increase by an estimated 0.4% of GDP by 2033–34. This is equivalent to an additional £8 billion in today's terms, or an extra £280 per year for each household in the UK.

These figures are substantially larger than previous political pledges to the NHS, in terms of either claims about the potential 'Brexit dividend' or small increases in income tax to fund more NHS spending. The Health Foundation projections outlined in Chapter 3 are, however, relatively similar to other forecasts of funding pressures. In particular, OBR forecasts of spending in 2033–34 are broadly in line with the 'status quo' scenario,¹⁴⁴ while the 'modernised NHS' looks similar to the figures from the interim report of the Lord Darzi Review of Health and Care, convened by the IPPR.¹⁴⁵

This chapter lays out how these sums of money could be raised if the public and politicians decide that the pressures should be met. Section 4.2 takes the cost pressure projections in Chapter 3 and quantifies the estimated deficit in funding in today's terms. Section 4.3 provides some evidence on public attitudes to NHS funding and taxation to gauge the public's appetite to pay for increased funding. Section 4.4 considers the potential for raising funds by cutting spending in other areas, by comparing levels and trends in areas of public spending since 2007–08 and over the longer term. Section 4.5 describes options for raising money through the existing tax system, including a discussion of hypothecation. Section 4.6 considers additional ways of raising money, including user charges, charging migrants and raising money from NHS estates. Section

¹⁴⁴ Office for Budget Responsibility, *Fiscal Sustainability Report: January 2017*, <http://obr.uk/fsr/fiscal-sustainability-report-january-2017/>.

¹⁴⁵ *The Lord Darzi Review of Health and Care: Interim Report*, Institute for Public Policy Research, April 2018, <https://www.ippr.org/publications/darzi-review-interim-report>.

4.7 focuses on the particular challenge of social care, where the debate is not just about how much additional funding is needed, but also about the organisation and scope of the service. Section 4.8 concludes.

4.2 What do these pressures mean for funding?

The Health Foundation analysis in Chapter 3 estimates that in order to meet the pressures on health and continue to modernise the range and quality of services provided, spending would need to increase over the next 15 years by £124 billion in today's prices. Of this total, more than three-quarters (£95 billion) is estimated to be required to maintain current service levels. On top of that, spending on social care would need to increase by around £18 billion to meet growing pressures.

These figures sound large, and they are. However, it is important to remember that we also expect the economy and therefore tax revenues to grow over that period, even if the current tax system is left unchanged. What really matters is how much of our national income (measured by gross domestic product, or GDP) we would have to spend on health in order to meet projected pressures. This will determine how much more the government would need to find by adjusting taxes, borrowing more or cutting other areas of spending.

We use the term 'GDP funding gap' to refer to the difference between the share of GDP we spend on health now and the share we would spend if we met the pressures outlined in Chapter 3. We then express this gap in 2018–19 terms to give an indication of the scale of the tax or spending changes that would be required if they were implemented today – in other words, how much it would cost today to meet the estimated GDP funding gap.

Table 4.1 shows projected spending levels under each of the scenarios laid out in Chapter 3. These projected levels are also expressed as a share of estimated GDP based on OBR growth forecasts.¹⁴⁶ The estimated GDP funding gap is then calculated by comparing the predicted health and social care shares with their shares in 2018–19 (7.3% for the NHS and 1.1% for social care). The difference is then quantified in terms of 2018–19 GDP. These figures for the GDP funding gap, given in bold, will be used as a reference for Sections 4.4 and 4.5, which consider how much money could be raised by cutting spending elsewhere and by raising taxes.

Under the 'modernised' scenario, forecast NHS spending would grow from £154 billion in 2018–19 to an estimated £195 billion by 2023–24, and to £278 billion in 2033–34. Given projected growth, this implies that spending on the NHS would rise as a share of GDP throughout the period, reaching an estimated 9.9% in 2033–34. Given the current level of NHS spending of 7.3% of GDP, this would imply an estimated health funding gap of £56 billion by the end of the period.

More than three-quarters of the projected increase in NHS spending under the modernised scenario is accounted for by funding that is estimated to be needed to maintain the 'status quo'. Under the status quo scenario, projected spending would reach

¹⁴⁶ See Office for Budget Responsibility, 'Long-term economic determinants', *Economic and Fiscal Outlook: March 2018*, <http://obr.uk/efo/economic-fiscal-outlook-march-2018/>. Real GDP is projected to grow at an average real rate of 1.8% per year up to 2033–34. This means that the economy is expected to be more than a third larger in 2033–34 than in 2017–18.

Table 4.1. Projected spending and funding gap for health and social care

		NHS status quo	Modernised NHS	Social care
2023–24	Spending in £ billion (2018–19 prices)	186.0	195.4	28.8
	Spending as % of GDP	8.2	8.6	1.3
	Funding gap	£20 billion	£29 billion	£3 billion
2028–29	Spending in £ billion (2018–19 prices)	215.1	232.4	34.2
	Spending as % of GDP	8.6	9.3	1.4
	Funding gap	£28 billion	£43 billion	£5 billion
2033–34	Spending in £ billion (2018–19 prices)	248.7	277.6	41.5
	Spending as % of GDP	8.9	9.9	1.5
	Funding gap	£34 billion	£56 billion	£8 billion

Source: Authors' calculations based on spending projections in Chapter 3, OBR Economic and Fiscal Outlook March 2018 and HM Treasury Public Expenditure Statistical Analyses 2017. Funding gap is calculated as the increase in spending (relative to 2018–19) as a share of GDP, expressed in 2018–19 terms.

an estimated £249 billion by 2033–34. However, when expressed as a share of GDP, most of the increases in funding pressures under this scenario are expected over the next five years, partly because the OBR expects GDP to grow at an average rate of 1.4% per year up to 2023–24 and 2.1% per year thereafter. This implies an estimated funding gap of £20 billion in 2023–24, rising to £34 billion by 2033–34.¹⁴⁷

Projected spending on social care assumes that current levels of service and eligibility are maintained. Under these assumptions, projected spending is estimated to reach £41 billion by 2033–34, with social care as a share of GDP rising from 1.1% to 1.5%. This implies an estimated social care funding gap of £8 billion.

Taking the NHS and social care together, meeting the pressures under the modernised NHS scenario would require the government to raise an estimated additional £32 billion by 2023–24, rising to an estimated £64 billion in 2033–34. The status quo scenario would require an estimated additional £23 billion by 2023–24, rising to an estimated £42 billion in 2033–34.

It is crucial to note the sensitivity of these estimates to the future path of GDP growth, and therefore their uncertainty. But whatever the exact outcome in terms of economic growth and demand for health and social care spending, there can be little doubt that, unless there is a dramatic change in either political preferences or health costs and technology, we will end up spending significantly more on health and social care in the future than we do now. It will be up to politicians to decide whether the expected pressures should be met from public spending and, if so, where the additional resources that would be needed should come from.

¹⁴⁷ Note that these figures refer to the funding gap for health only, and do not include social care.

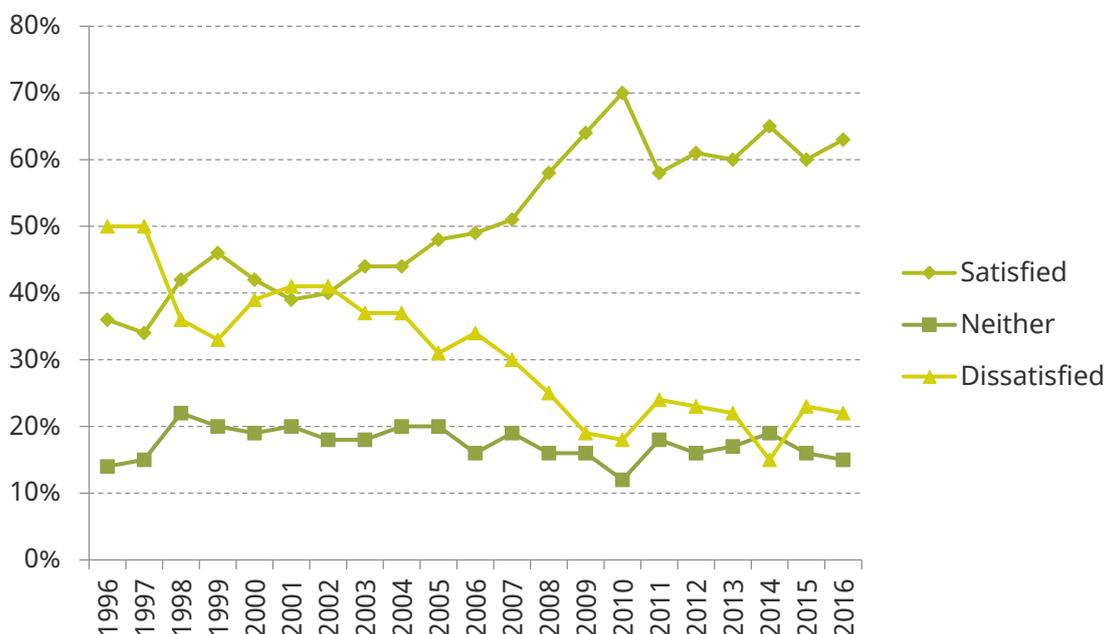
4.3 What are the public’s views on NHS funding?

The public report high levels of satisfaction with the NHS, but are almost unanimous in believing that the NHS is in the midst of a funding crisis. Figure 4.1 shows levels of satisfaction with the NHS as recorded in the British Social Attitudes Survey. There was a large increase in levels of satisfaction between 2001 and 2010, from 39% to 70%, with a corresponding fall in the share reporting to be dissatisfied. This aligns with the period when NHS funding was increasing rapidly and waiting-time targets were introduced and then shortened. Satisfaction dropped to around 60% in 2011 and has remained stable since.

Using the most recent (2017) data, the King’s Fund finds that those aged 65 and over were almost 10 percentage points more likely to report being ‘quite’ satisfied or ‘very’ satisfied with the NHS. It is unclear whether this reflects differences in contact with the NHS, differences in expectation or differences in quality of the services received.¹⁴⁸ There are no statistically significant differences by household income or gender.¹⁴⁹

While satisfaction has not fallen, Figure 4.2 shows that there has been an increase in the belief that the NHS is facing a funding problem. In 2014, 2015 and 2016, respondents to the British Social Attitudes Survey were asked whether they thought that the NHS had a funding problem. In all three years, over 90% responded that there was at least a minor funding problem. However, the share that claimed that the NHS had a severe funding

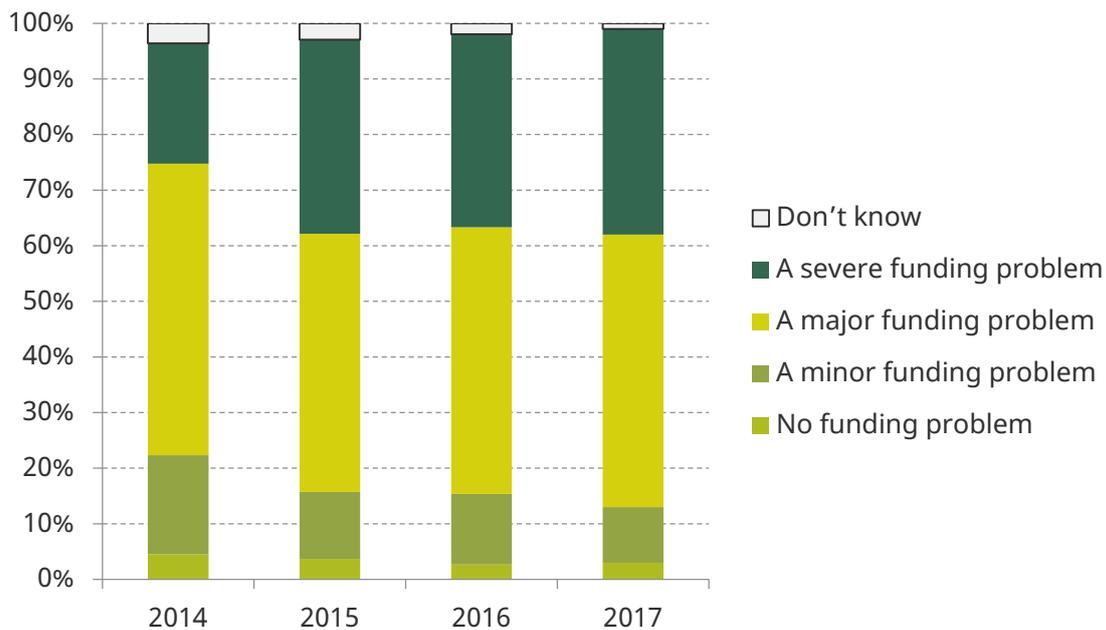
Figure 4.1. How satisfied or dissatisfied are you with the way the National Health Service runs nowadays?



Source: British Social Attitudes Survey, <http://www.bsa.natcen.ac.uk/latest-report/british-social-attitudes-34/key-findings/context.aspx>.

¹⁴⁸ A third of the sample are asked about their contact with inpatient services. However, the smaller sample means that differences are not statistically significant.

¹⁴⁹ R. Robertson, J. Appleby and H. Evans, ‘Public satisfaction with the NHS and social care in 2017’, King’s Fund, 2018, <https://www.kingsfund.org.uk/publications/public-satisfaction-nhs-2017>.

Figure 4.2. Is the NHS facing a funding problem?

Source: British Social Attitudes Survey, <http://www.bsa.natcen.ac.uk/latest-report/british-social-attitudes-34/key-findings/context.aspx>. 2017 analysis from the King's Fund, <https://www.kingsfund.org.uk/publications/does-public-see-tax-rises-answer-nhs-funding-pressures>.

problem increased from 22% to 35% between 2014 and 2015. Recent analysis from the King's Fund suggests the share who thought the NHS had a severe funding problem had increased further in 2017¹⁵⁰.

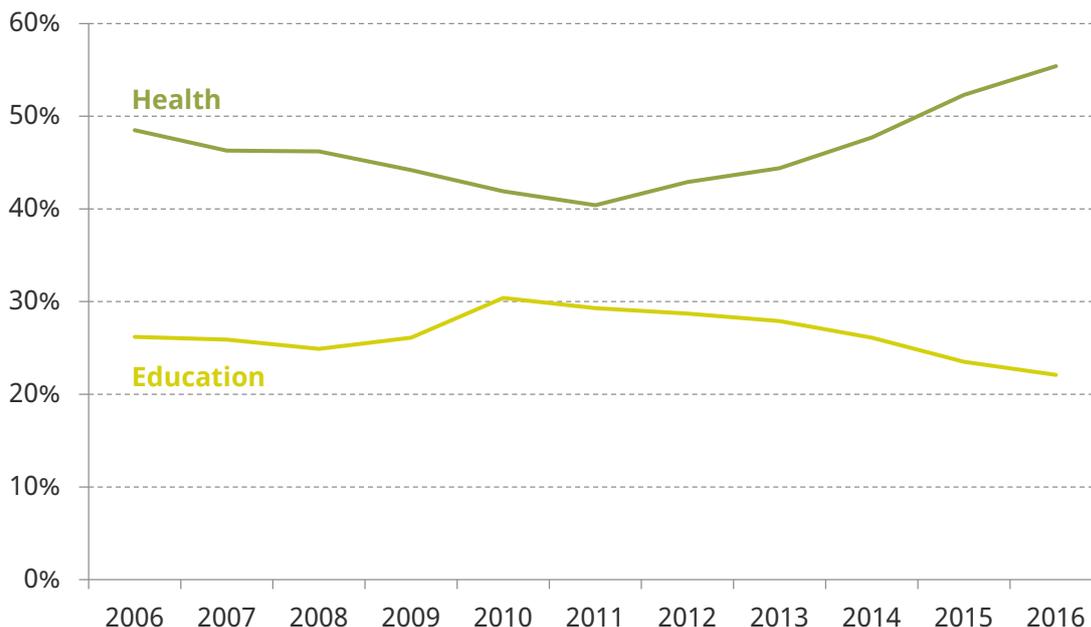
All public services have seen either spending cuts or a slower rate of growth in recent years. However, it does appear that concerns about NHS funding extend beyond a general concern about public services. The British Social Attitudes Survey has asked those polled their highest priority for extra public spending since the mid 1980s. Figure 4.3 shows the share choosing health and education as their highest priority, from 2006 to 2016. Together, these categories of spending accounted for three-quarters of responses in 2016. All other areas of public spending – including housing, defence, police and prisons, and public transport – are reported as being the highest priority by fewer than 10% of respondents.¹⁵¹ In all years, health is the most favoured option. However, between 2006 and 2011, the share reporting health as the first priority fell from 49% to 40%, while the share reporting education as the first priority increased from 26% to 29%. However, since 2011, the trends have reversed. In 2016, 55% reported health as the top priority, while the share opting for education fell back to 22%.¹⁵²

¹⁵⁰ H. Evans, 'Does the public see tax rises as the answer to NHS funding pressures?', King's Fund, 2018, <https://www.kingsfund.org.uk/publications/does-public-see-tax-rises-answer-nhs-funding-pressures>.

¹⁵¹ In 2016, the third-highest-rated area of public spending was housing, which was reported as the priority of 7.2% of those polled.

¹⁵² Further analysis of recent trends in public attitudes was published by the King's Fund in February 2018 (J. Cream, D. Maguire and R. Robertson, 'How have public attitudes to the NHS changed over the past three decades?', King's Fund, 2018, <https://www.kingsfund.org.uk/publications/how-have-public-attitudes-to-nhs-changed>).

Figure 4.3. Which, if any, area of public spending would be your highest priority for extra spending? Shares reporting health and education



Source: British Social Attitudes Survey, <http://www.bsa.natcen.ac.uk/latest-report/british-social-attitudes-34/key-findings/context.aspx>.

There is much less information available about public opinion on social care, in terms of current quality, funding requirements or proposed reforms. This is partly because the issue is less salient for most people at any given point in time; it may also be that it is harder to explain what social care constitutes.

4.4 Paying for increased spending using the existing funding system

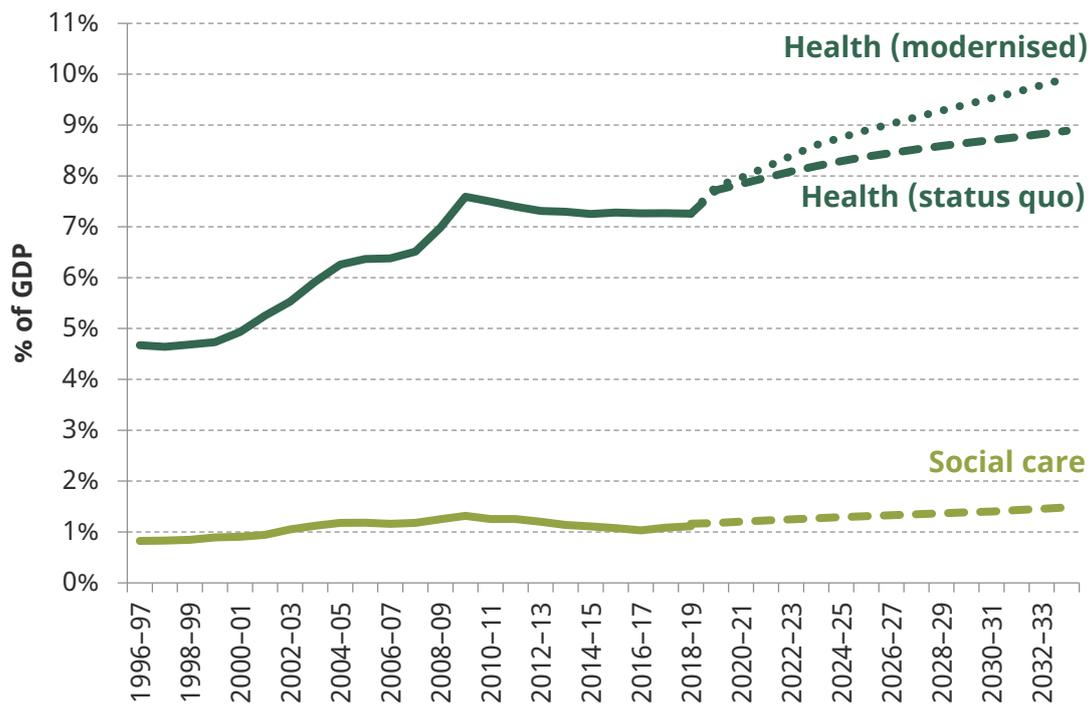
Taken at face value, most people seem to think that additional funding for the NHS is a priority. To accommodate additional funding would require reductions in other areas of public spending, increases in general taxation or increases in borrowing. Here we look at options for securing additional funding via spending cuts elsewhere. We examine the options via tax increases and via increases in borrowing in Sections 4.5 and 4.6 respectively.

Meeting projected pressures within current levels of public spending

This section analyses what the implications would be if the government decides to meet the projected pressures on health and social care spending by reducing spending on other areas (i.e. without spending more overall and holding the size of the state constant¹⁵³).

Chapter 3 sets out projections for public spending on health and social care over the next 15 years. Figure 4.4 shows spending on health and social care as a share of GDP from 1996–97 to 2018–19, and spending projections to 2033–34 under the ‘modernised’

¹⁵³ Total managed expenditure was equivalent to 38.8% of GDP in 2017–18. Source: OBR Public Finances Databank.

Figure 4.4. Projected spending on health and social care as a percentage of GDP

Source: Authors' calculations based on spending projections in Chapter 3, real GDP growth forecasts published in OBR Economic and Fiscal Outlook March 2018, OBR Public Finances Databank and various HM Treasury Public Expenditure Statistical Analyses.

scenario outlined in Chapter 3. Under this scenario, the government aims to achieve modest improvements in the range and quality of services provided while meeting demographic and cost pressures.

In 2018–19, UK health spending amounts to 7.3% of GDP and spending on social care amounts to an additional 1.1% of GDP. Under the modernised NHS scenario, health spending would need to increase to 9.9% of GDP and social care spending to 1.5% of GDP. That means that we would need to spend an extra 3.0% of national income, equivalent to more than £64 billion in today's terms. £42 billion of this is required just to keep the NHS at the same standard it is today.

If total managed expenditure (TME) is kept constant as a share of GDP, spending on other areas would need to be reduced to accommodate higher health and social care spending. This implies that health and social care spending would grow to account for a greater share of public spending, as summarised in Table 4.2.

In 2016–17, for every £1 the government spent, 18.7p went on health¹⁵⁴ and 2.6p on social care. That is, of the £798.9 billion the government spent in 2016–17, £149.2 billion went on health and £21.2 billion went on social care, leaving £628.5 billion for everything else. In our status quo scenario, in which there is no improvement in the range and quality of NHS services, spending on health is projected to increase to 21.1p in every £1 by 2023–24, 22.1p in 2028–29, and 22.9p in 2033–34. At the same time, social care spending is expected to rise from 2.6% to 3.8% of TME by 2033–34. Under the modernised scenario, in which the

¹⁵⁴ This is relatively high by international standards – see Figure 4.8.

Table 4.2. Projected health and social care spending as a percentage of TME

	Spending as % of TME		
	NHS status quo	Modernised NHS	Social care
2016–17 spending	18.7	18.7	2.6
2023–24 spending	21.1	22.2	3.3
2028–29 spending	22.1	23.9	3.5
2033–34 spending	22.9	25.6	3.8

Source: Authors’ calculations based on spending projections in Chapter 3 and OBR Public Finances Databank. Analysis assumes that total managed expenditure remains at its 2017–18 level of 38.8% of GDP.

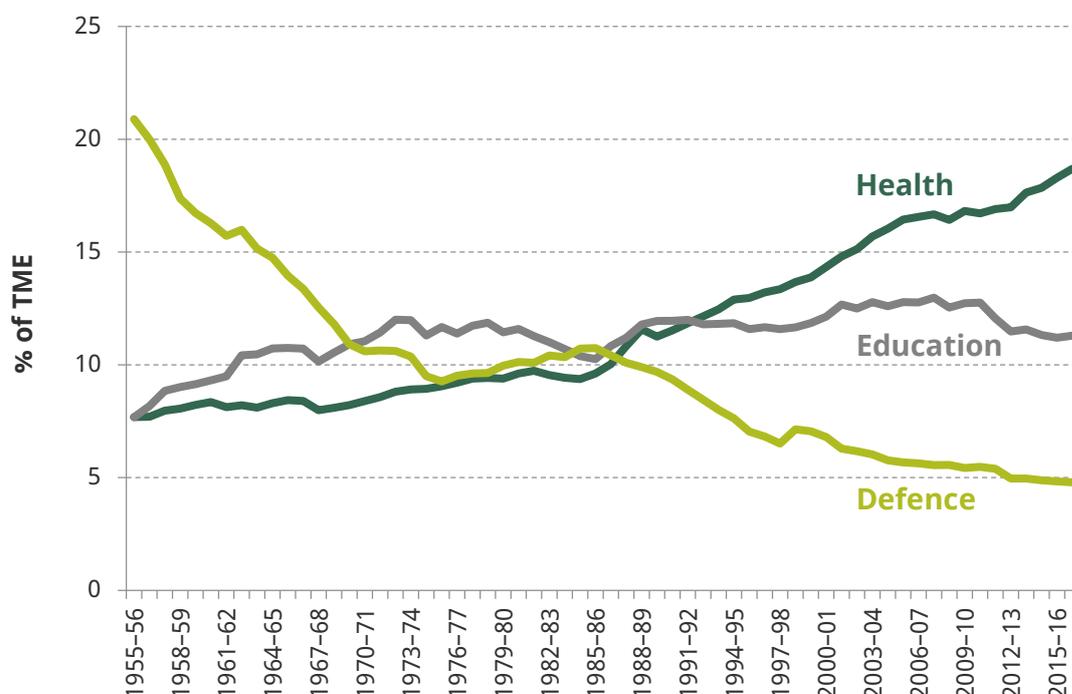
government pursues modest improvements in the range and quality of NHS services, health spending is projected to reach 25.6p in every £1 by 2033–34.

The status quo scenario would require savings of around £42 billion in today’s terms by 2033–34. That would mean cutting non-health-and-social-care spending by 6.7%. To meet the pressures in the modernised scenario, the government would need to find savings of £64 billion. That would require reducing spending on all other areas by 10% by 2033–34.

How much scope is there for reducing public spending in other areas?

Figure 1.5 in Chapter 1 illustrates how spending on health has increased both as a share of total public spending and as a share of spending on public services. Figure 4.5 shows how historical trends in health spending compare with those seen for education and defence.

Figure 4.5. Health, education and defence as shares of total spending



Source: Authors’ calculations based on various HM Treasury Public Expenditure Statistical Analyses, UK National Accounts and OBR Public Finances Databank.

Health has steadily increased as a proportion of public spending, rising from 7.7% of all spending in 1955–56 to 18.7% in 2016–17, with most of the increase occurring since the mid 1980s. Over the whole period, this has been more than compensated for by falls in defence spending, which fell from 21% of spending in 1955–56 to just 4.8% in 2016–17. In the more recent past, the shares of government spending accounted for by health and defence spending were approximately equal in 1986–87. Since then, the health share has increased by 8.7 percentage points, while the defence share fell by 5.6 percentage points. This means that two-thirds of the increase in health spending since the mid 1980s has been compensated for by falls in defence spending.

Falls in defence spending cannot continue to compensate for increases in health spending. Current defence spending is 4.8% of total spending. Just to stop the NHS from getting any worse, the government would need to find savings of 4.2% of TME by 2033–34: that would mean eliminating almost 90% of the defence budget. Spending more money to improve the NHS and meet pressures on social care would require even larger cuts. Reducing defence spending may also not be an option if the government is to meet its commitment to spend 2% of national income (around 5% of TME) on defence every year of this decade.¹⁵⁵

More generally, it looks like there is limited potential elsewhere for making cuts that could compensate for rises in health spending. Table 4.3 summarises how spending by function has evolved since 1978–79, both as a share of national income and in real terms after accounting for economy-wide changes in prices (expressed in 2018–19 prices). Changes in spending as a share of national income can come through changes in the level of cash spending (the numerator) and the level of GDP (the denominator). So, a fall in GDP during a recession means a given level of cash spending increases as a share of national income.

The table shows the same trends of increases in health spending, reductions in defence spending and largely stable education spending. Spending on health as a share of GDP increased steadily over the period, rising particularly quickly between 1996–97 and 2007–08, and increasing both in real terms and as a share of GDP between 2007–08 and 2016–17. Social security spending on pensioners and on non-pensioners increased in both real terms and as a share of GDP over the period, but the increase in spending on pensioners has been more pronounced since 2007–08. Long-term care spending doubled in real terms between 1996–97 and 2007–08, but fell between 2007–08 and 2016–17 both in real terms and as a share of national income. Spending on public order and safety ended the period much where it started as a share of national income, but fell by half a per cent of GDP between 2007–08 and 2016–17. Spending on defence, net debt interest, and housing and community amenities has fallen considerably since 1978–79.

Changes since 2007–08 are particularly relevant when thinking about the scope for further cuts. Amidst a wide-ranging austerity programme, health spending has been protected while many other areas have experienced considerable cuts in funding. Figure 4.6 shows the real-terms change in spending by function since 2007–08 in absolute terms.

¹⁵⁵ Source: Paragraph 1.84 of HM Treasury, *Summer Budget 2015*, <https://www.gov.uk/government/publications/summer-budget-2015>.

Table 4.3. Total spending and spending by function, as a percentage of national income and in £ billion (2018–19 prices)

		1978–79	1996–97	2007–08	2016–17
Total managed expenditure	% of GDP	41.5	35.4	39.0	38.9
	£ billion	374.9	482.6	730.9	798.6
Health	% of GDP	3.9	4.7	6.5	7.3
	£ billion	35.3	63.8	121.9	149.2
Education	% of GDP	4.9	4.1	5.1	4.4
	£ billion	44.5	56.3	94.9	90.2
Defence	% of GDP	4.0	2.4	2.2	1.9
	£ billion	36.1	32.9	40.6	38.3
Social security (pensioners)	% of GDP	5.0	5.2	5.5	6.1
	£ billion	45.0	71.6	102.9	125.6
Social security (working-age and children)	% of GDP	3.1	4.4	4.5	4.8
	£ billion	27.9	60.6	84.5	99.1
Public order and safety	% of GDP	1.4	1.8	2.0	1.5
	£ billion	12.2	24.4	38.2	31.1
Transport	% of GDP	1.5	1.0	1.3	1.5
	£ billion	13.5	14.2	24.8	30.6
Housing and community amenities	% of GDP	2.6	0.6	0.8	0.5
	£ billion	23.7	8.5	15.7	11.0
Overseas aid	% of GDP	0.4	0.2	0.3	0.7
	£ billion	3.9	3.1	6.4	14.4
Net debt interest	% of GDP	3.5	2.6	1.6	1.7
	£ billion	31.3	35.4	29.2	34.7
Long-term care	% of GDP	-	0.8	1.2	1.0
	£ billion	-	11.2	22.1	21.2

Source: Authors' calculations based on OBR Public Finances Databank (accessed February 2018), various HM Treasury Public Expenditure Statistical Analyses, DWP Benefit Expenditure Tables 2017, OBR Economic and Fiscal Outlook March 2018. Overseas Aid figure for 2016–17 is calculated based on the assumption that the government meets its target to spend 0.7% of GDP. Spending on long-term care excludes social services spending on families and children and spending on unemployment. Note that these spending functions do not align with the official Classifications of the Functions of Government (COFOG) used in HM Treasury PESA documents.

Box 4.1. The impact of cuts to social care since 2009–10

In England, Wales and Scotland, local authorities (LAs) are responsible for organising and funding adult social care. Since 2009–10, these LAs have faced sizeable cuts in their funding from central government, which have been made in such a way as to vary substantially in size across different councils.^{a,b} The resulting cuts to social care spending have had a range of consequences for local services and the care sector more widely.

Many LAs have responded to squeezed budgets by tightening eligibility criteria and concentrating care and support on those with the highest needs. As a result, over 400,000 fewer people accessed publicly funded social care in 2016–17 than in 2009–10.^c This is likely to have led to an increasing level of unmet care need and increasing reliance on informal care from (unpaid) friends and family. For those still receiving publicly funded care, there may well have been deterioration in the quality of care provided and a scaling-back of preventative services.^d The NHS has borne some of the cost of these cuts to social care, whether through a rise in emergency admissions or through an increased number of delayed discharges from hospital due to lack of available social care packages.^{e,f}

Funding constraints have also led to a reduction in the fees paid to care homes for state-funded residents: according to LaingBuisson, LAs reduced fee rates by a national average of over 6% between 2010–11 and 2016–17.^g Care providers also offer care services to individuals who are not receiving LA support (i.e. they are self-funding). To compensate for the cuts to LA fees, these self-funders are charged 41% more on average than those with their places funded by LAs.^h This has introduced a substantial degree of cross-subsidisation and threatens the sustainability of parts of the sector that rely more heavily on LA funding.

^a N. Amin Smith, D. Phillips, P. Simpson, D. Eiser and M. Trickey, *A Time of Revolution? British Local Government Finance in the 2010s*, IFS Report 121, 2016, <https://www.ifs.org.uk/publications/8705>.

^b D. Phillips and P. Simpson, *National Standards, Local Risks: The Geography of Local Authority Funded Social Care, 2009–10 to 2015–16*, IFS Report 128, 2017, <https://www.ifs.org.uk/publications/9122>.

^c Nuffield Trust, Health Foundation and King's Fund, *The Autumn Budget: Joint Statement on Health and Social Care*, 2017, <https://www.kingsfund.org.uk/publications/autumn-budget-2017>.

^d R. Humphries, R. Thorlby, H. Holder, P. Hall and A. Charles, *Social Care for Older People: Home Truths*, King's Fund, 2016, <https://www.kingsfund.org.uk/publications/social-care-older-people>.

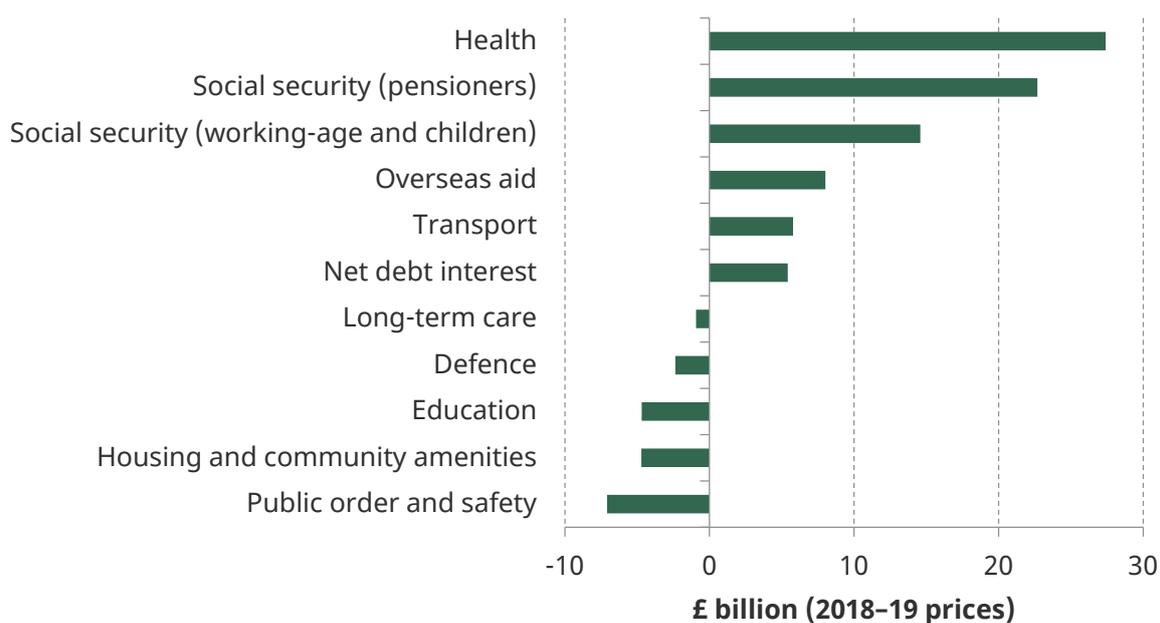
^e Communities and Local Government Committee, 'Oral evidence: adult social care, HC 47', Q258 and Q259,

<http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/communities-and-local-government-committee/adult-social-care/oral/44688.pdf>.

^f National Audit Office, 'Discharging older patients from hospital', 2016, <https://www.nao.org.uk/report/discharging-older-patients-from-hospital/>.

^g Cited by T. Jarrett, 'Social care: care home market – structure, issues, and cross-subsidisation (England)', House of Commons Library, Briefing Paper CBP-8003, 2018, <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-8003>.

^h Competition and Markets Authority, *Care Homes Market Study*, 2016, <https://www.gov.uk/cma-cases/care-homes-market-study>.

Figure 4.6. Real-terms absolute change in spending by function, 2007–08 to 2016–17

Source: Authors' calculations based on data in Table 4.3.

Real spending on health increased by more than £27 billion between 2007–08 and 2016–17, a rise of 22.5%. Half of this increase came between 2007–08 and 2009–10, and health spending increased at a historically low rate after 2010–11. Public spending in a number of other areas fell over this period. For example, spending on public order and safety fell by more than £7 billion (a real-terms cut of more than 18%) and spending on housing and community amenities fell by £4.7 billion (a cut of almost a third). We can also see that while the increase in spending on overseas aid was not insubstantial, it was dwarfed by the increases in spending on health and social security.

Notably, while spending on health continued to rise between 2007–08 and 2016–17, UK spending on long-term care remained flat. In England, public spending on adult social care fell by 8% in real terms between 2009–10 and 2016–17,¹⁵⁶ and the data suggest that the bulk of these cuts have fallen on those aged 65 and over.¹⁵⁷ In recent years, as the impact of these cuts has become clearer, the government has transferred some NHS funding to social care via the Better Care Fund. The impact of social care cuts is explored in more detail in Box 4.1.

What does this mean for the potential for further spending cuts elsewhere?

This analysis presents a number of challenges for any government seeking to fund increases in spending on health and long-term care by making cuts elsewhere.

The first is one of simple arithmetic. To increase spending on health and social care to the level required under the 'modernised NHS' scenario without increasing TME, spending on everything else would need to be cut by 10% by 2033–34. To find savings of that scale, the

¹⁵⁶ Source: P. Simpson, 'Public spending on adult social care in England', IFS Briefing Note BN200, 2018, <https://www.ifs.org.uk/uploads/publications/bns/BN200.pdf>.

¹⁵⁷ Source: D. Luchinskaya, P. Simpson and G. Stoye, 'UK health and social care spending', in C. Emmerson, P. Johnson and R. Joyce (eds), *The IFS Green Budget February 2017*, <https://www.ifs.org.uk/publications/8825>.

government would need to look to the larger budgets, such as those for education, defence and social security.

However, while social security is the largest area of government spending, more than half of the total goes to pensioners. Much of this spending is subject to similar demographic pressures to health as the older population grows. In its January 2017 Fiscal Sustainability Report, the OBR projected that spending on pensions would increase by 0.7% of GDP by 2033–34 as a result of demographic pressures.¹⁵⁸ That is equivalent to an extra £15 billion in today's terms that the government would need to find, *on top of* the extra money needed for health and social care. This is not to say that savings could not be found in spending on pensioners, but indicates how difficult it would be to reduce the overall total by any sizeable amount.

Finally, many areas of public spending have already experienced severe real-terms cuts since 2010. Finding further savings in areas such as public order and safety (which includes the Home Office and Ministry of Justice) or housing would be challenging. Even areas such as education and defence, which have been (to an extent) ring-fenced and protected from the brunt of the cuts, have suffered real-terms cuts. Health is not the only budget under strain. Further prioritising health at the expense of other areas is likely to have far-reaching consequences, particularly for the quality of other public services and the generosity of the welfare system. This is important both because reductions in the quality and quantity of other public services may have an impact on individuals' health and therefore NHS and social care spending, and because the public value services other than the NHS.

In short, over recent decades we have been able to increase and protect NHS spending without much change in the overall size of the state, first by taking a big 'defence dividend' and then by implementing significant cuts to a wider range of public spending. It is hard to see that there is much scope to continue to find extra money for health and social care in this way.

4.5 Raising revenues through the tax system

If the government decides it wishes to meet the expected pressures on health and social care, an alternative to reducing other areas of public spending is to raise taxes in order to fund a higher level of public spending.

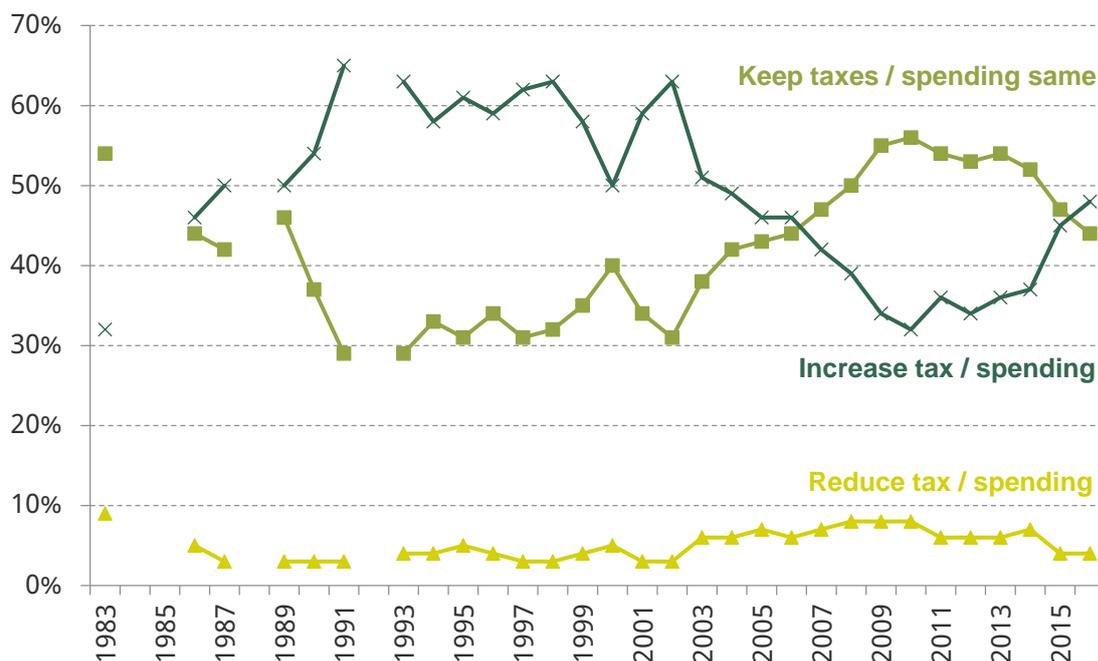
Public attitudes towards tax

There are signs that there is now an increased willingness from the public to pay more in tax. Each year, respondents to the British Social Attitudes Survey are asked whether they would like to 'keep taxes and spending the same', 'increase tax and spending' or 'reduce tax and spending'. Figure 4.7 shows that in the 1990s, support for raising taxes and spending often exceeded 60%. This followed a period of decreases in tax receipts as a share of GDP in the 1980s.¹⁵⁹

¹⁵⁸ Table 1.1 of supplementary data series, Office for Budget Responsibility, *Fiscal Sustainability Report: January 2017*.

¹⁵⁹ H. Miller and B. Roantree, 'Tax revenues: where does the money come from and what are the next government's challenges?', IFS Briefing Note BN198, 2017, <https://www.ifs.org.uk/publications/9178>.

Figure 4.7. Percentage of people reporting different preferences for tax and spending, 1983–2016



Source: British Social Attitudes Survey, <http://www.bsa.natcen.ac.uk/latest-report/british-social-attitudes-34/key-findings/context.aspx>.

Support for raising both taxes and spending fell sharply in the 2000s, reaching a low of 32% in 2010. This corresponds to a period when the Labour government spent more on public services through higher taxes and a period of high GDP growth. During the same period, there was a corresponding increase in the share of respondents who wanted to keep tax and spending the same. Since 2010, support for tax rises has risen, most sharply after 2014. In 2016, the share of respondents preferring tax and spending rises exceeded the share wanting to keep tax and spending the same for the first time since 2006. While the trend appears to be sharply upwards, it remains the case that support for additional tax and spending remains below its mid 1990s levels.

Since 2014, the British Social Attitudes Survey has asked respondents about how willing they would be to pay more for NHS service through increased taxes or user charges. The results are shown in Table 4.4.

In 2014, a total of 41% said they were prepared to pay more tax to fund NHS services, through either general taxation or a ring-fenced tax. By 2017, this had increased to 61%. The share prepared to accept user charges, either for non-medical costs in hospital and GP and A&E visits or by ending exemptions from existing charges, fell from 29% to 21%. However, because the question only allows respondents to choose one option, it is unclear whether this reflects a greater dislike for user charges or a greater tolerance of tax rises. The share who would not accept charges or tax rises fell from 27% to 15%, which is consistent with the public view that the NHS has a substantive funding problem.

At first sight, these trends in attitudes appear to suggest that there would be public support for increased taxation to fund the NHS. That said, there is a question over how big

Table 4.4. If the NHS needed more money, which of the following do you think you would be prepared to accept? (Single answer)

	2014	2015	2016	2017
Pay more through current taxes	17%	17%	21%	26%
Pay more through a separate tax that would go direct to the NHS	24%	24%	28%	35%
Pay for non-medical costs	12%	12%	11%	8%
Pay £10 for each visit to a GP or local A&E department	14%	15%	14%	11%
End exemptions from current charges	3%	3%	5%	2%
None of the above; NHS needs to live within budget	27%	26%	20%	15%
Don't know	3%	2%	1%	2%

Source: Figure 2 of King's Fund analysis of NatCen's British Social Attitudes Survey data, <https://www.kingsfund.org.uk/publications/does-public-see-tax-rises-answer-nhs-funding-pressures>.

an increase people would be prepared to pay. The tax rises that have been proposed in the past have been small, relative to the projected funding pressures over the next 15 years.¹⁶⁰ Moreover, it is unclear how respondents believed the burden should be distributed. Would they personally be prepared to pay more tax or should tax rates in general be raised?

How much does the UK raise in tax compared with other countries?

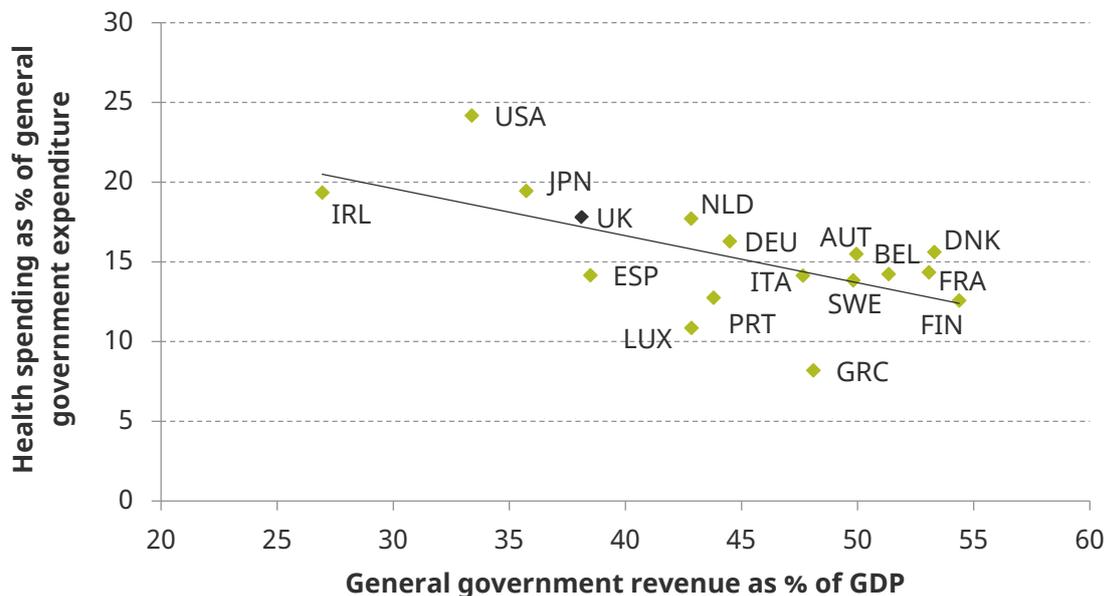
Figure 4.8 shows health spending as a share of general government expenditure plotted against general government revenue as a share of GDP, for EU-15 and G7 countries. At 38%, the UK is relatively low in terms of general government revenue as a share of GDP, between 5 and 15 percentage points lower than most EU-15 countries. However, tax as a share of GDP is high by historical standards in the UK, and we have experienced a net tax rise of 1.5% of national income since 2008.¹⁶¹ The UK share of government spending on health is relatively high at 17.8% in 2014–15 (the year shown in the figure).

The trend line in Figure 4.8 slopes downwards, suggesting that countries that have higher general government revenue spend a lower share of that revenue on health. Many of these high-revenue countries, such as Denmark or France, also spend more as a share of GDP on health. This suggests that higher levels of health spending in most other comparable EU countries reflect higher levels of overall government spending on all services, rather than differences in the prioritisation of health. If the UK spent the same share of government revenue on health as Denmark or France, but kept overall

¹⁶⁰ For example, the Liberal Democrats proposed in their 2017 manifesto to put 1p on income tax. Adding 1p to all rates of income tax would raise an estimated £4.9 billion in 2018–19.

¹⁶¹ Source: T. Pope, 'Spring Statement 2018: the lost decade', presentation at IFS briefing on Spring Statement 2018, <https://www.ifs.org.uk/uploads/Spring%20Statement%202018%20-%20Tom%20Pope.pdf>.

Figure 4.8. The relationship between general government revenue as a percentage of GDP and health spending as a percentage of general government revenue, EU-15 and G7 (2015)



Note: Data for Canada were not available.

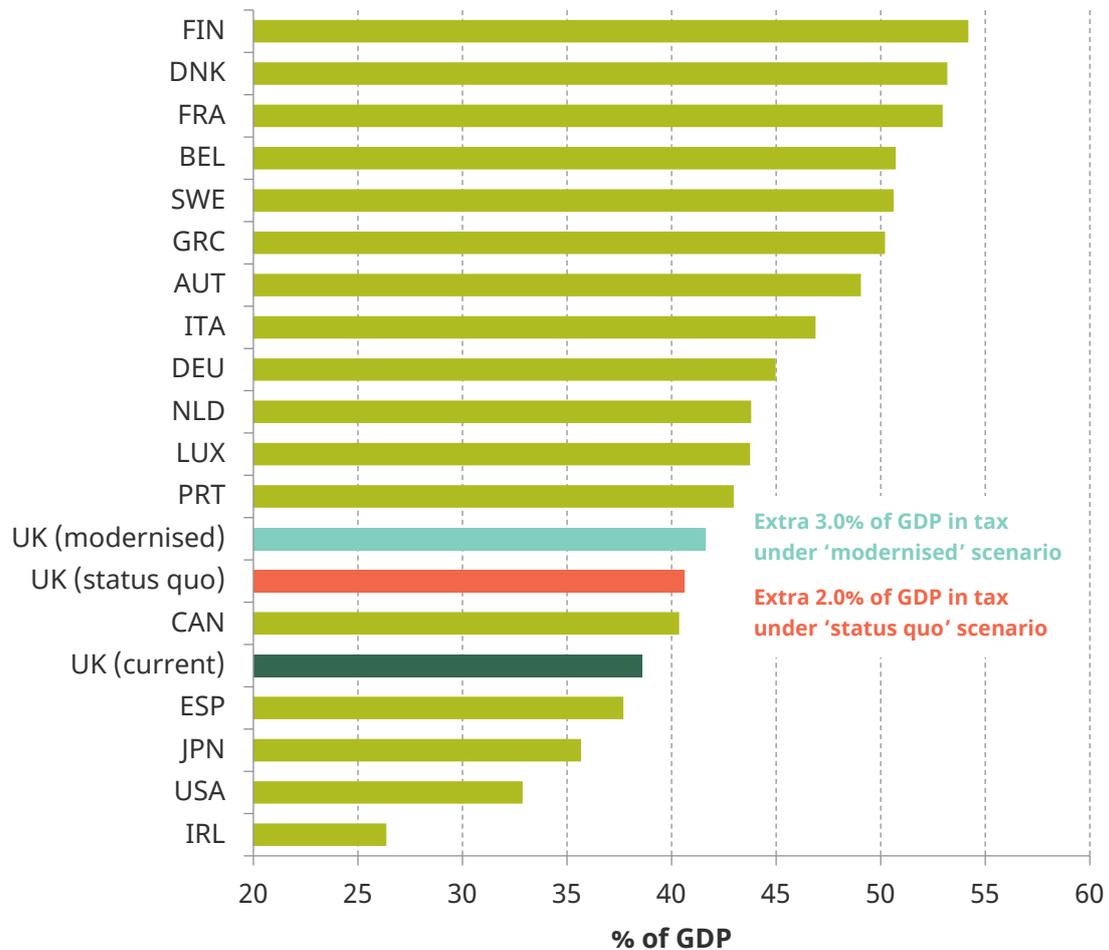
Source: OECD ('General government revenue', <https://data.oecd.org/gga/general-government-revenue.htm>; 'Health as a share of expenditure', *Government at a Glance 2015*, <http://dx.doi.org/10.1787/888933534784>).

government revenue as a share of GDP constant, UK public spending on health as a share of GDP would fall. Conversely, if the UK raised government revenue as a share of GDP to the levels of Denmark or France, but kept the share of that spending that went on health constant, public spending on health as a share of GDP would rise.

It is interesting to note that health spending as a share of government expenditure increased in the majority of countries between 2007 and 2015.¹⁶²

If the government chose to raise taxes by the amount required to meet the pressures on health and social care, how would the UK tax take compare with those of other countries? Figure 4.9 shows how the UK compares internationally in terms of general government revenue as a share of GDP, and how it would compare if it met all pressures through additional tax under the 'status quo' scenario (extra 2.0% of GDP) and the 'modernised' scenario (extra 3.0% of GDP). The figure shows that if the UK were to raise an extra 3.0% of GDP in tax, it would move further from the USA and closer to the European average, but would still raise less in tax than countries such as France, Germany and the Netherlands. What this suggests is that it is quite possible to run an effective economy with higher levels of tax than we have in the UK. Of course, there are economically better and worse ways of doing this. And what is politically acceptable elsewhere may not be so in the UK.

¹⁶² The exceptions are southern European countries, including Greece, Italy, Portugal and Spain, where there have been particularly large increases in the share of spending accounted for by social protection as a result of the Great Recession (table 2.33 of OECD, *Government at a Glance 2017*, http://dx.doi.org/10.1787/gov_glance-2017-en).

Figure 4.9. General government revenue as a percentage of GDP, EU-15 and G7 (2016)

Source: OECD, 'General government revenue', <https://data.oecd.org/gga/general-government-revenue.htm>. Note that this figure uses a different measure of the UK tax burden from that used elsewhere in the report, where OBR figures for National Accounts taxes and GDP are used.

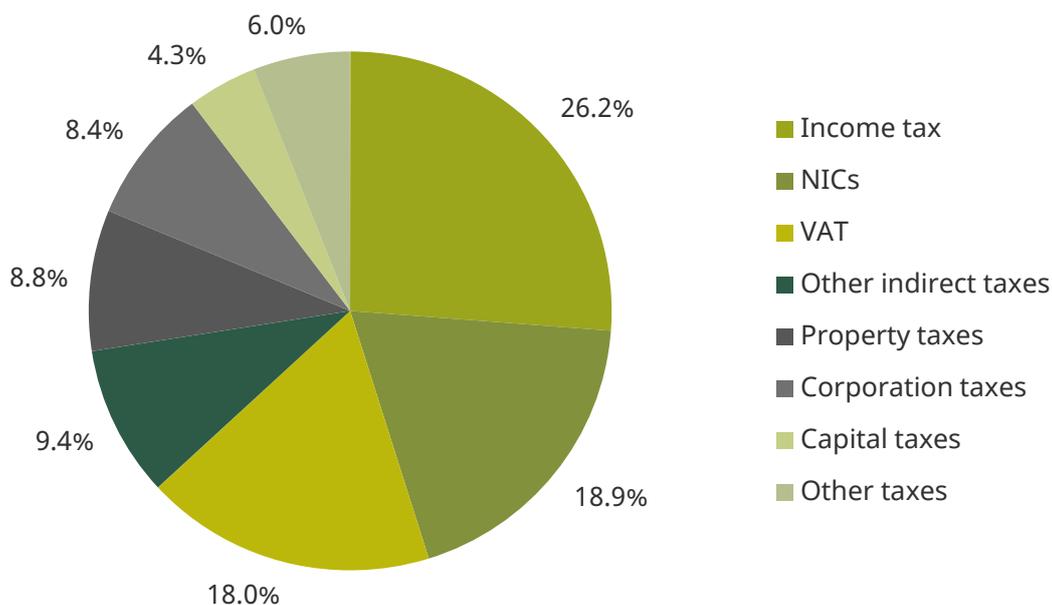
How could more tax revenue be raised?

Figure 4.10 shows the current make-up of total UK tax revenue by source. Nearly two-thirds (63.1%) of tax revenue is raised by the three largest taxes – income tax, National Insurance contributions (NICs) and VAT. Indirect taxes other than VAT, such as fuel duties and alcohol taxation, raise a further 9.4%, with property taxation and corporation taxation accounting for 8–9% each.

If the government decided that more money should be raised through taxes, there are at least three factors that it would need to consider when selecting which taxes to raise and by how much:

- *the amount to be raised*: if the sums involved are large, using taxes that raise relatively little money, or that are paid by relatively few individuals or firms, would require larger increases to generate the required revenue;
- *who pays the tax*: most governments have distributional goals, in terms of the income or other characteristics of taxpayers who would bear the burden of increased taxation;

Figure 4.10. Breakdown of UK tax revenues as a percentage of total taxation, 2017–18



Note: Total taxation is defined here as National Accounts taxes, which excludes non-tax public sector receipts.

Source: Authors’ calculations based on OBR Public Finances Databank. Total taxation is defined here as National Accounts Taxes, which excludes non-tax public sector receipts.

- possible distortions and disincentive effects*: almost all taxes generate potential distortions to behaviour. Taxes on earnings, such as income tax and NICs, create disincentives to work. Taxes on goods can distort the choices of consumers. An efficient tax system minimises the cost of these distortions for any given revenue requirement.

The remainder of this section starts by considering the estimated amounts that could be raised from the three big taxes, which constitute almost two-thirds of revenue. We then consider other potential changes, including reversing tax cuts since 2010, several of the tax changes that were proposed in the 2017 Labour party manifesto to raise money, and taxes that could be changed to improve the efficiency of the tax system.

We then consider three issues that have received high levels of public and political attention: raising money from advantaged groups, raising money from older people, and a hypothecated tax to pay for the NHS.

The three big taxes: income tax, NICs and VAT

Given the scale of the funding requirements outlined in Chapter 3, if the government wished to raise more in tax the obvious place to start is with the three main taxes – income tax, NICs and VAT.

Table 4.5 shows the estimated amount that the government could raise through increasing each of the three taxes. Raising all rates of income tax by 1p would raise an estimated £4.9 billion. The majority of this increase in revenue comes from raising the basic rate, which would yield around £4 billion. Raising the higher and additional rates by 1p would raise £0.8 billion and £0.1 billion, respectively. Alternatively, the government could reverse some of the recent increases to the personal tax-free allowance (PA), as this

Table 4.5. Summary of estimated revenue yield from possible reforms to income tax, NICs and VAT

	Revenue yield (2018–19)
Income tax	
- Increase basic rate by 1p	£4.0 billion
- Increase higher rate by 1p	£0.8 billion
- Increase additional rate by 1p	£0.1 billion
- Decrease personal allowance by £1,000 ^a	£5.8 billion
- Decrease basic-rate limit by £1,000 ^b	£0.4 billion
National Insurance contributions (NICs)	
- Increase main employee and self-employed NICs rates by 1p	£4.3 billion
- Increase employer NICs rate by 1p	£5.6 billion
- Increase additional NICs rates by 1p	£1.1 billion
Value added tax (VAT)	
- Increase main VAT rate by 1p	£6.0 billion

^a The personal allowance is the amount of income that individuals can earn without paying income tax. In 2018–19, this is set at £11,850.

^b The basic-rate limit is the amount of income above the personal tax allowance that is charged at the basic rate. In 2018–19, the basic-rate limit is £34,500, meaning that all income between £11,851 and £46,350 is taxed at a rate of 20%. Note that income tax bands are different in Scotland. This figure assumes that the upper earnings limit is reduced in line with the basic-rate limit.

Source: HMRC, 'Direct effects of illustrative tax changes', January 2018, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/680941/AB17_Direct_effects_of_illustrative_tax_changes_bulletin_Final.pdf.

would reduce the amount of income that people do not have to pay tax on. Decreasing the PA by £1,000 (from a starting point of £11,850 in 2018–19) would raise around £5.8 billion. Decreasing the basic-rate limit (BRL) by £1,000 (reducing the threshold at which income becomes subject to 40% income tax from £46,350 to £45,350) would raise £0.4 billion.¹⁶³ Reducing both the PA and the BRL by £1,000 would therefore raise around £6.2 billion.

Despite common belief, the revenues from NICs are not earmarked and instead contribute to general government revenues in the same way as income tax. Increasing the main rates of employee and self-employed NICs, along with the employer rate of NICs, by 1p would raise roughly £9.9 billion. Increasing the additional rate of NICs by 1p would raise a further £1.1 billion.

Increasing the main VAT rate by 1p would raise approximately £6 billion in additional revenue. Alternatively, the government could raise more money from VAT by widening the tax base, i.e. the set of goods on which VAT is charged. A range of goods are zero rated, which means that no VAT is charged on their final sale and that any VAT paid on inputs to the final product or service can be reclaimed. This includes food (worth £18.1 billion in 2017–18), the construction of new dwellings (£13.7 billion), domestic passenger transport

¹⁶³ This assumes that the upper earnings limit (UEL, the threshold at which the employee NICs rate drops from 12% to 2%) moves together with the BRL.

(£5.1 billion), books, newspapers and magazines (£1.7 billion), and children’s clothes (£2.0 billion).¹⁶⁴ In addition, VAT is paid on domestic fuel and power at a reduced rate, at an estimated cost of £4.7 billion in 2017–18.

Applying VAT to all goods at the standard rate would raise substantial sums and remove the distortions to consumption decisions, but is likely to prove unpopular as poorer households would see a larger loss as a proportion of disposable income. However, the Mirrlees Review illustrated how a move to uniform VAT rates could be packaged with other compensatory reforms in such a way as to leave the poor better off and – importantly – lead to a net increase in tax revenue.¹⁶⁵ It would be possible to improve the progressivity and efficiency of the tax system, and raise tax revenue in the process.

In addition to zero and reduced rates of VAT, some goods and services are VAT exempt. This means that no VAT is charged on the final product or service, but the firm or organisation cannot reclaim VAT charged on the final product or service. Examples include finance and insurance, rent on domestic dwellings, education and health services. This is typically because there is no transparent price for the final good or service in question. Most education and health is free at the point of use, and most financial firms make money from interest rate spreads rather than a specific charge for a service. However, VAT exemption can cause distortions in production decisions, as inputs produced in-house are exempt from VAT but VAT would be payable on the same inputs sourced elsewhere. The largest exempt category is financial services, where the estimated revenue loss is £11.1 billion (though this estimate is subject to considerable uncertainty).¹⁶⁶

Table 4.6. Minimum required tax changes to meet pressures on health and social care by 2023–24 in the status quo scenario

	Required change to raise £23 billion (2018–19)
Broad-based taxes on income and spending	
- Increase in all rates of income tax	5p
- Decrease in personal allowance and basic-rate limit	£3,900
- Increase in all employee and self-employed NICs rates	4.5p
- Increase in employer NICs rate	4.5p
- Increase in main VAT rate	4p

Source: Authors’ calculations based on spending projections in Chapter 3 and HMRC, ‘Direct effects of illustrative tax changes’, January 2018, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/680941/AB17_Direct_effects_of_illustrative_tax_changes_bulletin_Final.pdf.

¹⁶⁴ Source: HMRC, ‘Estimated costs of principal tax reliefs’, December 2017, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/675345/Dec_17_Main_Reliefs_Final.pdf. Note that these figures are expressed in 2018–19 prices using March 2018 GDP deflators.

¹⁶⁵ See pages 301–303 of I. Crawford, M. Keen and S. Smith, ‘Value added tax and excises’, in J. Mirrlees et al. (eds), *The Mirrlees Review: Dimensions of Tax Design*, Oxford University Press for IFS, 2010, <https://www.ifs.org.uk/uploads/mirrleesreview/dimensions/ch4.pdf>.

¹⁶⁶ For a description of how VAT could be levied on financial services, see pages 306–309 of I. Crawford, M. Keen and S. Smith, ‘Value added tax and excises’, in J. Mirrlees et al. (eds), *The Mirrlees Review: Dimensions of Tax Design*, Oxford University Press for IFS, 2010, <https://www.ifs.org.uk/uploads/mirrleesreview/dimensions/ch4.pdf>.

Recall that in order to maintain the status quo in the face of demographic and cost pressures (i.e. maintain 2018 levels of performance) and meet pressures on social care, we would need to raise an additional 1.1% of GDP by 2023–24, equivalent to £23 billion in 2018–19. To illustrate the magnitude of the changes required, Table 4.6 shows how much each tax rate or threshold would need to change by 2023–24 to raise that amount if the required revenue were raised from that tax alone. These can be thought of as the minimum changes required to avoid deterioration in the range and quality of services provided.

For each of the three taxes, rates at all levels would need to rise by 4–5p by 2023–24 to raise the revenue from that tax alone. In the case of income tax, a 5p increase would mean an additional tax payment of £48 per month for a worker on median earnings (£23,474) and £71 per month for a worker on average earnings (£29,009).¹⁶⁷ The personal allowance and basic-rate limit would both need to be reduced by almost £4,000 to generate £23 billion in today's prices.¹⁶⁸ The government could, of course, spread the burden across any combination of these taxes (or these and other taxes), and the changes could be made gradually over the next five years.

It is crucial to note that these are the estimated tax rises over the next five years that would be needed to keep the NHS in the state it is now. If the government wants to bring an end to missed waiting-time targets and annual winter crises, and to expand the quality and range of services on offer, even more money would be required. Under our modernised scenario, the government would need to raise an extra 1.5% of GDP by 2023–24, equivalent to £32 billion in 2018–19. A back-of-the-envelope calculation suggests that the scale of the tax rises would be roughly a third as large again (e.g. 6.5p on income tax or 6p on employer NICs). Thinking further ahead, under our modernised scenario, the government would need to find an additional £64 billion by 2033–34. The estimates above suggest that all rates of income tax would need to rise by 13p, or VAT by 10p, to raise that amount. However, the estimates in Table 4.5 (taken from the HMRC 'ready reckoner') are not designed to be accurate for tax changes of this magnitude and it would be inadvisable to scale up by that much. This is because the 'ready reckoners' do not take into account potential behavioural changes, which are more likely to accompany very large tax rises.

In short, the tax rises required to raise £64 billion in today's terms are substantial. Such increases could be spread across multiple taxes, and made gradually over time, but taxes would need to be considerably higher by 2033–34 to plug the funding gap. The scale of the additional revenue required means that relying on small taxes or an extremely narrow group of taxpayers is not a viable option.

Distributional impact of increases in income tax, NICs and VAT

In addition to the amount that each tax would raise in revenue, the government may also wish to consider the distributional impact of any tax changes. Figure 4.11 shows the impact of a 1 percentage point rise in each of these three taxes, by household income decile (where households are divided into 10 equally sized groups based on income).

¹⁶⁷ Median and average earnings are for 2017. Source: Table 1.7a (annual gross pay for all employee jobs) of Annual Survey of Hours and Earnings, <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/datasets/all-employeesashetable1>.

¹⁶⁸ This assumes that the UEL is lowered in line with the basic-rate limit, which would cost the exchequer around £300 million in 2018–19 for each £1,000 reduction.

Figure 4.11. Distributional impact of a 1 percentage point increase in all rates of income tax, all rates of employee and self-employed NICs, and the main rate of VAT, 2017-18



Source: Authors’ calculations using Family Resources Survey, 2015-16, and TAXBEN, the IFS tax and benefit microsimulation model.

An increase in income tax is the most *progressive* of the three – in other words, those with the highest incomes would pay the greatest proportion of their income extra in tax. In 2017-18, the first £11,500 of income was exempt from income tax, and a quarter of households did not contain any individuals who earned enough to pay any income tax.^{169,170} These households would therefore not pay any more tax if income tax rates rose. Of those households that do contain an income tax payer, those with higher incomes would lose a larger share of their income, because a higher share falls above the tax-exempt threshold and because a higher tax rate applies for those earning over £45,000.¹⁷¹ A 1p rise in all rates of income tax would mean the poorest decile group losing 0.02% of its income, rising to 1.2% for the top decile.

¹⁶⁹ T. Pope and T. Waters, ‘A survey of the UK tax system’, IFS Briefing Note BN09, 2016, <https://www.ifs.org.uk/bns/bn09.pdf>.

¹⁷⁰ As deciles are defined at the household level, those in lower income deciles may still be paying income tax.

¹⁷¹ HM Government, ‘Tax and tax credit rates and thresholds for 2017-18’, Policy Paper, 2016, <https://www.gov.uk/government/publications/tax-and-tax-credit-rates-and-thresholds-for-2017-18/tax-and-tax-credit-rates-and-thresholds-for-2017-18>.

Increasing NICs has a similar distributional effect, but is slightly less progressive than increasing income tax. This is, first, because only the first £157 per week is free of NICs. This is lower than the income tax exemption over the course of 52 weeks of the year (£8,164), and means that NICs may be payable on temporary work that leads to income above the weekly NICs threshold, even if annual earnings are low. Second, NICs are levied on employment income and not other income sources – in particular, savings income, which is disproportionately found in the top half of the income distribution. The result is that a 1p increase in all rates of employee and self-employed NICs would reduce the income of the bottom decile by 0.04% but the income of the top decile by 0.96%. A NICs rise may also generate debate about the generational distribution of tax rises. Not only are NICs only payable on employment income, but employees cease to pay NICs when they reach the state pension age. This means that the burden of increased NICs falls solely on individuals of working age.

VAT rises look regressive as a percentage of income: the bottom decile would lose 0.82% of its income from a 1p rise in the main VAT rate, compared with 0.64% for the population as a whole. However, this impression is misleading, as it mainly arises because, at a given point in time, low-income households typically spend more relative to their income. This is because these very low-income households are often experiencing temporary drops in income, and are either borrowing or running down savings to maintain their expenditure at a level which reflects their lifetime resources. For example, students have temporarily low incomes and relatively high consumption, but would expect to have much higher earnings in future.

We can get a clearer picture of the distributional impact of VAT by considering the burden as a share of expenditure, which should more closely reflect lifetime resources. On this measure, VAT looks slightly progressive, with the impact of a 1p increase rising from 0.59% of expenditure for the lowest expenditure decile to 0.67% for the highest expenditure decile. This is because poorer households spend a larger share of their income on zero- or reduced-rate VAT goods, principally food. However, a rise in VAT is much less progressive than either increases in income tax or increases in NICs.

The higher share spent by poorer households on zero- or reduced-rated goods (such as food, children's clothing and fuel) means that imposing the standard VAT rate on them would be regressive in proportional terms. However, it is important to note that, in absolute terms, richer households spend far more on reduced- or zero-rated goods than poorer households, and therefore benefit more in cash terms from the lower rates. The structure of VAT is therefore not an effective way of redistributing income to poorer households. Applying VAT to children's clothing and distributing the proceeds uniformly across households with children would be more progressive than zero-rating children's clothes.¹⁷² More progressive still would be to use the proceeds to increase child benefit, which richer households are not eligible for.

We can also examine the distributional impact of changes to tax allowances and thresholds. Figure 4.12 illustrates the impact across income deciles of a £1,000 reduction in the personal allowance (PA) and a £1,000 reduction in the PA, basic-rate limit (BRL) and

¹⁷² T. Crossley, D. Phillips and M. Wakefield, 'Value added tax', in R. Chote, C. Emmerson, D. Miles and J. Shaw (eds), *The IFS Green Budget: January 2009*, <https://www.ifs.org.uk/budgets/gb2009/09chap10.pdf>.

Figure 4.12. Distributional impact of a £1,000 reduction in the personal allowance, basic-rate limit and upper earnings limit, 2017–18



Source: Authors’ calculations using Family Resources Survey, 2015–16, and TAXBEN, the IFS tax and benefit microsimulation model.

upper earnings limit (UEL). Reducing just the PA would raise an estimated £5.8 billion, while reducing all three would raise around £6.2 billion (after accounting for the £0.3 billion revenue loss from the reduction in the UEL).

Reducing the personal allowance is less progressive than changes to the rates of income tax or NICs. The poorest decile is the least affected (losing 0.14% of net income), but the losses are concentrated in the middle of the income distribution rather than at the very top. Reducing the BRL and UEL as well as the PA is more progressive, as the additional change affects only those in the top half of the income distribution, but households in the fifth and sixth deciles would still lose the most from such a change.

The richest would lose most in cash terms from a reduction in the PA, BRL and UEL. But they would lose less as a percentage of net income than those in the third decile. This is because the PA starts to be withdrawn from individuals earning over £100,000, and those earning more than £123,700 in 2018–19 (or £123,000 in 2017–18) have a personal allowance of zero. These extremely high-income individuals are therefore unaffected by a reduction in the personal allowance.

Incentives and distortions

Raising any of the three main taxes, either through increased rates, reduced thresholds or reduced exemptions, would weaken work incentives, reducing the reward for working in terms of the amount of goods and services that additional earnings can purchase after

tax. A rise in NICs would typically be the most damaging to work incentives (per pound raised) as it would increase the difference in tax treatment of earned versus unearned income (dividends, pensions etc.) and in tax rates paid by employees and others. A rise in income tax is also expected to weaken work incentives, but only applies to income above the basic-rate threshold. An increase in VAT reduces the actual goods and services individuals can purchase with their wages, reducing incentives to work. However, as VAT would reduce the value of out-of-work incomes as well as in-work incomes, the relative attractiveness of working would not be reduced as much as by an increase in income tax or NICs raising a similar amount of revenue.

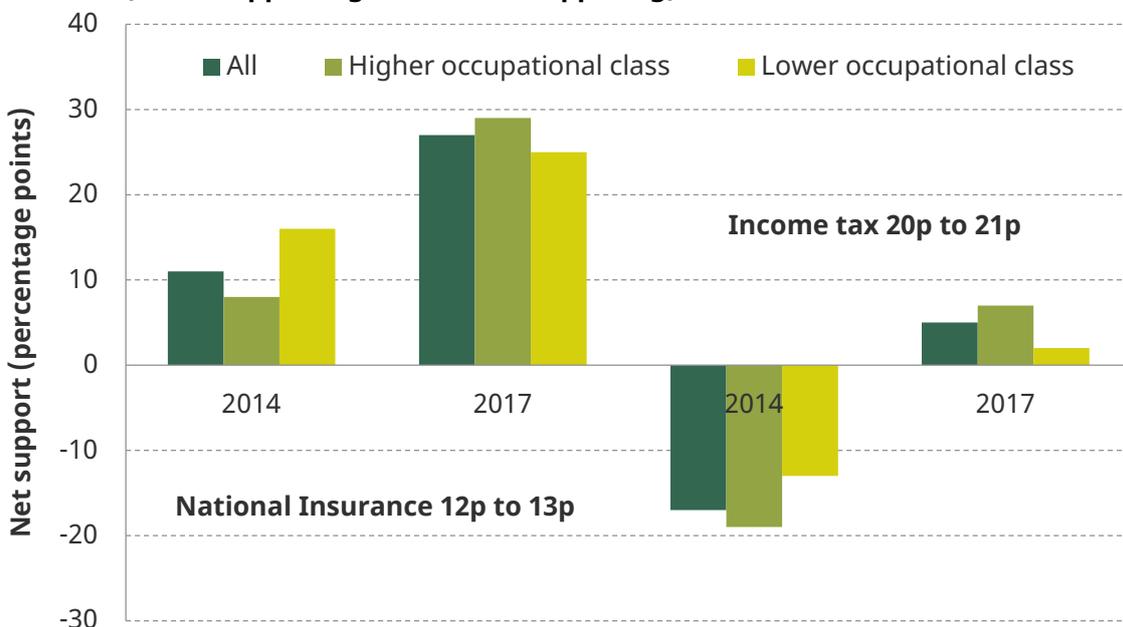
Public preferences on tax rises

In addition to the relative economic merits of raising each tax, it is also important to take public opinion into account.

When polled, the electorate tend to prefer increases in NICs to increases in income tax for funding additional NHS spending. In 2014 and 2017, YouGov polls asked respondents whether they supported or opposed a 1p increase in NICs and a 1p increase in income tax to raise money for the NHS. Figure 4.13 shows net support (percentage supporting minus percentage opposing) by year and by socio-economic classification.

The figure reveals two important features. First, in both 2014 and 2017, there is more support for an increase in NICs than for an increase in income tax. One possibility is that the public still regard the tax as contributory social insurance, where individuals would

Figure 4.13. Net support for National Insurance and income tax increases to pay for the NHS (share supporting minus share opposing)



Note: 'Higher occupational class' has social status classification ABC1. 'Lower occupational class' has social status classification C2DE.

Source: YouGov, 2014, https://d25d2506sfb94s.cloudfront.net/cumulus_uploads/document/katz91y88e/YG-Archive-140422-TheTimes.pdf; YouGov, 2017, <https://yougov.co.uk/news/2017/01/12/majority-people-would-support-raising-national-ins/>.

later benefit from earlier payments, rather than an additional payroll tax. The lower NICs rate of 12p, versus 20p for income tax, may play some role. It is notable that those over 60 show a particularly strong preference for increasing NICs (net 54 points). Most of this group would not be directly affected by an increase in NICs, as employees cease to pay NICs when they reach state pension age. However, older people also have high levels of net support for income tax rises (32 points), which many do pay.¹⁷³

Second, there was an increase in support for both tax rises between 2014 and 2017, with net support for both increases in 2017. The largest shift in attitudes has been by those in higher occupational classes.¹⁷⁴ In 2014, this group were less likely to support NICs rises and more likely to oppose income tax rises than those of lower occupational classes.¹⁷⁵ By 2017, those of higher occupational classes were more likely to support tax rises than those of lower classes.

There is net support for NICs rises across all age groups and irrespective of the party an individual voted for in the 2015 general election. There is net support for income tax rises among those who voted Labour or Liberal Democrat in 2015 and among those aged over 40.

Other tax options

Although the three main taxes are likely to form the starting point for a government that wishes to increase tax revenue, there is scope for the government to look at other existing taxes and the reversal of recent tax cuts.

Reversing recent tax cuts

Although we have experienced a net tax rise since 2008, there have been a number of tax giveaways that could be reversed by a government seeking to increase revenue. Of particular note are the above-inflation increases in the personal allowance. The previous subsection discussed the scope for raising revenue through reductions in the PA and the distributional impact of doing so. Such a reduction would reverse some of the large increases in the PA made since 2010. The personal tax allowance is £11,850 in 2018–19, whereas had it been uprated in line with the Consumer Prices Index (CPI) since 2010 (the default) it would be £7,750. This policy, combined with changes to the higher-rate threshold, has been expensive, representing a net tax giveaway of £12 billion in 2017–18.¹⁷⁶ Reversing these increases might be politically difficult, and in any case the Conservative government has pledged to increase the PA to £12,500 by 2020. Nonetheless, reversing the increases in income tax thresholds – or at the very least bringing an end to above-inflation increases – would be one way of raising extra revenue for the exchequer.

Embedded within the public finances is an assumption that fuel duties will be uprated each year in line with the Retail Prices Index (RPI). However, fuel duty has been frozen for the past eight years. Revenues in 2018–19 will be around £6.2 billion lower than they

¹⁷³ There is net support for both NICs (35 points) and income tax (13 points) rises among the 40–59 age group. Those aged 18–24 and 25–39 have net support for NICs rises but not for income tax increases.

¹⁷⁴ Social status classification ABC1.

¹⁷⁵ Social status classification C2DE.

¹⁷⁶ C. Emmerson and T. Pope, 'Autumn 2017 Budget: options for easing the squeeze', IFS Briefing Note BN135, 2017, <https://www.ifs.org.uk/uploads/publications/comms/BN135.pdf>.

would have been had duties risen in line with RPI each year, rather than being frozen.¹⁷⁷ It is unlikely that any government would want or be willing to raise duties by enough to reverse this. Instead, bringing an end to the annual ritual of announcing a one-year freeze, or perhaps moving to CPI indexation, might raise more revenue than is the case under the current state of affairs.

Finally, cuts to corporation tax have represented a major tax giveaway since 2010. For instance, cuts to corporate tax rates announced between 2010 and 2016 were estimated to have reduced revenues by around £16.5 billion in 2017–18.¹⁷⁸ Accounting for measures that raise revenue (including anti-avoidance measures), the cost is estimated to be £12.4 billion. There is scope to raise revenue by reversing some (or all) of these changes; this is discussed below in the context of the Labour party's 2017 manifesto proposals.

Labour manifesto proposals on corporation and income tax

The 2017 Labour manifesto proposed corporation tax rises from 19% in 2017–18 to 26% in 2020–21. This would reverse the cuts since 2010 and return rates to their 2011 level. HMRC estimates that a 1 percentage point increase in the corporation tax rate would raise £2.7 billion per year in 2020–21 (£2.6 billion in 2018–19 prices).¹⁷⁹ A back-of-the-envelope calculation therefore suggests that an increase from 19% to 26% would raise £18.6 billion per year in 2020–21 (£18.0 billion in 2018–19 prices). However, this is likely an overestimate of how much revenue would be raised in the medium to long term, because higher tax rates would lead to companies investing less in the UK.

Even at a rate of 26%, the UK would still have the lowest rate of corporation tax in the G7. The UK would, however, be less competitive overall, because we have a less competitive tax base than other countries, as a smaller share of capital expenditure can be deducted from revenues each year.

Finally, while it may seem attractive to place more of the tax burden on corporations rather than individuals, in reality all taxes are paid by people and corporation tax is no different. While the direct impact of a corporation tax rate rise would be to reduce returns to company owners (shareholders), evidence suggests that a significant share of the increased tax burden is passed on to workers through lower wages.

The manifesto also proposed an increase in income tax for people with taxable income exceeding £80,000 per year, with a new marginal rate of 45% starting at £80,000 and a new marginal rate of 50% starting at £123,000.¹⁸⁰ The tax revenue that the proposal would raise is highly uncertain: Labour expected to raise around £4.5 billion a year, but the policy

¹⁷⁷ Source: Authors' calculations based on IFS Autumn 2017 pre-Budget analysis, <https://www.ifs.org.uk/uploads/publications/comms/BN135.pdf> and table 2.1 of HMT Autumn Budget 2017, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/661480/autumn_budget_2017_web.pdf.

¹⁷⁸ H. Miller, 'What's been happening to corporation tax?', IFS Briefing Note BN206, 2017, <https://www.ifs.org.uk/publications/9207>.

¹⁷⁹ HMRC, 'Direct effects of illustrative tax changes', January 2018, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/680941/AB17_Direct_effects_of_illustrative_tax_changes_bulletin_Final.pdf.

¹⁸⁰ The proposals also retained the policy of withdrawing the personal allowance from those earning more than £100,000 which, combined with the increase in the headline rate from 40% to 45%, would mean a marginal tax rate of 67.5% for those earning between £100,000 and £123,700.

could raise more, or less, or nothing, depending on the size of the response from high-income individuals. The impact of the tax rise would be highly concentrated on those with the highest incomes, with about 1.3 million people affected – a relatively small group, but one that is already a very important source of revenue. A more detailed discussion of the proposals is available in IFS analysis published at the time of the election.¹⁸¹

Wider tax reform

Considering the tax system more widely, the government has a vast range of available options for tax reform. Detailed consideration of these options is beyond the scope of this report. The interested reader should look to the Mirrlees Review for comprehensive analysis of the UK tax system and a set of proposals for tax reform.¹⁸² For our purposes, the important thing to note is that there are a range of changes that the government could make to improve the efficiency of the tax system and potentially raise revenue in the process. No single one of those changes would be a panacea for the pressures on health and social care. But sensible reforms could increase people's welfare, improve the performance of the economy and, if designed appropriately, make a valuable contribution towards meeting the funding pressures described earlier in this report.

Taxing specific groups

If the government chooses to meet the pressures on health and social care through tax rises, it may also wish to achieve distributional objectives by designing tax changes to target particular groups. Two groups may be of particular interest. The first is those who are better off, who, it is sometimes argued, could afford to pay more tax. The second is people over the age of 65, who currently experience relatively generous treatment by the tax and benefit system, but are high users of health and social care.

Taxing the better off

The extent to which the tax and benefit system redistributes income is a political decision for governments and the public, which we take no stance on. However, both Labour and the Conservatives have expressed preferences for raising taxes from the 'well-off' and those with the 'broadest-shoulders'.¹⁸³ It is therefore likely that if taxes were increased to pay for additional NHS funding, the government in charge would be concerned about the distribution of the tax burden.

Before considering the options for raising tax from the 'better-off' or the 'rich', it is important to define who that group are. In particular, are individuals characterised based on their income or wealth? Those with high income and those with high wealth are distinct, albeit overlapping, groups. Also of crucial importance is how far up the income or wealth distribution the government wants to target. Are the better-off the top half of the income/wealth distribution, the top 10% or even just the top 1%?

Those with higher incomes already pay a high proportion of total tax revenues collected. For example, 28% of all income tax in 2017–18 was raised from the top 1% of income tax

¹⁸¹ S. Adam, A. Hood, R. Joyce and D. Phillips, 'Labour's proposed income tax rises for high-income individuals', IFS Briefing Note BN209, 2017, <https://www.ifs.org.uk/publications/9229>.

¹⁸² <https://www.ifs.org.uk/publications/mirrleesreview/>.

¹⁸³ The Labour party has a strong preference for raising more tax revenue from the rich, with the election manifesto of 2017 promising not to raise income tax on those earning less than £80,000.

payers, 59% from the top 10% and 90% from the top 50%.¹⁸⁴ As three-fifths of the adult population in the UK are income tax payers, this means that these contributions are coming from the top 0.57%, 5.7% and 28.5% of the population, respectively.¹⁸⁵ Increases in all rates of income tax, National Insurance contributions and, to a lesser extent, VAT would fall disproportionately on those in the top half of the income distribution.

The most obvious way to target a tax rise on the top 10% or higher is to increase the higher rate of income tax or the additional rate of NICs, which would concentrate losses on the top tenth of the income distribution.¹⁸⁶ However, focusing on these taxes, which are paid by relatively few tax payers, means tax rates would have to rise by more to generate a given amount of revenue. For example, assuming no behavioural changes, higher-rate income tax would need to increase by 5p to generate the same revenue as an additional 1p on the basic rate of income tax. This is likely to create greater disincentives to work.

Targeting higher-wealth individuals is much harder, and a specific wealth tax would have a number of economic and political disadvantages. For most households, their biggest source of wealth is their house, but housing taxation is not currently well structured. There are two ways in which housing is taxed. The first is through council tax, which is an annual charge levied by local authorities based on the value of the property. However, the current council tax system charges a lower percentage on high-value properties and tax rates are based on house values in 1991. This structure has no sensible justification. Council tax could be reformed in such a way as to make the system more efficient and raise more revenue from the rich. The second form of housing taxation is stamp duty, paid by buyers when properties are purchased. This is highly distortionary as it discourages people from moving. Increasing stamp duty is likely to increase this distortion further.

There are a number of smaller taxes that could be reformed to increase revenue while also improving the efficiency of the tax system. In particular, the forgiveness of capital gains tax (CGT) at death and the inheritance tax (IHT) reliefs for business assets, agricultural land and gifts made more than seven years before death are highly distortionary. The benefit of all of these reliefs falls disproportionately on the rich. The tax-free lump sum on private pensions is sizeable and badly targeted, and the NICs treatment of employer pension contributions looks unnecessarily generous. Reform in these areas could remove existing distortions and increase tax receipts by a considerable amount.

A detailed discussion of options for taxing the 'better-off' is provided in the IFS Green Budget 2013.¹⁸⁷

¹⁸⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/616440/Table_2.4.xlsx.

¹⁸⁵ There were 30.4 million taxpayers in the UK in 2016–17 (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/610456/Apr17_Numbertaxpayerstraders_bulletin_Final.pdf), while the number of individuals aged 16 and over in 2016 is projected to be 53.3 million (<https://www.nomisweb.co.uk>).

¹⁸⁶ Increasing either by 1p would mean an individual earning £50,000 per year would pay an additional £36.50 in tax per annum while those earning £100,000 per year would pay an additional £536.50.

¹⁸⁷ S. Adam, C. Emmerson and B. Roantree, 'Broad shoulders and tight belts: options for taxing the better-off', in C. Emmerson, P. Johnson and H. Miller (eds), *The IFS Green Budget: February 2013*, https://www.ifs.org.uk/budgets/gb2013/GB2013_Ch9.pdf.

Taxing older people

The Dilnot Commission¹⁸⁸ proposed a more generous system of state support for social care costs. The beneficiaries of such a reform would be pensioners with higher levels of income and/or assets. The Commission therefore proposed that if taxes were to rise to pay for increased generosity, the burden of those taxes should primarily fall on older people.

Older people are also likely to receive a disproportionate share of any increase in NHS spending, as they suffer higher rates of ill health. However, this does not necessarily imply that older people should shoulder the cost. The UK does not link access to the NHS to either annual or lifetime tax payments. On one hand, cohorts, on average, pay more in tax than they receive in healthcare when they are working and they receive more in healthcare than they pay in tax once retired. The younger generation would benefit from any increased health spending later in their own lives.

That said, the current generation of older people would be the main immediate beneficiaries of any increase in spending. They have also done particularly well economically, are likely to be better off than succeeding generations and have been relatively protected from many of the effects of the recent austerity programme.

Pensioners have seen their incomes increase more rapidly than the working population since 1997. Between 1997 and 2010, tax and benefit changes introduced by the Labour government favoured pensioners, particularly those on lower incomes. Since 2010, pensioners have been largely protected from the tax and benefit changes introduced as part of fiscal consolidation. They have also benefited, relative to younger generations, from house price changes and many have access to generous occupational pension schemes not available to younger cohorts. It is also worth saying that, as the population ages, having a tax system that raises more money from the older part of the population is likely to be more sustainable.

Were the government to want to raise money specifically from older voters, it would have a number of options:

- The winter fuel payment (WFP), free TV licences and free bus passes are not well targeted. Tax treatment means that they increase the post-tax income of the richest and the poorest by the same amount. Total spending on WFP is forecast to be £2.0 billion in 2017–18, with an additional £641 million on free television licences.¹⁸⁹ Restricting eligibility to those on pension credit would realise an additional £1.7 billion. Applying income tax to these benefits would raise much less, at £0.2 billion.¹⁹⁰
- Improving the taxation of housing, as discussed above, would tend to raise more money from those who currently own expensive properties – largely older generations. The Intergenerational Commission, convened by the Resolution Foundation, recently

¹⁸⁸ Commission on Funding of Care and Support, <http://webarchive.nationalarchives.gov.uk/20130221130239/http://dilnotcommission.dh.gov.uk/>.

¹⁸⁹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/675359/outturn-and-forecast-autumn-budget-2017.xlsx.

¹⁹⁰ Source: Calculations using TAXBEN, the IFS tax and benefit microsimulation model, and the Family Resources Survey 2015–16.

recommended replacing council tax by a progressive property tax with surcharges on second and empty properties.¹⁹¹ Such a change could eliminate a number of inefficiencies from the existing system and raise revenue from older generations.

- Pensioners currently pay no NICs on earned income, at an annual cost of approximately £1.1 billion.¹⁹² The Intergenerational Commission concluded that charging NICs on the earnings of workers over the state pension age would raise £0.9 billion in 2020 and be strongly progressive within the pensioner population.¹⁹³
- While it is probably desirable for the government to encourage individuals to save for a pension, the 25% tax-free lump sum that can be drawn down from a pension pot in retirement seems excessively generous. It would be hard to withdraw it completely from those who have made pension contributions in the expectation of benefiting from it, but reform could raise additional revenue.
- Changes to inheritance tax could raise additional resources. One particularly anomalous part of the current tax system is the way in which pension pots can be left free of tax. Charging capital gains tax at death would make the current tax system both more equitable and more efficient.

Between them, changes such as these could raise perhaps a small number of billions of pounds per year, make the tax system more efficient and equitable, and make it more sustainable in the face of an ageing population. Of course, none would be straightforward or popular, and certainly they would not be enough by themselves to meet the funding challenge.

Raising revenues through a hypothecated tax

The debate around whether the NHS should be funded through a separate or hypothecated tax has resurfaced this year, with supporters including the economist Richard Layard and a cross-party backbench coalition of Nick Boles, Liz Kendall and Norman Lamb. ‘Hypothecation’ simply means earmarking tax revenues for specific, identified purposes. As with any other tax, the amount raised would depend on the rate and how many people would be liable to pay. The main argument for hypothecation is that the public would be more willing to pay more tax if they felt sure that the money would go to health and social care. The additional funding required to meet estimated pressures does not change.

When speaking about a hypothecated health tax, people often have quite different things in mind. Broadly, there are two types. ‘Pure hypothecation’ would see total health spending set exactly at the revenue raised by a particular tax or set of taxes. The most obvious existing example of this type of hypothecation is the licence fee used to finance

¹⁹¹ Source: Resolution Foundation, *A New Generational Contract: The Final Report of the Intergenerational Commission*, 2018, <https://www.intergenccommission.org/publications/a-new-generational-contract-the-final-report-of-the-intergenerational-commission/>.

¹⁹² Source: HMRC, ‘Estimated costs of principal tax reliefs’, December 2017, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/675345/Dec_17_Main_Reliefs_Final.pdf.

¹⁹³ Source: Resolution Foundation, *A New Generational Contract: The Final Report of the Intergenerational Commission*, 2018, <https://www.intergenccommission.org/publications/a-new-generational-contract-the-final-report-of-the-intergenerational-commission/>.

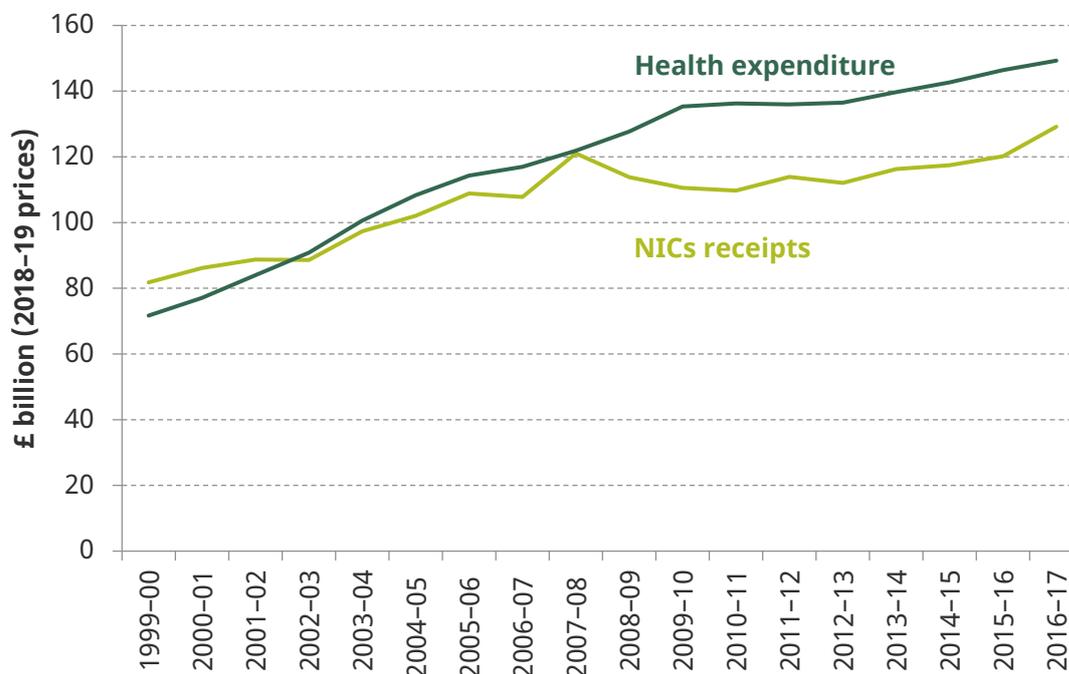
the BBC. Alternatively, we could design a system with ‘incremental hypothecation’, under which revenues raised from a health tax or taxes would be used to top up spending on health, with the remainder coming from general government expenditure. An example of this is net revenues from London’s congestion charge, which are spent on public transport in London.

Pure hypothecation of revenues in any one year to spending in the same year is almost certainly unsuited to the provision of healthcare. The revenue raised from taxes on income, earnings or spending would fluctuate with the business cycle. To illustrate this, Figure 4.14 shows NHS spending and National Insurance contributions from 1999–2000 to 2016–17.¹⁹⁴ As now, the NHS was funded by general taxation throughout this period.

Between 1999–2000 and 2007–08, health spending grew faster than NICs receipts, but the two were always within £10 billion of one another. In 2007–08, the two series were only £0.8 billion apart. However, the start of the Great Recession led the two series to diverge substantially, as NICs receipts declined and NHS spending continued to increase. In 2008–09, NHS spending was £13.9 billion greater than NICs receipts, a gap that was equal to 11% of the NHS budget. By 2009–10, NHS spending exceeded NICs receipts by £24.8 billion, a gap equal to 18% of the NHS budget and 22% of all NICs receipts in that year.

Under incremental hypothecation, funds raised are used to top up funds from general taxation. This means that spending is not as responsive to tax receipts as under pure

Figure 4.14. NICs receipts and health expenditure



Source: March 2018 GDP deflators, various PESAs and https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/682281/Jan18_Receipts_Table_Financial.xlsx.

¹⁹⁴ We use NICs in this example, as most proposals for hypothecation reference NICs or a reformed version of NICs. It would, in theory, be possible to hypothecate other types of tax.

hypothecation. However, the difficulty with this form of hypothecation is that it is impossible to verify that the government's promises have actually led to any changes in the allocation of spending. Priorities change and money may, over time, be reallocated to other areas. National Insurance contributions are, in theory, hypothecated to fund social security benefits and the NHS. However, the supposed hypothecation has never imposed any constraint on those budgets, in good times or bad.

The 1p increase in all rates of National Insurance announced by Gordon Brown in 2002 was done on the promise it would be used to boost health spending, but the resulting revenue was soon dwarfed by the overall increase in health costs that were financed through general tax revenues. In addition, the same Budget increased spending on tax credits and pension credit hugely; one could just as easily have said that the additional NICs revenue funded these items. A more recent example is the council tax Social Care Precept, with councils allowed to increase council tax by up to 3% in 2017–18 and 2018–19 to spend money on social care. Early evidence suggests that there has been an associated increase in adult social care spending. Whether this continues to be the case is less certain. This is because there is no way of verifying that additional funding would not otherwise have been allocated to adult social care from other sources, such as central government grants or the Better Care Fund.

Recent proposals on hypothecation have suggested ways of avoiding the funding volatility of pure hypothecation. For example, a proposal from the LSE economist Richard Layard has the following three features:¹⁹⁵

- At the beginning of each parliament, an independent body would advise on the level of NHS spending that would be needed to meet predicted pressures over the next five years. We consider this proposal in more detail in the 'Long-term planning ...' section below.
- The government would set the rate of a National Health Insurance Tax (NHI) to meet expected NHS spending, based on OBR growth forecasts. This NHI could be based on a revised form of National Insurance contributions, extended to cover the over-65s and income from sources other than employment.
- Health spending would be based on the spending plans set out at the beginning of parliament, not on the NHI revenue in a given year. Any debts (when NHI revenue was below planned spending) or surpluses (when NHI revenue exceeded health spending) would be assumed by the Treasury at the end of each five-year period.

A cross-party group of Nick Boles, Liz Kendall and Norman Lamb has outlined 10 principles of long-term funding for health and social care, which included a proposal for a similar system of hypothecation.¹⁹⁶ These proposals are a clear improvement on pure hypothecation. However, there are a number of problems, common to all proposals for hypothecation, that must be acknowledged and addressed.

¹⁹⁵ Source: R. Layard and J. Appleby, 'Head to head: is it time for a dedicated tax to fund the NHS?', *BMJ*, 2017, 356, j471.

¹⁹⁶ N. Boles, L. Kendall and N. Lamb, 'Ten principles of long-term funding for NHS and social care', 2018, <https://www.facebook.com/notes/nick-boles-mp/ten-principles-of-long-term-funding-for-nhs-and-social-care/1522885904504144/>.

How would shortfalls be addressed?

The recent example of the Great Recession shows that Richard Layard's proposal could result in a rapid accumulation of debt when the hypothecated tax revenues fall short, as illustrated clearly by Figure 4.14. The accumulated shortfall between NICs and health spending over the 2010–15 parliament would have amounted to an additional £111 billion of debt for the Treasury.¹⁹⁷ An alternative would be to increase NHI though the forecast period if shortfalls occurred. Covering the shortfall from 2010–11 would have required a

Box 4.2. Hypothecation and social insurance in other European countries

Many countries in Europe fund health insurance through social insurance models, with a smaller number of countries opting for forms of hypothecated tax. Each system has a different mechanism for addressing shortfalls during recessions.

For example, in Estonia, which operates a hypothecated tax system, the Great Recession led the revenues of the Estonian Health Insurance Fund to fall by 11% in 2009 and 5% in 2010. As the recession continued, the Fund's accumulated reserves were run down to compensate for the falls. This action was accompanied by increases in user charges, increased official waiting times and reductions in the generosity of benefits.^a

In Germany, which operates a social insurance system, falls in employment are partially compensated for by the federal government paying for insurance for those who are not working. In addition, competing social insurance funds are able to charge an additional (capped) premium to employees if revenues fall short. However, as the funds are competing, there is an incentive for them to avoid increasing charges in an effort to retain customers.^b

It is also important to remember that the issue of how money is raised is typically of secondary importance to how much is raised and who is liable for tax payments or insurance levies. In France, healthcare was traditionally funded through social insurance. However, since 1998, employee payroll contributions have been gradually phased out and replaced by a hypothecated tax – the 'general social contribution' (*contribution sociale généralisée*, CSG). Unlike the previous social insurance model, the CSG is placed on total income rather than just earned income. This change aimed to widen the revenue base. The rate depends on the level of earned income. Employers' contributions continue to be determined by gross income. Although this reform has taken France away from a social insurance system and towards a tax-funded system, the bigger change for the population is the alteration of the tax base, and therefore how much can be raised and from whom.

^a *Eurohealth – Quarterly of the European Observatory on Health Systems and Policies*, 2012, 18(1), http://www.lse.ac.uk/LSEHealthAndSocialCare/pdf/EuroHealth_V18n1_WEB_110412.pdf.

^b 'Identifying options for funding the NHS and social care in the UK: international evidence', 2018, Health Foundation Working Paper.

¹⁹⁷ This is calculated as the accumulated shortfall between (nominal) NICs receipts and health spending between 2010–11 and 2014–15.

3p increase in both employee and employer NICs.¹⁹⁸ However, such an increase would have further depressed living standards and the labour market in the aftermath of a severe economic downturn. Whether such a move would have been economically or politically feasible is open to question. It is also possible that an unforeseen health shock (such as a major flu pandemic) could necessitate a large increase in spending, which hypothecated tax receipts may not be able to cover.

In theory, variation in the funds available from year to year due to wider economic conditions could be smoothed through a system of top-ups and reductions. This would complicate the system, however, and obscure the link between tax revenues and spending on health. Box 4.2 gives more details on how shortfalls in spending have been addressed in other European countries that operate hypothecated taxes or social insurance.

Tying health spending to a particular tax could make raising tax more costly

Spending on health is expected to rise as a fraction of national income. So any tax hypothecated to health would need to rise over time. Where significant increases are required, we might want a broader tax base than a single tax. At the very least, we would want to be confident that any tax hypothecated to paying for health could be increased without causing much more economic harm than would be caused by alternative methods of raising tax. One problem with a National-Insurance-type tax on earnings is that it would increase the differences between the taxation of earned and unearned income, increasing incentives to incorporate for example. This is in fact an economically serious issue and could lead to significant tax-incentivised behavioural change as well as unfairness between employees and others. If the hypothecated tax were not charged on pension income, then it would also exacerbate intergenerational inequalities.

What does hypothecation mean for devolution, and vice versa?

Devolution introduces additional complications for a hypothecated tax. Current NHS funding comes from UK taxation. The devolved administrations in Scotland, Wales and Northern Ireland are allocated a block grant based on the Barnett formula. They can then make their own decisions about how much to spend on the NHS.

Under the current system, an NHS hypothecated tax could be implemented in two ways. A hypothecated tax could be applied to a UK-wide tax, such as National Insurance. However, under pure hypothecation, this would mean fixing health spending in the devolved administration to a tax set at the UK level. This could remove the power devolved administrations have over their single biggest item of expenditure. Alternatively, administrations could choose how to spend the funds they were allocated from the hypothecated tax, but this would move away from the objective of introducing the tax. Nick Boles has suggested separate National Health Funds should be established in England, Scotland, Wales and Northern Ireland with the proceeds of a UK tax based on some form of needs-based formula.¹⁹⁹ The question is, however, whether any devolved administration could choose to raise more for health. They could, of course, top up spending from other revenues, but again this would weaken the link between health spending and the hypothecated tax.

¹⁹⁸ Source: Authors' calculations based on HM Treasury and HM Revenue & Customs, 'Tax ready reckoner and tax reliefs', December 2009.

¹⁹⁹ N. Boles, 'Square deal on the NHS', 2018, <https://www.nickboles.co.uk/news/square-deal-nhs>.

The alternative is that each country within the UK could have its own hypothecated tax, and these could potentially be set at different levels. This, however, would require substantially higher tax rates in Wales and Northern Ireland than in the rest of the UK because they have a lower tax base. This does not seem like a plausible option.

Ultimately, it would probably be possible to implement some form of hypothecated tax within the devolved structure of the UK. However, any model would have to trade off the extent to which health spending was hypothecated (the strength of the link between the revenues of a hypothecated tax and health spending), the discretion that devolved administrations have over how much they spend on health, and fiscal equalisation, where tax revenues are smoothed across the nations of the UK.

Long-term planning for health and social care spending

One feature of many proposals to introduce a hypothecated tax is to introduce an independent body to assess pressures on health and social care and to provide evidence on the level at which the tax rate might need to be set to meet those pressures. Such proposals often also feature methods to ensure that funding is set for a period of years in order to provide certainty and aid planning. However, it is important to note that there is no necessary link between hypothecation and such a body or between hypothecation and funding certainty. Each could exist without the other. There may be reasons to support an independent body to monitor long-run demand pressures, even for those sceptical about the merits of hypothecation.

In April 2017, the House of Lords Select Committee Report on the Long-Term Sustainability of the NHS and Social Care criticised the culture of short-termism in the determination of health and social care spending.²⁰⁰ The report finds that from the Department of Health downwards, those involved in the health and social care system have been absorbed in day-to-day struggles rather than undertaking long-run strategic planning. The report recommends the establishment of an Office for Health and Care Sustainability, which should report to parliament on spending requirements over the next 15–20 years. This body would be entirely separate from the health and social care system and play no role in its operation. It should be independent and able to speak freely within its remit. Its initial focus could include the following:

- monitoring demographic trends and their potential impacts on spending;
- assessing workforce needs and required skill mix;
- monitoring the stability of health and adult social care funding allocations, and how those allocations compare with demand.

The principal aim is to provide independently established benchmarks against which NHS planning and investment decisions could be measured. Almost all areas of the NHS have to make decisions about investments in the equipment they purchase and the staff they employ or train. These investments have pay-offs that extend years into the future. Reducing uncertainty about future levels of funding could therefore make it easier for policymakers to make investment decisions.

²⁰⁰ House of Lords Select Committee on the Long-Term Sustainability of the NHS, *The Long-Term Sustainability of the NHS and Adult Social Care*, Report of Session 2016–17, <https://publications.parliament.uk/pa/ld201617/ldselect/ldnhssus/151/151.pdf>.

One symptom of a lack of long-term planning, identified in the same report, has been the absence of any comprehensive long-term workforce planning until a draft workforce strategy was published in late 2017.²⁰¹ This lack of planning places pressure on NHS providers and represents a significant threat to the long-run sustainability of the NHS. The proposed Office for Health and Care Sustainability would both take a longer-term view and integrate finance planning with workforce planning.

The counter-argument is that this type of long-term planning could and should already be happening. The information could be produced by the Department of Health, NHS England, Pay Review Bodies or other arm's length bodies. In addition, there are many other areas of public spending that have similar issues with short-termism and it would be expensive to establish an independent body for every government department. There is also a case to be made that the level of spending on health is inherently a political decision on which it is possible to reasonably disagree, and so should not be removed from the democratic process. The argument for an independent Office for Health and Care Sustainability is therefore based on the assumptions that: (i) existing bodies do not and cannot have the expertise or right incentives to make independent recommendations on long-term planning; (ii) there are reasons that health needs such a body but other government departments do not; and (iii) the appropriate level of health spending should be determined independently, rather than by democratically elected politicians.

4.6 Alternative proposals for raising revenue for the NHS

Increasing borrowing to enable increased spending

If the government chooses to spend more on health and social care, but neither reduces other areas of spending nor raises additional revenues, it would need to fund that extra spending through borrowing. In order to fully meet the pressures outlined in Chapter 3, this would mean additional borrowing equivalent to 3.0% of GDP in 2033–34 to plug the funding gap.

Government borrowing is far from unusual: the UK has run a budget deficit in 43 of the last 50 years.²⁰² There are numerous economic arguments why governments should borrow at certain times, particularly in response to negative shocks. It certainly would not be desirable to balance the books in every period. There may be a case for borrowing to invest in capital projects, such as new hospitals or medical technology. However, one cannot simply borrow more every year in the face of growing and sustained needs for spending. Borrowing can smooth a transition to a higher spending equilibrium. It cannot be the long-term solution.

User charges

The NHS makes limited use of user charges relative to health systems in comparable countries, and there is generally little public support for increasing charges.²⁰³ Figure 4.15

²⁰¹ Health Education England, *Facing the Facts, Shaping the Future: A Draft Health and Care Workforce Strategy for England to 2027*, 2017, <https://hee.nhs.uk/sites/default/files/documents/Facing%20the%20Facts%2C%20Shaping%20the%20Future%20%E2%80%93%20a%20draft%20health%20and%20care%20workforce%20strategy%20for%20England%20to%202027.pdf>.

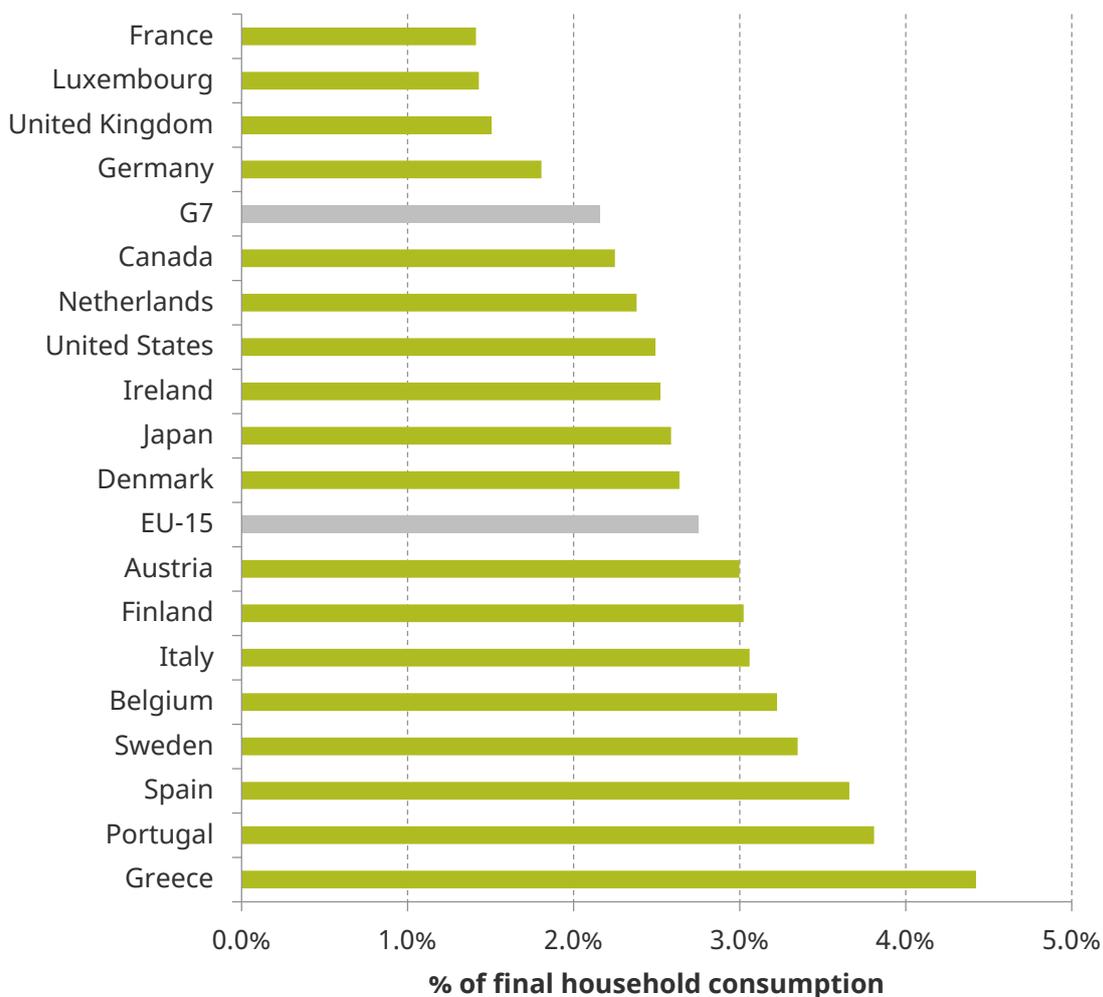
²⁰² Source: Office for Budget Responsibility, Public Finances Databank.

²⁰³ User charges for social care are discussed in Section 4.7.

shows 'out-of-pocket' medical spending as a share of final household consumption in EU-15 and G7 countries. This out-of-pocket spending is defined as expenditure paid directly by private households and does not depend on whether the spending was initiated by a medical profession or the patient. Examples include over-the-counter medicines and any co-payments not covered by insurance. France has the lowest out-of-pocket cost share, at 1.4%. The share in the UK is only slightly higher, at 1.5%, substantially lower than the EU-15 and G7 averages. Greece has the highest share of out-of-pocket spending, at 4.4%.

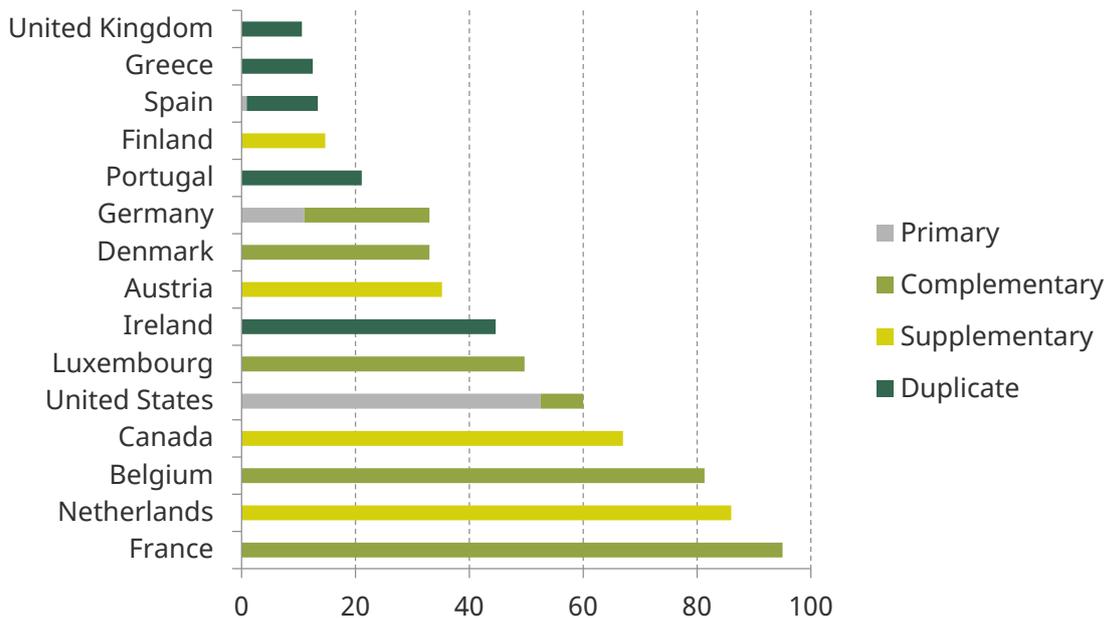
Direct out-of-pocket spending does not, however, fully reflect what individuals in different countries pay for healthcare in addition to taxes or social insurance contributions. In particular, many countries operate systems of private insurance. This may be primary (instead of public insurance), complementary (covering co-payments not covered under public insurance), supplementary (covering services not covered by public insurance) or duplicate (covering the same services as public insurance). Rates of coverage for each type of insurance are shown in Figure 4.16.

Figure 4.15. Out-of-pocket medical spending as a share of final household consumption, EU-15 and G7, 2015 (or nearest year)



Source: OECD Health Statistics 2017, <http://www.oecd.org/els/health-systems/health-data.htm>.

Figure 4.16. Private health insurance coverage by type, 2013 (or nearest year), selected EU-15 and G7 countries



Source: Figure 7.2 of OECD Health Statistics 2015, <http://dx.doi.org/10.1787/888933281052>.

The UK has duplicate insurance rates of around 10% – that is, about 10% of people have private health insurance in addition to the rights they have to NHS treatment. There is no other type of insurance, as there are very few services that the NHS does not cover. By contrast, France, which has a very similar level of out-of-pocket spending to the UK, has almost complete coverage of complementary insurance. Under the French system, social insurance covers 80% of the cost of health services.²⁰⁴ In addition, French people buy separate complementary insurance that covers almost all of the remaining 20%. In countries with high levels of private insurance, the dominant types are either complementary or supplementary. The exceptions are the United States, where just over half have private primary insurance, and Ireland, where more than two-fifths of the population have duplicate insurance.

There are two important points to note from Figures 4.15 and 4.16. First, there is no one-for-one relationship between the type of health system and out-of-pocket spending. Denmark and Sweden, like the UK, have a Beveridge-style model, with healthcare funded through general taxation, but have relatively high out-of-pocket spending. By contrast, France and Germany have much lower out-of-pocket costs than Japan, even though all three operate some form of social insurance model. Second, out-of-pocket spending is only one element of additional individual healthcare spending.

Economic arguments for and against charging

Most health systems in comparable countries make limited use of user charges. As with all goods and services, applying or increasing prices will tend to discourage use. In healthcare, that may raise the following concerns:

²⁰⁴ C. Gastaldi-Ménager, P-Y. Geoffard and G. de Lagasnerie, 'Medical spending in France: concentration, persistence and evolution before death', *Fiscal Studies*, 2016, 37, 499–526, doi:10.1111/j.1475-5890.2016.12107.

- delaying treatment could lead individuals to present later to the health system in a worse state of health, generating higher costs for the individual and the health system;
- delaying or avoiding treatment could have negative impacts on others, through, for example, the spread of infectious diseases;
- it is in some sense inequitable to link access to healthcare to ability to pay.

The low charges in the UK are driven by all three of these concerns. As result, the UK has much lower shares of the population that did not fill or skipped prescriptions, did not visit the doctor and did not get recommended care than in other OECD countries.²⁰⁵ These benefits of low charges must, however, be weighed against the need to raise more money through taxes or social insurance to achieve a given level of healthcare spending and against any benefit from discouraging excessive demand. All taxes also carry costs, by distorting people's decisions to work, invest and save. There may also be some health service use that the health system wishes to discourage through charges, such as overuse of prescribed medication.

In most countries, the health system is organised to ameliorate the potential negative effects of charging by providing exemptions for either groups of individuals or types of treatment. Categories of patients often exempt include the young, the old, those on low income and those with certain health conditions.²⁰⁶

The trade-off with exemptions is that not all individuals in the exempt group would be deterred by charges. The exemptions are therefore a transfer from the health system to these individuals who would otherwise have had to pay, which again must be weighed against the cost of raising revenue from other sources. For example, exempting on the basis of age means that children from high-income families and high-income pensioners, who might not be deterred by a small user charge, do not pay charges.

In addition to exempting particular groups, health systems often exempt certain types of services, such as vaccines and contraception. These are typically services that the health system does not want to discourage, because there are significant spillovers to others from ill health or because the individual may require more costly treatment in the future if left untreated.

Charges in the NHS

There are three main areas where the NHS already charges some groups for the direct provision of healthcare: prescriptions issued in the community (principally by GPs), dentistry and ophthalmology (eye tests and glasses).

England makes the greatest use of charges. The total amount raised and the set of groups that are exempt in England are summarised in Table 4.7.

²⁰⁵ C. Schoen, R. Osborn, D. Squires and M. Doty, 'Access, affordability, and insurance complexity are often worse in the United States compared to 10 other countries', *Health Affairs*, 2013, 32, 2205–15, <https://www.healthaffairs.org/doi/pdf/10.1377/hlthaff.2013.0879>.

²⁰⁶ V. Paris, M. Devaux and L. Wei, 'Health institutional characteristics: a survey of 29 OECD countries', OECD Health Working Paper 50, 2010, <http://dx.doi.org/10.1787/5kmfxfq9qbnr-en>.

Table 4.7. Summary of exemptions from user charges in England

	Prescriptions	Sight tests	NHS optical vouchers	Dentistry
Total cost (£ million)	9,518	300	Not available	2,738
Total charges (£ million)	1,034	-		810
% exempt	89.4	-		48.7
Exemptions:				
Aged 60+	Yes	Yes	No	No
Aged <16	Yes	Yes	Yes	Yes
Aged 16–18 and in full-time education	Yes	Yes	Yes	Yes
Low income / Means-tested benefits	Yes	Yes	Yes	Yes
Health	Yes	Yes	No	No
Maternity / Had a baby in past 12 months	Yes	No	No	Yes

Note: All figures are expressed in 2018–19 prices.

Source:

Prescriptions – NHS Digital, 'Prescriptions dispensed in the community: England 2006 to 2016', 2017, <https://files.digital.nhs.uk/publication/s/o/pres-disp-com-eng-2006-16-rep.pdf>.

Sight tests – NHS Digital, 'General ophthalmic services activity statistics: England, year ending 31 March 2017', 2017, <https://digital.nhs.uk/catalogue/PUB30012>.

Dentistry – NHS Digital, 'NHS dental statistics for England: 2016–17', 2017, <https://digital.nhs.uk/catalogue/PUB30069>.

Prescriptions

Prescriptions are the largest area of activity where user charges apply in England. Prescription charges were introduced in 1952. They were abolished in 1965 by the Wilson Labour government but reintroduced in 1968. Exemptions under the original 1952 charges were very limited (mainly to those on National Assistance, plus dependants). When prescription charges were reintroduced in 1968, exemptions were much more extensive and were defined on the basis of age, income and medical status.

The cost of prescription drugs dispensed in the community in England in 2016–17 was £9.5 billion in 2018–19 prices. However, as 89.4% of prescriptions are free through an extensive list of exemption criteria, only £1.0 billion was recouped through prescription charges. For those who are not exempt, the current charge in 2018–19 is £8.80 per item. Those requiring a high number of prescriptions, but who are not exempt from charges, can insure themselves by purchasing a prescription prepayment certificate (PPC). These

certificates allow an individual to fill as many prescriptions as they need for a set price. The cost of a PPC is £29.10 for 3 months or £104 for 12 months. An individual would be better off buying a PPC than paying on a per prescription basis if they expect to have more than three prescriptions over 3 months or more than twelve prescriptions over 12 months. Approximately half the revenue the NHS in England receives from prescription charges comes from PPCs.²⁰⁷

It is worth noting that hospital prescribing has grown much faster than GP prescribing since 2010–11. In 2010–11, primary care prescribing cost £8.6 billion compared with £4.2 billion by hospitals. By 2016–17, GP prescribing had grown by 3.6% to £9.0 billion, while hospital prescribing had almost doubled to £8.3 billion. Prescriptions dispensed in hospitals are not subject to the prescription charge.²⁰⁸

Prescription charges were abolished in Wales in 2007 and Scotland in 2011 after gradual price reductions, and in Northern Ireland in 2010. England had the lowest prescribing spending per head in 2013, followed by Scotland, Wales and Northern Ireland. However, this is similar to the pattern in 2006, before prescription charges in Wales, Scotland and Northern Ireland had been removed.²⁰⁹

Dental

User charges recoup 30% of total NHS community dental costs in England (outside hospital). The major difference from prescription charges is that the over-60s are not exempt. Those who are not exempt can choose either to see an NHS dentist and pay a user charge based on the treatment they receive or to see a private dentist.

The other countries of the UK also continue to charge for dentistry in some form. Northern Ireland charges on the same basis as England. Wales offers free dental checks for the under-25s and over-60s, but patients must pay for treatment. In Scotland, patients must pay for 80% of dental charges up to a total of £384 for a course of treatment.

Ophthalmology

Ophthalmology is the smallest area where user charges apply. Free universal eye tests were abolished in 1988.²¹⁰ Patients are seen by private ophthalmologists but their eye tests are paid for if they meet the exemption criteria. The over-60s had to pay for eye tests until 1 April 1999. Some individuals are also eligible for a voucher to help purchase their glasses or contact lenses. Notably, the over-60s are not eligible for NHS vouchers for glasses, although they are eligible for a free eye test.

Charges for eye tests and glasses are similar across the countries of the UK. The exception is in Scotland, where those aged 16–59 are entitled to a free eye test every two years. Groups exempt from paying for eye tests in the other countries of the UK are eligible for a free one every year.

²⁰⁷ <https://files.digital.nhs.uk/publication/s/o/pres-disp-com-eng-2006-16-rep.pdf>.

²⁰⁸ <https://digital.nhs.uk/catalogue/PUB30152>.

²⁰⁹ <https://www.nuffieldtrust.org.uk/chart/annual-prescribing-spend-per-person-in-the-uk>.

²¹⁰ <https://publications.parliament.uk/pa/cm200506/cmselect/cmhealth/815/81506.htm#n84>.

Could more money be raised through user charges?

Additional funding could be raised by expanding the scope of user charges to more services, increasing the level of existing user charges or reducing exemptions. In each case, the additional revenue that could be raised must be weighed against the possible negative impacts of the charges on patients and the health system. Even if the revenue from increased charges did exceed the costs, there is likely to be considerable political resistance.

As noted by the Barker Commission, the current prescription charge is already relatively high compared with other countries, and there would be a concern that large increases might deter more people from filling their prescriptions.²¹¹ There has been a reduction in the real value of payments to dentists and ophthalmologists for treating NHS patients. Again, the revenue from increased costs must be weighed against the potential impacts of discouraging use.

There has been widespread agreement for at least a decade that the current system of health exemptions needs reform,²¹² particularly in the case of prescription charges.

Table 4.8 shows the breakdown of prescriptions in England by exemption category for the years 2012 to 2016. Three-fifths of prescriptions are dispensed free of charge because the

Table 4.8. Percentage of items that were charged for or dispensed free, by exemption category (2016–17 prices)

	2012	2013	2014	2015	2016
Charged	9.4	9.3	9.4	9.7	10.0
Age 60+	58.3	59.5	60.0	60.4	61.0
Young	5.3	4.7	4.7	4.5	4.4
Maternity/Medical	8.0	8.1	8.1	8.1	8.2
NHS LIS	11.4	11.7	11.7	11.9	11.8
Contraceptives	0.8	0.6	0.6	0.5	0.5
Personally administered	1.9	1.8	1.8	1.7	1.7
Other	4.1	3.5	3.1	2.4	1.7
Not captured	0.8	0.7	0.7	0.6	0.7

Source:

2012 to 2015 – page 97 of 'Prescriptions dispensed in the community, statistics for England – 2005–2015: report', <http://www.content.digital.nhs.uk/pubs/presdisp0515>.

2016 data – page 25 of 'Prescriptions dispensed in the community, statistics for England – 2006–2016: report', <http://digital.nhs.uk/pubs/presdisp0616>.

²¹¹ *A New Settlement for Health and Social Care*, Final Report of the Commission on the Future of Health and Social Care in England, 2014, <https://www.kingsfund.org.uk/publications/new-settlement-health-and-social-care>.

²¹² I. Gilmore, *Prescription Charges Review: Implementing Exemption from Prescription Charges for People with Long Term Conditions*, 2009, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213884/dh_116367.pdf;

A New Settlement for Health and Social Care, Final Report of the Commission on the Future of Health and Social Care in England, 2014, <https://www.kingsfund.org.uk/publications/new-settlement-health-and-social-care>.

individual is over 60. This share has increased slightly over the past five years, from 58.3% in 2012 to 61.0% in 2016. The total net ingredient cost for prescription drugs for this group was £4.8 billion in 2016,²¹³ which is equivalent to more than half of total payments to GPs in 2016–17 (£8.9 billion).²¹⁴ The next largest group is the NHS low income scheme (LIS), which covers just under 12% of prescriptions; 8% of prescriptions are exempt for medical or maternity reasons. The young (those under 16 or under 18 and in full-time education) account for a further 4.5%. Given these shares, any changes that reduced exemptions for groups other than the over-60s are unlikely to raise large sums of money.

There is a similar pattern for NHS eye tests. A total of 48.2% of free NHS eye tests were accounted for by those aged 60 and over in 2016–17, an increase from 44.4% in 2012–13.²¹⁵

It is notable that entitlements for most other financial and in-kind benefits have increased in line with the female state pension age, yet an individual becomes eligible for free prescriptions and eye tests once they turn 60. Retaining exemptions for 60- to 64-year-olds who do not qualify under health or low-income grounds seems hard to justify, given other NHS priorities.

Reform of the health criteria for exemption appears to be long overdue, although this is unlikely to raise any additional funds. With the exception of the introduction of exemption for cancer patients in 2009, the list of qualifying health conditions remains that drawn up in the mid 1960s.²¹⁶ The difficulty has been to develop criteria that are inclusive enough to take account of a long and ever-changing list of rare conditions, but not so broad that the definition is hard to interpret or could lead to large unwarranted variation in eligibility across regions and GPs.

The Barker Commission in 2014 recommended significantly reducing exemptions, but substantially reducing the prescription charge payment to £2.50.²¹⁷ This could be combined with a cap, based on the current annual prepayment certificate cost of £104. It is hard to estimate exactly how much this would raise, due to the lack of patient-level data on prescriptions, but the Barker Commission estimates that it would raise an additional £1 billion per year. Many Scandinavian countries operate a cap-based system, where there are few exemptions but individual payments are limited. For example, in Sweden, the annual cap in 2016 was just under £200 per adult and there was a cap of £200 for all children in the same family.²¹⁸

Raising money from the NHS estates

NHS provider trusts currently occupy over 1,200 sites, with a total gross internal area of 26 million square metres.²¹⁹ NHS estates therefore hold a huge capital value. At the same

²¹³ Table 8 of NHS Digital, 'Prescriptions dispensed in the community, statistics for England – 2006–2016: report', 2017, <http://digital.nhs.uk/pubs/presdisp0616>.

²¹⁴ <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-payments-to-general-practice/nhs-payments-to-general-practice-england-2016-17>.

²¹⁵ <https://digital.nhs.uk/catalogue/PUB30012>.

²¹⁶ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/213884/dh_116367.pdf.

²¹⁷ *A New Settlement for Health and Social Care*, Final Report of the Commission on the Future of Health and Social Care in England, 2014, <https://www.kingsfund.org.uk/publications/new-settlement-health-and-social-care>.

²¹⁸ https://ec.europa.eu/info/sites/info/files/file_import/joint-report_se_en_2.pdf.

²¹⁹ Deloitte, 'Naylor Review: data analysis', 2016, <https://www.gov.uk/government/publications/nhs-property-and-estates-naylor-review>.

time, a significant proportion of the estate is not fit for purpose, or is in need of upgrading. In 2016–17, there was an estimated backlog in maintenance (i.e. work that should already have taken place) of £5.7 billion in 2018–19 prices, an increase of 9.1% on 2015–16, on the back of a 13.9% increase between 2014–15 and 2015–16.²²⁰ In addition, new models of care set out in the five-year forward view²²¹ are likely to require £5 billion of capital investment. These capital requirements led the Department of Health commissioner Sir Robert Naylor to develop a new estates strategy that would allow some of this required investment to be paid for by the disposal of existing estate.

As part of his review, Naylor was asked to identify £2 billion of assets that could be released for reinvestment and to provide land for 26,000 new homes. Naylor recommended that an NHS Property Board should be established to support the delivery of Sustainability and Transformation Plans (STPs) and subsequent healthcare plans. The report identified gross risk-adjusted capital receipts of £2.7 billion from inefficiently used estate, with the potential for more given favourable planning permissions. Effective disposal of a small number of high-value assets in London could see this total rise significantly. It is important to recognise that all of these funds are one-off and therefore more suitable for funding the current need for capital investment rather than for supporting ongoing NHS spending. However, Naylor did also find that disposals could deliver ongoing annual revenue savings of £500 million per year.

Changes in models of care delivery over the coming years and decades, driven by medical advances and patient preferences as well as cost, will necessitate changes in the estate and facilities that the NHS needs. Disposing of property assets that are not suitable or required to deliver healthcare now or in the coming decade seems like one way of funding these reforms. However, it should be noted that the largest stream of revenue would be the one-off proceeds from disposal. The ongoing funding stream would be relatively small.

Recovering costs from visitors and migrants

Eligibility for free NHS care is based on normal residency rather than citizenship. The first legislation to introduce a statutory obligation for the NHS to charge visitors was introduced in 1977 and implemented in 1982. However, efforts to enforce these charges were limited until the early 2000s. Charges only apply to secondary care (hospital) services. There is no charge for primary care services, accident and emergency, family planning, testing and treatment for sexually transmitted diseases, treatment for physical and mental conditions caused by torture and sexual violence, and compulsory psychiatric services.

A review in 2013 suggested that in 2012–13 the NHS charged 65% of the potential amount for those outside the EEA and Switzerland (EEA&S), but only 16% of potential charges for

²²⁰ <https://digital.nhs.uk/catalogue/PUB30096>;
R. Naylor, *NHS Property and Estates: Why the Estate Matters for Patients*, 2017,
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/607725/Naylor_review.pdf.

²²¹ NHS, *Five Year Forward View*, 2014, <https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf>.

EEA&S. In total, the NHS charged for just £89 million of the £367 million that could have been charged. Of this, £73 million was recovered.²²²

An overseas visitor and migrant cost recovery programme was launched in England in July 2014, with the aim of increasing cost recovery from £73 million in 2012–13 to £500 million a year by 2017–18. Measures have included the following:

- *Introducing an immigration health surcharge for non-EEA&S temporary migrants of £200 per year, or £150 for students and those applying under the youth mobility scheme.* In the first year of the surcharge (2015–16), the National Audit Office estimated it would raise an additional £164 million.²²³ In February 2018, it was announced that the health surcharge would rise to £400 per year (£300 for students) regardless of service use.
- *Financial incentives for trusts to recover costs.* Since October 2014, the European Health Insurance Card (EHIC) incentive scheme has provided an additional 25% on top of basic tariffs when costs were recovered on treatment for EEA&S citizens.²²⁴ This was in order to compensate for the additional administrative costs. Since April 2015, trusts have been able to charge non-EEA&S migrants 150% of the standard tariff.²²⁵
- *Obligations to charge.* Since October 2017, providers must recover an estimate of the charges for care in advance, although this must not delay any urgent treatment. The obligation to charge patients was also extended to non-NHS providers. Payments for non-residents were also introduced for NHS 111 telephone advice services and palliative care services provided by charities or community interest groups.

Debts can be written off if recovery proves impossible because, for example, the patient has died and it is not possible to recover the charges from their estate, the patient has no assets, or reasonable steps have been made to recover the charges.

There is considerable variation in the amounts recovered from individual trusts. In 2015–16, 10 of the 154 trusts accounted for half of the revenue. Only around half of the differences in rates of charging can be explained by the size of the trust, the type of trust and the geographical location.²²⁶

There has been an increase in the revenue raised for the healthcare of overseas visitors. However, most of that increase has come from changes in the charging rules and, in particular, the health surcharge, which is a fixed charge not related to actual healthcare

²²² National Audit Office, *Recovering the Cost of NHS Treatment for Overseas Visitors*, Report by the Comptroller and Auditor General, Session 2016–17, HC 728, 2016; as cited in House of Commons Committee of Public Accounts, *NHS Treatment for Overseas Patients*, 37th Report of Session 2016–17, HC 771, <https://publications.parliament.uk/pa/cm201617/cmselect/cmpublicacc/771/771.pdf>.

²²³ National Audit Office, *Recovering the Cost of NHS Treatment for Overseas Visitors*, Report by the Comptroller and Auditor General, Session 2016–17, HC 728, 2016, <https://www.nao.org.uk/wp-content/uploads/2016/10/Recovering-the-cost-of-NHS-treatment-for-overseas-visitors.pdf>.

²²⁴ Department of Health, *EHIC Incentive Scheme: Frequently Asked Questions*, 2014, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/634847/FAQs_EEA_Incentives.pdf.

²²⁵ NHS England, *Improving Systems for Cost Recovery for Overseas Visitors: Interim Guidance*, May 2015, <https://www.england.nhs.uk/wp-content/uploads/2015/05/guidance-chargeable-overseas-visitor.pdf>.

²²⁶ Paragraphs 2.17 and 2.19 of National Audit Office, *Recovering the Cost of NHS Treatment for Overseas Visitors*, 28 October 2016, HC 728, 2016–17.

use. There has been less success in increasing revenue through improvements in how trusts implement existing regulations.

There are clear benefits to improving cost recovery, at least up to the level of other European countries. However, it should be noted that potential revenue is small relative to the total funding gap. The current government target is to raise £500 million.

Other UK countries

The other three countries in the UK have not increased charges in the same way as in England. In Scotland, non-EEA&S residents are exempt from NHS charges as soon as they commence employment or self-employment, or if they are enrolled in a full-time university course. Charges apply to non-EEA&S visitors who are staying for a short period or are not in education or employment.²²⁷ In Wales and Northern Ireland, non-EEA&S patients are exempt from charges if they have been living legally in the UK for 12 months.²²⁸

4.7 The social care challenge

There are considerable spending pressures on both the NHS and social care, and the discussion in previous sections applies to revenue that the government might wish to raise for either service. However, the two systems are organised very differently and there are a number of concerns specific to social care funding that are the focus of this section.

Why is social care different?

There are two key reasons why social care funding requires additional consideration beyond the wider question of how to raise more money.

Social care is a local, not a national, responsibility

There is no England-wide budget allocated to social care. Conditional on meeting their statutory requirements, local authorities can decide how much of their revenues to spend on adult social care services. Simply increasing the grants paid to LAs would not guarantee extra spending on social care: LAs are also responsible for providing other services, such as rubbish collection, road maintenance and local libraries. Given that social care has been relatively protected by local authorities until now,²²⁹ any extra money might instead be used to reverse previous cuts to those other services. Even if the government sought to fund additional spending on adult social care services through *ring-fenced* grants, councils could implicitly use the money to fund other services by reducing the amount of their own revenue allocated to social care.

Additionally, previous IFS research has noted the tension between the government's desire to ensure consistent standards of social care in England and the government's

²²⁷ http://www.sehd.scot.nhs.uk/mels/CEL2010_09.pdf.

²²⁸ <http://gov.wales/docs/dhss/publications/091209overseasguidanceversion6en.pdf>;
<https://www.lawcentreni.org/component/content/article/63-policy-briefings/865-refused-asylum-seekers-and-access-to-free-secondary-healthcare.html>.

²²⁹ Public spending on adult social care in England fell by 6% in real terms between 2009–10 and 2016–17, while total service spending by LAs fell by 18% over the same period. Source: N. Amin-Smith, D. Phillips and P. Simpson, 'Adult social care funding: a local or national responsibility?', IFS Briefing Note BN227, 2018, <https://www.ifs.org.uk/publications/12857>.

wider policy on local government finance.²³⁰ A shift towards a model where LAs depend on local tax revenues (such as council tax revenues and retained business rates) for the vast majority of their funding risks a situation where revenues from those taxes do not keep pace with rising pressures on adult social care services.²³¹ This would be particularly concerning in poorer areas with typically higher needs and less ability to raise revenues.²³² And this could make it difficult to achieve consistent national minimum standards.

An alternative would be to fully centralise the funding of adult social care and allocate spending across the country according to the assessed level of need. This would not be painless, however, and would raise a number of new challenges – not least for the government’s devolution agenda. By design, local authorities currently have discretion over not just spending levels, but also (to a degree) the generosity of the means test, the level of co-payments charged to care recipients and the quality of care provided to those who are eligible. This, coupled with variation in the care needs of the local population and in local authority revenues, means that there is considerable variation in social care spending across different areas.²³³ Moving from this to a national funding arrangement with national standards would be complicated, with a whole host of other issues that are not discussed here but that would require careful consideration.

Unlike the NHS, social care is not universally free at the point of use

The NHS provides healthcare free at the point of use to everyone regardless of their income or wealth. In contrast, under the current social care system, public funding is targeted at the most vulnerable individuals with the greatest level of need and limited financial means. People of sufficient financial means are expected to contribute towards the costs of their social care, with no lifetime cap on the costs they can face.²³⁴ Because they have to pay for one but not the other, there is an incentive for people to (where possible) use more healthcare and less social care. Policymakers thinking about social care funding must consider not just the overall level of public spending, but also who qualifies for public support, how much those that do not qualify are expected to pay, and what impact this will have on the health service.

Issues in designing a social care funding system

Discussion so far in this section has focused on funding within the existing system. The relatively severe means test (in terms of both income and assets) in the current system

²³⁰ N. Amin-Smith, D. Phillips and P. Simpson, ‘Adult social care funding: a local or national responsibility?’, IFS Briefing Note BN227, 2018, <https://www.ifs.org.uk/publications/12857>.

²³¹ For example, since 2010, the business rates tax base has grown by just 0.3% a year (ibid.), while the projections outlined in Chapter 3 suggest that spending on adult social care will need to grow by more than 3.7% per year up to 2033–34.

²³² In poorer regions, a greater proportion of care home residents qualify for local authority support: in 2017, 21.9% of care home residents in the North East were self-funders (with the remainder receiving LA support), compared with 61.9% in the South East. Source: Cited by T. Jarrett, ‘Social care: care home market – structure, issues, and cross-subsidisation (England)’, House of Commons Library, Briefing Paper CBP-8003, 2018, <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-8003>.

²³³ For instance, in 2015–16, 10% of LAs in England spent less than £325 per adult resident, while 10% spent more than £445 per adult resident (in 2016–17 prices). Source: D. Phillips and P. Simpson, *National Standards, Local Risks: The Geography of Local Authority Funded Social Care, 2009–10 to 2015–16*, IFS Report R128, 2017, <https://www.ifs.org.uk/publications/9122>.

²³⁴ The exception to this is if individuals are covered by NHS Continuing Healthcare, which provides both health and social care free at the point of use to individuals with long-term complex health needs and is not means tested.

keeps public costs down by shifting more of the burden from the state onto individuals who receive social care. If the government's priority is to minimise costs to the public purse over the coming years, it might wish to keep the existing system in place. The estimates of future public spending on social care set out in Chapter 3 assume this to be the case.

However, there is a case for reform and an important debate to be had on the design of the social care funding system. It is not just a case of finding more tax revenue, but also a question of how funding should be structured. Over the past 20 years, there have been numerous in-depth reviews of the issue of how people should pay for social care.²³⁵ A range of possible policy reforms have been floated, but none of the reviews has led to fundamental reform.²³⁶ The government has committed to the publication of a Green Paper on the future of social care for older people in England, due to be published in the summer of 2018. The Welsh government is considering introducing a 'social care levy', which would involve additional tax contributions into a dedicated fund for social care.²³⁷ In Scotland, the government is committed to the integration of health and social care.²³⁸ Assessing the relative merits of different approaches to social care funding and making specific recommendations is beyond the scope of this report.²³⁹ Here, we outline some of the key issues that must be addressed in the design of any social care funding system.

Insurance

For those who do not qualify for public support, there is no limit on the lifetime costs they can face.²⁴⁰ The Dilnot Commission estimated in 2011 that around one in 10 people, at age 65, face future lifetime care costs of more than £100,000, with considerably higher costs for younger adults with care needs.²⁴¹ It is impossible to tell who will end up with a long-term care need in old age and the potential costs are extremely high. Many people would like to be able to insure themselves against that risk. However, the market for long-term care insurance (LTCI) is limited in nature. Providers worry that uptake of LTCI will be highest amongst those most at risk of developing a care need (for instance, someone with a family history of motor neurone disease) and respond by raising premiums. At those higher premiums, only high-risk individuals want to buy LTCI and, as a result, few people

²³⁵ For a more detailed chronological discussion, see T. Jarrett, 2017, 'Social care: government reviews and policy proposals for paying for care since 1997 (England)', House of Commons Library Briefing Paper CBP-8000, <http://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-8000>.

²³⁶ The exception is the introduction of free personal care in Scotland in 2002 following the recommendations of the Royal Commission chaired by Sir Stuart Sutherland, which published its report in March 1999. The Labour government rejected the proposals.

²³⁷ <http://gov.wales/funding/fiscal-reform/welsh-taxes/developing-new-taxes/?lang=en>.

²³⁸ <http://www.gov.scot/Topics/Health/Policy/2020-Vision>.

²³⁹ For an excellent discussion, see L. Wenzel, L. Bennett, S. Bottery, R. Murray and B. Sahib, 'Approaches to social care funding', Health Foundation Working Paper 2, 2018, <https://www.health.org.uk/publication/approaches-social-care-funding>.

²⁴⁰ There is a limit in the sense that once an individual's assets fall below the lower means test (currently £14,250 in England), they are entitled to full local authority support. However, they are still expected to contribute out of their income, and an individual in residential care with no dependants could have to sell their home before reaching this point.

²⁴¹ *Fairer Care Funding*, Report of the Commission on Funding of Care and Support, 2011, <http://webarchive.nationalarchives.gov.uk/20130221121529/www.wp.dh.gov.uk/carecommission/files/2011/07/Fairer-Care-Funding-Report.pdf>.

end up covered. This is a case of what economists refer to as ‘adverse selection’.²⁴² There is therefore a case for the state to step in to correct the market failure by pooling risks and insuring people against the catastrophic costs against which they are unable to insure themselves. The NHS provides insurance in the case of healthcare, but the state fails to fulfil this role under the existing social care system.

Potential for spillovers

Inadequate provision of social care is likely to have consequences for other public services. For instance, there may be negative spillovers to the health service if individuals with an unmet care need instead make greater use of public hospitals or primary care. Lack of availability of long-term care packages can make it more difficult for older people to be discharged from hospital back into the community, meaning they occupy hospital beds for longer.

In the absence of publicly funded formal care, informal carers will in many cases have to fill the gap. These carers may have to scale back their hours of work, or leave the labour force entirely, in order to care for their loved one. This can have a cost to the carer themselves, as well as to the wider economy through lost tax revenue and productive capacity.

The design of a social care funding system should take into account the potential for these spillover effects and in particular how the social care system interacts with the NHS.

Informational issues

Many people (understandably) experience difficulty in understanding and planning for low-probability events with extremely high potential costs – such as a severe social care requirement in old age. In addition, there may be widespread misunderstanding of the extent and generosity of publicly funded social care provision. For instance, people might wrongly assume that publicly funded social care functions much like publicly funded healthcare in the UK.²⁴³ This leads to people not planning and preparing for their care needs.

The onset of a care and support need often comes as a shock and many people who require social care do so because of limitations arising from mental disabilities or illness. Important decisions with repercussions for both the recipient and their family often have to be made quickly at a time of distress and vulnerability. Issues arising from these informational problems could be mitigated through a clear, well-understood public social care system that provides support to help people make an informed choice.

Fairness

If the proposals in the Green Paper are to avoid being added to the ever-growing pile of abandoned social care reforms, it is essential that the new system is perceived by the public as being ‘fair’. Of course, there are many facets to fairness. Many people believe that it is unjust for the poor to be denied healthcare because they are unable to afford it;

²⁴² For discussion of the issues facing a market for long-term care insurance, see J. Brown and A. Finkelstein, ‘Why is the market for long-term care insurance so small?’, *Journal of Public Economics*, 2007, 91, 1967–91 (http://users.nber.org/~afinkels/papers/Brown_Finkelstein_Small_Feb07.pdf).

²⁴³ The Dilnot Commission noted that ‘many believe they will receive free care in later life and are often shocked when they discover the scale of their financial liabilities at the point that they, or a family member, need care’.

this argument could just as easily apply to social care. Social care could be provided free at the point of use to all. Or some might regard it as fairer if people are expected to contribute towards the cost of their care if they can afford to do so. But this creates inequalities between those who have saved for old age and those who have spent all their income earlier in life, who could have had exactly the same resources over their lifetimes. If care is to be means-tested, should individuals be expected to sell their homes to cover the costs of their care or should housing wealth be exempt from the capital means test? What if the house is lying empty? Decisions must be made on how much financial responsibility lies with the individual and the state, and to what extent people's assets should be protected from the cost of care.

Perceived unfairness can also exist across people with similar levels of income and wealth. The Barker Commission noted that in the UK, with free universal health care, 'people with conditions that can involve very similar burdens, both for themselves and their families – cancer and dementia, for example – end up making very different contributions to the cost of their care'.²⁴⁴ Any proposal is unlikely to last long if a majority of the public – or MPs – deem it to be inequitable.

The cost of reform

The current system leaves many individuals responsible for meeting the costs of their social care. Reforms to the system that move from the individual to the state as funder are likely to increase the costs to the public purse. Recent Health Foundation analysis estimated that introducing a 'Cap and Floor' framework which limits lifetime social care costs and adjusts the means test (similar to the Conservative Party proposal at the 2017 general election) would cost an additional £6.7 billion per year by 2033–34. Introducing Free Personal Care (i.e. extending the Scottish model to the rest of the UK) would increase spending by an estimated £9.1 billion in the same year.²⁴⁵ There may be a strong case for the state to take the role of insurer, both for economic reasons and in response to political pressure and a widespread sense of unfairness. But the extra money will need to come from somewhere and will require more difficult choices to be made going forward.

4.8 Conclusion

There is vigorous debate about the current state of the NHS and social care systems, and how much more money will be needed going forward. Chapter 3 of this report provides estimates of how much it would cost to meet funding pressures over the next 15 years. These costs are substantial. Under the modernised NHS scenario, meeting the rise in estimated costs would amount to an additional 3.0% of GDP by 2033–34, or £64 billion in today's terms. Simply maintaining the status quo would also require significantly more funding for the NHS, of an additional 2.0% of GDP by 2033–34, or the equivalent of £42 billion today. Neither of these scenarios incorporates any increase in the generosity of the social care offer.

²⁴⁴ *A New Settlement for Health and Social Care*, Interim Report of the Commission on the Future of Health and Social Care in England, 2014, https://www.kingsfund.org.uk/sites/default/files/field/field_publication_file/commission-interim-new-settlement-health-social-care-apr2014.pdf.

²⁴⁵ Data from T. Watt, M. Varrow, A. Roberts and A. Charlesworth, *Social Care Funding Options: How Much and Where From?* Health Foundation and King's Fund, 2018, <https://www.health.org.uk/sites/health/files/Social-care-funding-options-May-2018.pdf>.

The scale of the funding gap, on the back of almost a decade of austerity, means that finding a large share of the required additional money through cuts to other areas of public spending would pose considerable challenges. A significant share of the welfare budget is accounted for by the state pension, which is subject to similar pressures to health and social care. It would be hard to achieve cuts from other government departments without experiencing deteriorations in the quality of or access to other public services, such as education and law and order.

Recent surveys of public opinion suggest that the public are now prepared to pay more tax to fund NHS spending. Whether they would tolerate the level of increases required to meet the funding gap, particularly under the 'modernised' scenario, is less clear. Meeting the pressures under this scenario over the next five years alone would require an additional 6.5p in the pound on income tax or an additional 5p in the pound on VAT, for example. Reversing some of the tax cuts made since 2010, such as the reduction in corporation tax and the increase in the personal allowance, could raise significant sums.

It is important to note that although the implied tax rises are large, the resulting increase in tax levels would still leave the UK with a relatively low tax burden relative to comparable European countries. Even if taxes were increased to fund health and social care under the modernised scenario, tax as a share of GDP would still be lower than it is today in France, Germany, the Netherlands and Scandinavia. However, the UK does spend a higher share of tax revenue on health and social care than these countries. Devoting additional tax revenue to health and social care would increase this share still further.

The UK has low out-of-pocket charges for healthcare. This is a public and political decision about how healthcare should be accessed and paid for, which sees no signs of changing. Low out-of-pocket cost has advantages in terms of fewer individuals choosing not to seek or receive treatment on grounds of cost and in terms of lower administration costs. However, it also means that, for a given level of health spending, more needs to be raised in taxes, which also carries costs. While large-scale change to charges in the NHS seems unlikely, there are good reasons to review and rationalise current exemptions criteria. For example, it seems hard to justify exempting those aged 60–64 from NHS charges when no other state benefits are paid until 65.

The government is already raising or seeking to raise small sums of money from recouping charges from non-residents and selling certain pieces of NHS estate. These reforms and proposals could play a part in raising more funding for the NHS, but that role will be small.

The scale of the funding pressures on the NHS and social care over the next 15 years means that this and future governments have hard choices to make about the services the NHS and social care should offer and how these should be paid for. Choosing not to meet the funding pressures is likely to lead to further deteriorations in the quality of services available. By contrast, meeting the pressures means finding substantially more public money. Achieving this by cutting spending on other public services looks difficult and is likely to be very unpopular. This means that tax rises are likely to play an important role.